
# 2014–2015 Idaho *watt*smart Business Program Evaluation

February 3, 2017

**Rocky Mountain Power**
**1407 West North Temple**
**Salt Lake City, UT 84116**

ADM
ENERGY RESEARCH AND EVALUATION

The Cadmus Group, Inc.
An Employee-Owned Company • www.cadmusgroup.com

This page left blank.

CADMUS

**Prepared by:**
Danielle Kolp
Bitsy Broughton
Ryan Hughes
Andrew Carollo
Byron Boyle
Steve Cofer
**Cadmus**

Adam Thomas
Sung Park
**ADM Associates**

**VuPoint Research**

This page left blank.

CADMUS

## Table of Contents

CADMUS

# Glossary of Terms

**Demand Side Management Central (DSMC)**

DSMC is Rocky Mountain Power's project management and reporting database. The DSMC provides project management tools, validation check on each project, and a data warehouse with reporting capability.

**Evaluated Gross Savings**

Evaluated gross savings represent the total program savings, based on the validated savings and installations, before adjusting for behavioral effects such as freeridership or spillover. They are most often calculated for a given measure 'i' as:

$$Evaluated\ Gross\ Savings_i = Verified\ Installations_i * Unit\ Consumption_i$$

**Evaluated Net Savings**

Evaluated net savings are the program savings net of what would have occurred in the program's absence. These savings are the observed impacts attributable to the program. Net savings are calculated as the product of evaluated gross savings and net-to-gross (NTG) ratio:

$$Net\ Savings = Evaluated\ Gross\ Savings * NTG$$

**Freeridership**

Freeridership in energy efficiency programs is participants who would have adopted the energy-efficient measure in the program's absence. This is often expressed as the freeridership rate, or the proportion of evaluated gross savings that can be classified as freeridership.

**Gross Realization Rate**

This is the ratio of evaluated gross savings to the savings reported (or claimed) by the program administrator.

**In-Service Rate (ISR)**

The ISR (also called the installation rate) is the proportion of incented measures actually installed.

**Net-to-Gross (NTG)**

The NTG ratio is the ratio of net savings to evaluated gross savings:

$$NTG = (1 - Freeridership\ Rate) + Spillover\ Rate$$

**Spillover**

Spillover is the adoption of an energy efficiency measure induced by the program's presence, but not directly funded by the program. As with freeridership, this is expressed as a fraction of evaluated gross savings (or the spillover rate).

**T-Test**

In regression analysis, a t-test is applied to determine whether the estimated coefficient differs significantly from zero. A t-test with a p-value less than 0.10 indicates that there is a 90% probability that the estimated coefficient is different from zero.

**Technical Resource Library (TRL)**

The TRL is the official database repository of measure definitions which is linked to DSMC.

**Trade Ally**

For the purposes of the process evaluation, trade allies include any market actors who provide design services, as well as contractors, distributors, manufacturers, and vendors who provide facility evaluations and/or supply or install energy-efficient measures incentivized through the program.

**Verification Engineer**

Verification engineers are third parties hired to verify project savings.

# Executive Summary

Through its ***watt***smart® Business Program, Rocky Mountain Power (RMP) offers incentives to commercial, industrial, and agricultural customers to facilitate their purchases of energy-efficient products and services through midstream (distributors/suppliers) and downstream (customer) incentive mechanisms. During the 2014 and 2015 program years, the ***watt***smart Business Program reported gross electricity savings of 13,395,922 kWh in Idaho.

RMP contracted with the Cadmus team (comprised of The Cadmus Group, ADM Associates, and VuPoint Research) to conduct impact and process evaluations of the Idaho ***watt***smart Business Program for program years 2014 and 2015. Cadmus subcontracted a portion of the impact evaluation to ADM Associates, and VuPoint Research performed the telephone surveys. For the impact evaluation, we assessed gross and net energy impacts and program cost-effectiveness. For the process evaluation, we assessed program delivery and efficacy, bottlenecks, barriers, and opportunities for improvements. The Cadmus team evaluated downstream offerings, encompassing energy efficiency measures and services in three delivery channels:

- ***Typical Upgrades (also known as Prescriptive Measures):*** RMP provided customers with prescriptive incentives for lighting, HVAC, compressed air, motors and variable frequency drives (VFDs), green motor rewinds, building envelope, food service, appliances, office, farm and dairy, wastewater, and refrigeration equipment and measures.
- ***Small Business Lighting (SBL):*** RMP provided a free facility assessment and incentives for small business customers who made upgrades such as T5 and T8 fluorescent lamps and ballasts, lighting controls and LED exit signs, or existing interior lighting systems. SBL is delivered through a network of program-approved trade allies. Beginning in December 2016 RMP restructured the SBL offering to become the Small Business Direct Install (SBDI) offering for retrofit. RMP will offer SBDI to a list of geo-targeted customers annually.
- ***Custom Analysis:*** RMP provided customer incentives for first-year energy savings resulting from specialized, preapproved, capital equipment upgrades that were not covered by the Typical Upgrades incentives.

## *Key Findings*

### Key Impact Evaluation Findings

For the impact evaluation, the Cadmus team analyzed 77 projects that contributed 42% of the 2014 and 2015 program savings. Table 1 provides a summary of the evaluation findings, including unique projects, gross savings, net savings, and precision. Overall, the gross realization rate was 103.5% for the two program years, though there was variability between measure categories. The Cadmus team calculated net-to-gross (NTG) as 82%, yielding evaluated net savings of 11,365,135 kWh. Overall, the impact evaluation achieved ±8.7% precision with 90% confidence. Specific details and findings per strata are described in the Evaluated Gross Savings Results by Measure Category.

Table 1. 2014 and 2015 *watt*smart Business Program Savings*

| Strata | Unique Projects | Reported Gross Savings (kWh) | Evaluated Gross Savings (kWh) | Gross Realization Rate | Precision ** | NTG | Evaluated Net Savings (kWh) |
|---|---|---|---|---|---|---|---|
| Lighting | 385 | 6,498,658 | 6,332,928 | 97% | ±7.9% | | 5,193,001 |
| HVAC | 9 | 192,257 | 192,033 | 100% | ±0.4% | | 157,467 |
| Refrigeration | 6 | 689,383 | 674,372 | 98% | N/A | | 552,985 |
| Motor Systems | 34 | 2,337,013 | 2,951,452 | 126% | ±18.4% | 82% | 2,420,191 |
| Compressed Air | 2 | 51,635 | 55,173 | 107% | N/A | | 45,242 |
| Agricultural | 82 | 3,304,850 | 3,523,768 | 107% | ±22.7% | | 2,889,490 |
| Other | 89 | 322,126 | 130,194 | 40% | ±87.5% | | 106,759 |
| **Total** | **607** | **13,395,922** | **13,859,921** | **103.5%** | **±8.7%** | **82%** | **11,365,135** |

* Totals in tables may not add exactly due to rounding.

** Measure category precision is based on 80% confidence. Portfolio precision is based on 90% confidence.

Table 2 and Table 3 show impact evaluation findings by program year, for 2014 and 2015, respectively. The evaluation combined the 2014 and 2015 program years to perform the analysis, and therefore the realization rates achieved overall are applied to each year.

Table 2. 2014 *watt*smart Business Program Savings*

| Strata | Unique Projects | Reported Gross Savings (kWh) | Evaluated Gross Savings (kWh) | Gross Realization Rate | NTG | Evaluated Net Savings (kWh) |
|---|---|---|---|---|---|---|
| Lighting | 107 | 2,160,223 | 2,105,133 | 97% | | 1,726,209 |
| HVAC | 4 | 59,888 | 59,818 | 100% | | 49,051 |
| Refrigeration | 4 | 678,816 | 664,035 | 98% | | 544,509 |
| Motor Systems | 15 | 1,354,496 | 1,710,615 | 126% | 82% | 1,402,705 |
| Compressed Air | 0 | 0 | 0 | 0 | | 0 |
| Agricultural | 35 | 1,569,248 | 1,673,197 | 107% | | 1,372,022 |
| Other | 21 | 18,586 | 7,512 | 40% | | 6,160 |
| **Total** | **186** | **5,841,257** | **6,220,311** | **106.5%** | **82%** | **5,100,655** |

* Totals in tables may not add exactly due to rounding.

Table 3. 2015 *watt*smart Business Program Savings*

| Strata | Unique Projects | Reported Gross Savings (kWh) | Evaluated Gross Savings (kWh) | Gross Realization Rate | NTG | Evaluated Net Savings (kWh) |
|---|---|---|---|---|---|---|
| Lighting | 278 | 4,338,435 | 4,227,795 | 97% | | 3,466,792 |
| HVAC | 7 | 132,369 | 132,215 | 100% | | 108,416 |
| Refrigeration | 2 | 10,567 | 10,337 | 98% | | 8,476 |
| Motor Systems | 17 | 982,517 | 1,240,837 | 126% | 82% | 1,017,486 |
| Compressed Air | 2 | 51,635 | 55,173 | 107% | | 45,242 |
| Agricultural | 47 | 1,735,602 | 1,850,571 | 107% | | 1,517,468 |
| Other | 68 | 303,540 | 122,683 | 40% | | 100,600 |
| **Total** | **421** | **7,554,665** | **7,639,610** | **101.1%** | **82%** | **6,264,480** |

* Totals in tables may not add exactly due to rounding.

## Key Process Evaluation Findings

The key process evaluation findings are below. More nuanced descriptions of these key findings can be found in the Process Evaluation section of this report.

- Participants in the SBL and Typical Upgrades delivery channels reported higher satisfaction levels than participates in the Custom Analysis delivery channel. Eighty-eight percent of participants in SBL and 89% in Typical Upgrades reported being very satisfied with the work provided by their contractor or vendor. Ninety-six percent of the participants in each of these same two groups also reported they were very satisfied with the equipment they installed.

  Custom Analysis participants said they were very satisfied with the energy engineers or their contact with RMP staff (64% and 73% respectively).

  Eighty-eight percent of SBL participants were also very satisfied with the incentives they received, while 74% of Custom Analysis participants and 54% or Typical Upgrades participants also reported being very satisfied. (Details for each rating are provided in the Satisfaction section of each program delivery channel.)
- Participants reported some challenges in each program delivery channel, but none that had a significant impact on their program participation. Across all three program channels, participants asked for more communication and a simpler application process.
- Participants in the Dairy/Agriculture business sector are the largest group, far exceeding the next largest sectors, in both the Typical Upgrades and Custom Analysis program delivery channels.
- SBL participants reported challenges using the SBL website and identifying approved SBL trade allies.
- Fifty-nine percent of nonparticipants (n=78, all but one of whom were non-managed accounts) said they had not yet participated in the ***watt***smart Business Program because they did not know enough about it. The two next most frequently cited reasons (at 10% each) were they

were not interested or had no need at this time, and they did not see any benefit in participating.

- Both RMP and program implementers reported data exchange between them is not yet error free and needs further streamlining.

### Cost-Effectiveness Results

As shown in Table 4, the program was cost-effective in the 2014 and 2015 evaluation period from all test perspectives, except for the Ratepayer Impact Measure (RIM) test. The program was cost-effective from the Total Resource Cost Test (TRC) perspective, with a benefit/cost ratio of 1.30.

**Table 4. 2014–2015 Evaluated Net *watt*smart Business Program Cost-Effectiveness Summary**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PacifiCorp Total Resource Cost Test (PTRC) (TRC + 10% Conservation Adder) | $0.061 | $6,548,176 | $9,393,242 | $2,845,066 | 1.43 |
| Total Resource Cost Test (TRC) No Adder | $0.061 | $6,548,176 | $8,539,311 | $1,991,135 | 1.30 |
| Utility Cost Test (UCT) | $0.038 | $4,129,319 | $8,539,311 | $4,409,991 | 2.07 |
| Ratepayer Impact Measure (RIM) Test | | $13,105,825 | $8,539,311 | ($4,566,514) | 0.65 |
| Participant Cost Test (PCT) | | $5,602,090 | $13,121,815 | $7,519,725 | 2.34 |
| Life Cycle Revenue Impacts ($/kWh) | | | | | $0.000124705 |
| Discounted Participant Payback (years) | | | | | 4.16 |

The RIM test measures program impacts on customer rates. Most energy efficiency programs do not pass the RIM test because, although energy efficiency programs reduce energy delivery costs, they also reduce energy sales. As a result, the average rate per unit of energy may increase. A RIM benefit/cost ratio greater than 1.0 indicates that rates, as well as costs, will go down as a result of the program. Typically, this only happens for demand response programs or programs that are targeted to the highest marginal cost hours (when marginal costs are greater than rates).

## *Recommendations*

Based on the impact and process evaluation interviews, surveys, site visits, and other analyses, the Cadmus team drew the following recommendations (this report's Conclusions and Recommendations section provides a more complete discussion of the findings):

### Savings Considerations

***Recommendation:*** Reduce the cool roof measure deemed claimed savings amount from the 0.33 kWh per year per square foot assumption currently used from DEER to 0.13 kWh per year per square foot.

***Recommendation:*** Once an incentivized project is complete where VFDs are installed on potato and onion storage facilities, have the program implementer interview the facility staff to determine the

ventilation schedule and airflow rates. These variables should then be updated on the prescriptive calculators to accurately reflect the existing operating characteristics.

### Cross-Cutting

***Recommendation:*** Assess market penetration by comparing the program participant database to RMP's overall customer database to identify high-usage customers in sectors other than Dairy and Agriculture. Employ a targeted campaign for these high usage customers that have low or no participation, and/or develop additional enhanced offerings (such as SBL), to address specific needs of these customers.

***Recommendation:*** Assess the size of the data exchange problem and the associated impacts, and identify the most appropriate solution, which could include: doing nothing differently; revising Nexant's databases to use drop-downs with the precise measure names and same formulas or lookups for savings/incentive amounts, and updating ongoing, as needed; RMP revising the DSMC batch process to allow some room for error/variation in the DSMC uploads; RMP providing implementers with a direct RMP interface, rather than using their own databases; RMP providing trade allies with direct RMP interface.

### Small Business Lighting

***Recommendation:*** RMP may want to consider directing the SBDI program implementer to actively seek and record SBDI participant feedback on website usability for this channel. This could be done in one or more ways. For example RMP can request the program call center to provide a report on the frequency and topics of customer calls for the SBDI offering, or require program contractors to gather participant responses to one or two simple questions about website usability, and to submit those responses with program paperwork or invoices for payment, or RMP can provide a place on the SBDI website landing page for customer feedback on the website usability.

### Custom Analysis

***Recommendation:*** Increase communication with the participant before the project begins to increase their satisfaction and reduce confusion and disagreement. RMP, Cascade, and Nexant should emphasize with program staff and energy engineers the importance of early, frequent, and informative communication with participants undertaking Custom Analysis projects. At the conclusion of each project request customer feedback specifically about their communication experience with the staff and engineers on each project. Review data periodically and provide to evaluators for future bi-annual evaluations.

### Nonparticipants

***Recommendation:*** If additional program growth is desired in any of the program delivery channels, encourage and/or incentivize trade allies (contractors, vendors, distributors) to increase their outreach to their nonparticipant customers. Talk to trade allies to gain insight into how much they have penetrated their target market and what resources RMP could provide to help them increase outreach to those with whom they may not have active ongoing projects.

# Introduction

## *Program Description*

Through the ***watt***smart Business Program, RMP offered incentives for measures and services which fell into three delivery channels: Small Business-Lighting (SBL), Typical Upgrades (also known as prescriptive measures), and Custom Analysis, for program years 2014 and 2015. This report describes our findings.

RMP's program managers overseeing non-residential energy efficiency programs in Idaho were responsible for contracting and managing the program administrators, management of in-house delivery, cost effectiveness, achieving and monitoring program performance and compliance, program marketing, and recommending changes in the program terms and conditions.

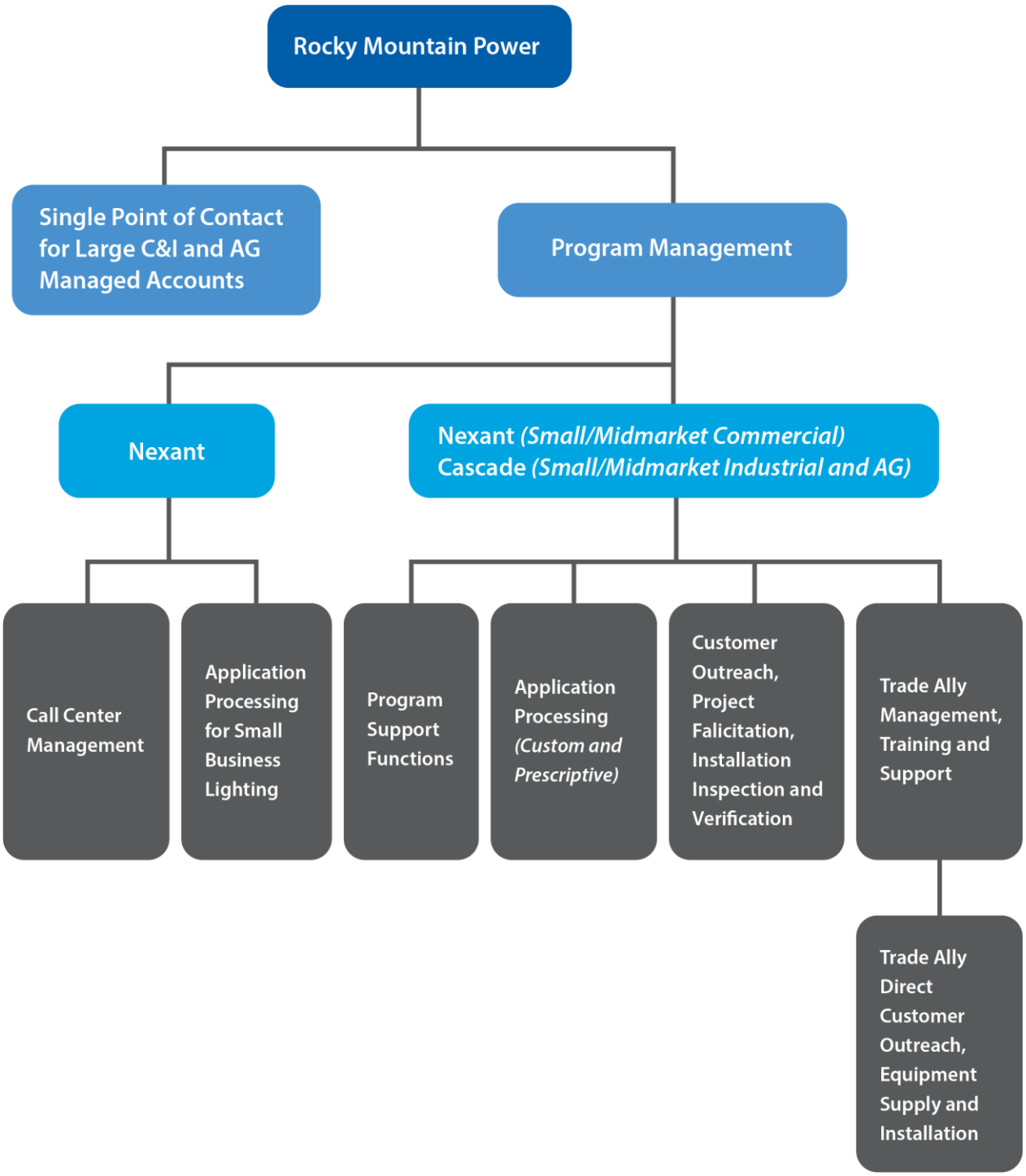
The program is administered through multiple delivery channels that are differentiated based upon customer need. The first targets large energy users who generally have multiple opportunities for energy efficiency upgrades, and who's projects require custom analysis. The largest of these customers are managed in-house by RMP internal project managers (who typically have accounts of ≥100 kW). RMP provided energy efficiency analysis and verification of savings through a pre-contracted group of engineering firms.

The second, Typical Upgrades, is delivered through trade allies and targets prescriptive opportunities primarily for small and midsize customers, however large customers may also receive these incentives. RMP contracted with Nexant, Inc. and Cascade Energy to coordinate the trade allies who deliver these upgrades, and administer the Typical Upgrades delivery channel. They manage trade ally coordination, provide training and support, and application processing services for commercial and industrial/agricultural measures respectively.

Both administrators also implemented custom projects for non-managed accounts. They conducted direct customer outreach, project facilitation and measurement and verification. Cascade noted that in 2014 and 2015, all agricultural projects in Idaho were custom projects. RMP offered these customers incentives of $0.15/kWh. In 2013, RMP eliminated prescriptive for this customer group due to a lack of verifiable savings.

The third delivery channel is an enhanced incentive offering, Small Business-Lighting, for small business customers. Nexant managed the SBL program-approved trade allies, and SBL applications for all participants. Figure 1 provides an overview of the program management responsibilities.

Figure 1. *watts*mart Business Program Delivery Roles



## Evaluation Objectives

The Cadmus team assessed ***watt***smart Business incentives in Idaho to determine gross and net savings achievement, assess cost-effectiveness, and where applicable, identify areas that could help improve program delivery and customer involvement and satisfaction. Table 5 lists the evaluation goals, along with the corresponding evaluation activities to achieve those goals.

**Table 5. Evaluation Objectives and Activities**

| Rocky Mountain Power Evaluation Objectives | Management Interviews | Participant Surveys | Partial Participant and Nonparticipant Surveys | Site Visits | Engineering Measurement | Site Level Billing Analysis | Net-to-Gross Analysis | Reporting |
|---|---|---|---|---|---|---|---|---|
| Document and measure program effects | X | X | | X | X | X | X | X |
| Verify installation and savings | | X | | X | X | X | X | |
| Evaluate the program's process and effectiveness of delivery and efficiency | X | X | X | | | | | |
| Understand motivations of participants, nonparticipants, and partial participants | | X | X | | | | | |
| Provide data support for program cost-effectiveness assessments | | X | | X | X | X | X | |
| Identify areas for potential improvements | X | X | X | X | X | X | X | |
| Document compliance with regulatory requirements | | | | | | | | X |

## Data Collection and Evaluation Activities

The Cadmus team performed on-site visits and engineering analysis for 77 projects to achieve 90% confidence and ±8.7% precision. Our process evaluation included a thorough review of program operation and marketing materials and data tracking. The team interviewed program managers and implementers to thoroughly understand and document the program history, objectives, and operations. We also surveyed program participants, partial participants, and nonparticipants regarding program offerings and operations.[1]

[1] Participants were defined as customers who completed a project through the program during the evaluation period of 2014 and/or 2015. Partial participants were defined as customers who initiated a project through the program in 2014 or 2015, but did not complete that project. Nonparticipants were defined as customers who have never initiated or completed a project through the program or who had not done so in the past two years.

## Impact Sampling and Extrapolation Methodology

Through the Idaho ***watt***smart Business Program, RMP provides incentives for the 27 measure types shown in Table 6. The Cadmus team stratified these 27 measure types into seven end-use categories, as shown in the table. We designed the sampling plan for 2014 and 2015 combined participation to achieve approximately ±20% precision at 80% confidence per measure category strata, and to exceed ±10% precision at 90% confidence at the nonresidential portfolio level. To account for the wide range of project sizes, we created a plan that divides each end-use strata into a selected group (a few very large, hand-selected sites), then randomly sample the remaining projects.

The projects in the selected group are not used in final realization rate extrapolation, but are factored into the overall evaluated savings. The Cadmus team calculated a realization rate for each end-use strata that we applied to the remainder of the nonselected population to determine final savings per strata. Figure 2 provides an example of how we applied the realization rates for the selected and random sites within the lighting strata to the population per strata.

**Figure 2. Realization Rate Extrapolation**

| Strata | Total Unique Projects (Quantity, Claimed Savings) | | Projects Sampled (Quantity, Claimed Savings) | |
|---|---|---|---|---|
| Lighting | 385 | 6,486 MWh | 16 | 1,317 MWh |

| Selected Projects (Quantity, Claimed Savings) | | Random Projects (Quantity, Claimed Savings) | |
|---|---|---|---|
| 5 | 1,109 MWh | 11 | 208 MWh |

| Selected Projects Realization Rate | Random Projects Realization Rate |
|---|---|
| 99% | 97% |

| Strata | Selected Savings (Claimed, Evaluated) | | Remaining Population (Claimed, Evaluated) | | Total (Claimed, Evaluated) | | RR |
|---|---|---|---|---|---|---|---|
| Lighting | 1,109 MWh | 1,100 MWh | 5,378 MWh | 5,221 MWh | 6,486 MWh | 6,321 MWh | 97% |

Table 6 shows the total measure counts and energy savings reported in the tracking database, and the number of sampled projects.

**Table 6. Idaho 2014-2015 *watts*mart Business Program Impact Sampling**

| Strata | Measure Type | Incentivized Measures | Energy Savings (kWh) | Sampled Unique Projects |
|---|---|---|---|---|
| Agricultural | Irrigation | 79 | 3,258,226 | 19 |
| | Milkers | 3 | 46,624 | |
| Compressed Air | Compressed Air | 2 | 51,635 | 2 |
| HVAC | HVAC | 2 | 36,026 | 8 |
| | Cooling | 13 | 105,608 | |
| | Heat Pump | 3 | 14,668 | |
| | Fans | 1 | 35,955 | |
| Lighting | Non-General Illuminance | 66 | 58,747 | 16 |
| | Lighting | 257 | 2,635,755 | |
| | General Illuminance | 1,344 | 3,744,221 | |
| | Exterior Lighting | 6 | 59,935 | |
| Motor Systems | Motors | 44 | 2,248,426 | 16 |
| | Pumps | 3 | 81,413 | |
| | Electronically Commutated Motor | 1 | 2,171 | |
| | Green Motor Rewinds | 1 | 5,003 | |
| Other | Insulation | 8 | 9,310 | 12 |
| | Roof | 13 | 150,298 | |
| | Controls | 189 | 99,570 | |
| | Cooking Equipment | 1 | 1,644 | |
| | Windows | 2 | 29,458 | |
| | Additional Measures* | 1 | 31,846 | |
| Refrigeration | Refrigeration | 13 | 678,816 | 4 |
| | Refrigerators | 3 | 1,110 | |
| | Freezers | 1 | 761 | |
| | Ice Machine | 2 | 8,696 | |
| **Total** | | **2,058** | **13,395,922** | **77** |

*Additional Measures involve projects that are not easily categorized into the existing Measure Types.

Table 7 shows the total quantity of projects sampled, the associated energy savings, and the percentage that this sample represents out of the population.

**Table 7. Idaho 2014-2015 *watts*mart Business Program Impact Sampling Summary**

| Strata | Sample Type | Quantity of Unique Projects Sampled | Sampled Projects Reported Energy Savings (kWh) | All Project Reported Energy Savings (kWh) | Percentage kWh Sampled |
|---|---|---|---|---|---|
| Agricultural | Selected | 4 | 639,506 | 3,304,850 | 42% |
| | Random | 15 | 737,596 | | |
| Compressed Air | Selected | 2 | 51,635 | 51,635 | 100% |
| | Random | 0 | 0 | | |
| HVAC | Selected | 3 | 125,145 | 192,257 | 93% |
| | Random | 4 | 54,434 | | |
| Lighting | Selected | 5 | 1,108,845 | 6,498,658 | 20% |
| | Random | 11 | 208,091 | | |
| Motor Systems | Selected | 5 | 1,541,735 | 2,337,013 | 78% |
| | Random | 12 | 282,913 | | |
| Other | Selected | 4 | 176,221 | 322,126 | 69% |
| | Random | 8 | 45,539 | | |
| Refrigeration | Selected | 3 | 654,295 | 689,383 | 95% |
| | Random | 1 | 1,871 | | |
| **Total** | | **77** | **5,627,826** | **13,395,922** | **42%** |

## Process Sample Design and Data Collection Methods

The Cadmus team conducted the process evaluation by assessing the program delivery channels, which equate to incentive types (SBL, Typical Upgrades, and Custom Analysis).

The team developed samples for three customer populations—participants, partial participants and nonparticipants—using simple or stratified random sampling.[2] Participants were defined as customers who completed a SBL, Typical Upgrades, or Custom Analysis project through the program during the evaluation period of program years 2014 and 2015. Partial participants were defined as customers who initiated a Typical Upgrades or Custom Analysis project through the program in 2014 or 2015, but did not complete that project. We did not stratify these customers and selected them using simple random sampling. Nonparticipants were defined as customers who have never initiated or completed a project through the program or who had not done so in the past two years. We stratified nonparticipants into managed and non-managed accounts. Managed accounts are those customers who have an assigned RMP account manager.

[2] Simple random samples are drawn from an entire population, whereas stratified random samples are drawn randomly from subpopulations (strata), then weighted to extrapolate to the population.

Table 8 shows the final sample disposition for various data collection activities. The Cadmus team exceeded the precision/confidence targets (shown in the table below), for both Participants and Nonparticipants. The team achieved ±9.5% precision at 90% confidence for Participants, and ±8.9% precision at 90% confidence for nonparticipants. With the exception of one, all respondents to the nonparticipant survey were RMP non-managed accounts, which are by default, smaller accounts. We also achieved ±27.5% precision at 90% confidence for Partial participants after dialing the sample five or more times. The small sample size was a factor.

A detailed methodology is provided for each surveyed population in the Surveys section of the Process Evaluation chapter.

**Table 8. Idaho 2014-2015 *watt*smart Business Program Data Collection and Sampling**

| Data Collection Activity | Precision and Confidence Target* | Population** | Sampling Frame*** | Target Completes | Achieved Completes |
|---|---|---|---|---|---|
| RMP Program Staff Interviews | N/A | N/A | N/A | N/A | 2 |
| Program Administrator Interviews | N/A | N/A | N/A | N/A | 6 |
| Participant Surveys (Custom Analysis) | ±10% at 90% (combined) | 544 | 65 | 21 | 15 |
| Participant Surveys (Typical Upgrade) | | | 189 | 26 | 26 |
| Participant Surveys (SBL) | | | 145 | 25 | 25 |
| Partial Participant Surveys | ±15% at 90% | 64 | 52 | 21 | 8 |
| Nonparticipant Surveys (Managed) | ±10% at 90% (combined) | 3,505 | 79 | 20 | 1 |
| Nonparticipant Surveys (Non-Managed) | | | 3,332 | 50 | 82 |
| **Total Surveys** | | **4,113** | **3,862** | **163** | **157** |

* Sample sizes based on a 0.5 coefficient of variation (CV). The CV is the ratio of standard deviation (a measure of the dispersion of data points in a data series) to the series mean.

** Unique customer names.

*** Unique customer names with contact information (and site addresses for partial participants).

# Impact Evaluation

This chapter provides the impact evaluation findings for the ***watt***smart Business Program resulting from the Cadmus team's data analysis, for which we used these methods:

- Participant surveys
- Partial participant surveys
- Nonparticipant surveys
- Site visits
- Engineering reviews
- Project-based billing analysis

The team presents two evaluated saving values: gross savings and net savings. Reported gross savings are electricity savings (kWh) that RMP reported in the 2014 and 2015 *Rocky Mountain Power Energy Efficiency and Peak Reduction Annual Reports* (annual reports).[3] Net savings are the evaluated program savings net of what would have occurred in the program's absence. These savings are the observed impacts attributable to the program.

To determine gross savings, the Cadmus team applied step 1 through step 4 shown in Table 9. To determine evaluated net savings, we applied the fifth step.

**Table 9. Impact Steps to Determine Evaluated Gross and Net Savings**

| Savings Estimate | Step | Action |
|---|---|---|
| Evaluated Gross Savings | 1 | Tracking Database Review: Validate the accuracy of data in the participant database |
| | 2 | Verification: Adjust gross savings based on actual installation rates |
| | 3 | Unit Energy Savings: Validate saving calculations (i.e., engineering review, analysis, meter data, and engineering reviews) |
| | 4 | Realization Rates: Extrapolate realization rates to population |
| Evaluated Net Savings | 5 | Attribution: Apply NTG adjustments |

**Step 1:** In the first step of verifying the accuracy of data in the participant database, the Cadmus team reviewed the program tracking database to ensure that participants and reported savings matched annual reports.

**Step 2:** The Cadmus team selected a sample of sites from the RMP program database. The distribution of measures among sampled sites were stratified, primarily by end-use type: lighting, HVAC, refrigeration, motors, compressed air, agricultural, and other measures. The team completed 77 site visits as part of the 2014 and 2015 program evaluation.

[3] These reports are available online: http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2014/2013-Idaho-Annual-Report-FINAL.pdf; and http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2015/ID_2014-Annual-Report-FINAL-Report_042815.pdf

The method we used to calculate program gross savings consisted of the following steps:

1. Conduct site visits to inform the engineering analysis for each selected project.
2. Calculate a realization rate, which is the ratio of verified to reported (*ex ante*) savings by end use strata.
3. Extrapolate calculated realization rates at sampled sites, by end-use strata, to the remaining program population.

**Step 3:** Next, we reviewed all project documentation, developed an evaluation, measurement, and verification plan, and performed site visits to verify installation, specifications, and operation of incentivized measures. The Cadmus team installed light loggers on three sites within the sample.

**Step 4:** This step involved reviewing measure savings assumptions, equations, and inputs, which included billing analysis for selected measures. For complicated or custom measures, we conducted an engineering analysis using the appropriate measurement and verification option within the International Performance Measurement and Verification Protocol. For sites where light meters were installed, the Cadmus team used the logger data to determine the hours of use or power consumption for each equipment type installed.

**Step 5:** Lastly, the Cadmus team used participant surveys to calculate freeridership using industry standard self-report methodology. We also surveyed partial participants and nonparticipants to determine if any nonparticipant spillover was credited to the program, but not otherwise incented, however this value was not applied to the overall NTG used to calculate net savings.

## *Site Visits and Engineering Analysis*

The Cadmus team reviewed all project documentation available from RMP. Project documentation could include incentive applications, equipment invoices, reports published by third-party energy engineering consultants, and savings calculation spreadsheets.

The team used a data collection form at each site visit and performed the following tasks:

- Verify installation and operation of equipment that received incentives, confirm that installed equipment meets program eligibility requirements, and verify the quantity of installed measures matches program documentation.
- Collect physical data to inform savings analyses and perform a detailed review of site project files to collect additional data for each site.
    - Where applicable, the Cadmus team interviewed facility personnel involved with the project, gathering information (such as the type of equipment replaced and hours of operation) that could not be verified on the site through documentation reviews or metering.

## Overall Evaluated Gross Savings Results

To calculate gross savings for ***watt***smart Business Program measures, the Cadmus team reviewed the tracking database, verified measures, and conducted either engineering reviews, site visits, or billing analyses. Table 10 presents reported and evaluated gross savings for the 2014 and 2015 program years, with an overall realization rate of 103.5%.

**Table 10. Reported and Evaluated Gross Savings by Program Year**

| Program Year | Program Savings (kWh) | | Gross Program Realization Rate |
|---|---|---|---|
| | Reported | Evaluated Gross | |
| 2014 | 5,841,257 | 6,220,311 | 106.5% |
| 2015 | 7,554,665 | 7,639,610 | 101.1% |
| **Total** | **13,395,922** | **13,859,921** | **103.5%** |

Table 11 provides the evaluation results for reported and evaluated gross savings, along with realization rates by measure type.

**Table 11. Reported and Evaluated Gross *watt*smart Business Program Savings by Measure Category (2014-2015)**

| Measure Category | Program Savings (kWh) | | Realization Rate | Precision |
|---|---|---|---|---|
| | Reported | Evaluated Gross | | |
| Lighting | 6,498,658 | 6,332,928 | 97.4% | ±7.9% |
| HVAC | 192,257 | 192,033 | 99.9% | ±0.4% |
| Refrigeration | 689,383 | 674,372 | 97.8% | N/A |
| Motor Systems | 2,337,013 | 2,951,452 | 126.3% | ±18.4% |
| Compressed Air | 51,635 | 55,173 | 106.9% | N/A |
| Agricultural | 3,304,850 | 3,523,768 | 106.6% | ±22.7% |
| Other | 322,126 | 130,194 | 40.4% | ±87.5%* |
| **Total** | **13,395,922** | **13,859,921** | **103.5%** | **±8.7%** |

*The "Other" category exhibited wide variation in project types and realization rates.

## Evaluated Gross Savings Results by Measure Category

### Lighting

RMP provides incentives for four types of lighting projects: exterior lighting, general illuminance, lighting, and non-general illuminance. These projects are either for renovations or new construction, and involve high-efficient lighting technologies such as CFLs, LEDs, and induction fixtures. RMP incentivized 1,673 lighting measures within 385 unique projects, and reported 6,498,658 kWh in energy savings for the 2014 and 2015 years. Incentivized lighting projects account for 49% of all reported energy savings in Idaho.

### *Methodology*

The Cadmus team evaluated 16 lighting projects, accounting for 20% of all reported energy savings within the lighting strata. RMP used the FinAnswer Express prescriptive lighting calculator to determine incentive amounts for all lighting projects in Idaho.[4] The FinAnswer Express calculator documents the customer information, project location, light fixture specifications, energy saving calculations, and financial information. Critical inputs used to calculate energy savings include the following:

- Lighting operation schedule
- Space name, type, area, and condition
- Baseline lighting fixture location, type, quantity, controls, and wattage
- Proposed lighting fixture location, type, quantity, controls, and wattage

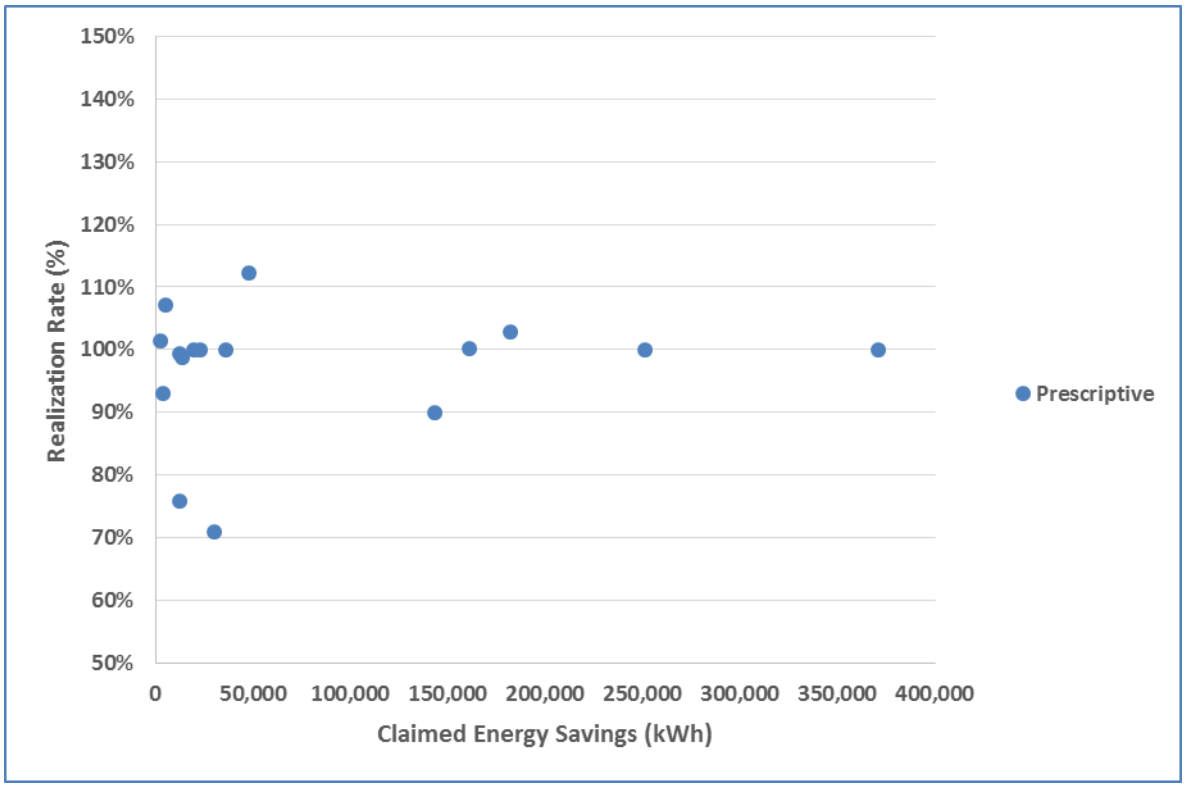
The Cadmus team reviewed the FinAnswer Express calculator methodology and assumptions to determine the applicability for each project sampled. For each of the sampled projects, we performed site visits to inspect and document the installed lighting equipment. For three of the 16 projects visited, the Cadmus team installed light loggers to document the hours of use where incentivized lighting fixtures were installed. We then used the collected data to update the FinAnswer Express calculator.

### *Findings*

Figure 3 indicates the realization rates and associated energy savings for each of the sampled lighting projects.

[4] Between 2013 and 2015, RMP combined a number of non-residential programs under the ***watt***smart Business umbrella. The Energy FinAnswer and FinAnswer Express programs were rolled into the Custom Analysis and Typical Upgrades delivery channels respectively, within the ***watt***smart Business Program.

Figure 3. Lighting Sample Results




There were two sites exhibiting less than 80% realization rate. For the remaining sites, the Cadmus team found no (or a nominal) difference between our calculated savings and the reported savings. For the two sites that fell well below the 100% realization rate, the differences in savings were due to missing fixtures and reduced hours of use. Table 12 provides specific details.

Table 12. Lighting Sample Detailed Findings

| Project | Project Measures | Reported kWh | Evaluated kWh | Site Realization Rate | Notes |
|---|---|---|---|---|---|
| IDFX1_000426 | New fixtures | 12,289 | 9,334 | 76% | Missing exterior fixture and lower hours of use for interior fixtures |
| SBID_67759 | New fixtures | 30,473 | 21,614 | 71% | Light logger analysis of incentivized lighting spaces indicate 33% fewer hours of use than reported |

For one of the projects with a more atypical measure-level realization rate (71%), the Cadmus team installed light loggers in representative spaces. We found that the number of fixtures we observed matched the documentation, but the light logger analysis indicated lower hours of use for the associated spaces than reported.

## HVAC

RMP incentivized 19 HVAC measures within eight unique projects. These projects consist of VFDs, chillers, and heat pumps. RMP reported energy savings of 192,257 kWh, which accounts for 1.4% of all reported energy savings for the 2014 and 2015 program years.

### *Methodology*

The Cadmus team evaluated all eight unique HVAC projects, accounting for 16 measures and 93% of all reported energy savings within the HVAC strata. RMP used one of three prescriptive calculators to determine the incentive amount for all HVAC projects:

- Rocky Mountain Power HVAC Calculator
- Rocky Mountain Power FinAnswer Express Chiller Calculator
- Potato and Onion Storage Fan VFD Savings Estimator v1.3

These prescriptive calculators document the customer information, project location, equipment specifications, and energy savings calculations. The critical inputs used to calculate energy savings are listed in Table 13.

**Table 13. Critical Inputs**

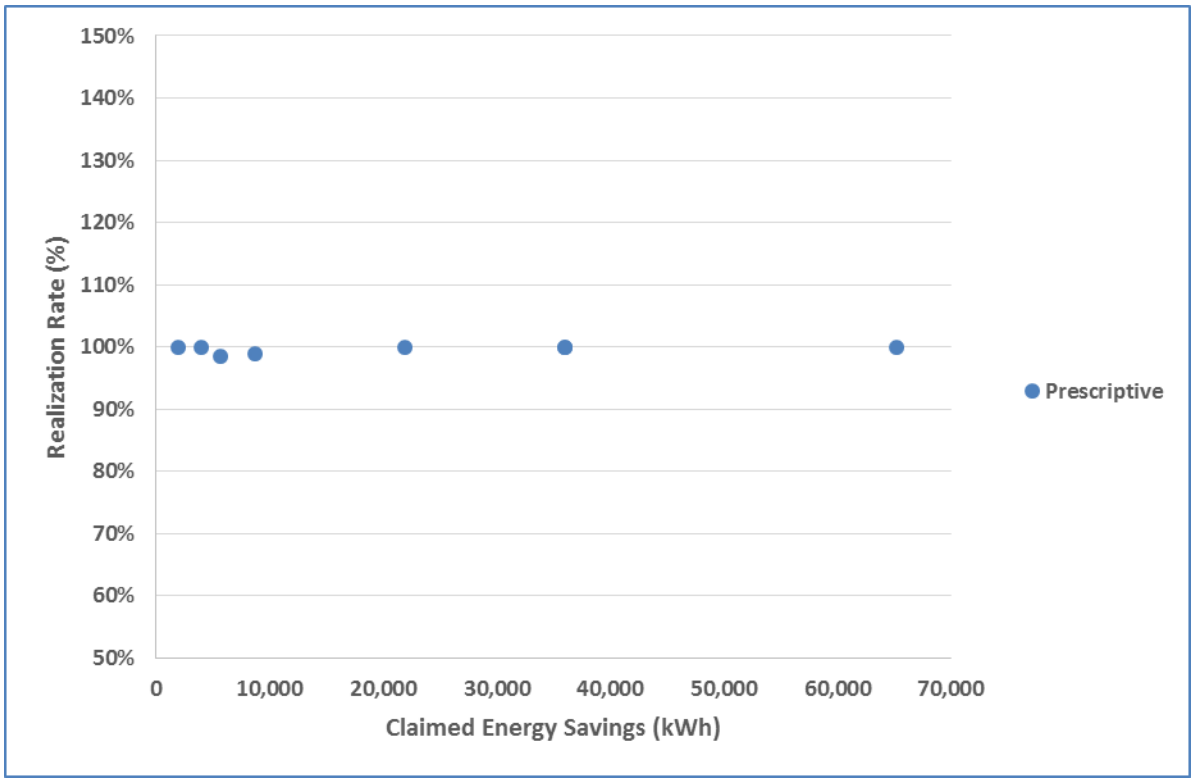
| Rocky Mountain Power HVAC Calculator | Rocky Mountain Power FinAnswer Express Chiller Calculator | Potato and Onion Storage Fan VFD Savings Estimator v1.3 |
|---|---|---|
| Manufacturer make/model | Manufacturer make/model | Manufacturer make/model |
| Quantity | Quantity | Motor HP |
| Cooling capacity | Chiller service type | Motor efficiency |
| EER, SEER, HSPF | Heat rejection specifications | Ventilation schedule (daily run hours, VFD fan speed) |
| Business type | AHRI capacity | |
| Interior/exterior space type | AHRI Integrated Part Load Value (IPLV) and full-load efficiency | |
| | Facility type | |

The Cadmus team reviewed the methodology and assumptions for each prescriptive calculator to determine the applicability for each project sampled. For each of the sampled projects, the team performed site visits to inspect and document the installed equipment, interview facility staff or farmers, and review the expected performance characteristics. The Cadmus team then used the collected data to update the prescriptive calculators and determine evaluated savings.

### *Findings*

Figure 4 indicates the realization rates and associated energy savings for each of the sampled projects.

Figure 4. HVAC Sample Results




The majority of the Cadmus team's on-site findings matched the project documentation. Minor discrepancies were observed on the sites, which had minimal impact on evaluated energy savings.

## Refrigeration

RMP incentivized 19 refrigeration measures within six unique projects, consisting of food service refrigeration equipment, case lighting, VFDs, optimized controls, and custom refrigeration systems. RMP reported energy savings of 689,383 kWh, which account for 5.1% of all reported energy savings for the 2014 and 2015 program years.

### *Methodology*

The Cadmus team evaluated four refrigeration projects, accounting for 95% of all reported energy savings within the refrigeration strata. RMP used a mixture of custom calculations and deemed savings to determine the claimed energy savings for the reported projects. Rocky Mountain Power's approved service provider performs custom calculations for energy efficiency opportunities on custom projects. For some complicated and large energy saving projects, the implementer installed power meters to measure performance before and after the measure was implemented. For deemed calculations, RMP used the energy savings established by ENERGY STAR or the Regional Technical Forum (RTF).

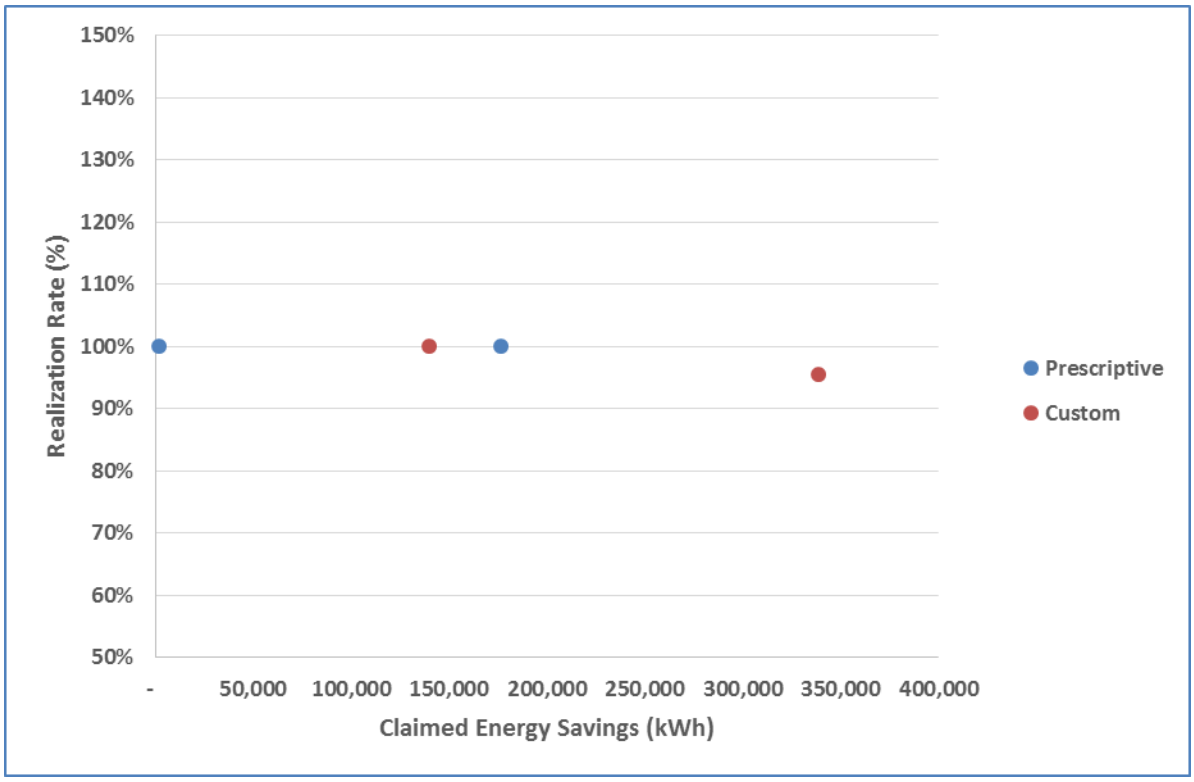
For projects that required custom calculations, the Cadmus team reviewed the customer's custom calculation workbooks for energy savings methodology, inputs, assumptions, and accuracy. For projects

that were determined using deemed savings values, the team reviewed the unit energy savings established by ENERGY STAR or the RTF, and adjusted savings based on site findings and interviews.

### *Findings*

Figure 5 indicates the realization rates and associated energy savings for each of the sampled projects.

**Figure 5. Refrigeration Sample Results**




The majority of the on-site findings matched the project documentation. The Cadmus team observed minor discrepancies while on site, but these had minimal impact on the evaluated energy consumption savings.

## Motor Systems

RMP provides incentives for several types of motor systems projects—including Green Motor Rewinds, motor upgrades, and variable frequency drives—serving commercial HVAC, industrial processes, and agriculture projects. RMP incentivized 52 measures within 34 projects, and reported 2,337,013 kWh in energy savings for the 2014 and 2015 program years. Incentivized motor systems projects account for 17% of all reported energy savings in Idaho.

### *Methodology*

The Cadmus team evaluated 16 motor systems projects, accounting for 78% of all reported energy savings within the motor systems strata. For the projects evaluated, RMP used prescriptive calculators, deemed savings, and custom calculations to determine reported energy savings. For six of the projects

that installed VFDs on ventilation fans, RMP used the prescriptive calculator (Potato and Onion Storage fan VFD Savings Estimator v1.3). For five projects, RMP used custom calculations, and for six projects used deemed savings. Deemed savings for VFD calculations are recommended by Nexant per Appendix D of the Nexant's 2010 FinAnswer Express Market Characterization and Program Enhancements report. Critical inputs used to calculate energy savings from VFD installations include the following:

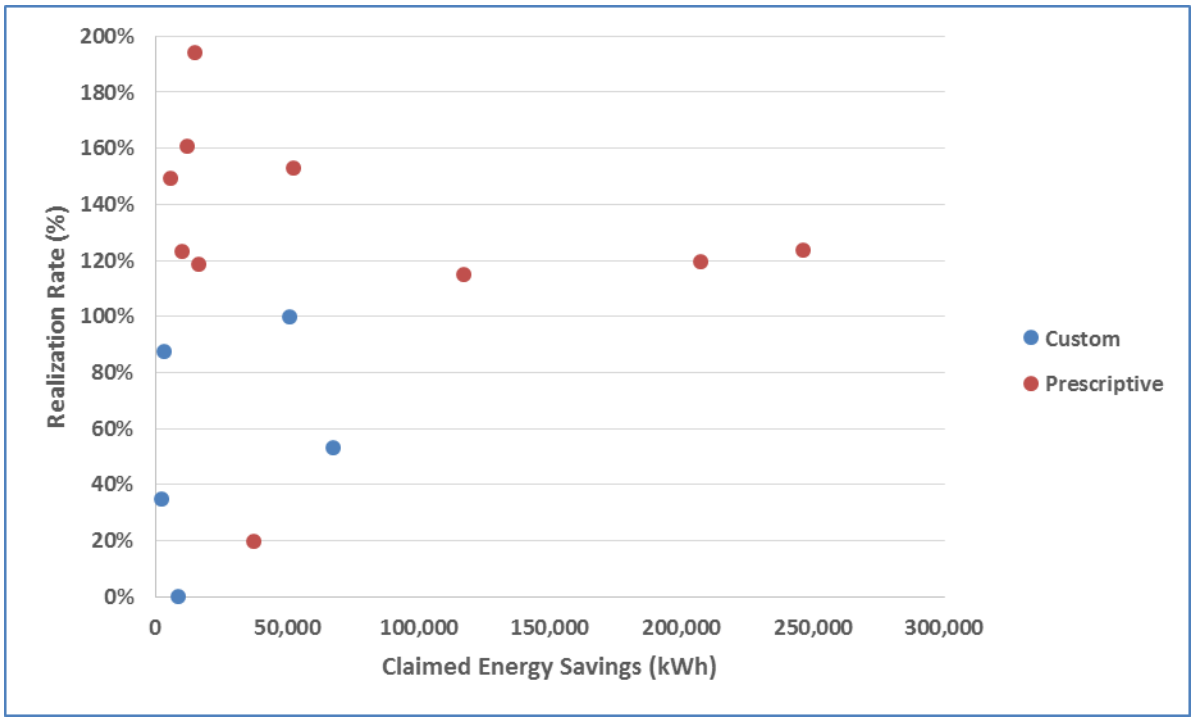
- Manufacturer make/model
- Motor HP
- Motor efficiency
- Load factor
- Operation schedule (daily run hours, VFD fan speed)

For each of the sampled projects, the Cadmus team performed site visits to inspect and document equipment specifications and performance. For VFDs serving potato storage facilities, we interviewed the affected farmers to understand the ventilation schedule and fan speed during various times of the year. For prescriptive VFD projects installed on HVAC ventilation equipment (supply fans, return fans, exhaust fans), we reference the deemed savings amounts identified within the Variable speed Drive Loadshape Study. For prescriptive VFD projects installed on central plant equipment (chilled water pumps, condenser water pumps, hot water pumps, cooling tower fans), we reference the calculation methodology and energy savings factors identified within the Pennsylvania Technical Reference Manual. For systems where the incentivized equipment was exclusive to the utility meter, the Cadmus team conducted a utility bill analysis using billing data from 2012 to present, in addition to the site data collection activities.

### *Findings*

Figure 6 indicates the realization rates and associated energy savings for each of the sampled projects.

Figure 6. Motor Systems Sample Results*




* One project that is not shown on the figure accounted for 970,000 kWh in claimed savings and had a 116% realization rate.

There were four sites with realization rates below 80% and six sites with a realization rate above 120%. The Cadmus team found zero to nominal differences in reported savings for the remaining sites. Table 14 provides specific details for the ten sites with realization rates greater than 120% or less than 80%.

Table 14. Motor System Sample Results

| Project | Project Measure | Reported kWh | Evaluated kWh | Realization Rate (site) | Notes |
|---|---|---|---|---|---|
| WBID_9334 | VFD serving well pump | 8,681 | 0 | 0% | Utility bill analysis indicated no energy savings |
| WBID_7214 | VFD serving well pump | 67,488 | 35,749 | 53% | Utility bill analysis indicated reduced energy savings |
| EF000_000872 | VFD serving well pump | 2,641 | 917 | 35% | Irrigation pattern and use schedule modified based on interview data |
| IDC01236 | VFD serving dairy vacuum | 37,575 | 7,415 | 20% | The implementer used deemed values for reported savings, while the Cadmus team used the Pennsylvania TRM calculation methodology for evaluated savings |

| Project | Project Measure | Reported kWh | Evaluated kWh | Realization Rate (site) | Notes |
|---|---|---|---|---|---|
| EF000_000903 | VFD serving potato storage | 12,147 | 19,518 | 161% | Ventilation schedule and speeds lower than reported based on interview data |
| EF000_000902 | VFD serving potato storage | 14,9234 | 29,002 | 194% | Ventilation schedule and speeds lower than reported based on interview data |
| IDC00476 | VFD serving potato storage | 52,592 | 80,364 | 153% | Ventilation schedule and speeds lower than reported based on interview data |
| IDC00439 | VFD serving potato storage | 5,858 | 8,747 | 149% | Ventilation schedule and speeds lower than reported based on interview data |
| EF000_000906 | VFD serving potato storage | 10,038 | 12,353 | 123% | Ventilation schedule and speeds lower than reported based on interview data |
| IDFX1_000353 | VFDs serving AHU fans | 246,439 | 304,744 | 124% | The implementer used deemed values for reported savings, while the Cadmus team calculated energy savings based on site findings |

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

- For projects where VFDs are applied to existing motor systems, VFD savings occur any time the flow reduces below 100% speed. For many of the projects where VFDs were applied to potato storage ventilation fans, the Cadmus team interviewed the farmers while on site and updated the ventilation schedule in the prescriptive calculators based on their feedback. Often, the VFD speed and hours of use values provided in the interview were lower than indicated on the project documentation.
- For projects where a utility bill analysis was performed, the Cadmus team compared the metered energy consumption from the baseline period to the consumption from the post-implementation period. We attempted to normalize the utility bill data using the irrigation schedule, outside air temperature, and daily precipitation (based on historical values recorded for Idaho Falls, Idaho from January 2012 to October, 2016). However, due to the year to year variability in each of these values without a corresponding shift in energy consumption, no statistically significant correlations could be determined. Therefore, we compared the unfiltered, raw utility bill data between the baseline and post-implementation periods. For sites where large deviations from expected performance were observed, the team interviewed farmers to identify other potential factors affecting the performance (such as crop shifts, irrigation schedules, or market factors). No consistent factor was found within these projects that resulted in consistently high or low energy consumption.

## Compressed Air

RMP provided incentives for two projects involving VFDs serving air compressors. RMP reported 51,635 kWh in energy savings for the 2014 and 2015 program years, which accounts for 0.4% of all reported energy savings in Idaho.

### *Methodology*

The Cadmus team evaluated both compressed air projects, accounting for 100% of all reported energy savings within the strata. RMP used the prescriptive calculator (NW Regional Compressed Air Tool v3.0) for both incentivized compressed air projects. The prescriptive calculator documents the customer information, compressed air system specifications, and expected performance. Critical inputs used to calculate energy savings include the following:

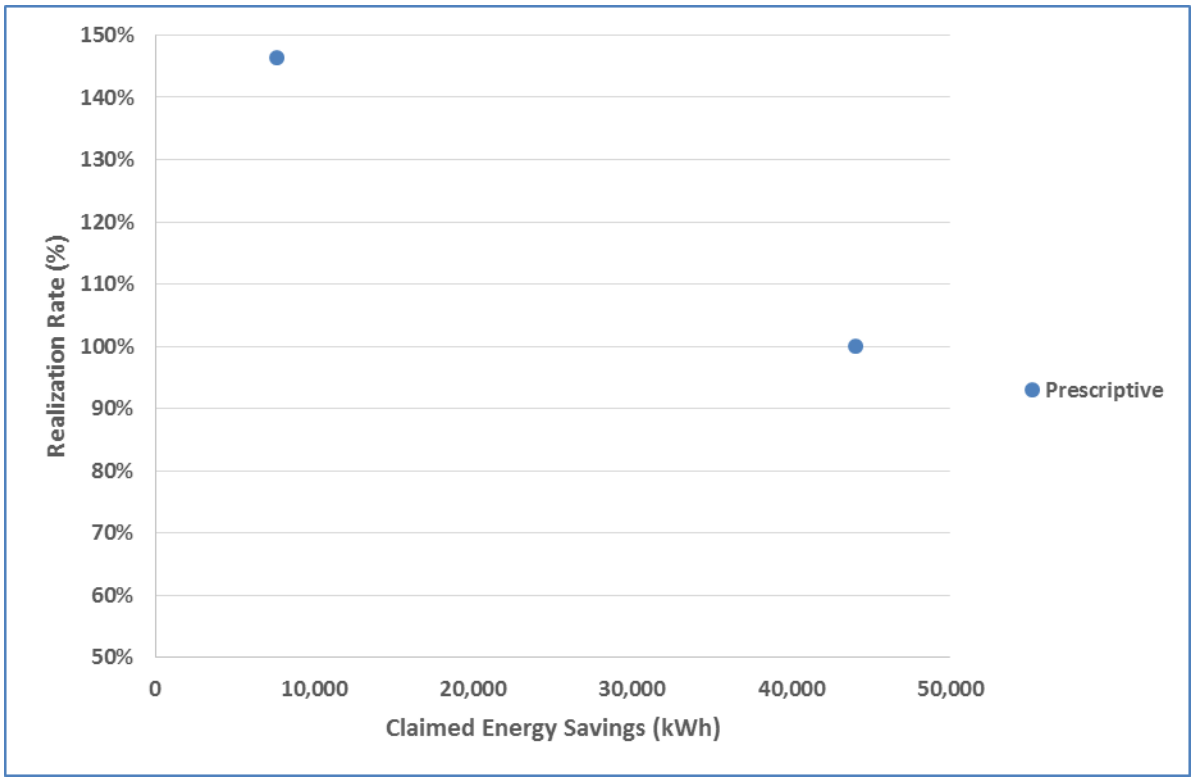
- Compressor type and load control
- Compressor HP
- Rated flow
- Receiver volume and dryer specifications
- System pressure setpoints
- Hours of operation

The Cadmus team reviewed the NW Regional Compressed Air Tool v3.0 methodology and assumptions to determine the applicability for both projects sampled. We performed site visits to inspect and document the installed system specifications and operational setpoints. When variations existed between the project data and site findings, the Cadmus team updated the Compressed Air Tool v3.0 with the revised inputs to calculate evaluated savings.

### *Findings*

Figure 7 indicates the realization rates and associated energy savings for each of the sampled projects. One site was evaluated as having a 146% realization rate, and one was evaluated as having a 100% realization rate. The site with a 146% realization rate had a much higher system pressure setpoint than indicated on the project documentation. Higher system pressures increase the total energy consumption of the baseline and upgraded compressed air system, and increase energy savings as well.

Figure 7. Compressed Air Sample Results




## Agricultural

RMP provides incentives for six types of agricultural projects: milker take offs, pivots and linear irrigation systems, pump upgrades, system redesigns, VFDs, and wheel line/hand line equipment. RMP incentivized 82 measures for 82 projects, and reported 3,304,850 kWh in energy savings for the 2014 and 2015 program years. Incentivized agricultural projects account for 24.7% of all reported energy savings in Idaho.

### *Methodology*

To determine savings for incentivized agricultural projects in Idaho, RMP used custom calculations or deemed savings values. The Cadmus team evaluated 19 agricultural projects, accounting for 42% of the reported energy savings within the agricultural strata. The majority of the projects we evaluated were irrigation pump upgrades, where custom calculations were performed by a third-party engineering firm that provided the Cadmus team with the custom calculations inputs, assumptions, performance expectations, and utility data. Critical inputs used to calculate energy savings include the following:

- Pump motor horsepower and efficiency
- System flow rates, pressure setpoint, and schedule
- System pressure
- Metered performance

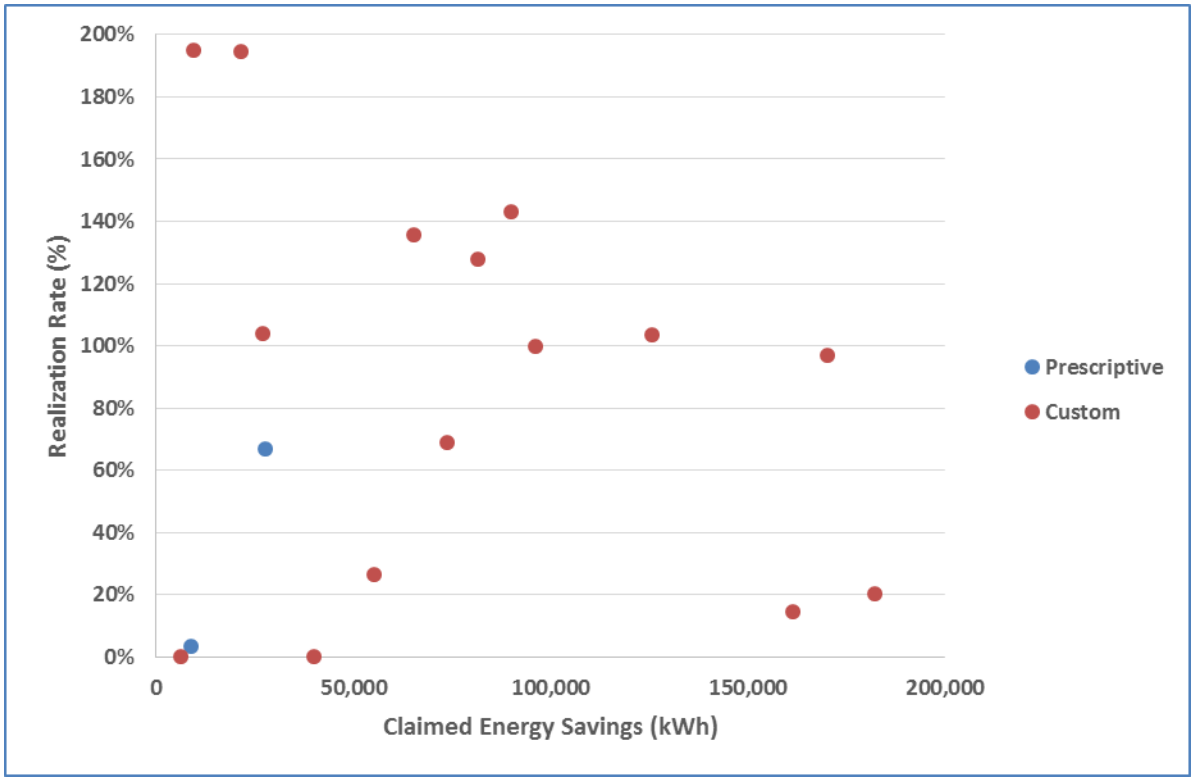
For systems where the incentivized equipment was exclusive to the utility meter, the Cadmus team conducted a utility bill analysis using billing data from 2012 to September, 2016, in addition to the site data collection activities.

For incentivized projects involving milking system upgrades, RMP used deemed savings calculations based on Alliant Energy prescriptive calculators, and the Cadmus team used the Pennsylvania TRM to calculate the evaluated energy savings based on site findings. Instead of using a deemed energy savings per unit value, the Pennsylvania TRM methodology provides energy savings calculation guidance based on the specific metrics collected while on site, such as number of cows milked per day, number of milkings per cow per day, and energy savings per cow per year.

### *Findings*

Figure 8 indicates the realization rates and associated energy savings for each of the sampled projects.

**Figure 8. Agricultural Sample Results**




* Two projects are not shown in the figure. One project accounts for 182,234 kWh in claimed savings and a 388% realization rate. Another project accounts for 9,388 kWh in claimed savings and a 728% realization rate.

There were seven sites with realization rates greater than 120% and eight sites with realization rates below 80%. Table 15 provides specific details related to these projects.

Table 15. Agricultural Sample Detailed Findings

| Project | Project Measures | Reported kWh | Evaluated kWh | Realization Rate (site) | Notes |
|---|---|---|---|---|---|
| IDC00340 | Automatic milker takeoffs | 27,776 | 18,563 | 67% | RMP used deemed values for reported savings, while the Cadmus team used the Pennsylvania TRM calculation methodology |
| IDC001236 | Automatic milker takeoffs | 8,928 | 300 | 3% | RMP used deemed values for reported savings, while the Cadmus team used the Pennsylvania TRM calculation methodology |
| IDC01200 | Irrigation pump replacement | 125,708 | 33,360 | 27% | The Cadmus team used utility bill analysis to evaluate |
| IDC01216 | Pump and VFD replacement | 26,919 | 0 | 0% | The Cadmus team used utility bill analysis to evaluate |
| WBID_9113 | VFD on irrigation pump | 96,089 | 66,066 | 69% | The Cadmus team used utility bill analysis to evaluate |
| IDC00532 | Pump impeller trimming | 90,142 | 13,200 | 15% | The Cadmus team used utility bill analysis to evaluate |
| WBID_9093 | Pump and VFD replacement | 170,286 | 0 | 0% | The Cadmus team used utility bill analysis to evaluate |
| IDC00497 | Irrigation pump replacement | 73,615 | 14,900 | 20% | The Cadmus team used utility bill analysis to evaluate |
| WBID_8324 | Pump and VFD replacement | 9,388 | 68,380 | 728% | The Cadmus team used utility bill analysis to evaluate |
| IDC00388 | 700 HP pump replacement | 182,234 | 706,280 | 388% | The Cadmus team used utility bill analysis to evaluate |
| IDC00389 | VFD on irrigation pump | 65,401 | 127,440 | 195% | The Cadmus team used utility bill analysis to evaluate |
| WBID_10257 | VFD on irrigation pump | 69,221 | 98,910 | 143% | The Cadmus team used utility bill analysis to evaluate |
| IDC000534 | VFD on irrigation pump | 65,364 | 83,433 | 128% | The Cadmus team used utility bill analysis to evaluate |
| WBID_9094 | VFD on irrigation pump | 5,408 | 74,200 | 136% | The Cadmus team used utility bill analysis to evaluate |
| WBID_9318 | Irrigation pump replacement | 6,261 | 12,183 | 195% | The Cadmus team used utility bill analysis to evaluate |

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

- For projects where automatic milker takeoffs were incentivized, RMP based the reported savings on Alliant Energy calculators and included a deemed savings value per measure (kWh/yr/unit). The Cadmus team used the Pennsylvania TRM calculation methodology to determine evaluated energy savings. Calculation inputs include the number of cows milked per

day, number of milkings per cow per day, and energy savings per cow per year. Site findings indicate lower energy savings when using the Pennsylvania TRM calculations when compared to the deemed savings from Alliant Energy.

- For projects where a utility bill analysis was performed, the Cadmus team compared the metered energy consumption from the baseline period to the consumption from the post-implementation period. The team attempted to normalize the utility bill data using irrigation schedule, outside air temperature, and daily precipitation (based on historical values recorded for Idaho Falls, Idaho from January 2012 to October 2016). However, due to the variability in each of these values from year to year without a corresponding shift in energy consumption, no statistically significant correlations could be determined. Therefore, we compared the unfiltered, raw utility bill data between the baseline and post-implementation periods. For sites where large deviations from expected performance were observed, the Cadmus team interviewed farmers to identify other potential factors affecting the performance (such as crop shifts, irrigation schedules, or market factors). No consistent factor was found within these projects that resulted in consistently high or low energy consumption.

### Other

RMP provides incentives for eight types of projects within the "other" category: windows, roofs, insulation, cooking equipment, controls, and additional measures. RMP incentivized 214 measures related to 89 projects, and reported 322,126 kWh in energy savings for the 2014 and 2015 program years. Incentivized other projects accounted for 2.4% of all reported energy savings in Idaho.

#### *Methodology*

For incentivized other projects in Idaho, RMP uses prescriptive calculators, deemed savings values, and custom calculations to determine reported energy savings. The Cadmus team evaluated 12 projects accounting for 69% of the reported energy savings within the other strata; these were cool roof upgrades, attic and wall insulation, a convection oven, an irrigation system upgrade, and a dust collection system. Table 16 lists the deemed savings source and evaluation methodology for projects within the other category.

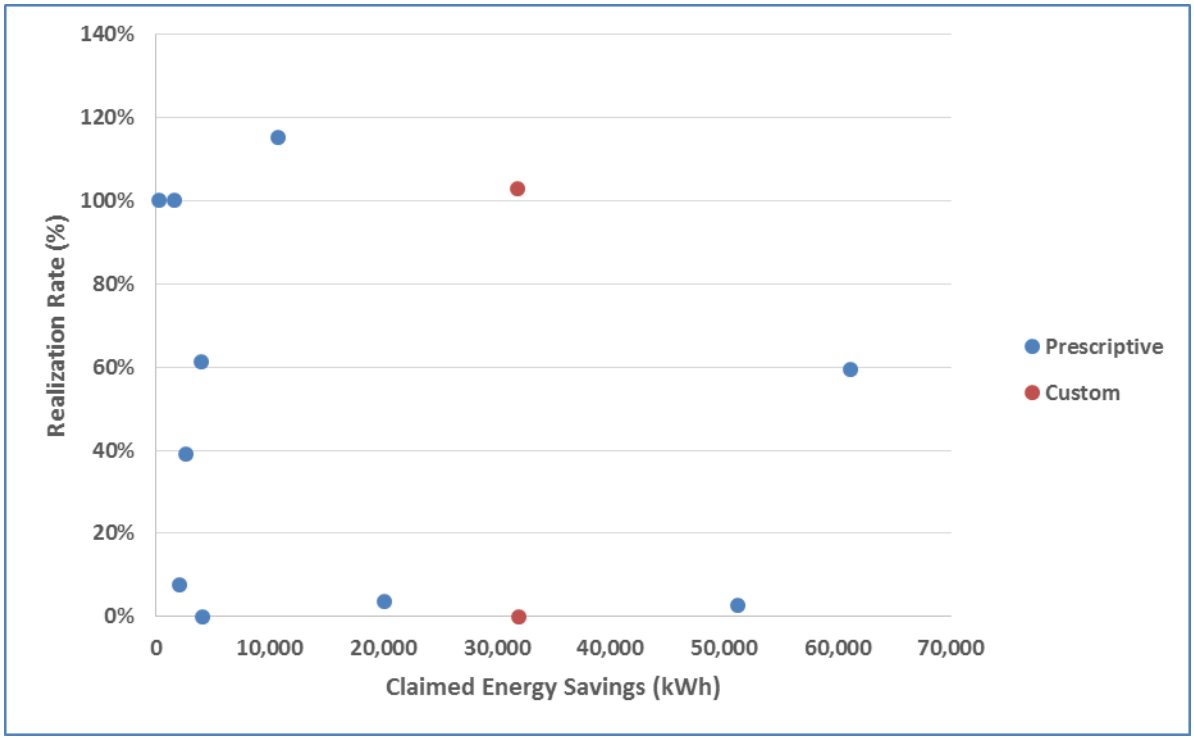
Table 16. Other Sample Energy Savings Methodology

| Project Type | Reported Saving Methodology | Evaluation Methodology |
|---|---|---|
| Cool roofs | Deemed savings (0.33 kWh/yr/sqft) based on California DEER database | Oak Ridge National Laboratory (ORNL) Cool Roof Calculator |
| Insulation | Deemed savings (kWh/yr/sqft) based on California DEER database | Used reported deemed savings and updated quantities based on site observation |
| High-efficiency windows | Deemed savings (kWh/yr/sqft) based on PacifiCorp and Xcel Energy demand-side management studies | Used reported deemed savings and updated quantities based on site observation |
| Convection oven | Deemed savings (kWh/yr) based on ENERGY STAR | Used reported deemed savings and updated quantities based on site observation |
| Irrigation system upgrade | Custom calculations | Utility bill analysis |
| Dust collection system controls | Custom calculations | Reviewed and updated the provided custom calculations |

### *Findings*

Figure 9 indicates the realization rates and associated energy savings for each of the sampled projects.

Figure 9. Other Sample Results



There were eight projects with realization rates below 80%. Table 17 provides specific details related to those projects.

**Table 17. Other Sample Detailed Findings**

| Project | Project Measures | Reported kWh | Evaluated kWh | Realization Rate (site) | Notes |
|---|---|---|---|---|---|
| IDFX1_00321 | Cool roof, insulation, windows | 4,030 | 2,464 | 61% | Used ORNL calculator for evaluation |
| IDFX1_000331 | Cool roof | 4,059 | 0 | 0% | Cool roof installed above unconditioned residential space* |
| IDFX1_00353 | Cool roof, insulation | 61,203 | 36,289 | 59% | Used ORNL calculator for evaluation |
| IDFX1_000371 | Cool roof | 20,096 | 724 | 4% | Used ORNL calculator for evaluation |
| IDFX1_000408 | Insulation | 2,074 | 160 | 8% | The Cadmus team observed only 8% of incented insulation while on site |
| WBID_10389 | Cool roof, insulation | 2,634 | 1,029 | 39% | Used ORNL calculator for evaluation |
| WBID_11519 | Cool roof | 51,257 | 1,348 | 3% | Used ORNL calculator for evaluation |
| WBID_12412 | Irrigation pump upgrade | 31,915 | 0 | 0% | Used utility bill analysis for evaluation |

* Cool roofs only save energy above mechanically cooled spaces.

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

- Cool roof projects all had realization rates lower than 100%. For these projects, RMP uses deemed savings of 0.33 kWh saved for every square foot of cool roof installed. This deemed value is from the DEER database, which is determined from California's varied climate. When the Cadmus team evaluated the incentivized and sampled cool roof projects on a case-by-case basis, using the specific climate and building information in Idaho, the savings were significantly lower. The reduction in savings is most likely due to a reduced need for mechanical cooling in Idaho's climate.
- The Cadmus team evaluated the irrigation pump upgrade project using a utility bill analysis. We compared the utility bill data between the baseline and post-implementation periods and determined that no savings were achieved. The team inspected the equipment on site and verified that it matched the project documentation. We also interviewed the farmer, but came to no conclusions on why the system is not providing energy savings.

## Evaluated Net Savings

The Cadmus team evaluated net savings by conducting a freeridership and participant spillover analysis using responses from the participant surveys. The team used the same net savings methodology used for the 2009-2011 and 2012-2013 Energy FinAnswer Program evaluations and described in detail in Appendix B of the 2009-2011 evaluation report.[5] Detailed information about the net savings methodology is provided in Appendix A. Self-Report NTG Methodology of this report. This net savings approach aligns with industry best practices summarized in the Uniform Methods Project (UMP).[6]

Table 18 provides the net savings evaluation results, shown as evaluated gross savings and NTG by program delivery channel. Program delivery channel NTG estimates were weighted by their evaluated program energy savings to arrive at the overall 82% NTG estimate for the program. The delivery channel NTG values are provided for informational purposes.

**Table 18.*watt*smart Business Program NTG Results for 2014–2015**

| Program Delivery Channel | n | Program Savings (kWh) | NTG |
|---|---|---|---|
| Small Business Lighting | 33 | 1,281,756 | 95% |
| Typical Upgrade | 31 | 9,239,572 | 82% |
| Custom Analysis | 16 | 3,338,593 | 79% |
| **Overall** | **80** | **13,859,921** | **82%*** |

* Weighted by evaluated program savings.

The following sections describe the NTG methodology we used and the results for the 2014-2015 ***watt***smart Business Program.

### Methodology

This section contains a brief overview of the NTG methodology (a more detailed explanation is provided in Appendix A. Self-Report NTG Methodology). To determine the net savings, the Cadmus team used a self-report approach and analyzed collected data to estimate freeridership and participant spillover. This approach is typically the most cost-effective, transparent, and flexible method for estimating NTG. Consequently, it is the most frequently employed NTG methodology.

Freeridership and participant spillover constitute the NTG. The Cadmus team used the following formula to determine the final NTG ratio for all three program channels (SBL, Typical Upgrade, and Custom Analysis) for 2014 and 2015 participants:

*Net-to-gross ratio = (1 – Freeridership Percentage) + Participant Spillover Percentage*

[5] This appendix is available online: http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2013/ID_Energy_FinAnswer_Program_Evaluation_2009-2011.pdf

[6] The UMP chapter covering estimation of net savings is available online: http://www.nrel.gov/docs/fy14osti/62678.pdf

The team then weighted each program delivery channel NTG ratio by the program delivery channel's evaluated gross population energy savings to arrive at the overall NTG estimate for the program.

### Estimation of Freeridership

The Cadmus team determined the freeridership for the SBL, Typical Upgrade, and Custom Analysis delivery channels based on an approach previously developed for RMP, which ascertained freeridership using responses to a series of survey questions. These questions asked whether participants would have installed the same equipment in the program's absence, at the same time, and in the same amount and efficiency. As the first step in freeridership scoring, the Cadmus team reviewed the participant survey responses to determine if the exact same project (in terms of scope and efficiency level) would have occurred at the same time without the program. If so, the respondent was scored as a complete freerider. If not, the team reviewed the responses to determine whether the project would have occurred at all within the same 12 month period. If not, the respondent was scored as a non-freerider. If the project would have occurred within the same 12 month period but altered in respect to its size or efficiency level, the respondent was scored as a partial freerider. We then weighted the program delivery channel-specific freeridership estimates by the evaluated energy savings achieved by respondents within the sample to calculate the weighted freeridership estimate for each delivery channel.

### Estimation of Spillover

The Cadmus team also estimated the indirect program influence on the broader market as a result of the program activities. This estimate of program "spillover" represents the energy savings attributable to the program's intervention and influence but that is not currently reported in program tracking data. Spillover savings can come from participants and nonparticipants. Participant spillover occurs when the program influences program participants to install additional energy-efficient equipment-beyond what was incentivized by the program, while nonparticipant spillover savings occur when market allies influenced by the program install or influence nonparticipants to install energy-efficient equipment.

The Cadmus team determined participant spillover by estimating the savings derived from additional measures installed and whether respondents' credited RMP with influencing their decisions to install additional measures. The team included measures eligible for program incentives, provided the respondent did not request or receive the incentive.

## *Freeridership Findings*

After conducting 66 surveys covering 80 project measures with SBL, Typical Update, and Custom Analysis delivery channel participants, the Cadmus team converted the responses to the freeridership questions into a freeridership estimate for each participant, using the approach described in Appendix A.

In order to determine the extent to which the program affected installation decisions, the Cadmus team asked respondents what would have been different about their installations if the program were not an option. We asked about multiple measures for those who installed more than one through the program.

Participants stated that 22 project measures (28%) would have been installed at the same efficiency and scope within the same year; while 43 project measures (54%) would not have been installed at all. Another 14 project measures (18%) would have occurred, but they would have been installed more than 12 months later, the measures chosen would have been of standard efficiency, or the project would have been reduced in scope. For one project measure (1%), the participant would have installed the same quantity of the measure within one year of the original participation date but would have installed less efficient equipment than installed through the program (but better than standard efficiency). A summary of participant measure responses is shown in Table 19, along with the initial calculated freeridership estimate for each respondent.

**Table 19. Measure Installations in Absence of *watt*smart Business Program**

| Respondent Category | n* | Percentage of Total** | Initial Freeridership Estimate |
|---|---|---|---|
| Would have been installed at the same efficiency and scope within the same year | 22 | 28% | 100% |
| Would not have been installed at all | 43 | 54% | 0% |
| Would have installed more than 12 months later, the measures chosen would have been less efficient, or the project would have been reduced in scope | 14 | 18% | 0% |
| Would have installed the same quantity of the measure within one year of the original participation date, but would have installed less efficient equipment than installed through the program (but better than standard efficiency) | 1 | 1% | 50% |

*66 respondents were asked about 80 measures.

** Total may not sum to 100% due to rounding.

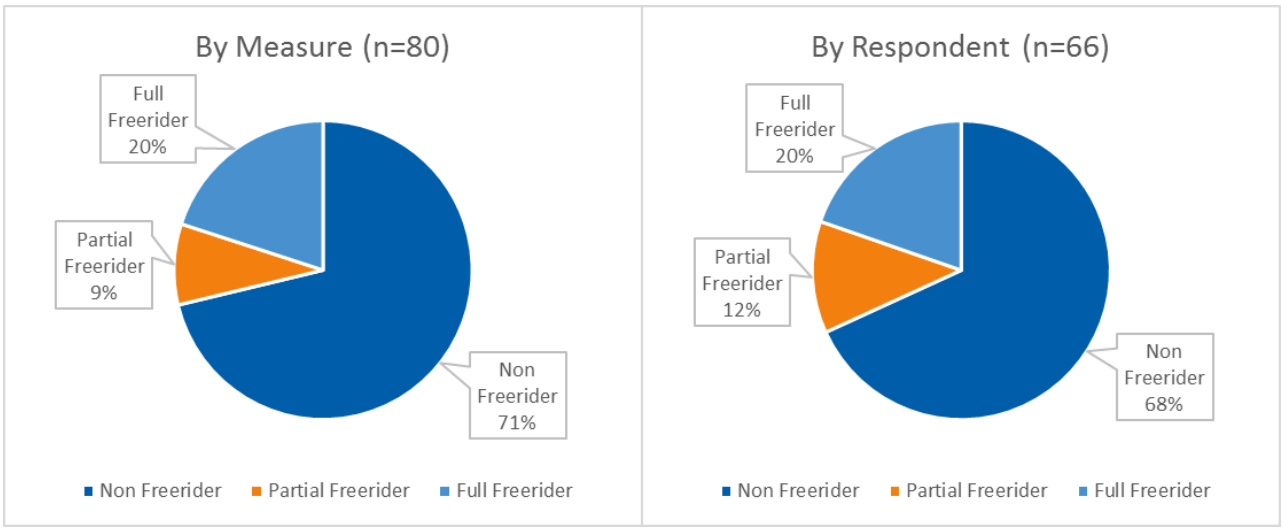
The Cadmus team compared participants' statements about what they would have done in absence of the program to their statements about factors influencing their project. Several participants' measure specific responses (n=22) indicated that they found the program incentive or program assistance important in their decision, but then said they would have installed the same project at the same time. The Cadmus team considered these responses to be inconsistencies, and requested that participants explain the program's influence on their project in their own words. All of these respondents provided a description that did not warrant adjusting freeridership designations. For example, when asked about the impact of program on their decision to complete the energy efficiency improvement, one participant stated it had "none really, because I was going to do it [the project] anyway." Based on responses like this one, we considered these participants as full freeriders.

In addition, the Cadmus team credited the influence of past participation, due to the portfolio nature of the program delivery, by reducing freeridership if past program participation was somewhat or very important in the participant's decision. Because of RMP's efforts to cross-promote their entire portfolio of energy efficiency programs, a respondents prior participation in a RMP program may have influenced their decision to participate in the current program.

To calculate this credit, the Cadmus team reviewed respondents' rating of the influence of the prior program on a scale of 1 to 5, where 1 indicated "not important at all" and 5 indicated "extremely important." For those who rated their previous participation as a 4 or 5, we reduced their freeridership score by either 50% or 75%, respectively. This affected six projects that received an initial freeridership estimate of 100%: three of these project's measures' freeridership estimates were reduced by 75% and three were reduced by 50%.

Based on participant responses and after adjusting for inconsistencies and prior program experience, the Cadmus team determined freeridership by measure and by respondent, as shown in Figure 10. We asked approximately 21% of the respondents about two measures associated with their project. Overall, responses were consistent regarding the program influence on decisions, so the overall representations are similar by measure and by respondent. However, one participant was more influenced by one measure than the other. Overall, the team determined that 20% of participants are full freeriders, 68% are non freeriders, and 12% are partial freeriders.

**Figure 10. Freeridership, by Measure and by Respondents**




### *Participant Spillover Findings*

Some participants installed additional, energy-efficient measures after participating in the ***watt***smart Business Program. The Cadmus team attributed program spillover only to additional purchases significantly influenced by ***watt***smart Business Program participation and not reported through the program. Respondents indicated the level of influence on a 1 to 5 point scale, where 1 indicated being not important at all and 5 indicated being extremely important, when asked "please rate how important your experience with the RMP program was in your decision to install this energy efficient product." If a respondent indicated a rating of 5 for a measure, the team considered the spillover measure as attributable to the RMP program. Only one respondent—a SBL participant—provided a response of 5.

The Cadmus team used evaluated savings values from the engineering gross savings analysis to estimate spillover measure savings. This involved estimating the spillover percentage for the SBL delivery channel by dividing the sum of the additional spillover savings by the total gross program savings achieved by all 25 SBL program delivery channel respondents. Table 20 shows the results.

**Table 20. *watt*smart Business Program Participant Spillover**

| Program Delivery Channel | Spillover Measures Installed | Spillover Measure Quantity | Spillover Energy Savings (kWh) | Surveyed Program Delivery Channel Savings (kWh) | Spillover Percentage |
|---|---|---|---|---|---|
| Small Business Lighting | T8 Fluorescent | 3 | 1,752 | 173,876 | 1% |
| Typical Upgrade | None | N/A | 0 | 440,408 | 0% |
| Custom Analysis | None | N/A | 0 | 533,632 | 0% |

### *NTG Findings*

The Cadmus team conducted 25 surveys covering 33 project measures with SBL delivery channel participants, 26 surveys covering 31 project measures with Typical Upgrades delivery channel participants, and 15 surveys covering 16 project measures with Custom Analysis delivery channel participants. The team used these participant responses to generate NTG percentages of 95% for SBL, 82% for Typical Upgrade, and 79% for Custom Analysis. Table 21 lists these findings.

The Cadmus team calculated a program-weighted NTG of 82%, presented in Table 21, by weighting each delivery channel NTG percentage by the evaluated gross population energy savings for each delivery channel.

**Table 21. NTG Percentages by Program Delivery Channel**

| Program Delivery Channel | Measure Responses (n) | Freeridership Percentage | Spillover Percentage* | NTG* | Evaluated Gross Program Population Savings (kWh) |
|---|---|---|---|---|---|
| Small Business Lighting | 33 | 6%* | 1% | 95% | 1,281,756 |
| Typical Upgrade | 31 | 18%* | 0% | 82% | 8,851,544 |
| Custom Analysis | 16 | 21%* | 0% | 79% | 3,338,593 |
| **Overall** | **80** | **18%**** | **0%**** | **82%**** | **13,471,892** |

*Weighted by evaluated gross program savings.

**Weighted by evaluated gross program population savings.

### *Benchmarking NTG*

The Cadmus team benchmarked RMP's program against similar non-residential programs. Table 22 shows freeridership, spillover, and NTG estimates for non-residential programs reported for prior Rocky

Mountain Power program years as well as for other utilities with similar programs and measure offerings.

**Table 22. NTG Comparisons***

| Utility/Region | Reported Year | Responses (n) | FR % ** | Spillover % | NTG |
|---|---|---|---|---|---|
| **Rocky Mountain Power Idaho 2014–2015 *watt*smart Business Evaluation** | **2016** | **80** | **18%** | **0%*** ** | **82%** |
| Rocky Mountain Power Idaho 2012–2013 Energy FinAnswer Evaluation | 2015 | 61 | 21% | 0% | 79% |
| Rocky Mountain Power Idaho 2012–2013 FinAnswer Express Evaluation | 2015 | 84 | 22% | 0% | 78% |
| Northeast Utility – C&I Prescriptive | 2016 | 77 | 23% | 0% | 77% |
| CY2015 Focus On Energy Non-Residential Evaluation Report - Wisconsin Statewide | 2016 | 450 | 21% | 0% | 79% |
| 2014-2015 Massachusetts C&I Natural Gas Freeridership and Spillover Study - Statewide | 2015 | 901 | 18% | 4% | 86% |

*NTG values derive from self-response surveys, though differences in analysis and scoring methodologies may vary across evaluations.

**FR = freeridership.

***Program delivery channel spillover estimates weighted by program delivery channel evaluated gross population savings results in a 0% overall program spillover estimate, rounded to the nearest whole percent.

The 2014–2015 ***watt***smart Business Program freeridership estimate of 18% is slightly lower than the 2012-2013 Energy FinAnswer Evaluation and 2012-2013 FinAnswer Express Evaluation freeridership values of 21% and 22%, respectively.[7] These Rocky Mountain Power program evaluations used the same NTG methodology and the methodology is modeled after the 2014-2015 Massachusetts C&I Natural Gas Freeridership and Spillover Study methodology framework.

The Northeast Utility C&I Prescriptive and CY2015 Focus On Energy Non-Residential evaluations use NTG methodologies that are comparable to that used for the 2014-2015 ***watt***smart Business Program but are

[7] Between 2013 and 2015, RMP combined a number of programs under the ***watt***smart Business umbrella. The Energy FinAnswer and FinAnswer Express programs were rolled into the Custom Analysis and Typical Upgrades delivery channels, respectively, within the ***watt***smart Business Program.

different in design. The 2014–2015 ***watt***smart Business Program freeridership estimate of 18% is the lowest of the compared programs but is similar to the benchmarked programs.

### *Nonparticipant Spillover*

The Cadmus team included a series of questions in the nonparticipant survey to estimate nonparticipant spillover, that is, the savings generated by customers who were motivated by the RMP program's reputation, past RMP program participation, and RMP program's marketing to conduct energy efficiency installations for which they did not receive an incentive. However, the analysis did not apply these nonparticipant spillover to program savings for this period; these were instead calculated for informational purposes at 4% of total ***watt***smart Business Program savings. Appendix B. Nonparticipant Spillover provides detailed nonparticipant spillover analysis methods and results.

## Process Evaluation

This section outlines the detailed findings of the Cadmus team's process evaluation of the SBL, Typical Upgrades, and Custom Analysis delivery channels of the Idaho ***watt***smart Business Program. These findings are based on an analysis of data collected through program staff interviews and participant, partial participant, and nonparticipant surveys. In conducting the evaluation, the Cadmus team focused on assessing the following:

- Effectiveness of the program design, marketing, and processes
- Participant and partial participant customer experience and satisfaction
- Barriers to customer participation

The Cadmus team focused the research activities on the key research topics identified during the evaluation kick-off meeting, as well as on topics of interest identified by program stakeholders. Our primary research questions are listed in Table 23.

**Table 23. Research Areas and Questions**

| Research Areas | Researchable Questions and Topics |
|---|---|
| Program Status | How did the program perform in 2014 and 2015, and what opportunities and challenges do program staff foresee for future program years? |
| Satisfaction | How satisfied are participants and partial participants with the program and with the program measures, incentives, and services? |
| Awareness | Are customers aware of the RMP ***watt***smart Business Program? If so, how did they learn about the program? |
| Motivations and Barriers | What are the key factors influencing participants' and partial participants' decisions to participate in the program? What are the key factors in any customers' decision to install energy efficiency improvements? What are the barriers to participation for participants, partial participants, and nonparticipants? |
| Freeridership and Spillover | How influential was the program on participants' and partial participants' decisions to participate? How influential was the program on any customers' decision to install energy efficiency equipment without program incentives or services? |
| Firmographics | What are the business characteristics of participants in each program delivery channel? How do participant awareness, and business size compare by program delivery channel? |

### *Methodology*

Between program years 2013 and 2015, RMP consolidated the Energy FinAnswer and FinAnswer Express programs under the ***watt***smart Business Program name. The following sections provide an overview of the methodology used for process evaluation research of program years 2014 and 2015, which occurred during this transition period.

### Materials and Database Review

The program materials review included past evaluation reports for Idaho's Energy FinAnswer and FinAnswer Express programs (in program years 2012 and 2013), marketing materials, the ***watt***smart Business Program website, program flow charts, the contractor manual, participant and partial participant databases, and the RMP nonresidential customer database.

### Utility and Administrator Staff Interviews

The Cadmus team developed stakeholder interview guides and collected information about key topics from program management staff. The evaluation involved three interviews: one with the program staff at RMP, and two with program staff at Cascade and Nexant (the program administrators). The interviews covered the following topics:

- Changes in stakeholder roles and responsibilities
- Program design and implementation changes
- Marketing and outreach
- Trade ally roles
- Data management and quality control processes
- Barriers and areas for improvement

### Surveys

The Cadmus team surveyed three customer populations: participants, partial participants, and nonparticipants.

#### *Participant Telephone Surveys*

The Cadmus team conducted telephone surveys with 66 participants who installed measures through the SBL, Typical Upgrade, and Custom Analysis delivery channels. We designed the survey instrument to collect data about the following process evaluation topics:

- ***Customer perceptions and motivations***
  - Program awareness
  - Reasons and motivations for participation
  - Perceived value of the program
- ***Customer experience***
  - Effectiveness of the program delivery, including marketing materials and delivery channels
  - Customer interaction with trade allies and program staff
  - Customer satisfaction
- ***Program influence:*** freeridership and spillover
- ***Customer information***: firmographic information

### Participant Sample Detail

The participant databases provided by RMP contained both projects under the older program names (Energy FinAnswer and FinAnswer Express) and ***watt***smart Business Program projects. In order to sort all projects into one of three delivery channels for evaluation, the Cadmus team first assigned Energy FinAnswer and FinAnswer Express to the Custom Analysis and Typical Upgrades channels, respectively. We then further sorted ***watt***smart Business projects into those with custom measures and those with measures other than custom, based on the measure name. The team assigned any project with both custom measures and measures other than custom as Custom Analysis to ensure there was enough sample in that delivery channel.

After assigning all projects to a delivery channel, the Cadmus team reviewed projects for any participants who completed more than one project within that delivery channel, and kept the single project with the highest kWh savings. For projects with more than one installed measure type, we kept the two non-identical measures with the highest energy savings. The team randomly selected participants for surveys within each channel. Table 24 show the mapping of each project's program or measure designation to its respective delivery channel.

**Table 24. Programs and Measures Reported by Delivery Channel**

| Delivery Channel | Program(s)/Measures |
|---|---|
| Small Business Lighting | Small Business Lighting |
| Typical Upgrades | ***watt***smart Business (measures other than custom) |
| | FinAnswer Express |
| Custom Analysis | ***watt***smart Business (custom measures) |
| | Energy FinAnswer |

### *Nonparticipant and Partial Participant Telephone Surveys*

The Cadmus team conducted telephone surveys with nonparticipants, and with partial participants regarding their projects that had been started but not completed. The surveys covered the following process evaluation topics:

- ***Customer perceptions and motivations***
  - Program awareness
  - Reasons for and barriers to make energy-efficient improvements
- ***Customer experience***
  - Reasons partial participants did not complete specific projects
- ***Program influence:*** savings spillover
- ***Customer information***: firmographic information and fuel used for heating and cooling

### Nonparticipant Sample Detail

The Cadmus team removed participants and partial participants from the master list of nonresidential customers provided by RMP. We then segmented the nonparticipant population into managed accounts (those with a dedicated RMP account manager and higher energy usage) and non-managed accounts. The team randomly called nonparticipants for surveys from each of these two subpopulations.

### Partial Participant Sample Detail

RMP, Nexant, and Cascade provided the Cadmus team with lists of 2014 and 2015 partial participants from each of their respective program areas of responsibility. The team checked this list against the list of program participants and removed any customers who appeared on the participant list for another project during that same timeframe to eliminate any possibility of double sampling these individuals. For partial participants who began but did not complete multiple projects during the evaluation period, the Cadmus team included in the sample the project with the greatest estimated kWh savings, resulting in a sampling frame of 52 unique partial participant customers. We then randomly selected partial participants from the sampling frame for surveys.

## *Program Implementation and Delivery*

Drawing on stakeholder interviews and participant survey data, this section discusses the ***watt***smart Business Program implementation and delivery.

### Program Overview

RMP consolidated the previous energy efficiency programs under the ***watt***smart Business umbrella in order to offer a portfolio of incentives to its customers, reducing and simplifying the application processes and improving the customer experience. Program staff reported that the consolidation has worked well, and said it was the "right thing to do." During this time, RMP also increased its focus on small business customers, adding the SBL program offering, through which it provides free facility assessments and incentives for small business lighting retrofits. Beginning in December 2016 RMP restructured the SBL offering to become the Small Business Direct Install (SBDI) offering for retrofit. RMP will offer SBDI to a list of geo-targeted customers annually. This report covers the SBL program prior to its restructuring.

In 2013, Nexant took over the ***watt***smart Business customer service call management from RMP. Previously, RMP had maintained a single person to respond to calls on their business energy efficiency hotline. Nexant said that person was not dedicated to the task, so most calls were managed by voice mail. Nexant took on the task to answer all calls live, and either answer them or route them to the appropriate person. This position is staffed by a knowledgeable subject matter expert who answers calls from customers and vendors, as well as misdirected calls about residential programs and customers asking about their bills.

The customer service phone number is on the RMP business website and was developed for commercial energy efficiency calls. The phone line is staffed during normal business hours (8:00 AM to 5:00 PM,

Monday through Friday), by people who also process applications and handle online and email inquiries, making them very familiar with the questions and answers.

### *Design and Implementation*

Utility staff who had previously managed the individual demand-side management programs across the parent company's, PacifiCorp's, multistate territory, were reassigned to manage the ***watt***smart portfolio of programs within either the RMP division or the Pacific Power division. RMP program management staff said the program delivery worked well with the in-house managed accounts and in outreach to the trade allies, but said that is not yet as efficiently with the small commercial and industrial customers.

Cascade staff noted that approximately 10% of the irrigation customers installing equipment utilizing the Typical Upgrades incentives, have issues with the incentive cap, anticipating higher incentives than they qualify for. RMP caps incentives at 70% of cost or a one-year payback (whichever is less). This one-year cap means that the incentives will not be available to reduce the simple payback of the project below one year. Although the general application states these incentive limits, staff said that customers do not know they have exceeded the incentive limits until after they submit the application and the implementer has completed the energy savings and incentive calculations. RMP recommends that customers prequalify for these incentives prior to purchasing equipment, but this it is not required.

### *Marketing and Outreach*

Program management staff said there has been no change in the outreach strategy following the program consolidation. It remains primarily a function of in-house RMP staff and customer-facing trade allies. RMP develops marketing collateral and manages any co-branding to maintain quality control. The ***watt***smart Business vendor logo, previously limited for use to advertise residential offerings, has been extended across the portfolio.

### *Trade Allies*

RMP developed the Energy Efficiency Alliance to provide customers with a trained pool of local trade allies (designers, contractors, distributors, manufacturers, and vendors) to assist them in identifying and implementing energy efficiency projects. ***watt***smart Business vendors can promote the program to their clients, assist customers with their projects, provide recommended upgrades, create proposals and bids, assist with the paperwork, and supply and/or install the upgrades.

This alliance is managed by Cascade or Nexant in their respective markets. Trade allies who join RMP's Energy Efficiency Alliance sign an agreement, then receive incentive program training and calculation tools, introductions to local business prospects through organized meet-and-greet events, marketing support, and are notified about program updates. Program implementers post business information for alliance members on the program website in a searchable database.

Nexant, who works with the commercial programs' trade allies, said they are considering grouping these trade allies into tiers so they may be emphasized for good program performance (high number of projects completed, good accuracy, high customer satisfaction scores) and based on their qualifications

(training, certifications, experience with specific measures). This would allow customers to better differentiate between contractors when selecting help for a specific project.

With the exception of SBL projects, RMP did not require customers to use an Energy Efficiency Alliance member. For SBL projects, Nexant trained and managed a select group of approved contractors who promoted the SBL services and measures, and explained to customers to use one of these contractors to receive the SBL incentives.

Cascade, who works with the agricultural and industrial customers, recruits trade allies but does not require them to join the Energy Efficiency Alliance. The agricultural and industrial projects in Idaho are all custom, which facilitates a close relationship between customer and trade ally. Therefore, Cascade finds it more effective to work in support of the trade allies in Idaho rather than conduct a lot of direct outreach. When a trade ally brings a lead to the program, rather than Cascade engineers taking the lead role with the customer, Cascade provides engineering support to assist in reaching out to the customer, preparing the necessary calculations to show customers potential savings, and advising on how to achieve higher savings from a project.

### *Database Interface and Data Management*

RMP uses two software applications—Demand Side Management Central (DSMC) and the Technical Resource Library (TRL)—for project management, data warehousing, and reporting. The TRL, as described in the ***watt***smart Business Program Guidelines for Contractors, houses the program database of measure definitions, which the DSMC draws on to perform validation checks to ensure incentives and savings submitted by engineer and trade allies correspond with the value and caps defined by tariff.

TRL measures are built into the Incentive Calculator Tool, which RMP provides to engineers or trade allies to ensure consistency in incentive calculations. When preparing offers for customers or calculating savings and incentives, engineers and trade allies use pulldowns within the tool to select only measures that are included in ***watt***smart Business Program. Implementation staff who oversee the trade allies said this is a big benefit in keeping trade allies from selecting ineligible equipment. Anytime a new measure appears, RMP must update the TRL and the calculator. Implementation staff said this works pretty well, but noted that custom measure descriptions needed to be reviewed and revised and some custom measures needed to be added.

Both program implementers maintain project databases from which they review, upload to DSMC, and process applications on a weekly basis (weekly batch). The implementers expressed different experiences with this interface process, with one calling it efficient “now,” indicating there had been improvement over time, and another saying it was somewhat laborious. Although the process is automated, RMP and Nexant said they still have challenges with data exchange, indicating that inputs of measure names, project savings and incentive amounts must be error free to be accepted by DSMC. This exchange of data still needs some improvement. Additionally, Nexant observed the data reconciliation process could be streamlined by allowing trade allies to enter project data directly into RMP’s system. This was successfully tested during the SBL pilot, however, expanding this to all ***watt***smart Business

offerings may require system modifications to limit the data trade allies could access. These modifications may be limited by budget and what RMP can allow.

Through the weekly batch, both implementers submit invoices to RMP for payment of the approved incentives. The intention is for RMP to provide funding within 10 days; this is currently reported as taking 10-15 days, which challenges the implementers to deliver checks within the trade allies expectations.

### Data Quality Assurance

RMP's DSMC database is considered the database of record; however, as noted, both implementers also maintain their own databases. Nexant noted that they spend significant time transferring data between the two systems on a weekly basis. They said variances found during the weekly batch uploads are very small, sometimes as little as $0.15, and 99% of the time they match exactly. If any variance is found, they will identify and correct it until the two systems match exactly. Nexant suggested that in the future, the benefit of this level of effort should be evaluated relative to the amount of potential savings.

RMP also performs quarterly and annual reconciliations between the RMP and implementer databases, which are also time consuming and require significant effort. Given the checks and balances that occur weekly between the two systems, Nexant suggested that these quarterly or annual reconciliations might not be necessary. RMP may want to review the frequency of this process with Nexant.

Before a full launch of the Small Business offering, which Nexant administers, RMP and Nexant ran a pilot building Nexant's data into RMP's system. This gave RMP immediate and total visibility to everything Nexant was doing and Nexant said this worked well.

### Project Quality Control

The program quality control function is located in an online database that the Nexant implementation team has access to. It has checklists of steps to walk through for the review and submittal of applications for approval. It starts with the trade ally submitting information to Nexant's processing group, who do final reviews and check the project for program compliance, then submit the project for payment to RMP who funds the projects and Nexant writes the checks. Every project contains the check list.

### Evaluation of Program Database

While evaluating the program, the Cadmus team identified a number of inconsistencies in the participant databases. These included:

- Inconsistent measure name entries between the RMP, Nexant and Cascade databases
- Inconsistent data reporting categories between 2014 and 2015
- Incomplete customer contact, project site data and equipment measure information

The Cadmus team considers the inconsistencies in data reporting categories between 2014 and 2015 to be a result of the ongoing consolidation of programs and would expect to see evidence of this resolved in data extracts from 2016 onward.

## Program Challenges and Successes

RMP program management staff and the program implementers reported for the most part, they had the resources needed to deliver the program in 2015. Staff from both RMP and the implementers cited program strengths, including:

- A well-functioning, well supported ***watt***smart Business network of trade allies who are ingrained in the local communities. Trade allies have their own contact for questions, and relationships are fostered over time. Nexant and Cascade provide proactive local outsourced delivery staff who are available for site visits or trade ally visits.
- Strong relationships with large customers. These projects deliver large savings.
- Project-level incentives for lighting retrofits and custom projects that encourage comprehensive projects and simplify delivery.
- RMP, through third-party contractors, provides robust energy engineering services for custom projects, giving customers high-quality site evaluations and Savings and Incentive Reports prior to any investment. These services facilitate informed decision-making. Additionally, RMP hires a second engineer to develop a Savings Verification Report after a project is installed.
- The personal attention provided to customers by the implementation staff has contributed to year-over-year participation growth, in spite of boom and bust economic cycles.
- Continuous refinement and improvement in targeting and recruiting customers.

However, program management and implementation staff also noted the following challenges that they anticipate will impact the program going forward.

- Reaching the small business sector cost-effectively.
- Staying ahead of the rapid pace of change for lighting and lighting controls, especially for the small business offering, and keeping lighting equipment and incentives coordinated between the different program delivery channels.
- Continuing to improve outreach and increase awareness of the program.
- Needing to generate more projects to achieving escalating savings goals without matching increases in the incentive and delivery budgets
- Declining project sizes (the average kWh savings per project has been decreasing for several years).
- Staying ahead of energy codes and standards that are advancing and, in some cases, leapfrogging the program.
- Providing customers and trade allies with online applications and project tracking.
- Providing trade allies with online access to program calculator tools.

Implementation staff cited barriers but said that many of the prior issues with the program were addressed with the integration of ***watt***smart. For example, RMP wrote a new program manual (including ***watt***smart Business Program guidelines), simplified the process and reporting templates, and provided

measurement and verification guidance. RMP scaled the measurement and verification, which is labor and data intensive on all projects, to be commensurate with the project size. It also simplified customer applications and streamlined customer reports.

## *Customer Response*

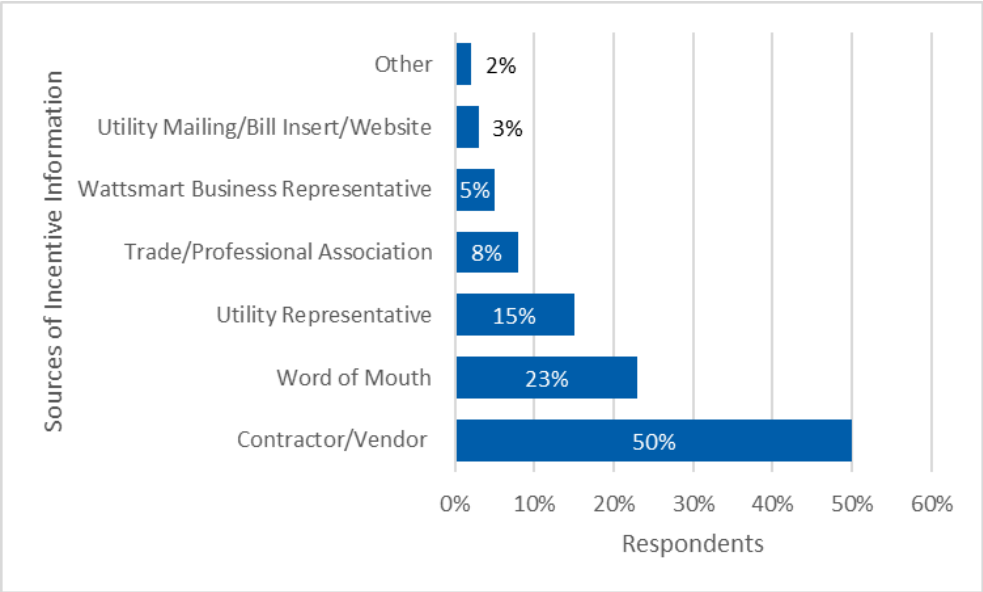
The Cadmus team surveyed 66 participants of the ***watt***smart Business Program. We interviewed 25 customers about a SBL project, 26 customers about a Typical Upgrades project, and 15 customers about a Custom Analysis project. The remainder of this section, in general, presents findings for the three program delivery channels separately. Occasionally, whenever this adds a broader perspective of program performance, we report findings for the separate delivery channels and for the program overall (as with the awareness and communication section below).

### Awareness and Communication

Customers in the Custom Analysis and Typical Upgrades delivery channels reported the same primary and secondary sources for program information in both 2013 and 2015. As shown in Figure 11, customers in all channels most frequently learned about the available incentives through their contractor or vendor (mean combined 50%, n=60).[8] Customers in the SBL delivery channel said that a utility representative was their second most frequent source of information. Customers in the Prescriptive delivery channels cited word of mouth from a family member, friend, or business colleague as their second most frequent source. Customers in the Custom Analysis delivery channel frequently learned about the incentives through a trade association or by word of mouth. Figure 12 shows frequency of all sources by individual delivery channel.

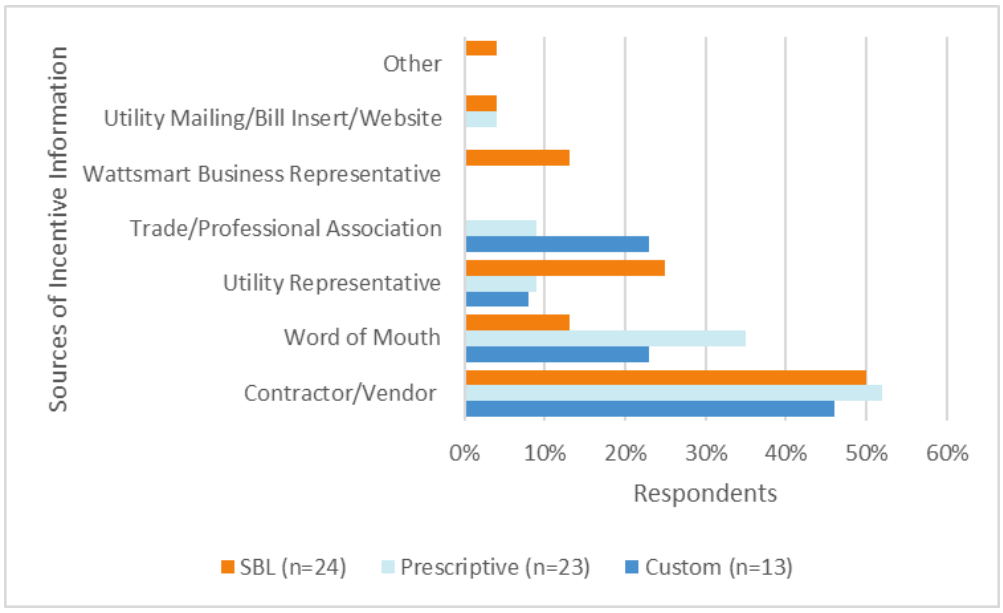
[8] n= the number of respondents or responses which are included in the statement. In the case where the reference is for example 20% (n=100), 100 is the number of responses or respondents included after any non-relevant answers have been removed. These non-relevant answers may include, for example, "Don't know" or "Refused" answers if the evaluation team deems these are not meaningful to the answer.

**Figure 11. Source of Information – All Delivery Channels Combined**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QB3. Don't know and refused responses removed. Multiple responses allowed (n=60).

**Figure 12. Source of Information by Delivery Channel**

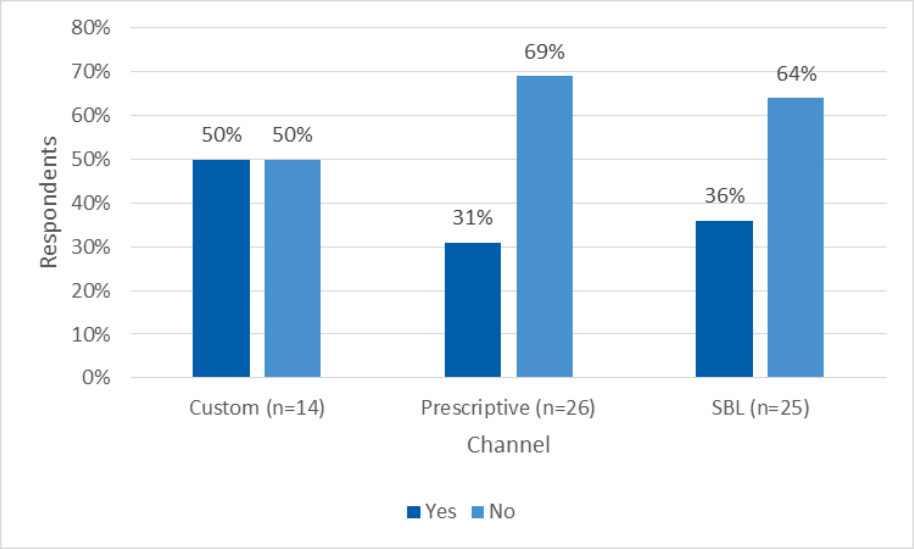



Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QB3. Don't know and refused responses removed. Multiple responses allowed (n=60).

As noted earlier, the program consolidation under ***watt***smart Business was ongoing during this evaluation period, and customers were still learning about this consolidation. At the time of the surveys, in September 2016, 37% of participant survey respondents (mean combined, n=65) had heard of the

***watt***smart Business Program before the survey call. As shown in Figure 13, participants in the Typical Upgrades and SBL delivery channels had the lowest program name awareness (31%, n=26 and 36%, n=25, respectively). At 90% confidence, the Cadmus team did not find a statistically significant difference in the awareness of the program name between the three groups: participants' in the Custom Analysis delivery channel showed awareness that was directionally higher.[9]

**Figure 13. Customer Awareness of *watt*smart Business Program by Delivery Channel**

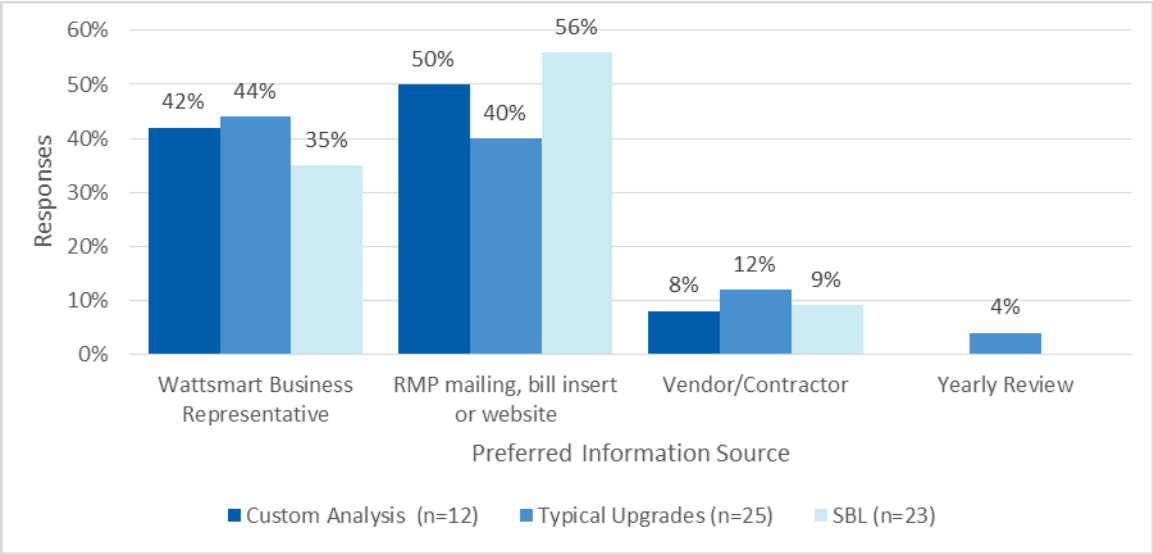



Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QB4. Don't know and refused responses removed.

The majority of customers in the SBL and Custom Analysis delivery channels (56%, n=23 and 50%, n=12, respectively), prefer to be kept informed about the program through a utility mailing, bill insert, or via the website. Customers in the Typical Upgrades delivery channel said they prefer contact with a ***watt***smart Business representative. Figure 14 illustrates that participants in both the Custom Analysis and Typical Upgrades channels were closely split between mailings/inserts/website and direct contact with a ***watt***smart Business representative as their preferred method of information.

[9] Lack of statistically significant difference is based on a two-sample t-test for proportions using a Bonferroni correction for multiple comparisons.

**Figure 14. Preferred Method of Communication to Stay Informed**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QJ4. Don't know and refused responses removed. Multiple response allowed.

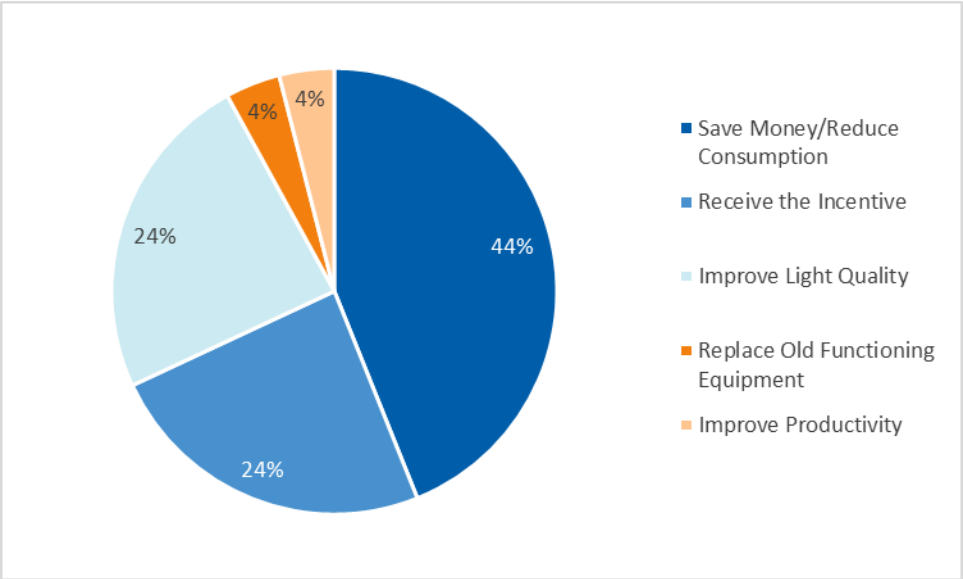
## Small Business Lighting Delivery Channel

SBL participants, overall, reported high satisfaction with the program elements, and only a few challenges. Some offered suggestions to improve their program experience, as detailed below.

### *Motivation*

Most SBL participants (44%, n=25), said that saving money and reducing their energy consumption were the most important reasons they decided to participate in the offering. As shown in Figure 15, they provided four more reasons as most important to their decision, although these were mentioned less frequently.

**Figure 15. Motivation to Participate**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QD1. Don't know and refused responses removed (n=25.)

### *Satisfaction*

Figure 16 shows that SBL participants had high satisfaction levels with four elements of the program: the lighting proposal, work by the contractor, equipment installed, and the incentives.

Ninety-six percent of SBL participants said it was very or somewhat easy to find an approved contractor to conduct their free site assessment (n=25), although one said it would have been easier to find an approved contractor had they been provided a list.

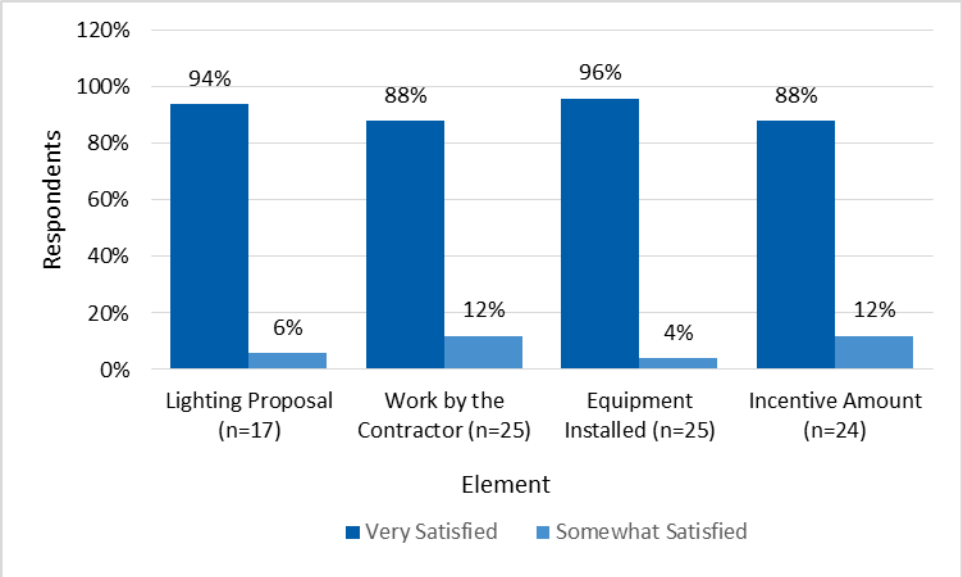
Seventeen participants who met with a contractor said they received a lighting proposal following their facility assessment, and they were very or somewhat satisfied with the proposal. Most respondents who received the proposal (12 of 17) said they were influenced by the projections for reduced cost when deciding whether to proceed with their projects, while three respondents were most influenced by the energy savings. One participant would have liked a more detailed report and one respondent couldn't identify what was most influential.

SBL participants were very or somewhat satisfied with the work provided by the contractor, and with the equipment installed (25 of 25). Four respondents said they would like the SBL offering to incentivize additional equipment, including hallway lighting (1), LEDs (2), and outdoor lighting (1). With the change of the SBL program to SBDI, small business customers may receive incentives for qualifying outdoor or hallway lighting products, however it may be through offerings other than SBL.

Customers were also very satisfied with the amount of the incentive they received for their project (88%, n=24). No one indicated being dissatisfied; however, three participants who rated their

satisfaction as somewhat satisfied (12%), asked for higher incentives (enough to cover the entire cost of the project), or higher incentives specifically for outdoor lighting.

**Figure 16. Customer Satisfaction Levels with SBL Elements**

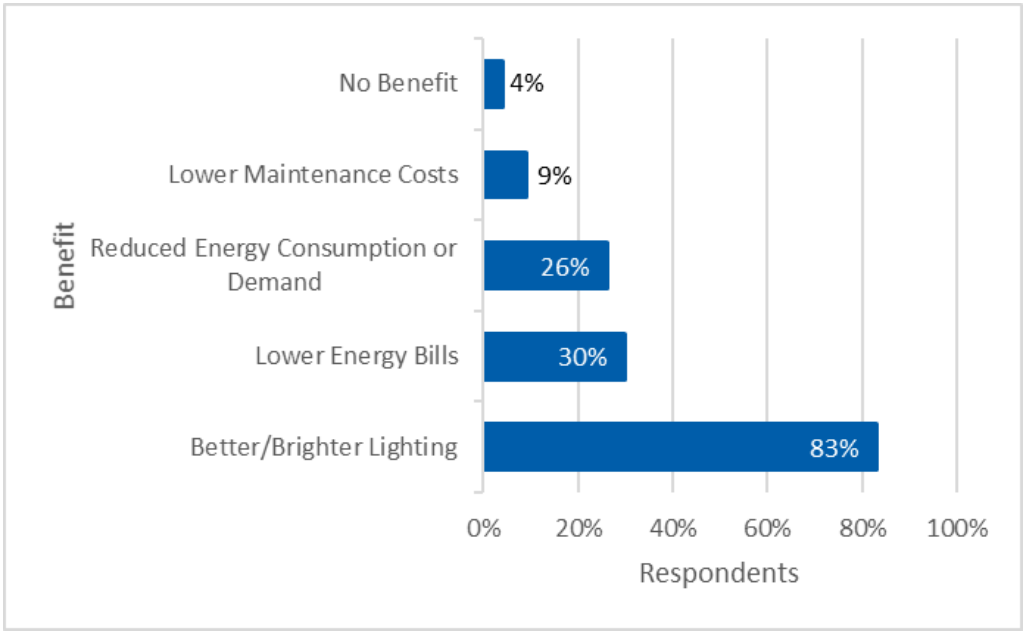



Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QD2, D7, D10, and D12. Refused responses removed.

### *Benefits and Challenges*

Overall, SBL participants (n=23) said they received one or more benefits as a result of installing the lighting equipment. As shown in Figure 17, respondents most frequently cited better or brighter lighting quality, followed by lower energy bills and reduced energy consumption, then by lower maintenance costs. Only one participant said they received no benefit. The evaluation team reviewed all survey responses provided by this participant and found the participant said the incentive, cost savings and information provided by the program were very important in their decision to implement their project. However, the participant also indicated significant frustration saying the website was too complicated and difficult to use.

**Figure 17. Benefits of Equipment Installed through the Small Business Lighting Delivery Channel**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QD16. Don't know and refused responses removed. Multiple responses allowed (n=23).

While 84% (n=25) of participants reported no challenges while participating in the SBL offering, 16% (four of 25) did note the following challenges (one each):

- Finding the right contractor to install the equipment
- The time required by the contractor to get on the site and to complete the job
- High project costs, even with incentives
- Difficulty using the website, which is too complex

Two of the respondents who encountered challenges said that RMP could help them by monitoring the participating contractors and assisting with the contractor selection.

Finally, when asked if they had recommendations to improve the SBL offering, four participants offered the following suggestions:

- Advertise the program more (1)
- Verify the energy savings to ensure the project helped reduce the energy bill (1)
- Include LED lighting (2)

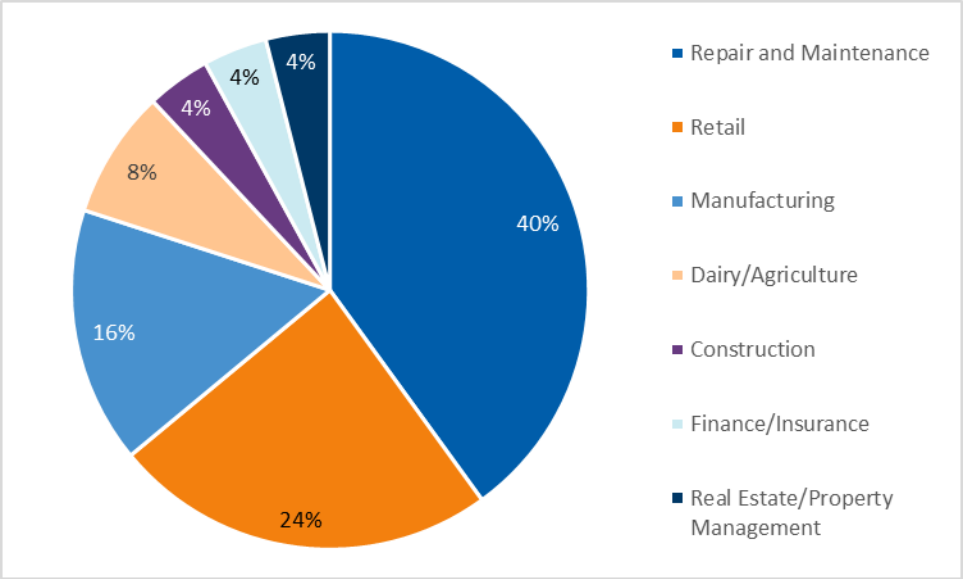
In closing, when asked if RMP could do anything to improve their overall experience with the ***watt***smart Business Program, five participants (of 25) offered these suggestions: include better or more communication (2), have a larger selection of eligible equipment (1), simplify the application process (1), and one participant, who was surprised to receive an IRS Form 1099 for the incentive, would have

preferred to be informed in advance. The remaining 20 participants said nothing was needed from RMP to improve their experience.

### *Firmographics*

Eighty percent of the surveyed SBL participants are in three business sectors: Repair and Maintenance,[10] the largest group at 40%, followed by Retail (24%) and Manufacturing (16%; Figure 18).

**Figure 18. SBL Delivery Channel Survey Participants by Business Sector**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey (Q I1, n=25) Don't know and refused responses removed.

Overall, 88% (n=25) own their facilities and 12% lease. Also, 92% employ between one and 10 people (n=24). Of the overall sample (n=25), a majority (52%) share three characteristics: they operate a business with 10 or less employees, they occupy a single location, and they own that location.

## Typical Upgrades Delivery Channel

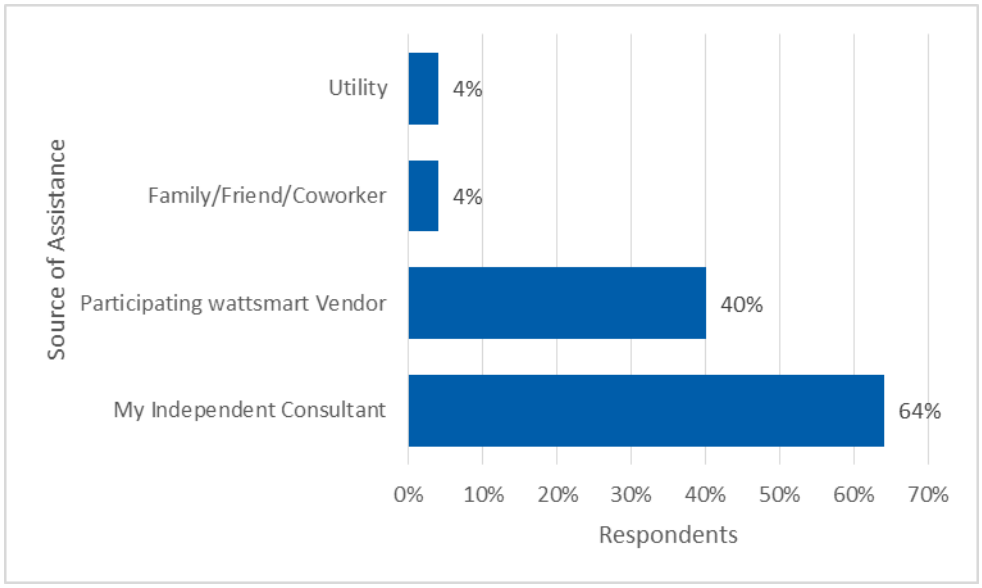
The Cadmus team surveyed 26 participants who received program incentives through the Typical Upgrades channel. Overall, they represent a wide array of business sectors (with a high percentage in Dairy/Agriculture), ranging in size from less than 10 employees to more than 500, with 65% employing 25 or fewer people. Participant satisfaction with the program is generally high, particularly with the work performed by their vendors, and with the equipment they installed; however, they found the application process somewhat challenging. More detail is provided below.

[10] Repair and Maintenance included respondent-designated businesses, and included repair, aircraft maintenance, automotive, and truck shop.

### *Motivation*

The Cadmus team asked participants in the Typical Upgrades delivery channel who helped them initiate their project. Twenty-five of the 26 participants said they were helped by one or more people. Participants most frequently said they were helped by an independent consultant; additionally, some participants said they were helped by lighting engineers, lighting contractors/distributors, and lighting designers, which the Cadmus team included in the independent consultant category. As shown in Figure 19, the two most predominate answers were their own independent consultant and a ***watt***smart Business Program participating vendor.

**Figure 19. Participants' Source of Assistance**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QE1. Don't know and refused responses removed. Multiple responses allowed (n=25).

### *Participation and Satisfaction*

Typical Upgrades participants found it somewhat difficult to complete their project application. Just 21% said it was very easy, while 63% said it was only somewhat easy, and 17% said the process was not too easy (n=24). Those who said the process was not too easy did not all know what would make it easier, but nine had suggestions. Four of these participants asked to have the paperwork simplified, reduced, completed for them, or eliminated completely. Four cited the process itself, specifically the number of steps in the submission and approval process, the process of sending information back and forth with the program staff, and the number of questions asked. One participant suggested telling customers what their opportunities and incentives would be before they go through the application process.

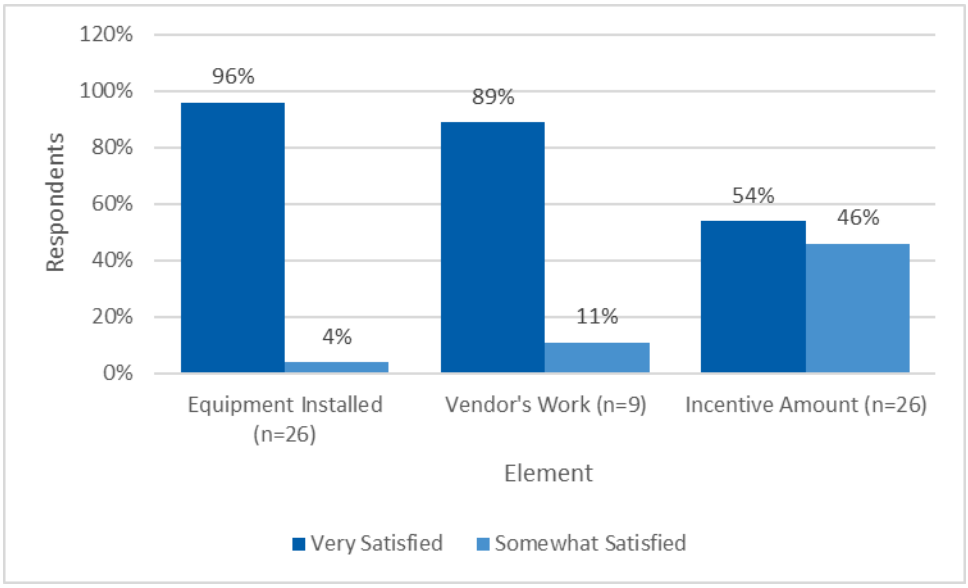
A large majority of participants (96%, n=26) were very satisfied with the equipment they installed, and eight of the nine participants who used a participating ***watt***smart vendor reported they were also very satisfied with the vendor's work.

Eight participants said they would like the program to offer prescriptive incentives for other equipment, including indoor and LED lighting (3), additional irrigation pumps (2), canopy lighting (1), variable gauge units (1), and an irrigation well (1).

Participants were generally satisfied with the amount of the incentive they received for their project, with 100% (n=26) responded they were either very satisfied (n=14) or somewhat satisfied (n=12). Seven of the somewhat satisfied participants asked for higher incentives. However, when the Cadmus team asked what amount of incentive would have elicited a very satisfied response, three respondents said the program should pay at least 50% of the project cost, and two said an additional 10% would have been enough. One participant said the incentives should cover all of the project cost.

Figure 20 shows satisfaction levels with three elements of the Typical Upgrades delivery channel: equipment installed, participating vendor's work, and incentives.

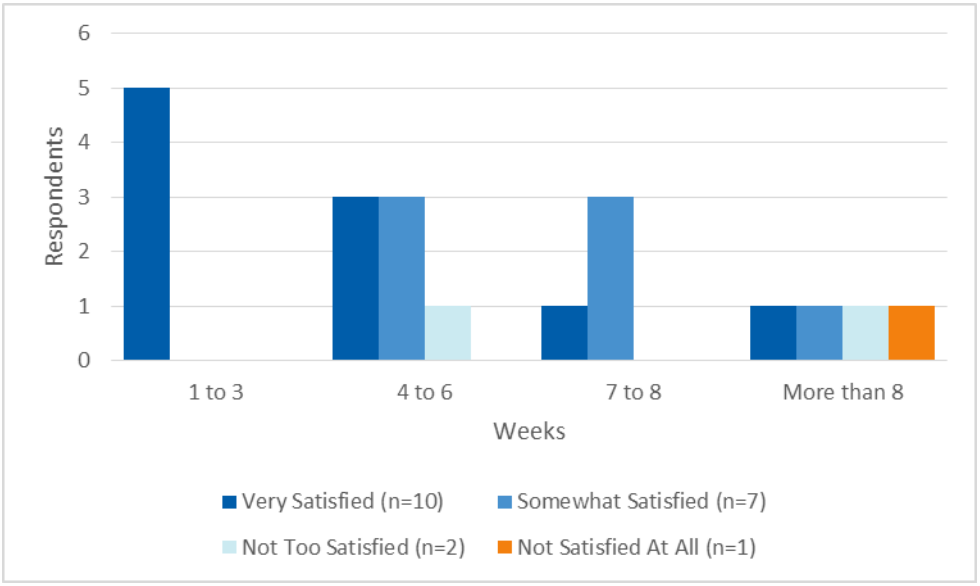
**Figure 20. Participant Satisfaction Levels with Typical Upgrades Elements**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QE4, E9, and E11. Don't know and refused responses removed.

Participant satisfaction with the time it took for their incentives to arrive varied. The Cadmus team asked participants how long (in weeks) it took for their incentives to arrive. We grouped the responses into four categories from one week to more than eight weeks. The highest satisfaction levels were with those who received their incentives within one to three weeks. Figure 21 shows the drop in participant satisfaction as the time to receive their incentives extends beyond the four to six-week window.

**Figure 21. Customer Satisfaction with Time to Receive Incentive**

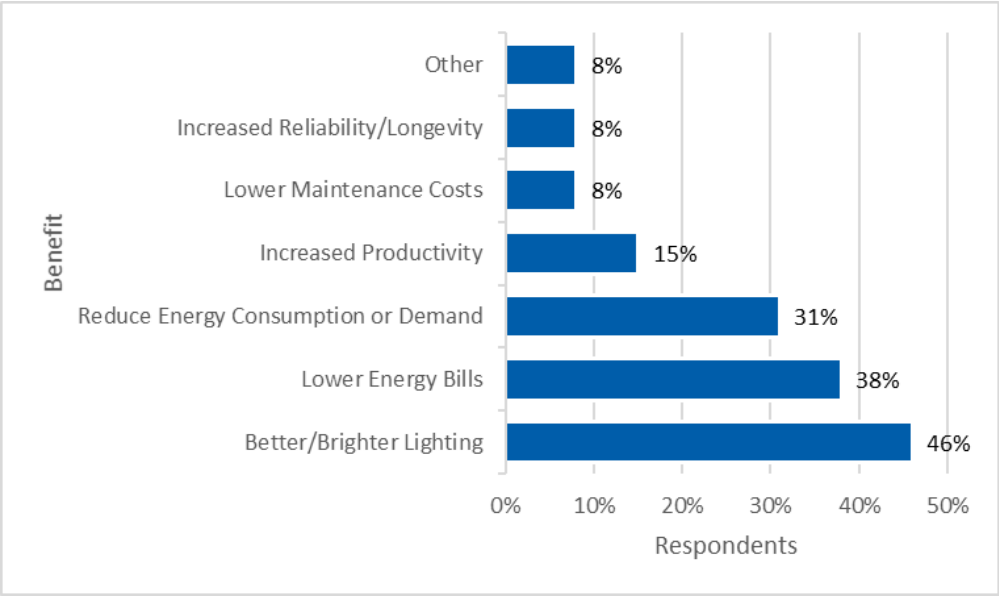



Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QE6 and E7. Don't know, has not arrived, and refused responses removed (n=20).

### *Benefits and Challenges*

All participants in the Typical Upgrades delivery channel (n=26) said they received one or more benefits as a result of installing the program equipment. As shown in Figure 22, the responses most frequently cited were better or brighter lighting quality, followed by saving money or lower energy bills and reduced energy consumption, then by an increase in productivity, lower maintenance costs, increased reliability, and other benefits (improved irrigation and cooler running equipment).

**Figure 22. Benefits of Equipment Installed through the Typical Upgrades Delivery Channel**

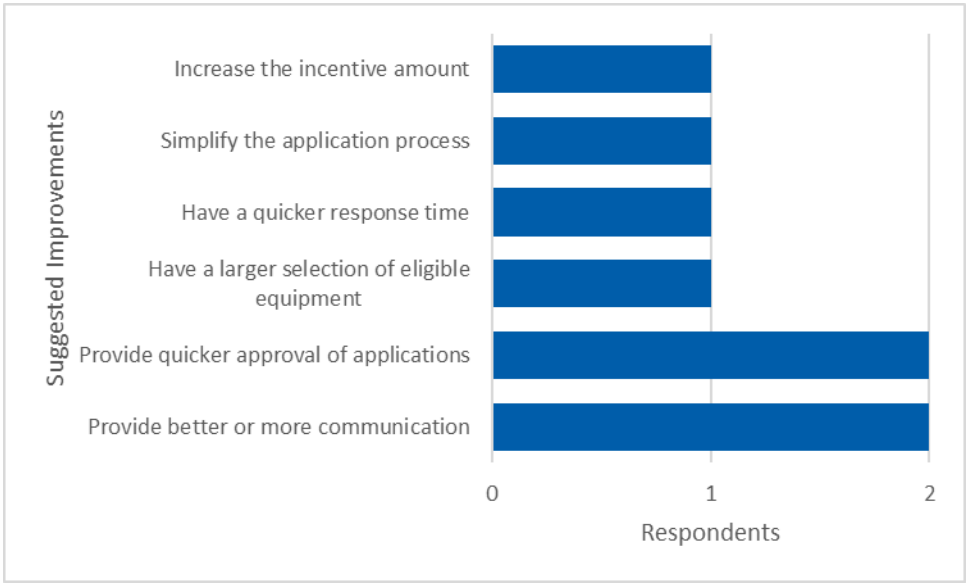



Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QE15. Don't know and refused responses removed. Multiple responses allowed (n=26).

While 88% of participants (22 of 25) reported no challenges while installing equipment through the Typical Upgrades delivery channel, 12% (three of 25) did have challenges. These included the time or expense of completing high-bay T8 fluorescent retrofits (2) and the time to complete a package lighting retrofit (1). One of these customers said their work was still incomplete due to backordered parts.

In closing, when asked if RMP could do anything to improve their overall experience with the ***watt***smart Business Program, 19 of 26 participants said nothing was needed from RMP to improve their experience. Seven participants offered one or more suggestions, shown in Figure 23.

**Figure 23. Typical Upgrades Participants' Suggested Improvements**



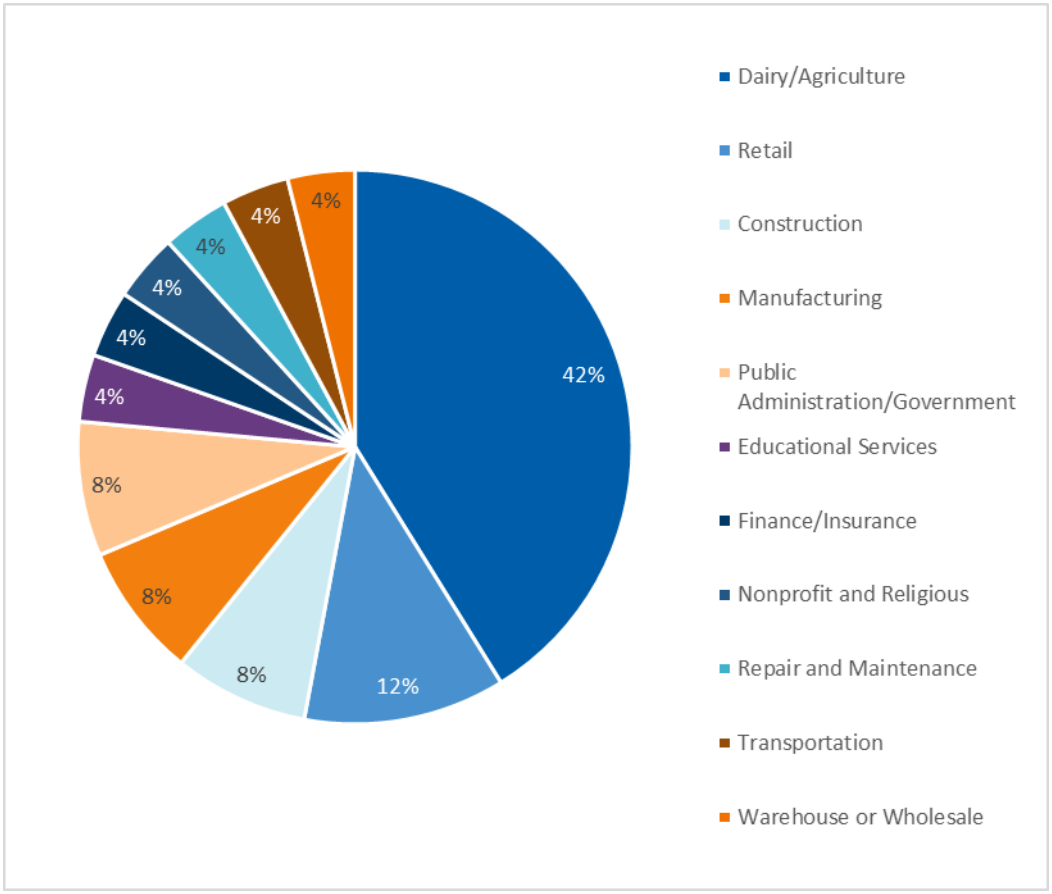

Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QJ2. Don't know and refused responses removed. Multiple responses allowed (n=26). To maintain a useful scale, 19 respondents who answered "No nothing", are not shown on the figure.

### *Firmographics*

At 42% (n=26), Dairy/Agriculture is the largest single business sector of the 2014 and 2015 Typical Upgrades delivery channel participants we surveyed. This was a statistically significant increase over program years 2012 and 2013, when Dairy/Agriculture made up 14% of the FinAnswer Express Program.[11] Retail is the second largest sector for these participants, at 12%, with the remaining 46% spread across nine other business sectors. In program years 2012 and 2013, Manufacturing was the largest business sector, followed by Retail. Figure 24 shows the distribution of all 2014 and 2015 surveyed participants by business sector.

[11] The statistically significant difference is based on a two-sample t-test for proportions.

**Figure 24. Typical Upgrades Delivery Channel Survey Participants by Business Sector**

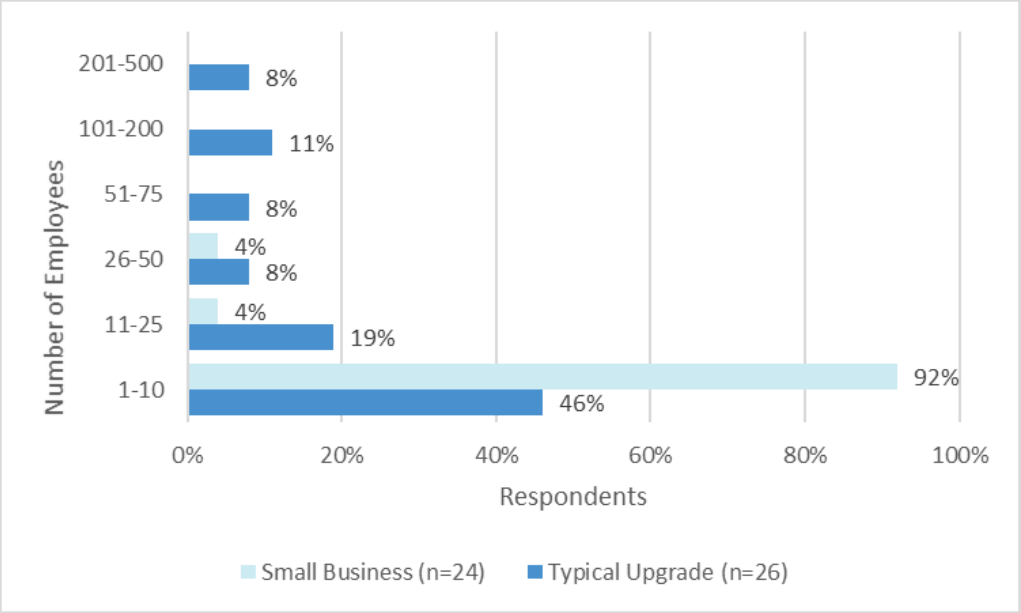



Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QI1. Don't know and refused responses removed. Total may not equal 100% due to rounding (n=26).

Half of the Typical Upgrades participants (46%, n=26) operate a single location, which they own. One notable exception is the Church of Jesus Christ of Latter Day Saints, which owns and operates more than 130 sites in Idaho. Overall, 92% of participants own all or a portion of their building(s) (two of these participants both own and lease facilities).

Forty-six percent of the businesses represented in the surveyed population have between one and 10 employees, compared to 92% for SBL. Figure 25 provides more detail on the employee count distribution for all surveyed participants.

**Figure 25. Typical Upgrades and SBL Delivery Channel Employee Count Distribution**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QI4 Don't know and refused responses removed.

## Custom Analysis Delivery Channel

The Cadmus team surveyed 15 participants who received incentives through the ***watt***smart Business Custom Analysis delivery channel. As with the evaluation of program years 2012 and 2013,[12] customers in the Dairy/Agricultural business sector made up the largest majority of these participants. Overall, Custom Analysis participants reported moderately high satisfaction with the various offering components, and they most often cited the reduction in energy consumption and demand as a benefit from completing their projects. Most participants encountered no challenges with the program, but those who did described challenges with the time required and the complexity of the program process and paperwork. Some offered suggestions to improve their program experience, which are detailed below.

### *Motivation*

As with participants in the SBL and Typical Upgrades delivery channels, Custom Analysis participants were influenced to complete their projects in order to acquire the financial savings. Four of the seven participants who received a custom energy analysis of their site as part of their participation said they

[12] Navigant Consulting, Inc. in partnership with EMI Consulting. "Evaluation Report for Idaho's Energy FinAnswer Program (PY 2012 through 2013)." March 17, 2015. Available online: http://www.pacificorp.com/es/dsm/idaho.html

were most influenced by the overall cost reduction/financial savings or payback they would receive upon completing their projects.

### *Participation and Satisfaction*

Custom Analysis delivery channel participants said it was very easy (61%) or somewhat easy (39%) to complete the application paperwork (n=13).

Those who said it was somewhat easy, described a lengthy application process, with many forms and attachments required, and a lack of detailed instructions, which resulted in them having to submit documents more than once.

Seven of 11 respondents (64%) had participated in a pre-inspection of their site, offered through the program, to establish an energy baseline, and each received an energy analysis that identified equipment options, project costs, and potential savings and incentives for their project. Six of the seven who received the analysis said it was very or somewhat useful, although one of these participants said it provided more information than they needed. The seventh participant, who thought the analysis was not too useful, indicated that the project was already complete before they received the report. It is possible this participant was thinking about the post-installation verification report.

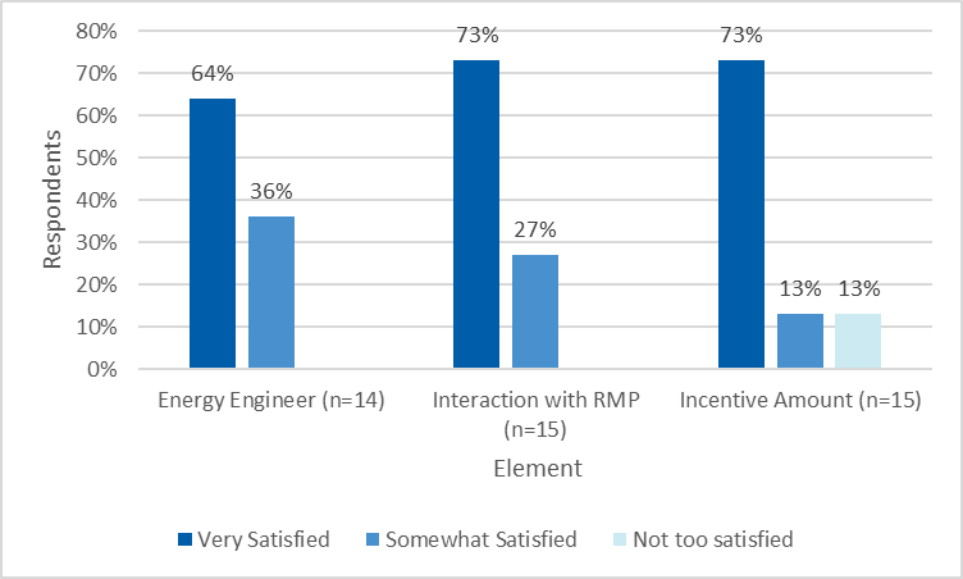
Sixty-four percent of participants (n=14) were very satisfied with their experience with the energy engineer provided through the ***watt***smart Business Program. The remaining 36% (n=5) said they were somewhat satisfied, citing disappointing savings results, disagreement with how the equipment was monitored, or poor communication.

Participants were also largely very satisfied with their interaction with RMP (73%, n=15). Those who rated their satisfaction level as somewhat satisfied (27%, n=15) noted poor communication or that they simply had minimal interaction with RMP during the project. One participant provided no explanation for the rating.

The majority of participants were also very satisfied with the amount of the incentive they received for their project (73%, n=15). The remaining four participants who indicated being less than very satisfied each completed a VSD or pump retrofit project, and three of the four said the incentive was too low. One participant thought the incentive should cover at least one-third of the project cost, another said it should have been double the amount received, and the third said a higher incentive would have helped to purchase a more efficient pump. The fourth participant offered no opinion.

Figure 26 shows satisfaction levels with three elements of the program: the energy engineer, interaction with RMP, and the incentives.

Figure 26. Customer Satisfaction Levels with Custom Analysis Delivery Channel Elements




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QF2, F3, and F12. Don't know and refused responses removed.

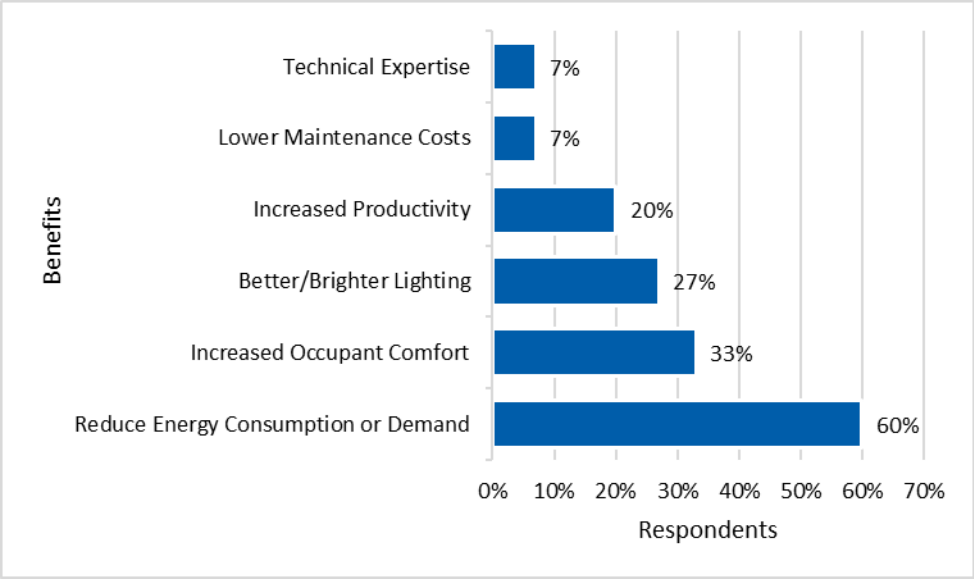
Unlike the Typical Upgrades delivery channel, participants in the Custom Analysis delivery channel accepted a longer amount of time to receive their incentives, with minimal reduction in satisfaction. Almost half of the participants (seven of 15) did not know how long it had taken for their incentives to be paid. Of the remaining eight participants, six received their incentive in four to six weeks, one received it in seven to eight weeks, and one said it took longer than eight weeks (the longest timeframe noted on the survey guide). Fourteen participants reported being very satisfied with the timeframe to receive the incentive. The participant who waited more than eight weeks was not satisfied at all with the time it took. This participant indicated that a 60-day window would have been acceptable, indicating they waited longer.

Only two participants named other energy-efficient equipment they wanted to install that did not qualify for the program: these were VFDs and pivot irrigation nozzles. RMP offers incentives on VFDs; the Cadmus team assumes this respondent was describing types of VFDs that are not currently incentivized by the program.

### *Benefits and Challenges*

Overall, participants in the Custom Analysis delivery channel (n=15) said they received one or more benefits as a result of their energy efficiency upgrades. As shown in Figure 27, respondents most frequently cited reduced energy consumption or demand, increased occupant comfort, better or brighter lighting, and increased productivity. These were followed to a lesser extent by lower maintenance costs and the technical expertise provided by the program.

**Figure 27. Benefits of Equipment Installed through the Custom Analysis Delivery Channel**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: Q F19Don't know and refused responses removed. Multiple responses allowed (n=15).

While 71% of participants (10 of 14) reported no challenges while participating in the Custom Analysis delivery channel, the remaining 29% (four of 14) noted these challenges:

- Time required for equipment monitoring (1)
- Acquiring the needed nozzle equipment (1)
- Lack of clarity about the program (1)
- Additional paperwork that had to be completed (1)

Two of the four respondents who encountered challenges said RMP could help them by providing more precise information about the program, and by simplifying the paperwork.

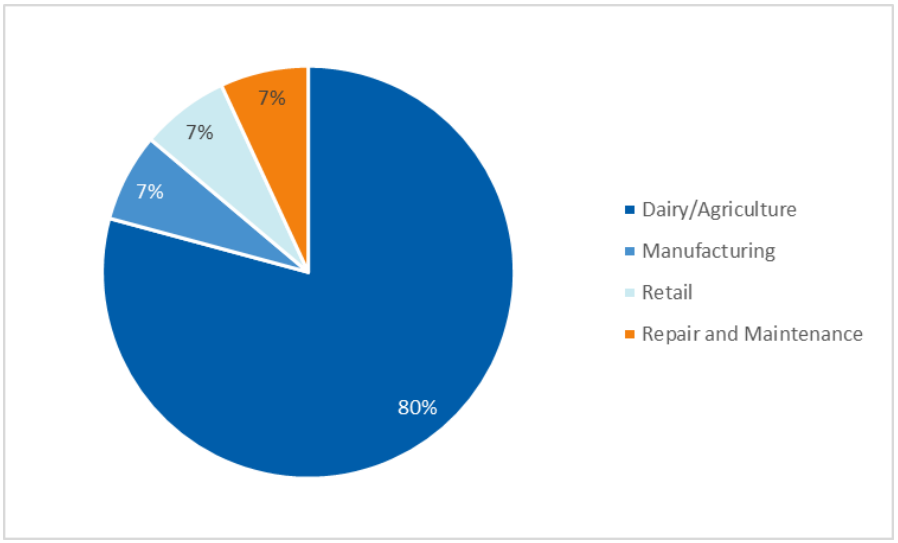
In closing, when asked if RMP could do anything to improve their overall experience with the ***watt***smart Business Program, only one of 15 participants responded affirmatively, asking for better or more communication, specifically mailed updates showing programs available in their area.

### *Firmographics*

As shown in Figure 28, the large majority of Custom Analysis participants (80%, 12 of 15) operate a dairy or agricultural business. Seven of these 12 occupy a single location which they own, and five occupy between two and four sites, the majority of which they own. None of these dairy and agricultural participants employ more than 25 people. The three non-agricultural participants were in the Manufacturing, Retail, or Repair and Maintenance business sectors. They also own their facilities, but vary more broadly in their number of employees. The manufacturing facility employs between 11 and 25 people, the retail facility employs 51 to 75 people, and the repair and maintenance business employs 26

to 50 people. Figure 29 provides more detail on all business sectors represented by the surveyed Custom Analysis delivery channel participants.

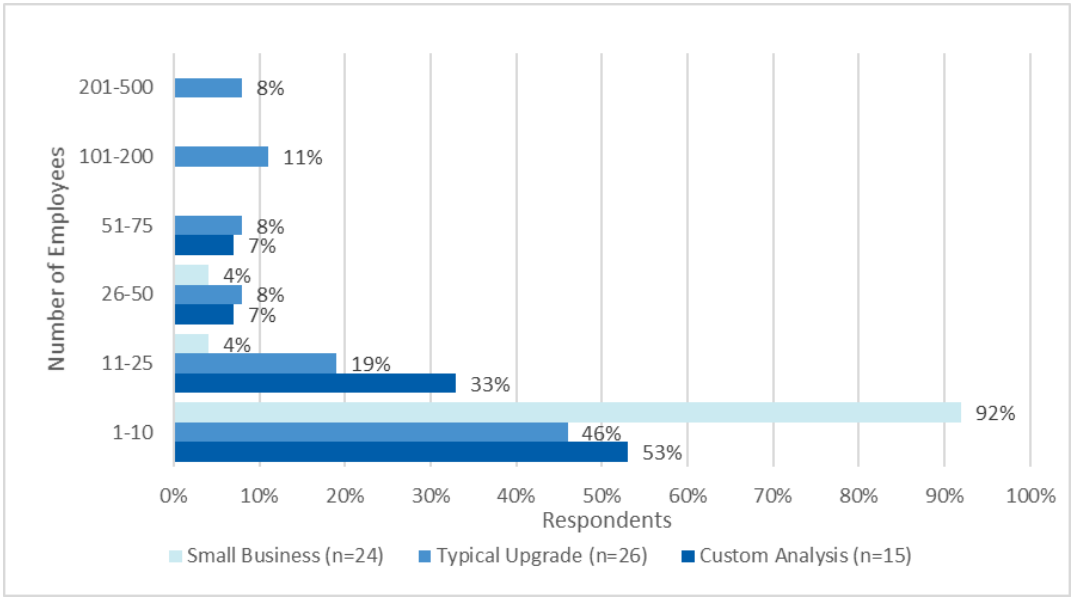
**Figure 28. Custom Analysis Delivery Channel Survey Participants by Business Sector**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QI1Don't know and refused responses removed (n=15).

Figure 29 shows how the employee counts vary by program delivery channel. Not unexpectedly, participants in the Typical Upgrades channel showed greatest variation in the number of employees: this program is not targeted at either the largest or smallest customers.

**Figure 29. Employee Count Distribution: All Program Delivery Channels**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QI4. Don't know and refused responses removed.

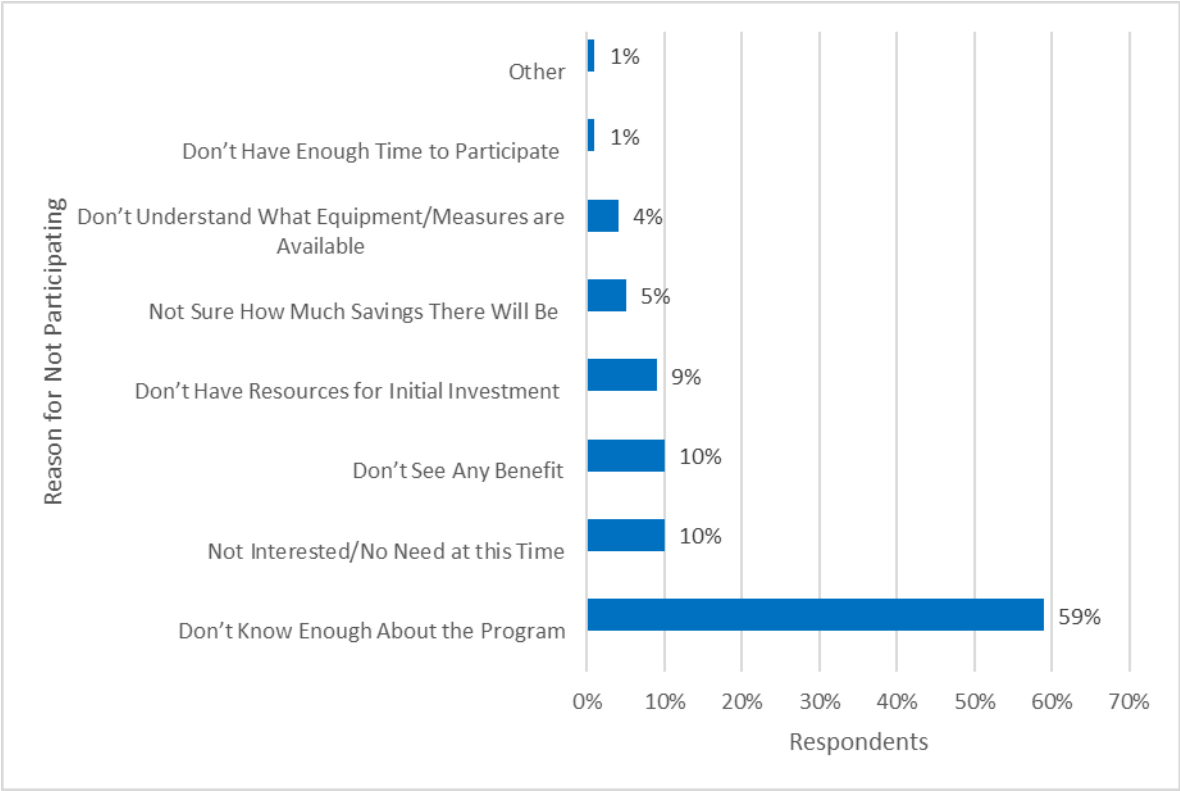
## *Nonparticipants and Partial Participants*

The Cadmus team surveyed 83 nonparticipants who either never completed a project through the program or had not completed a project through the program in the past two years. With the exception of one, all respondents to the nonparticipant survey were RMP non-managed accounts, which are by default smaller usage accounts. Cadmus also surveyed eight partial participants who initiated but did not compete a project through the program during the evaluation period. Among the nonparticipants and partial participants who indicated their type of business, 45% (n=86), operate farms or businesses in the Dairy/Agriculture sector. Of the 91 total nonparticipants and partial participants, the majority operate eight or fewer facilities in Idaho; 56 said they operate just one. Seventy percent (n=91) own their facilities.

### Awareness and Communication

In assessing nonparticipants' reasons for not utilizing the ***watt***smart Business Program, the Cadmus team found the largest single factor was that customers lacked awareness of the program and its benefits. When asked if they had heard of the ***watt***smart Business Program prior to the survey call, 71% (59, n=83) said they had not. And, as shown in Figure 30, when later asked specifically why they had not participated in the program, the majority (59%, n=78) said they did not know enough about the program, and an additional 19% (n=78) said they did not see a benefit, did not understand what equipment or measures were available, or did not understand how much their savings would be.

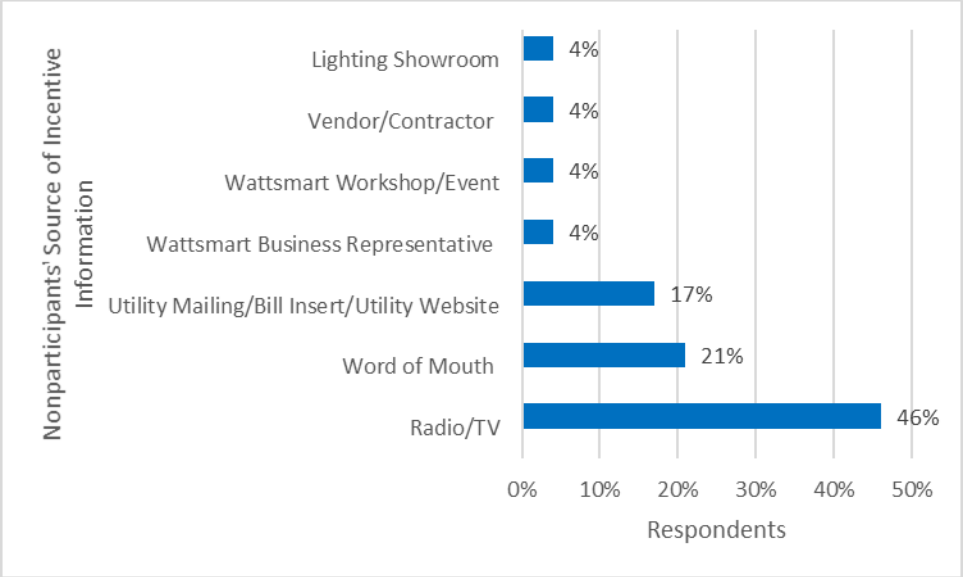
**Figure 30. Reason for Not Participating**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Partial Participant/Nonparticipant Survey: QD13. Don't know and refused responses removed. (n=78).

Among the 24 nonparticipants who had heard of the program, 11 learned about it from TV or radio ads. Figure 31 shows that two other sources were word of mouth from a family member, friend, or business colleague, and an RMP mailing/bill insert, or the website.

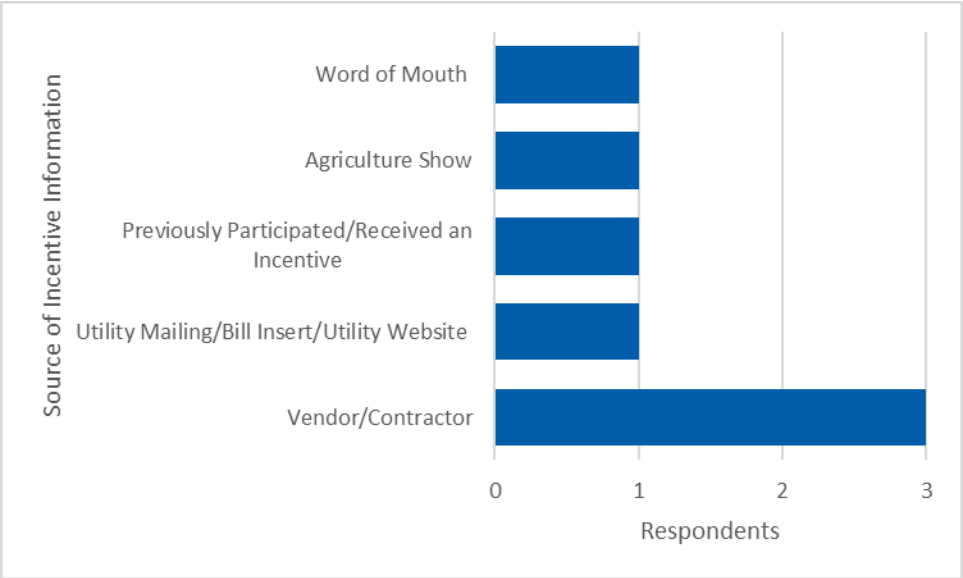
**Figure 31. How Nonparticipants Learned about the *watt*smart Business Program**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Partial Participant/Nonparticipant Survey: QC3. Don't know and refused responses removed. (n=24).

Partial participants learned about the program incentives from a variety of sources; however, none named radio or TV. Three said they learned about the program through a contractor or vendor, and one said they had previously participated the program (Figure 32). Cadmus assumes this participant is referring to participation in prior years given that the partial participant sample was screened for any customers who participated in the program during the evaluation period.

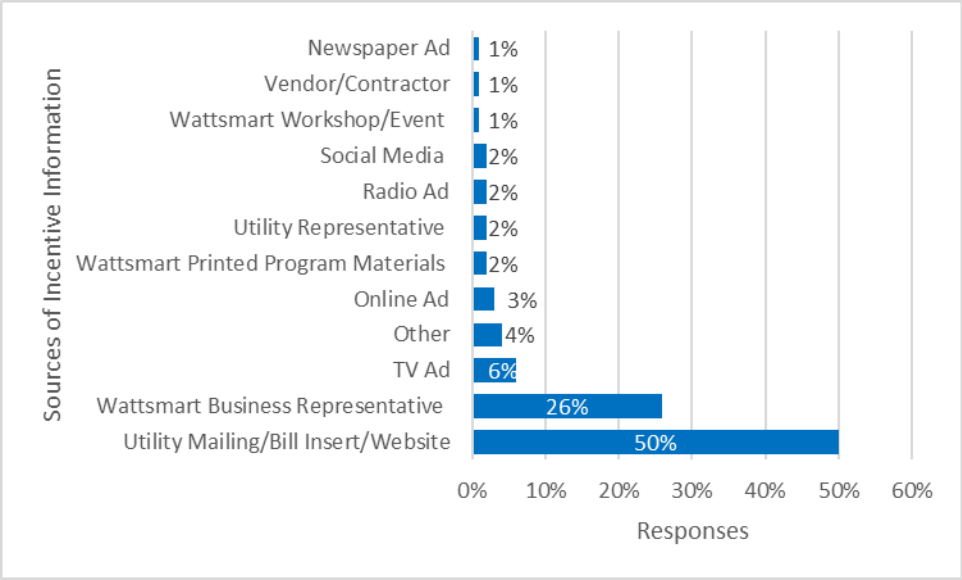
**Figure 32. How Partial Participants Learned about the *watt*smart Business Program**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Partial Participant/Nonparticipant Survey: QC1. Don't know and refused responses removed. (n=7).

As with participants in the three program channels (SBL, Typical Upgrades and Custom Analysis), nonparticipants and partial participants said by a significant majority that they would like RMP to inform them about incentives for energy efficiency improvements, either through a utility mailing, bill insert, or the website; or through a ***watt***smart Business representative (all responses are shown in Figure 33).

**Figure 33. Preferred Method to Stay Informed-Nonparticipants and Partial Participants**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Partial Participant/Nonparticipant Survey: QC5. Don't know and refused responses removed. Multiple responses allowed. (n=103).

## *Motivation*

Both nonparticipants and partial participants said that when considering energy efficiency upgrades, they are primarily motivated by the opportunity to save money on energy bills or to reduce energy consumption or energy demand (77%, n=91).

### Nonparticipants

Nonparticipants most frequently said lower equipment costs would motivate them to make more energy-efficient upgrades to their current equipment. However, three respondents also said they would like RMP to offer incentives for LED lighting, equipment to open and close irrigation head gates, and pumps and motors. Nonparticipants offered ways RMP could help them participate in the program, including the suggestions below.

- Offer free audits.
- Offer incentives for newer and efficient technologies.
- Offer agriculture programs.

- Keep them updated with information about the program, education, and cost effectiveness.
- Provide them with a program contact to whom they could ask questions
- Make the website easier to use and provide a list of vendors.

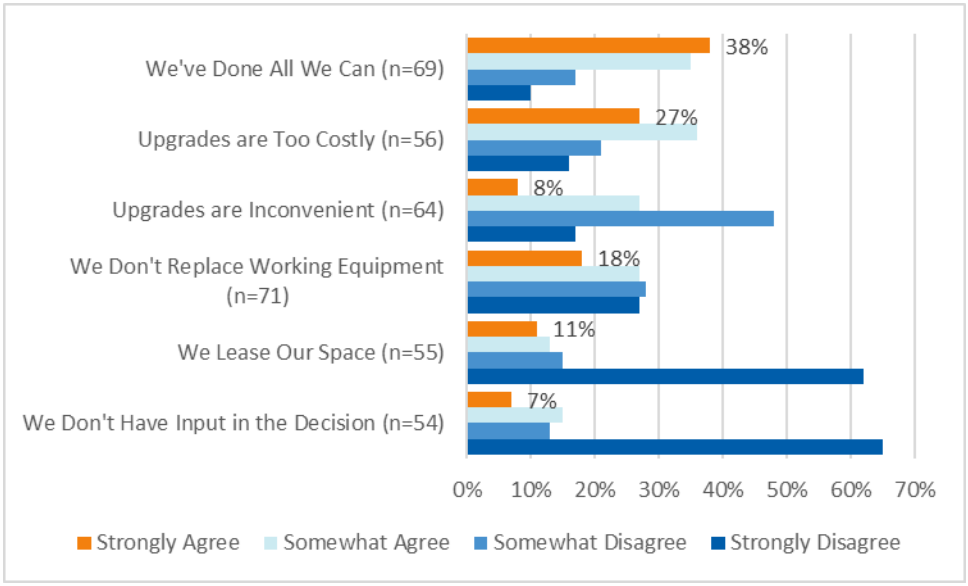
RMP already includes LED lighting and pumps and motors in the ***watt***smart Business Program. Nonparticipant survey responses indicate a need for RMP to place greater emphasis on raising customer awareness, particularly among agricultural customers who may have participated in the previous RMP programs and do not realize ***watt***smart Business includes additional incentives and services they can utilize.

The Cadmus team further explored nonparticipants' attitudes about making energy efficiency upgrades at their facilities. Customers were asked the extent to which they agreed with a series of statements listed below. Not all statements applied to every customer; those who answered "Don't Know" or "not applicable," were removed. Nonparticipants' responses indicate that they do have input into decisions about energy efficiency upgrades, and a large percentage own their facilities, but they believe upgrades to their facilities will be too costly, and they have made all of the energy efficiency improvements they can without substantial investment. The exact wording of each question is listed here, and abbreviated in Figure 34.

- Making upgrades at our facility is an inconvenience.
- Making energy efficiency upgrades to this facility is too costly.
- We don't replace working equipment even if it is not energy efficient.
- My company has made all the energy efficiency improvements we can without a substantial investment.
- My company leases space; we do not want to invest in energy efficiency upgrades.
- Decisions about equipment upgrades are made at a corporate office, and we don't have much input at this facility.

The final question in this series asked nonparticipants: "When calculating the return on investment for proposed capital upgrades, does your company include savings gained from energy efficiency?" Fifty-six percent reported they do include these savings (n=75).

Figure 34. Attitudes About Energy Efficiency Improvements - Nonparticipants




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Partial Participant/Nonparticipant Survey: QD7a-D7e. Not Applicable and Don't know responses were removed.

### Partial Participants

As noted above, partial participants indicated that when considering energy efficiency upgrades, they are primarily motivated by the opportunity to save money on energy bills or to reduce energy consumption or energy demand. However, they had varying reasons for why they did not complete their projects through the program.

The eight partial participants surveyed reported initiating the following projects through the ***watt***smart program: lighting retrofit (2); pumps (5); and an irrigation pump (1). Of these eight partial participants, three completed their projects outside of the program, four did not complete the projects they initiated, and one did not know if the project had been completed.

Among the three partial participants who did complete their projects (all pumps), only one applied for a ***watt***smart Business incentive, but their pump project did not qualify. The other two did not apply, because one did not know about the incentives and one said they already had the pump, indicating they did not prequalify for the incentive as required.

Two of the four incomplete projects were pumps on farms where the participant leased the land, and both participants said the landowners did not want to do the projects. Of the two remaining incomplete projects, one customer who initiated a lighting retrofit cited the high cost of the project, and one (also a lighting retrofit) did not feel comfortable with the contractor, reporting that the person "just showed up" and provided a handwritten offer and was not professional.

### *Satisfaction*

Four of the eight partial participants indicated some satisfaction with the ***watt***smart Business Program, but their responses were mixed; four did not provide a rating, indicating they did not know. Three of the four participants said they were somewhat satisfied; one said the savings potential information was beneficial, and one said they simply did not know enough about the program to rate it any higher. Only one partial participant responded they were not at all satisfied with the program, saying they did not receive enough information or follow-through from the people with whom they met. Two partial participants added comments; one would have liked better communication about the program, "from someone with authority to make a decision," and one would have liked more information about why they were denied an incentive, as they said they received a "denial letter" with no explanation.

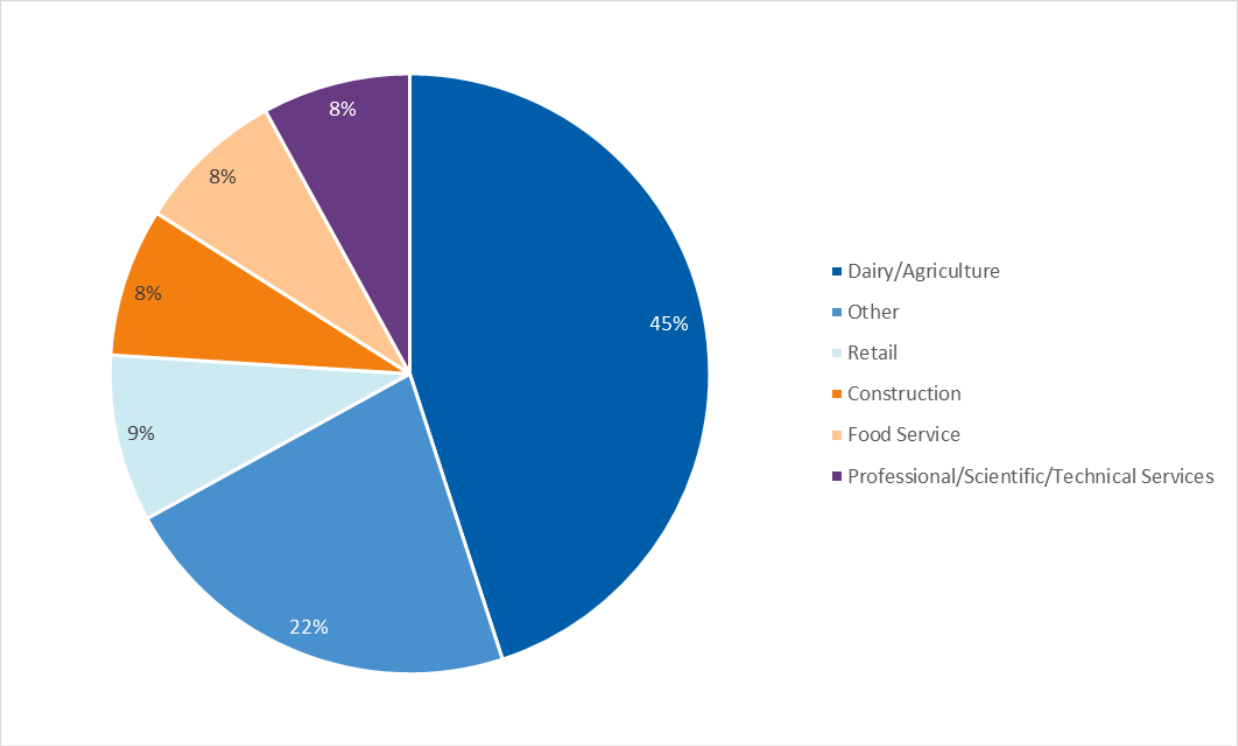
### *Firmographics*

As seen in Figure 35, Dairy/Agriculture was the largest business sector represented in the nonparticipant and partial participant groups combined, which is what we saw in both the Typical Upgrades and Custom Analysis delivery channels. The category "other," included business sectors that were individually less than 5% of the total, those included:

- Accommodation
- Educational Services
- Finance/Insurance
- Health Care
- Nonprofit and Religious
- Oil and Gas
- Public Administration/Government Services
- Radio/Television/Newspapers
- Real Estate/Property Management
- Refrigerated Warehouse
- Repair and Maintenance
- Transportation

Of the eight partial participants alone, four were from the Dairy/Agriculture sector, and the remaining four were from food service (1), retail (2) and newspaper printing (1).

**Figure 35. Survey Nonparticipants and Partial Participants Combined by Business Sector**

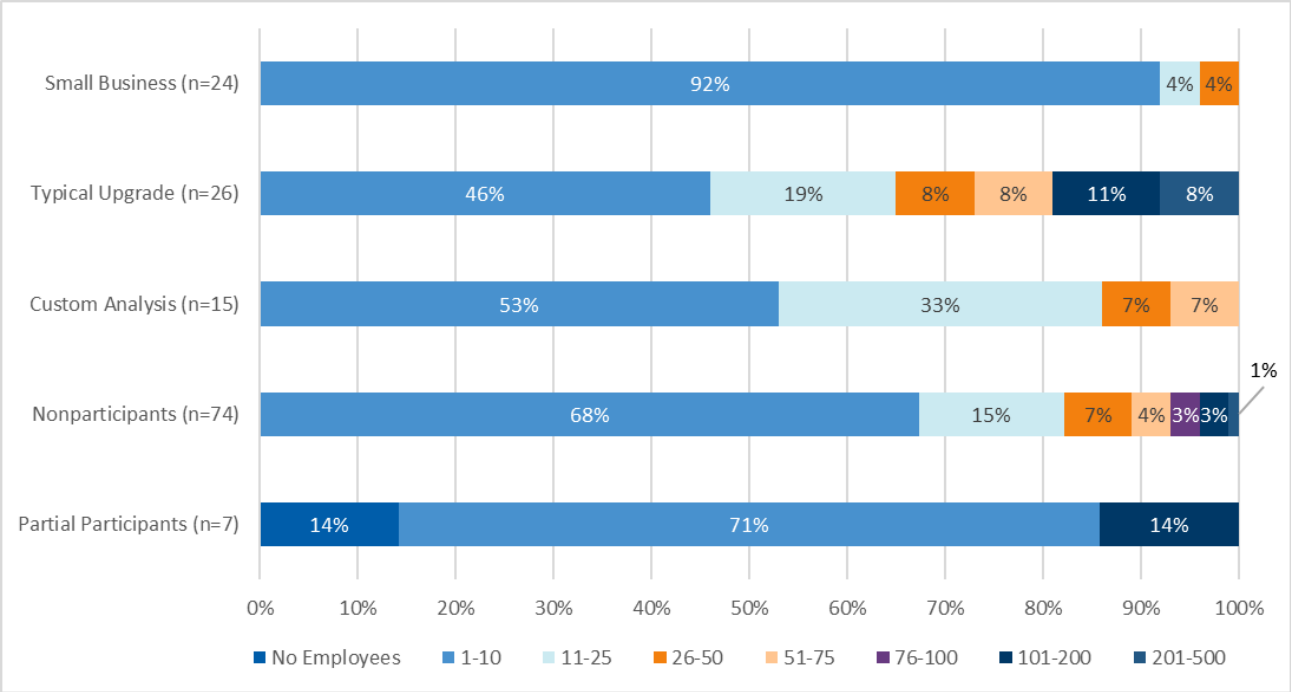



Source: Rocky Mountain Power Idaho ***watts***mart Business Program 2014-2015 Partial Participant/Nonparticipant Survey: QF1. Don't know and refused responses removed. (n=86).

Eighty-one of 83 nonparticipants and partial participants who responded operate eight or fewer facilities in Idaho, and 56 of those operate just one facility. Of the remaining two respondents—both in the dairy sector—one operates 12 facilities and one operates 50 facilities. Eight customers either did not know, or chose not to respond. The majority of all nonparticipants and partial participants own their facilities (70%, n=91). Of the remaining 30% of respondents, 12% lease and 12% own some buildings and lease others; 5% chose not to answer the question.

Figure 36 shows the proportion of businesses employing a given number of people, segmented by of the three program delivery channels (SBL, Typical Upgrades and Custom Analysis) and the nonparticipants and partial participants. As noted earlier in the report, with the exception of one, all nonparticipant respondents to the nonparticipant survey were RMP non-managed accounts, which are by default smaller-usage accounts.

**Figure 36. Employee Count Distribution: All Program Delivery Channels Plus Nonparticipants/Partial Participants**




Source: Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Participant Survey: QI4. Rocky Mountain Power Idaho ***watt***smart Business Program 2014-2015 Partial Participant Nonparticipant Survey: QF4. Don't know and refused responses removed.

## Cost-Effectiveness

In assessing ***watt***smart Business Program cost-effectiveness, the Cadmus team analyzed program benefits and costs from five different perspectives, using Cadmus' DSM Portfolio Pro model.[13] The California Standard Practice Manual for assessing demand-side management program cost-effectiveness describes the benefit/cost ratios the Cadmus team used for the following five tests:

- **PacifiCorp Total Resource Cost (PTRC) Test:** This test examines program benefits and costs from RMP and RMP customers' perspectives (combined). On the benefit side, it included avoided energy costs, capacity costs, and line losses, plus a 10% adder to reflect non-quantified benefits. On the cost side, it included costs incurred by both the utility and participants.
- **Total Resource Cost (TRC) Test:** This test also examines program benefits and costs from RMP and RMP customers' perspectives (combined). On the benefit side, it included avoided energy costs, capacity costs, and line losses. On the cost side, it included costs incurred by both the utility and participants.
- **Utility Cost Test (UCT):** This test examines program benefits and costs solely from RMP's perspective. The benefits included avoided energy, capacity costs, and line losses. Costs included program administration, implementation, and incentive costs associated with program funding.
- **Ratepayer Impact Measure (RIM) Test:** All ratepayers (participants and nonparticipants) may experience rate increases designed to recover lost revenues. The benefits included avoided energy costs, capacity costs, and line losses. Costs included all RMP program costs and lost revenues.
- **Participant Cost Test (PCT):** From this perspective, program benefits included bill reductions and incentives received. Costs included a measure's incremental cost (compared to the baseline measures), plus installation costs incurred by the customer.

Table 25 summarizes the five tests' components.

[13] DSM Portfolio Pro has been independently reviewed by various utilities, their consultants, and a number of regulatory bodies, including the Iowa Utility Board, the Public Service Commission of New York, the Colorado Public Utilities Commission, and the Nevada Public Utilities Commission.

Table 25. Benefits and Costs Included in Various Cost-Effectiveness Tests

| Test | Benefits | Costs |
|---|---|---|
| PTRC | Present value of avoided energy and capacity costs,* with a 10% adder for non-quantified benefits | Program administrative and marketing costs, and costs incurred by participants |
| TRC | Present value of avoided energy and capacity costs* | Program administrative and marketing costs, and costs incurred by participants |
| UCT | Present value of avoided energy and capacity costs* | Program administrative, marketing, and incentive costs |
| RIM | Present value of avoided energy and capacity costs* | Program administrative, marketing, and incentive costs, plus the present value of lost revenues |
| PCT | Present value of bill savings and incentives received | Incremental measure and installation costs |

* Includes avoided line losses.

Table 26 provides selected cost analysis inputs for each year, including evaluated energy savings, discount rate, line loss, inflation rate, and total program costs. RMP provided all of these values, except for energy savings and the discount rate, which the Cadmus team derived from the RMP 2013 and 2015 Integrated Resource Plans.

Table 26. Selected Cost Analysis Inputs

| Input Description | 2014 | 2015 | Total |
|---|---|---|---|
| Evaluated Gross Energy Savings (kWh/year)* | 6,220,311 | 7,639,610 | 13,859,921 |
| Discount Rate | 6.88% | 6.66% | N/A |
| Commercial Line Loss | 10.75% | 10.75% | N/A |
| Industrial Line Loss | 7.52% | 7.52% | N/A |
| Irrigation Line Loss | 11.45% | 11.45% | N/A |
| Inflation Rate[14]** | 1.9% | 1.9% | N/A |
| **Total Program Costs** | $1,724,368 | $2,565,575 | 4,289,943 |

* Savings are realized at the meter, while benefits account for line loss.

** The Cadmus team determined future retail rates using a 1.9% annual escalator.[14]

***watt***smart Business Program benefits included energy savings and their associated avoided costs. For the cost-effectiveness analysis, the Cadmus team used this study's evaluated energy savings and measure lives from sources such as the RTF.[15] For all analyses, the Cadmus team used avoided costs

[14] PacifiCorp's *2015 Integrated Resource Plan, Volume I – Chapter 7 – Modeling and Portfolio Evaluation*. Available online: https://www.rockymountainpower.net/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2015IRP/PacifiCorp_2015IRP-Vol1-MainDocument.pdf

[15] See Appendix C for detailed cost-effectiveness inputs and results at the measure category level.

associated with the RMP 2013 and 2015 IRP Eastside Class 2 DSM Decrement Values for 2014 and 2015, respectively.[16, 17]

The Cadmus team analyzed ***watt***smart Business Program cost-effectiveness for net savings by incorporating the evaluated freeridership and spillover incorporated.

Table 27 presents the 2014 and 2015 program years' cost-effectiveness analysis results, including the evaluated NTG (but not accounting for non-energy benefits [except those represented by the 10% conservation adder included in the PTRC]). For this scenario, the ***watt***smart Business Program proved cost-effective from all perspectives, except the RIM test. The primary criterion for assessing cost-effectiveness in Idaho is the TRC, which achieved a 1.30 benefit/cost ratio for the combined years' net savings.

The RIM test measures program impacts on customer rates. Most programs do not pass the RIM test because, while energy efficiency programs reduce costs, they also reduce energy sales. As a result, the average rate per unit of energy may increase. A passing RIM test indicates that rates, as well as costs, will go down as a result of the program. Typically, this only happens for demand response programs or programs that are targeted to the highest marginal cost hours (when marginal costs are greater than rates).

**Table 27. *watt*smart Business Program Cost-Effectiveness Summary for 2014 and 2015 Net Savings**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/ Cost Ratio |
|---|---|---|---|---|---|
| PTRC | $0.061 | $6,548,176 | $9,393,242 | $2,845,066 | 1.43 |
| TRC | $0.061 | $6,548,176 | $8,539,311 | $1,991,135 | 1.30 |
| UCT | $0.038 | $4,129,319 | $8,539,311 | $4,409,991 | 2.07 |
| RIM | | $13,105,825 | $8,539,311 | ($4,566,514) | 0.65 |
| PCT | | $5,602,090 | $13,121,815 | $7,519,725 | 2.34 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000124705 |
| Discounted Participant Payback (years) | | | | | 4.16 |

Table 28 presents the 2014 program cost-effectiveness analysis results, including the evaluated NTG, but not accounting for non-energy benefits (except those represented by the 10% conservation adder

[16] Appendix N of PacifiCorp's *2013 Integrated Resource Plan, Volume II - Appendices* details the IRP decrements. Available online: http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2013IRP/PacifiCorp-2013IRP_Vol2-Appendices_4-30-13.pdf

[17] PacifiCorp Class 2 DSM Decrement Study details the IRP decrements. April 20, 2015. Available online: http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2015/2015_Class_2_DSM_Decrement_Study.pdf

included in the PTRC). For this scenario, the ***watt***smart Business Program proved cost-effective from all perspectives except the RIM.

**Table 28. *watt*smart Business Program Cost-Effectiveness Summary for 2014 Net Savings**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/ Cost Ratio |
|---|---|---|---|---|---|
| PTRC | $0.052 | $2,620,057 | $4,551,562 | $1,931,505 | 1.74 |
| TRC | $0.052 | $2,620,057 | $4,137,783 | $1,517,726 | 1.58 |
| UCT | $0.034 | $1,724,367 | $4,137,783 | $2,413,416 | 2.40 |
| RIM | | $5,909,808 | $4,137,783 | ($1,772,025) | 0.70 |
| PCT | | $1,908,474 | $5,773,455 | $3,864,981 | 3.03 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000047597 |
| Discounted Participant Payback (years) | | | | | 2.58 |

Table 29 presents the 2015 program cost-effectiveness analysis results, including evaluated NTG, but not accounting for non-energy benefits (except those represented by the 10% conservation adder included in the PTRC). For this scenario, again, the ***watt***smart Business Program proved cost-effective from all perspectives except the RIM. The Cost-Benefit ratio decrease in 2015 was caused by the combination of total resource costs per kWh saved increasing by nearly 35% and decreases in avoided costs for all decrements used except for the commercial cooling decrement.

**Table 29. *watt*smart Business Program Cost-Effectiveness Summary for 2015 Net Savings**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit / Cost Ratio |
|---|---|---|---|---|---|
| PTRC | $0.069 | $4,189,731 | $5,164,136 | $974,405 | 1.23 |
| TRC | $0.069 | $4,189,731 | $4,694,669 | $504,938 | 1.12 |
| UCT | $0.042 | $2,565,122 | $4,694,669 | $2,129,547 | 1.83 |
| RIM | | $7,675,271 | $4,694,669 | ($2,980,602) | 0.61 |
| PCT | | $3,939,611 | $7,837,761 | $3,898,150 | 1.99 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000084695 |
| Discounted Participant Payback (years) | | | | | 4.03 |

# Conclusions and Recommendations

RMP, in collaboration with their implementers, Cascade Energy and Nexant, Inc., are successfully delivering energy efficiency incentives and services to their customers, as designed in the ***watt***smart Business Program. Customers and trade allies (who are a key delivery channel to the small and midsize customers) are satisfied with the program. With some exceptions, customers report satisfaction with both the incentives and measures offered, as well as satisfaction with the program staff and vendor/engineer/trade allies involved in their individual projects. However, across all delivery channels, customers said they wanted better and more frequent communication from RMP and the implementers, and for the application processes to be less complex.

The 2014-2015 program evaluation yielded an overall gross realization rate of 103.5% with a precision of ±8.7% at 90% confidence. Within the seven measure categories, there were varying degrees of realization rates and precision. The Cadmus team calculated NTG as 82% for the program overall.

This section provides the Cadmus team's conclusions and recommendations based on the findings presented in this report.

## *Savings Considerations*

### Conclusion

To determine savings for the 2014-2015 program years, RMP used deemed savings for cool roof projects with claimed savings of 0.33 kWh per year, per square foot. This deemed value comes from DEER, and was based on California's varied climate. When the Cadmus team evaluated the incentivized and sampled cool roof projects on a case-by-case basis, using the specific climate and building information in Idaho, the savings were significantly lower. The reduction in savings is most likely due to a lower need for mechanical cooling in Idaho's climate.

### Recommendation

Based on our findings, we recommend reducing the deemed claimed savings amount to 0.13 kWh per year, per square foot. This revised deemed savings amount represents the average evaluated energy savings among cool roof projects sampled using site-specific weather and building information and simulated using the Oak Ridge National Laboratory Cool Roof calculator.

### Conclusion

RMP provides incentives for VFDs serving ventilation fans on potato and onion storage facilities. These storage facilities require specific ventilation rates during various times of the year, and RMP employs a prescriptive energy savings calculator (Potato and Onion storage fan VFD Savings Estimator v1.3) to capture these requirements. These ventilation requirements are often estimated by the site and may not reflect the true operating characteristics. Additionally, the energy savings achieved by VFDs are a direct function of the VFD speed and associated hours of operation. Any deviation from the actual hours of operation or VFD speed will increase or decrease the anticipated energy savings.

### Recommendation

Once an incentivized project is complete where VFDs were installed on ventilation fans serving potato and onion storage facilities, we recommend having the program implementer interview the facility staff to determine the ventilation schedule and airflow rates, as their understanding of these components may change once the new equipment is installed. These variables should be updated in the prescriptive calculators to accurately reflect the existing operating characteristics. Based on our findings, the VFD speeds were generally lower than anticipated, resulting in higher energy savings than expected.

### Conclusion

The majority of the 18 agricultural projects sampled involving irrigation pump motor upgrades or VFD installations exhibited unpredictable energy consumption. The evaluated energy savings of these projects varied between 0% and 700%. Variations in energy use may be due to a number of factors including weather conditions, water table levels, crop selection, irrigation control strategy, improperly installed equipment, or business decisions. No consistent factor was found within the sampled projects that resulted in consistently high or low energy consumption. Previous evaluations realized similar results. RMP has also adopted past agricultural evaluation recommendations.

### Recommendation

Cadmus has no specific recommendation except to use the information presented to inform future project estimates and planning estimates. In some instances, requiring extended or more frequent post-installation inspections may be warranted. However, Cadmus does not recommend this be a program requirement and should be evaluated on a case-by-case basis and weighed against keeping program costs low and customer satisfaction high. Requiring additional rigor for all projects would not likely result in less variability between reported and evaluated energy savings due to the number of variables RMP cannot control.

## *Cross-Cutting*

### Conclusion

RMP and their implementers have done a good job of targeting customers who have motivation and authority to make energy efficiency upgrades: the large majority of participants in all three delivery channels own their facilities, even among SBL participants. While participants in the Typical Upgrades delivery channel represent the largest diversity of business sectors, the Typical Upgrades and Custom Analysis channels are both heavily dominated by businesses in the Dairy/Agriculture sector (42% and 80%, respectively). Additional focus on other sectors by RMP and the implementers may help to identify and engage customers with high energy savings potential, building a more diverse participant base and thereby reducing dependence on one sector for program savings.

### Recommendation

Assess market penetration by comparing the program participant database to RMP's overall customer database to identify high-usage customers in sectors other than Dairy and Agriculture. Employ a targeted campaign for these high usage customers that have low or no participation, and/or develop additional enhanced offerings (such as SBL), to address specific needs of these customers.

### Conclusion

Opportunities exist to further streamline the data exchange process between RMP and the implementers, and to potentially reduce time-consuming periodic system reconciliations.

### Recommendation

Assess the size of the problem and the associated impacts, and identify the most appropriate solution, which could include: doing nothing differently; revising Nexant's databases to use drop-downs with the precise measure names and same formulas or lookups for savings/incentive amounts, and updating ongoing, as needed; RMP revising the DSMC batch process to allow some room for error/variation in the DSMC uploads; RMP providing implementers with a direct RMP interface, rather than using their own databases; RMP providing trade allies with direct RMP interface.

## *Small Business Lighting*

### Conclusion

RMP's newest offering, SBL, had very high customer satisfaction with four key components: the lighting proposal, work by the installation contractor, the equipment installed, and the incentive amount. This indicates that the program is well targeted and meeting the customer need. However, a few SBL customers we surveyed mentioned program challenges that included difficulty using the program website and finding the right contactor. With the change of the SBL offering to SBDI, customers will no longer need to identify and select a program contractor, eliminating the need to address this challenge cited by SBL customers. However, under the SBDI offering, RMP will post to the website, geo-targeted areas and changes in incentives or customer co-pay responsibilities.

### Recommendation

RMP may want to consider directing the SBDI program implementer to actively seek and record SBDI participant feedback on website usability for this channel. This could be done in one or more ways. For example RMP can request the program call center to provide a report on the frequency and topics of customer calls for the SBDI offering, or require program contractors to gather participant responses to one or two simple questions about website usability, and to submit those responses with program paperwork or invoices for payment, or RMP can provide a place on the SBDI website landing page for customer feedback on the website usability.

## Custom Analysis

### Conclusion

A few participants from the Dairy/Agriculture and Manufacturing business sectors said they needed more communication and clarity about the program, they were disappointed with their savings results, or they disagreed with how their equipment was monitored. Given that the Custom Analysis delivery channel relies on one-to-one interaction between participant and program managers, participants' concerns may be identified early and resolved with better communication through each step of their project, particularly before any installations are completed.

### Recommendation

Increase communication with the participant before the project begins to increase their satisfaction and reduce confusion and disagreement. RMP, Cascade, and Nexant should emphasize with program staff and energy engineers the importance of early, frequent, and informative communication with participants undertaking Custom Analysis projects. At the conclusion of each project request customer feedback specifically about their communication experience with the staff and engineers on each project. Review data periodically and provide to evaluators for future bi-annual evaluations.

## Nonparticipants

### Conclusion

RMP's non-managed nonparticipants are largely unaware of the ***watts***mart Business Program and its benefits. While RMP is providing nonparticipants program information through radio and TV ads or through utility mailings, bill inserts and the website, it appears that contractor/vendor contact is more effective in driving participation. As seen in the partial participants and participants survey responses, they are learning about the program through their contractors/vendors. Cadmus speculates that contractor/vendor contact is filling in the program details and benefits for a customer that more generalized, less direct marketing cannot provide.

As with the three program delivery channels (SBL, Typical Upgrades and Custom Analysis), these non-managed nonparticipant customers own their businesses and share the same motivation to save money and energy. Only a small percentage (10%) said they had no need for the program, or simply were not interested, and only 38% feel they have done all they can do to cost-effectively increase the efficiency of their facilities.

### Recommendation

If additional program growth is desired in any of the program delivery channels, encourage and/or incentivize trade allies (contractors, vendors, distributors) to increase their outreach to their nonparticipant customers. Talk to trade allies to gain insight into how much they have penetrated their target market and what resources RMP could provide to help them increase outreach to those with whom they may not have active ongoing projects.

# Appendices

# Appendix A. Self-Reported Net-to-Gross Methodology

Net-to-gross (NTG) estimates are a critical part of demand-side management program impact evaluations, because they allow utilities to determine portions of gross energy savings that were influenced by and are attributable to their DSM programs. Freeridership and participant spillover are the two NTG components calculated in this evaluation. True freeriders are customers who would have purchased an incented appliance or equipment without any support from the program (e.g. taking the incentive). Participant spillover is the amount of additional savings obtained by customers investing in additional energy-efficient measures or activities due to their program participation. Various methods can be used to estimate program freeridership and spillover; for this evaluation, the Cadmus team used self-reports from survey participants to estimate NTG for the Small Business Lighting, Prescriptive, and Custom program categories, as this method can gauge net effects for different program categories at once and enables the team to monitor freeridership and spillover over several evaluation efforts. The Cadmus team used the same net savings methodology used for the 2009-2011 and 2012-2013 Energy FinAnswer Program Evaluations and described in detail in Appendix B of the 2009-2011 evaluation report.[1] This net savings approach aligns with industry best practices summarized in the Uniform Methods Project (UMP) section discussing net savings.[2] This appendix provides a detailed description of how the evaluation team estimated NTG for the 2014-2015 ***watt***smart Business Program.

## *Survey Design*

Using self-reported responses, the Cadmus team estimated net savings first by assessing the program's influence on the participant's decision to implement an energy efficiency project and what would have occurred absent the program's intervention. This estimation includes an examination of the program's influence on three key characteristics of the project: its timing, its level of efficiency, and it's scope (ie., size of the project). This estimate represents the amount of savings attributed to the program that would have occurred without its intervention and is often referred to as "freeridership." Cadmus then estimated program influence on the broader market as a result of the indirect effects of the program's activities. This estimate, often referred to as "spillover," represents the amounts of savings that occurred because of the program's intervention and influence but that is not currently claimed by the program. Spillover savings can be broken into two categories of savings: "participant" spillover and "non-participant" spillover. Participant spillover savings occur directly (i.e., program participants install additional energy efficient equipment), while non-participant spillover savings occur indirectly (i.e.,

[1] Final Evaluation Report For Idaho's Energy FinAnswer Program (PY 2009-2011) – Appendix B: http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2013/ID_Energy_FinAnswer_Program_Evaluation_2009-2011.pdf

[2] The UMP chapter covering estimation of net savings is available online: http://www.nrel.gov/extranet/ump/pdfs/20131120_estimating_net_energy_savings.pdf. See also: http://ump.pnnl.gov/showthread.php/5238-Estimating-Net-Energy-Savings-Methods-and-Practices

trade allies install additional energy efficiency equipment for customers that choose not to participate as a results of the program).

## *Freeridership Calculation*

To determine freeridership, the interview presented respondents with a series of questions regarding their decision to install the equipment promoted by the program. The Cadmus team then scored the responses to these questions to determine the level of freeridership. A score of 1.0 indicates the respondent is a complete free-rider; they would have installed the exact same equipment at the same time and in the same quantity without the program's assistance. A score of 0.0 (zero) indicates the respondent is not a free-rider; that is, without the program they either would not have installed any equipment within 12 months of when they did or they would have installed baseline efficient equipment.

As the first step in scoring, the Cadmus team reviewed the interview responses to determine if the exact same project (in terms of scope and efficiency level) would have occurred at the same time without the program. If so, the respondent is scored as a complete free-rider. If not, the team reviewed the responses to determine whether the project would have occurred at all within the same 12 month period. If not, the respondent is scored as a non-free-rider. If the project would have occurred within the same 12 month period but altered in respect to its size or efficiency level, the respondent is scored as a partial free-rider. To assess the level of partial free-ridership, the Cadmus team used the respondents' estimates of the percentage of the installed equipment that would have been high efficiency equipment (the efficiency score) and the percentage of high efficiency equipment that would have been installed within 12 months without the program (the quantity score). If the project would have occurred with some changes absent the program, the product of these two estimates is the initial free-ridership ratio or:

$$Initial\ Freeridership\ Ratio = Efficiency\ Score\ x\ Quantity\ Score$$

After scoring the initial freeridership ratio, a series of consistency check questions were reviewed. These questions asked about the influence of the program's interventions (e.g., financial incentives, technical assistance) and address the counter-factual (e.g., what would have happened without the program). For example, if the respondent stated that the financial incentive was extremely important to their decision (G9.2 = 5 – extremely important) but that they would have installed the exact same equipment at the same time without the program (G2 = Yes and G1= Yes), the interviewer asks them to describe in their own words what impact the program had on their decision (G8). During the scoring process, these responses were reviewed by analysts to determine which scenario is correct and are scored accordingly to create an adjusted freeridership score.

Finally, the freeridership score was adjusted to account for prior program participation. Given Rocky Mountain Power's efforts to cross-promote their entire portfolio of energy efficiency programs, a respondent's prior participation in a Rocky Mountain Power (RMP) program may have been influential in their decision to participate in the current program. Ideally, this influence would be attributed to the

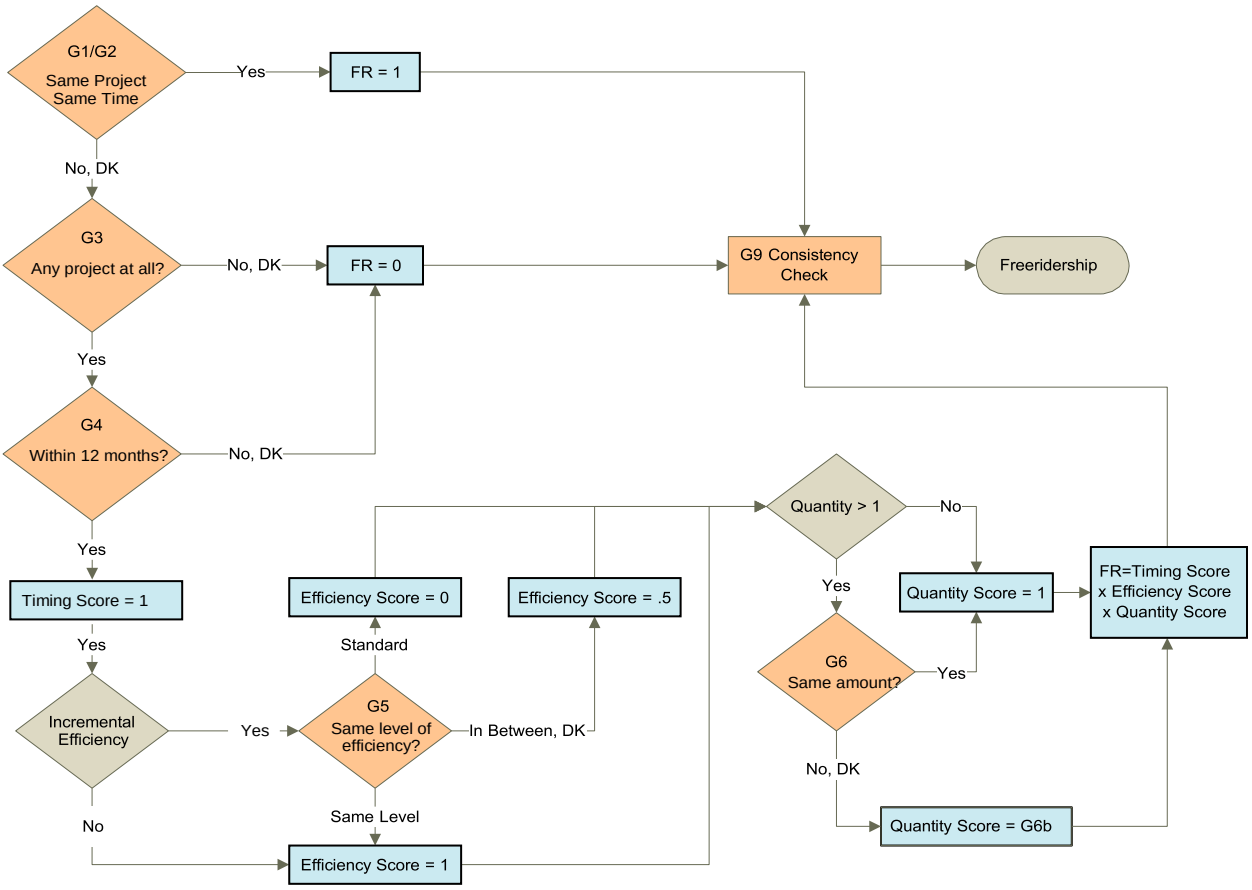
prior program as spillover savings since that program was responsible for the influence. However, given the portfolio-level marketing approach that Rocky Mountain Power implements, respondents are unlikely to be able to identify the prior program by name. Therefore, the Cadmus team attributed the savings credit to the current program. To calculate this credit, the team reviewed the respondents' rating of the influence of the prior program. If the respondent rates their previous participation as a "4" or "5," their adjusted freeridership was reduced by either 50 percent or 75 percent respectively.

Table 1 provides detailed scoring and descriptions of each question.

Table 1. Freeridership Calculation Approach

| Question | Question Text | Scoring |
|---|---|---|
| G1 | Without the program, meaning without either the technical assistance or the financial incentive, would you have still completed the exact same [MEASURE] project? | None; qualifying question |
| G2 | Without the program, meaning without either the technical assistance or the financial incentive, would you have still installed the [MEASURE] at the same time? | If G2=yes and G1=yes then freeridership = 1 |
| G3 | Without the program, would you have installed any [MEASURE] equipment? | If G4=no, freeridership = 0 |
| G4 | Without the program, in terms of timing, when would you have installed the [MEASURE]? | If not within 12 months of original purchase date, freeridership = 0 |
| G5 | Relative to the energy efficiency of [MEASURE] installed through the program, how would you characterize the efficiency of equipment you would have installed without the program? | If high efficiency, efficiency score = 1<br>If between high efficiency and baseline, efficiency score = 0.5<br>If baseline efficiency, efficiency score = 0 |
| G6 | Would you have installed more, less, or the same amount of [MEASURE] without the program? | If same or more, quantity score = 1<br>If less, quantity score = percentage of equipment not installed |
| G9.2 | On a scale from 1 to 5, with 1 being not important at all and 5 being extremely important, how important was each of the following factors in deciding which equipment to install: information provided by Rocky Mountain Power on energy saving opportunities | Consistency Check |
| G9.4 | On a scale from 1 to 5, with 1 being not important at all and 5 being extremely important, how important was each of the following factors in deciding which equipment to install: The Rocky Mountain Power incentive or discount | Consistency Check |
| G8 | In your own words, can you please describe what impact the program had on your decision to complete these energy efficiency improvements for [MEASURE]? | Considered if '4' or '5-extremely important' rating from G9.2 or G9.4<br>Initial freeridership score is reduced by 50% if G8 response merits an adjustment |
| G9.6 | On a scale from 1 to 5, with 1 being not important at all and 5 being extremely important, how important was each of the following factors in deciding which equipment to install: Previous participation with a Rocky Mountain Power program | If G9.6 = 5, reduce adjusted free-ridership by 75%<br>If G9.6 = 4, reduce adjusted free-ridership by 50% |

Figure 1. Freeridership Calculation Approach




## *Participant Spillover Calculation*

For the ***watt***smart Business Program, the Cadmus team measured participant spillover by asking a sample of participants about their purchases and whether they received an incentive for a particular measure (if they installed another efficient measure or undertook another energy-efficiency activity because of their program participation). We also asked these respondents to rate the ***watt***smart Business Program's (and incentives) relative importance on their decisions to pursue additional energy-efficient activities.

The Cadmus team used a top-down approach to calculate spillover savings. We began our analysis with a subset of data containing only survey respondents who indicated they installed additional energy-savings measures after participating in the ***watt***smart Business Program. From this subset, we removed participants who said the program had little influence on their decisions to purchase additional measures, thus retaining only participants who rated the program as highly important. We also removed participants who applied for a ***watt***Smart Business Program incentive for the additional measures they installed.

The Cadmus team used evaluated program savings as a proxy to estimate the savings associated with "like" spillover projects. "Like" spillover is associated with equipment that is not similar to the equipment that is incentivized by the program. Table 1 provides detailed scoring and descriptions of each "like" spillover question.

**Table 2. Participant Spillover Calculation Approach**

| Question | Question Text | Scoring |
|---|---|---|
| H1 | Since participating in this program, have you purchased and installed any additional energy efficiency improvements on your own without any assistance from a utility or other organization? | If no, potential spillover savings = 0 |
| H2 | Did you purchase and install any energy efficient improvements that are the same as the [MEASURE] you installed through the program? | If no, potential spillover savings = 0 |
| H3 | How many did you purchase and install? | H3 x program-evaluated per-unit savings = potential spillover savings |
| H4 | H4. Relative to the energy efficiency of the equipment installed through the program, how would you characterize the efficiency of this equipment? | If same as program but higher than standard, full potential spillover savings.<br>If lower than program but higher than standard, reduce potential spillover savings by half.<br>If standard efficiency, potential spillover savings = 0. |
| H5 | Did you receive an incentive from Rocky Mountain Power or another organization for this equipment? | If yes, potential spillover savings = 0. |
| H7 | On a scale from 1 to 5, with 1 being not important at all and 5 being extremely important, please rate how important your experience with the [UTILITY] [CATEGORY] program was in your decision to install [this/these] energy efficient product(s). | "4" or 5" rating results in potential spillover savings attributed to program. |

As it has no comparative program savings data, "unlike" spillover can often only be characterized qualitatively. The Cadmus team asked detailed follow up questions for "unlike" spillover responses that allowed the potential for them to be credited to the program as participant spillover if adequate information was provided to estimate savings by an engineer on the team.

The Cadmus team calculated the program level spillover percentages by dividing the sum of additional spillover savings by the total incentivized gross savings achieved for all respondents in the program category:

$$Spillover\ \% = \frac{\sum Spillover\ Measure\ kWh\ Savings\ for\ All\ Program\ Category\ \ Respondents}{\sum Program\ Measure\ kWh\ Savings\ for\ All\ Program\ Category\ Respondents}$$

CADMUS

# Appendix B. Nonparticipant Spillover

Effective program marketing and outreach generates program participation and increases general energy efficiency awareness among customers. The cumulative effect of sustained utility program marketing can affect customers' perceptions of their energy usage and, in some cases, motivate customers to take efficiency actions outside of the utility's program. This is generally called nonparticipant spillover (NPSO)—results in energy savings caused by, but not rebated through, utilities' demand-side management activities.

To understand whether Rocky Mountain Power's (RMP) general and program marketing efforts generated energy efficiency improvements outside of the company's incentive programs, the Cadmus team collected spillover data through a nonparticipant survey, conducted with randomly selected nonresidential, nonparticipating customers.

## Methodology

The Cadmus team randomly selected and surveyed 83 nonparticipating customers from a sample of 3,411 randomly generated nonresidential nonparticipant accounts provided by RMP.

Using a 1 to 5 scale, with 1 meaning "not important at all" and 5 meaning "very important," the survey asked customers to rate the importance of several factors on their decisions to install energy efficient equipment without receiving an incentive from RMP. This question determined whether RMP's energy efficiency initiatives motivated energy-efficient purchases. The surveys asked respondents to address the following factors:

- General information about energy efficiency provided by RMP
- Information from RMP program staff or contractors
- Past participation experience participating in a RMP energy efficiency program

The Cadmus team estimated NPSO savings from respondents who rated any of the above factors as "very important" for any energy-efficient actions or installations reported.

The Cadmus Team leveraged estimated gross savings for the reported measures using 2014-2015 ***watt***Smart Business Program evaluation activities.

Using the variables shown in Table 1, the Cadmus team determined total NPSO generated by RMP's marketing and outreach efforts during the 2014 and 2015 program years.

**Table 1. NPSO Analysis Method**

| Variable | Metric | Source |
|---|---|---|
| A | Total kWh Spillover Savings from Survey Respondents | Survey data / Engineering Analysis |
| B | Total Nonparticipant Customers Surveyed | Survey disposition |

| Variable | Metric | Source |
|---|---|---|
| C | Average kWh Spillover Savings Per Nonparticipant Surveyed | A ÷ B |
| D | Total RMP Nonresidential Population - minus 2014-2015 ***watt***Smart Business Participants | Rocky Mountain Power Customer Database |
| E | NPSO kWh Savings Applied to Population | C x D |
| F | Total Gross Program Evaluated kWh Savings | 2014-2015 ***watt***Smart Business Evaluation |
| G | NPSO as a Percentage of Total 2014-2015 ***watt***Smart Business Evaluated kWh Savings | E ÷ F |

## Results

Of 83 RMP nonparticipant customers surveyed, seven nonparticipant respondents reported installing three measure types attributed to RMP's influence. Table 2 presents measures types and gross evaluated kWh savings the Cadmus team attributed to RMP, generating total savings of 14,002 kWh.

**Table 2. NPSO Response Summary**

| Reported Spillover Measure Type | Quantity | Unit Energy Savings (kWh)[1] | Total Savings (kWh) |
|---|---|---|---|
| Lighting (LED, Fluorescents) | 43 | 33.1 per unit | 1,423.6 |
| Variable drive – Installed on irrigation pump | 1 | 12,180 per unit | 12,180.0 |
| Heat Pump | 1 | 398 per unit | 398 |
| **Total** | **45** | | **14,002** |

[1] Unit energy savings (kWh) estimated for each measure were generated from the 2014-2015 ***watt***Smart Business program evaluated gross savings analysis. Unit energy savings represents the average savings per unit for all attributable measures for a given measure type.

Table 3 presents variables used to estimate overall NPSO for the RMP nonresidential portfolio, a figure the Cadmus team estimated as 4% of total 2014-2015 ***watt***Smart *Business* Program evaluated savings.

**Table 3. NPSO Analysis Results**

| Variable | Metric | Value | Source |
|---|---|---|---|
| A | Total kWh Spillover Savings from Survey Respondents | 14,002 | Survey data / Engineering Analysis |
| B | Total Nonparticipant Customers Surveyed | 83 | Survey disposition |
| C | Average kWh Spillover Savings Per Nonparticipant Surveyed | 169 | A ÷ B |
| D | Total RMP Nonresidential Population - minus 2014-2015 ***watt***Smart Business Participants | 3,505 | Rocky Mountain Power Customer Database |
| E | NPSO kWh Savings Applied to Population | 591,271 | C x D |
| F | Total Gross Program Evaluated kWh Savings | 13,861,904 | 2014-2015 ***watt***Smart Business Evaluation |
| G | NPSO as a Percentage of Total 2014-2015 ***watt***Smart Business Evaluated kWh Savings | 4% | E ÷ F |

CADMUS

# Appendix C. Pacificorp *watt*smart Business Program (2014 - 2015) Participant Survey

| Researchable Questions | | |
|---|---|---|
| **Key Research Topics** | **Areas of Investigation** | **Related Questions** |
| **Screening** | Project initiation process | E1 |
| **Marketing and Outreach** | Program Awareness | B2-B4 |
| | Future communication preferences | J4 |
| **Barriers** | Obstacles to installing high-efficiency equipment | C2, C4, D4, D14-D15, D17-0, E2, E13-E14, E16, E17 |
| **Satisfaction** | Assess satisfaction with Program application process, various program components and reasons for dissatisfaction among participants | C6-C7, D2-D3, D7-D13, E4-E5, E7-E12, F1-F4, F12-F16, J1-J3 |
| **Firmographics** | Determine building and company characteristics of participants | Section I |
| **Decision Making** | Key factors influencing customers' decision to participate in program | D1, D9, D16, E1, E15, F11, F19 |
| **Freeridership and Spillover** | Assess net savings | Sections G and H |

**Target Quota = [Up to 80 per state stratified by channel as sample population will support.]**

General Instructions

- Interviewer instructions are in green **[LIKE THIS]** (the style is "Survey: Interviewer Instructions").
- CATI programming instructions are in red **[LIKE THIS]** (the style is "Survey: Programming").
- Items that should not be read by the interviewer are in parentheses like this ( ).

Variables to be pulled into Survey

- **[CONTACT NAME] CONTACT NAME**
- **[COMPANY NAME] CUSTOMER NAME**
- **[SITE ADDRESS] SITE ADDRESS**
- **[PROJECT STATE] PROJECT STATE**
- **[UTILITY] UTILITY**
- **[CHANNEL] (*WATT*SMART PROGRAM DELIVERY CHANNEL)**
- **[PROGRAM YEAR] PROGRAM YEAR**
- **[MEASURE_1] UPDATED MEASURE NAME 7/12**
- **[MEASURE_2] UPDATED MEASURE NAME 7/12 (TO BE INCLUDED FOR THOSE CUSTOMERS WITH TWO MEASURES)**
- **[INCENTIVE_1] (FOR MEASURE 1)**
- **[INCENTIVE_2] (FOR MEASURE 2)**
- **[BILL_CREDIT1] (FOR MEASURE 1)**

- **[BILL_CREDIT2] (FOR MEASURE 2)**
- [MULT_MEASURES] Flag for multiple measure participant

## A. Introduction

Hello, I'm **[INSERT NAME]** calling on behalf of **[INSERT UTILITY].** May I speak with **[INSERT CONTACT NAME]**? OR **[IF NO NAME OR NAMED RESPONDENT NO LONGER WORKS FOR COMPANY]** May I speak with the FACILITY MANAGER, ENERGY MANAGER OR SOMEONE WHO IS FAMILIAR WITH THEIR PARTICIPATION IN THE ROCKY MOUNTAIN POWER INCENTIVE FOR **[INSERT COMPANY NAME]**? **[IF THAT PERSON IS NOT AT THIS PHONE NUMBER, ASK FOR THEIR NAME AND PHONE NUMBER AND START AGAIN]**

1. **Respondent not available**: **ASK IF YOU CAN LEAVE A MESSAGE ON THEIR VM**
98. (Don't know) **[ASK TO SPEAK WITH SOMEONE WHO KNOWS AND BEGIN AGAIN]**

A1. Hello, I'm **[INSERT NAME]** calling on behalf of **[INSERT UTILITY].** Are you the person who handles energy decisions for **[INSERT COMPANY NAME]**? **[IF THAT PERSON IS NOT AT THIS PHONE NUMBER, ASK FOR THEIR NAME AND PHONE NUMBER AND START AGAIN]**

1. (Yes)
2. (No or not a convenient time) **[ASK IF RESPONDENT WOULD LIKE TO ARRANGE A MORE CONVENIENT TIME OR IF YOU CAN LEAVE A MESSAGE FOR A MORE APPROPRIATE PERSON]**
98. (Don't know) **[ASK TO SPEAK WITH SOMEONE WHO KNOWS AND BEGIN AGAIN]**
99. (Refused) **[THANK AND TERMINATE]**

A2. . Are you the person responsible for making energy-efficiency decisions for your company at the **[SITE ADDRESS]** location?

1. (Yes)
2. (No, person is able to come to phone) **[ASK FOR PERSON WHO IS AND START AGAIN]**
3. (No, person is not able to come to phone) **[GET NAME AND PHONE NUMBER, SCHEDULE CALL BACK]**
98. (Don't know) **[ASK TO SPEAK WITH SOMEONE WHO KNOWS AND BEGIN AGAIN]**
99. (Refused) **[THANK AND TERMINATE]**

A3. We are conducting an important survey today about **[INSERT UTILITY]'S *WATT*SMART BUSINESS PROGRAM**. **[INSERT UTILITY]** is actively seeking your opinions to help improve their business efficiency programs and to better understand how to assist customers in saving money and energy. This call may be monitored or recorded for quality assurances purposes. Anything you share with us today will be confidential and not attributed to any one individual or business.

1. **[IF RESPONDENT ASKS HOW LONG, SAY "Approximately 20 minutes."]**
2. **[IF NEEDED, STATE "this survey is for research purposes only and this is not a marketing call. This is the primary way for customers to provide input into the incentive programs [UTILITY] offers. Your perspectives help [UTILITY] design energy-efficiency programs to help their customers save money and energy."]**
3. **[IF CUSTOMER IS UNFAMILIAR WITH "*WATT*SMART" STATE "between 2013 and 2015 the programs energy Finanswer, Finanswer Express, Recommissioning, Self-Direction Credit, and Irrigation Energy Services, were combined under one umbrella, the W*att*smart Business Program."]**
4. **[ONLY IF ASKED FOR A [UTILITY] CONTACT TO VERIFY THE SURVEY AUTHENTICITY, offer NIKKI KARPAVICH, 801-220-4439.**

## *B. Screeners*

B1. Our records show that you installed energy efficient equipment including **[MEASURE1]**, and **[MEASURE2]**, at **[INSERT SITE ADDRESS]** in **[INSERT PROGRAM YEAR]**? Is this correct? **[IF NEEDED:** "General Illuminance includes interior or exterior lighting and controls." **OR** "NON-general illuminance includes exit signs, LED signs, LED case lighting, and refrigerator case occupancy sensors."**]**

1. (Yes)
2. (No, wrong year) [RECORD CORRECT YEAR IF POSSIBLE]
3. (No, wrong address) [RECORD CORRECT ADDRESS]
4. (No, wrong measure) [CORRECT BELOW]
   (MEASURE1 IS INCORRECT [Correct: _____]) [CALL THIS VARIABLE C_MEASURE1]
   (MEASURE2 IS INCORRECT [Correct: _____]) [CALL THIS VARIABLE C_MEASURE2]
5. (No, I did not participate) [THANK AND TERMINATE]

98. (Don't know) [ask to speak with someone who would know and start again **AT A2. IF NO ONE, THEN** THANK AND TERMINATE**]**
99. (Refused) [THANK AND TERMINATE]

B2. To ensure our records are correct, can you confirm that you received an incentive for [If 1 measure insert: this / If 2 measures insert: these] upgrades? The incentive may have been in the form of a check from the utility, a utility bill credit, an instant incentive on the product you purchased or a discount applied to your project invoice.

1. (Yes)
2. (No) [THANK AND TERMINATE]
98. (Don't know) **[ASK TO SPEAK WITH SOMEONE WHO WOULD KNOW AND START AGAIN AT A2. IF NO ONE, THEN** THANK AND TERMINATE**]**
99. (Refused) [THANK AND TERMINATE]

B3. How did your organization learn about the incentives or discounts available for this project? **[DO NOT READ LIST; MULTIPLE RESPONSES POSSIBLE]**

1. (Contact with *watt*smart Business representative through phone, email, or in person)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or event)
4. (Contact with utility representative)
5. (Utility mailing, bill insert, or utility Website)
6. (I contacted my contractor/vendor to ask)
7. (My contractor/vendor let me know about them)
8. (Previously participated in program/received an incentive)
9. (Through a trade association or professional organization) [SPECIFY: _____])
10. **[IF CHANNEL = MIDSTREAM]** (Through the store where I purchased the LEDs)
11. (Word of mouth (family, friend, or business colleague)
12. (Other [SPECIFY: _____])
98. (Don't know)
99. (Refused)

B4. **[UTILITY]** recently combined its business energy efficiency incentive programs under one name—*watt*smart Business. Before this call today had you heard of the *watt*smart Business program? **[IF NEEDED: THE PROGRAMS COMBINED INTO WATTSMART BUSINESS ARE: ENERGY FINANSWER, FINANSWER EXPRESS, RECOMMISSIONING, SELF-DIRECTION CREDIT, AND IRRIGATION ENERGY SERVICES]**

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

**[IF CHANNEL = MIDSTREAM ASK SECTION C]**

## C. *Midstream (LED Instant Incentives) SECTION C –MIDSTREAM NOT ASKED THIS VERSION*

Thank you. I'd like to ask you about the LEDs you purchased through the LED Instant Incentive program. This is the midstream program where you may have purchased LEDs through an electrical or lighting distributor or supplier.

C1. Did your company purchase your LED lighting direct from a retailer or a distributor? **[DO NOT READ LIST; RECORD ONE ANSWER]**?

1. (Retailer)
2. (Distributor)
3. (Other) **[SPECIFY: _____]**

98. (Don't know)
99. (Refused)

**[IF C1=1, 2, OR 3]**

C2. How easy was it to find a **[INSERT ANSWER FROM C1]** offering the instant incentive? Would you say…? **[READ LIST]**

1. Very easy
2. Somewhat easy
3. Not too easy
4. Not at all easy

98. (Don't know)
99. (Refused)

**[IF C2=2, 3 OR 4]**

C3. What would have made it easier?

1. **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

C4. How easy was it to find the LED product you wanted to purchase? Would you say…? **[READ LIST]**

1. Very easy
2. Somewhat easy
3. Not too easy
4. Not at all easy

98. (Don't know)
99. (Refused)

**[IF C4=2, 3 OR 4]**

C5. What would have made it easier?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

C6. Thinking about the instant incentive you received, how satisfied were you with the amount of the instant incentive? Would you say you were…? **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all
98. (Don't know)
99. (Refused)

**[IF C6=2, 3 OR 4]**

C7. Because you responded that you are less than very satisfied, we'd like to ask you three follow-up questions.

**C7.1** What incentive amount would have been enough for you to say you were very satisfied?

**[RECORD VERBATIM: _____**

98. (Don't know)
99. (Refused)

**C7.2** What return on investment does your company typically look for on these kinds of projects?

**[RECORD VERBATIM: _____**

98. (Don't know)
99. (Refused)

**C7.3** What payback period does you company typically look for on these kinds of projects?

**[RECORD VERBATIM: _____**

98. (Don't know)
99. (Refused)

**[IF CHANNEL = SMALL BUSINESS-LIGHTING (SBL) ASK SECTION D]**

## *D. Small Business-Lighting (SBL) Incentives*

Thank you. I'd like to ask you about your participation in the Small Business lighting incentives.

D1. What factor was most important to your company's decision to participate in the Small Business lighting incentives? **[DO NOT READ LIST; RECORD ONE RESPONSE]**

1. (To save money on energy bills, reduce energy consumption or energy demand)
2. (To obtain a program incentive)
3. (To obtain a tax credit)
4. (To replace old (but still functioning) equipment)
5. (To replace broken equipment)
6. (To improve productivity)
7. (To improve lighting quality)
8. (Other **[SPECIFY_____]**)

98. (Don't know)
99. (Refused)

D2. Thinking about the incentive or discount that was applied to your project invoice by the approved contractor, how satisfied were you with the amount of the incentive or discount? Would you say you were…? **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all

98. (Don't know)
99. (Refused)

**[IF D2=2, 3 OR 4]**

D3. Because you responded that you are less than very satisfied, we'd like to ask you three follow-up questions.

**D3.1** What incentive or discount amount would have been enough for you to say you were very satisfied?

**RECORD VERBATIM: _____**

98. (Don't know)
99. (Refused)

**[NOT ASKED] D3.2** What return on investment does your company typically look for on these kinds of projects?

**RECORD VERBATIM: _____**

98. (Don't know)
99. (Refused)

**D3.3** What payback period does you company typically look for on these kinds of projects?

**RECORD VERBATIM: _____**

98. (Don't know)
99. (Refused)

D4. How easy was it to find a *watt*smart Small Business approved contractor to conduct your free facility assessment? Would you say…? **[READ LIST]**

1. Very easy
2. Somewhat easy
3. Not too easy
4. Not at all easy
98. (Don't know)
99. (Refused)

**[IF D4=2, 3 OR 4]**

D5. What would have made it easier to find a *watt*smart Small Business approved contractor?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

D6. After the free facility assessment, did you receive a lighting proposal with estimates of your energy incentive and cost savings?

1. (Yes)
2. (No**) [SKIP TO D10]**
98. (Don't know) **[SKIP TO D10]**
99. (Refused) **[SKIP TO D10]**

**[IF D6=1]**

D7. How satisfied were you with the lighting proposal provided by the contractor? Would you say…? **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all
98. (Don't know)
99. (Refused)

**[IF D7=2, 3 OR 4]**

D8. How could the lighting proposal be improved? **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

**[IF D6=1]**

D9. What information in the lighting proposal was most influential in your decision to proceed with your project….? **[PROBE FOR SPECIFICS OF WHAT WAS INFLUENTIAL]**

1. **[RECORD VERBATIM: _____]**
2. Nothing
98. (Don't know)
99. (Refused)

D10. How satisfied were you with the work provided by the contractor? Would you say…? **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all
98. (Don't know)
99. (Refused)

**[IF D10=2, 3 OR 4]**

D11. Why do you say you were **[INSERT ANSWER FROM D10]** with the work provided by the contractor?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

D12. How satisfied were you with the equipment provided by the contractor? Would you say…? **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all
98. (Don't know)
99. (Refused)

**[IF D12=2, 3 OR 4]**

D13. Why do you say you were **[INSERT ANSWER FROM D12]** with the equipment provided by the contractor?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

D14. Was there other lighting equipment you wanted to install, which did not qualify for Small Business-Lighting incentives?

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

**[IF D14=1]**

D15. What equipment?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

D16. What would you say are the main benefits your company has experienced as a result of the lighting equipment installed? [DO NOT READ LIST; RECORD ALL THAT APPLY; PROBE FOR MULTIPLE RESPONSES]

1. (The incentive)
2. (Using less energy, reducing energy consumption or energy demand)
3. (Saving money on our utility bills; lower energy bills)
4. (Increased occupant comfort)
5. (Better aesthetics/better or brighter lighting)
6. (Increased productivity)
7. (Saving money on maintenance costs)
8. (Other **[SPECIFY: _____]**)
9. (NO BENEFITS)
98. (Don't know)
99. (Refused)

D17. What challenges, if any, did you encounter participating in the Small Business-Lighting incentives?

1. **[SPECIFY: _____]**
2. (No challenges)
98. (Don't know)
99. (Refused)

**[ASK IF D17=1]**

D18. What could [UTILITY] do to help your company overcome these challenges? [DO NOT READ LIST, ALLOW MULTIPLE RESPONSES]

1. (Nothing)
2. (Higher incentives)
3. (Offer low-interest loans/financing)
4. (Simplify the paperwork)
5. (Provide better/more information about program
6. (Other [RECORD VERBATIM ANSWER_____])
98. (Don't know)
99. (Refused)

**[ASK IF D18=5]**

D18.5 You mentioned providing better information about the program. What type of information do you need? **[SPECIFY: _____]**

D19. Do you have any suggestions for improving the Small Business-Lighting incentives?

1. (Yes) **[SPECIFY: _____]**
2. (No)
98. (Don't know)
99. (Refused)

**[IF CHANNEL = PRESCRIPTIVE AND B1=1, 2, 3, OR 4 ASK SECTION E]**

## *E. Prescriptive Lighting and Equipment Upgrades*

Thank you. I'd like to ask you about your project where you installed [INSERT MEASURE1 AND MEASURE2].

E1. I'm going to read you a short list. Please tell me who, if anyone, was involved in helping you initiate your project where you installed [INSERT MEASURE1 OR C_MEASURE1, AND MEASURE2 OR C_MEASURE2]. **[READ LIST AND MARK 1= YES, 2=NO, 98=DON'T KNOW; 99 REFUSED FOR EACH] [RANDOMIZE LIST]**

1. A *watt*smart Business participating vendor
2. Your independent consultant
3. Other **[SPECIFY: _____]**
98. (Don't know)
99. (Refused)

E2. Thinking about the general application and any supplemental equipment applications you submitted, how easy would you say this paperwork was to complete? Would you say…? [READ LIST]

1. Very easy,
2. Somewhat easy,
3. Not too easy, or
4. Not at all easy?
98. (Don't know)
99. (Refused)

**[ASK IF E2=2, 3 OR 4]**

E3. What would have made this paperwork easier to complete?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

E4. Thinking about the incentive you received for this project, were you satisfied with the amount of the incentive? Would you say…? **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all
98. (Don't know)
99. (Refused)

**[IF E4=2, 3 OR 4]**

E5. Because you responded that you are less than very satisfied, we'd like to ask you three follow-up questions.

E5.1 What incentive amount would have been enough for you to say you were very satisfied?

**[RECORD VERBATIM: _____**

98. (Don't know)
99. (Refused)

**[NOT ASKED] E**5.2 What return on investment does your company typically look for on these kinds of projects? **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

E5.3 What payback period does you company typically look for on these kinds of projects? **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

E6. About how long did it take the incentive to arrive? **[READ LIST]**

1. 1-3 weeks
2. 4-6 weeks
3. 7-8 weeks
4. Over 8 weeks
5. (Has not yet arrived?)
98. (Don't know)
99. (Refused)

**[IF E6=1, 2, 3, OR 4]**

E7. How satisfied were you with the amount of time it took to receive the incentive? Would you say...? **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all
98. (Don't know)
99. (Refused)

**[IF E7=2, 3 OR 4]**

E8. What amount of time would have been appropriate? **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

**Thank you, now I'd like to ask you a few questions about the implementation of your project.**

**[IF E1=1] [ASK E9-E12 FOR EACH MEASURE]**

E9. How satisfied were you with the work provided by the **PARTICIPATING VENDOR FOR MEASURE]**? Would you say…? **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all
98. (Don't know)
99. (Refused)

**[IF E9=2, 3 OR 4]**

E10. Why do you say that?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

E11. How satisfied were you with the **[MEASRURE]** you installed? Would you say…? **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all
98. (Don't know)
99. (Refused)

**[IF E11=2, 3 OR 4]**

E12. Why do you say that?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

E13. Was there other energy-efficient equipment you wanted to install, which did not qualify for *watt*smart Business prescriptive incentives?

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

**[IF E13=1]**

E14. What equipment?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

E15. What would you say are the main benefits your company has experienced as a result of the energy-efficient equipment installed? [DO NOT READ LIST; RECORD ALL THAT APPLY; PROBE FOR MULTIPLE RESPONSES]

1. (The incentive)
2. (Using less energy, reducing energy consumption or energy demand)
3. (Saving money on our utility bills; lower energy bills)
4. (Increased occupant comfort)
5. (Better aesthetics/better or brighter lighting)
6. (Increased productivity)
7. (Saving money on maintenance costs)
8. (Other **[SPECIFY: _____]**)
9. (NO BENEFITS)
98. (Don't know)
99. (Refused)

E16. What challenges, if any, did you encounter participating in the *watt*smart Business program prescriptive incentives?

1. **[SPECIFY: _____]**
2. (No challenges)
98. (Don't know)
99. (Refused)

**[IF E16=1]**

E17. What could [UTILITY] do to help your company overcome these challenges? [DO NOT READ LIST, ALLOW MULTIPLE RESPONSES]

1. (Nothing)
2. (Higher incentives)
3. (Offer low-interest loans/financing)
4. (Simplify the paperwork)
5. (Provide better/more information about program)
6. (Other [RECORD VERBATIM ANSWER_____])
98. (Don't know)
99. (Refused)

**[ASK IF E17=5]**

E17.5 You mentioned you would like more information. What type of information do you need? **[RECORD VERBATIM: _____]**

**[IF CHANNEL = CUSTOM AND B1=1, 2, 3 OR 4 ASK SECTION F] OR [IF CHANNEL = CUSTOM-RECOMMISSIONING AND B1=1, 2, 3 OR 4 ASK SECTION F]**

## *F. Custom and Custom-Recommissioning Projects*

Thank you. I'd like to ask you about your **[IF CUSTOM CHANNEL INSERT "CUSTOM ENERGY EFFICIENCY". IF CUSTOM-RECOMMISSIONING CHANNEL INSERT "RECOMMISSIONING"]** project.

F1. Thinking about your project, how satisfied are you with your experience with the Energy Engineer provided by **[UTILITY]**? Are you … **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all

98. (Don't know)
99. (Refused)

**[IF F1=2, 3, OR 4]**

F2. Why do you say you were **[INSERT ANSWER FROM F1]** with the Energy Engineer?

1. **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

F3. Thinking about your project, how satisfied are you with your interaction with **[UTILITY]**? Are you … **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all

98. (Don't know)
99. (Refused)

**[IF F3=2, 3, OR 4]**

F4. Why do you say you were **[INSERT ANSWER FROM F3]** with **[UTILITY]**?

1. **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

F5. Thinking about the general application you submitted, how easy would you say this paperwork was to complete? Would you say…? [READ LIST]

1. Very easy,
2. Somewhat easy,
3. Not too easy
4. Not at all easy
98. (Don't know)
99. (Refused)

[ASK IF F5=2, 3 or 4]

F6. What would have made this paperwork easier to complete?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

F7. Did your company participate in a pre-inspection to identify the equipment options available to receive incentives?

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

**[IF F7=1]**

F8. Following the pre-inspection, the Program provides a custom energy analysis to identify efficiency measures, energy savings, costs, incentives and payback. Did your company receive this custom energy analysis?

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

**[IF F8=1]**

F9. And thinking about the custom energy analysis, how useful was the information you received? Would you say…? **[READ LIST]**

1. Very useful,
2. Somewhat useful,
3. Not too useful, or
4. Not useful at all?

98. (Don't know)
99. (Refused)

[IF F9=2, 3 or 4]

F10. What would have made the information more useful to you? **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

**[IF F8=1]**

F11. What information in the custom energy analysis was most influential in your decision to proceed with your project….? **[PROBE FOR SPECIFICS OF WHAT WAS INFLUENTIAL]**

1. **[RECORD VERBATIM: _____]**
2. (Nothing)

98. (Don't know)
99. (Refused)

F12. And now thinking about the incentive you received, how satisfied were you with the amount of the incentive? Would you say…? **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all

98. (Don't know)
99. (Refused)

[IF F12=2, 3 OR 4]

F13. Because you responded that you are less than very satisfied, we'd like to ask you three follow-up questions.

F13.1 What incentive amount would have been enough for you to say you were very satisfied?

**RECORD VERBATIM: _____**

98. Don't know)
99. (Refused)

[NOT ASKED] F13.2 What return on investment does your company typically look for on these kinds of projects?

**RECORD VERBATIM: _____**

98. (Don't know)
99. (Refused)

F13.3 What payback period does you company typically look for on these kinds of projects?

**RECORD VERBATIM: _____**

98. (Don't know)
99. (Refused)

F14. About how long did it take the incentive to arrive? **[READ LIST]**

1. 1-3 weeks
2. 4-6 weeks
3. 7-8 weeks
4. Over 8 weeks
5. (Has not yet arrived?)

98. (Don't know)
99. (Refused)

[IF F14=1, 2, 3, or 4]

F15. How satisfied were you with the amount of time it took to receive the incentive? Would you say…? **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all

98. (Don't know)
99. (Refused)

[IF F15=2, 3 or 4]

F16. What amount of time would have been appropriate? **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

F17. Were there other energy-efficiency measures or equipment you wanted to install, which did not qualify for *watt*smart Business **[IF CUSTOM CHANNEL INSERT "CUSTOM INCENTIVES". IF CUSTOM-RECOMMISSIONING CHANNEL INSERT "RECOMMISSIONING INCENTIVES"]**?

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

[IF F17=1]

F18. What equipment?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

F19. What would you say are the main benefits your company has experienced as a result of the energy efficiency upgrades we've discussed? [DO NOT READ LIST; RECORD ALL THAT APPLY; PROBE FOR MULTIPLE RESPONSES]

1. (The incentive)
2. (Using less energy, reducing energy consumption or energy demand)
3. (Saving money on our utility bills; lower energy bills)
4. (Increased occupant comfort)
5. (Better aesthetics/better or brighter lighting)
6. (Increased productivity)
7. (Saving money on maintenance costs)
8. (Technical expertise provided by the Program)
9. (Recommendations and information contained in the energy analysis)
10. (Other **[SPECIFY: _____]**)
11. (NO BENEFITS)
98. (Don't know)
99. (Refused)

F20. What challenges, if any, did you encounter participating in the *watt*smart Business Program **[IF CUSTOM CHANNEL INSERT "CUSTOM INCENTIVES". IF CUSTOM-RECOMMISSIONING CHANNEL INSERT "RECOMMISSIONING INCENTIVES"]** ?

1. **[SPECIFY: _____]**
2. (No challenges)
98. (Don't know)
99. (Refused)

**[ASK IF F20=1]**

F21. What could [UTILITY] have done to help your company overcome these challenges? [DO NOT READ LIST, ALLOW MULTIPLE RESPONSES]

1. (Nothing)
2. (Higher incentives)
3. (Offer low-interest loans/financing)
4. (Simplify the paperwork)
5. (Provide better/more information about program)
6. (Other [RECORD VERBATIM ANSWER_____])
98. (Don't know)
99. (Refused)

**[ASK IF F21=5]**

F21.5 You mentioned you would like more information. What type of information do you need?

F22. **[RECORD VERBATIM_____]**

**[ASK ALL SURVEY RESPONDENTS SECTIONS G, H, I AND J]**

## *G. Freeridership*

[IF MULT_MEASURES=1, say "I'll be asking the next questions first about [MEASURE_1/C_MEASURE1 and again for MEASURE_2/C_MEASURE2] **[IF NEEDED:** "General Illuminance includes interior or exterior lighting and controls." **OR** "NON-general illuminance includes exit signs, LED signs, LED case lighting, and refrigerator case occupancy sensors."**]**

[ASK QUESTIONS G1 TO G8 FOR EACH MEASURE_# (MEASURE_1/C_MEASURE1 AND MEASURE_2/C_MEASURE2]

G1. Without the program, meaning without either the technical assistance or the financial incentive, would you have still completed the exact same [MEASURE_#] project?

1. (Yes)
2. (No) [SKIP TO G3]
98. (Don't know) [SKIP TO G3]
99. (Refused) [SKIP TO G3]

G2. Without the program, meaning without either the technical assistance or the financial incentive, would you have still installed the [MEASURE _#] at the same time?

1. (Yes) [SKIP TO G7]
2. (No) [SKIP TO G4]
98. (Don't know) [SKIP TO G4]
99. (Refused) [SKIP TO G4]

G3. Without the program, would you have installed any [MEASURE _#] equipment?

1. (Yes)
2. (No) [SKIP TO G8]
98. (Don't know) [SKIP TO G8]
99. (Refused) [SKIP TO G8]

G4. Without the program, in terms of timing, when would you have installed the [MEASURE _#]?

1. Within one year from original participation date
2. In one to two years from original participation date
3. More than two years from original participation date [SKIP TO G8]
98. (Don't know)
99. (Refused)

G5. Relative to the energy efficiency of [MEASURE _#] installed through the program, how would you characterize the efficiency of equipment you would have installed without the program?

1. Just as efficient as installed with the program
2. Lower than installed through the program, but better than standard efficiency
3. Standard efficiency
98. (Don't know)
99. (Refused)

G6. Would you have installed more, less, or the same amount of [MEASURE _#] without the program?

1. (More)
   G6a. Compared to the installed amount, how much more?
   **[RECORD PERCENTAGE: _____]**
2. (Less)
   G6b. Compared to the installed amount, how much less?
   **[RECORD PERCENTAGE: _____]**
98. (Don't know)
99. (Refused)

G7. Prior to hearing about the program, was the cost of [MEASURE _#] included in your organization's most recent capital budget?

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

G8. In your own words, can you please describe what impact the program had on your decision to complete these energy efficiency improvements for [MEASURE _#]?
[REPEAT QUESTIONS G1 TO G8 FOR MEASURE2/C_MEASURE2 IF MULT_MEASURES=1]

G9. With the [CHANNEL] program, your company received financial incentives, or credits, or discounts **[IF INCENTIVES/BILL CREDIT ARE PROVIDED IN DATA BASE READ,** "of [INCENTIVE 1] or [BILL CREDIT1] and [INCENTIVE 2] or [BILL CREDIT2] for installing [MEASURE_1/C_MEASURE1] and [MEASURE_2/C_MEASURE2]. [IF CHANNEL=PRESCRIPTIVE add "You may have also received technical assistance identifying energy saving opportunities"].

For the [MEASURE_1/C_MEASURE1] and [MEASURE_2/C_MEASURE2] purchases, on a scale from 1 to 5, with 1 being not important at all and 5 being extremely important, how important was each of the following factors in deciding which equipment to install. If a factor is not applicable to you, please say so. [NOTE: Respondents can also state that a particular factor is Not Applicable, please code N/A as 6]

1. Recommendation from contractor or vendor
2. Information provided by **[UTILITY]** on energy saving opportunities
3. Information on payback
4. The [UTILITY] incentive or discount
5. Familiarity with this equipment
6. Previous participation with a [UTILITY] program

## *H. Spillover*

H1. Now I'd like to ask about energy efficiency improvements other than those you installed through the program. Since participating in this program, have you purchased and installed any additional energy efficiency improvements on your own without any assistance from a utility or other organization?

1. (Yes)
2. (No) **[SKIP TO SECTION I]**
98. (Don't know) **[SKIP TO SECTION I]**
99. (Refused) **[SKIP TO SECTION I]**

[IF MULT_MEASURES=1, say "I'll be asking the next questions first about MEASURE_1 OR C_MEASURE1 and again for MEASURE_2 OR C_MEASURE2]

[ASK QUESTIONS H2 TO H8 FOR EACH MEASURE_# (MEASURE_1/C_MEASURE1 AND MEASURE_2/C_MEASURE2)]

H2. Did you purchase and install any energy efficient improvements that are the same as the [MEASURE _#] you installed through the program?

1. (Yes)
2. (No) [IF MULTI_MEASURES=1 SET MEASURE_#=MEASURE_2 AND GO BACK/RE-ASK H2; ELSE GO TO H9]
98. (Don't know) [IF MULTI_MEASURES=1 SET MEASURE_#=MEASURE_2 AND GO BACK/RE-ASK H2; ELSE GO TO H9]
99. (Refused) [IF MULTI_MEASURES=1 SET MEASURE_#=MEASURE_2 AND GO BACK/RE-ASK H2; ELSE GO TO H9]

H3. How many did you purchase and install?

1. [RECORD RESPONSE]
98. (Don't know)
99. (Refused)

H4. Relative to the energy efficiency of the equipment installed through the program, how would you characterize the efficiency of this equipment?

1. Just as efficient as installed through the program
2. Lower than installed through the program, but better than the standard efficiency
3. Standard efficiency
98. (Don't know)
99. (Refused)

H5. Did you receive an incentive from [UTILITY] or another organization for this equipment?

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

**[ASK IF H5=1]**

H6. What program or sponsor provided the incentive?

1. **[ENTER PROGRAM OR UTILTIY]**
98. (Don't know)
99. (Refused)

H7. On a scale from 1 to 5, with 1 being not important at all and 5 being extremely important, please rate how important your experience with the [UTILITY] [CHANNEL] program was in your decision to install [this/these] energy efficient product(s).

1. RECORD RATING: _____]
98. (Don't know)
99. (Refused)

**[ASK IF H5=2]**

H8. Why did you not apply for an incentive from [UTILITY] for this equipment?

1. [RECORD RESPONSE]
98. (Don't know)
99. (Refused)

[REPEAT H2 TO H8 FOR MEASURE_2/C_MEASURE2 IF MULT_MEASURES=1]

H9. In **[PROGRAM YEAR]** did you purchase and install any ***other*** energy efficiency improvements on your own without any assistance (financial or technical) from a utility, vendor or other organization?

1. (Yes)
2. (No) **[SKIP TO SECTION I]**
98. (Don't know) **[SKIP TO SECTION I]**
99. (Refused) **[SKIP TO SECTION I]**

H10. What type of equipment did you install? **[DO NOT READ LIST. RECORD ALL THAT APPLY]**

1. (Lighting equipment)
2. (HVAC equipment (heating and cooling))
3. (Water heating equipment)
4. (Variable drive)
5. (Efficient motor)
6. (Refrigeration equipment)
7. (Building envelope measure)
8. (Compressed air equipment)
9. (Chiller)
10. (Pump)
11. (Irrigation equipment (gaskets, drains, sprinklers))
12. (Other) **[SPECIFY]**: _____
13. (None of the above) **[SKIP TO SECTION I]**
98. (Don't know) **[SKIP TO SECTION I]**
99. (Refused) **[SKIP TO SECTION I]**

[ASK H10.11-H10.14 AND H11-H15 if H10=1]

**H10.11** What type of lighting was purchased and installed? **[SPECIFY TYPE EXAMPLE: CFL, LED, FLUORESCENT]**: _____
H10.12 What is the wattage of the lighting? **[SPECIFY]**: _____
H10.13 In what location was it installed (Wall/Ceiling/Outdoors)? **[SPECIFY]**: _____
H10.14 What type of equipment was removed or replaced? **[SPECIFY]**: _____

[ASK H10.21-H10.24 AND H11-H15 if H10=2]

**H10.21** What type of HVAC equipment was purchased and installed? **[SPECIFY TYPE]**: _
H10.22 What Fuel type is used? **[SPECIFY]**: _____
H10.23 What is the efficiency rating of the equipment? **[SPECIFY]**: _____
H10.24 What is the capacity of the equipment? **[SPECIFY]**: _____

[ASK H10.31-H10.34 AND H11-H15 if H10=3]

**H10.31** What type of water heating equipment was purchased and installed? **[SPECIFY TYPE]**: _____
H10.32 What Fuel type is used? **[SPECIFY]**: _____
H10.33 What is the efficiency rating of the equipment? **[SPECIFY]**: _____
H10.34 (If water heater with storage) What is the capacity of the equipment? **[SPECIFY]**:

[ASK H10.41-H10.42 AND H11-H15 if H10=4]

**H10.41** What type of motor was it installed on? **[SPECIFY TYPE]**: _____
H10.42 What is the horsepower of the motor? **[SPECIFY]**: _____

[ASK H10.51-H10.52 AND H11-H15 if H10=5]

**H10.51** What equipment was the motor installed on? **[SPECIFY TYPE]**: _____
H10.52 What is the horsepower of the motor? **[SPECIFY]**: _____

[ASK H10.61 AND H11-H15 if H10=6]

**H10.61** What type of refrigeration equipment was purchased and installed? **[SPECIFY TYPE]**: _____

[ASK H10.71-H10.73 AND H11-H15 if H10=7]

**H10.71** What building envelope measure was purchased and installed? **[SPECIFY TYPE]**:
H10.72 What is the efficiency (R-value) of the measure? **[SPECIFY]**: _____
H10.73 In what location was it installed (Wall/Roof/Floor)? **[SPECIFY]**: _____

[ASK H10.81-H10.82 AND H11-H15 if H10=8]

**H10.81 FOR W**hat type of application was the compressed air equipment purchased and installed? **[SPECIFY APPLICATION]**: _____
H10.82 What is the horsepower of the compressor motor? **[SPECIFY]**: _____

[ASK H10.91-H10.92 AND H11-H15 if H10=9]

**H10.91 FOR W**hat type of application was the chiller purchased and installed? **[SPECIFY APPLICATION]**: _____
H10.92 What size chiller did you install? **[SPECIFY]**: _____

[ASK H10.101-H10.103 AND H11-H15 if H10=10]

**H10.101 FOR W**hat type of application was the pump purchased and installed? **[SPECIFY APPLICATION]**: _____
**H10.102** What is the horsepower of the motor for the pump? **[SPECIFY]** _____
H10.103 What is the efficiency rating of the pump? **[SPECIFY]**: _____

[ASK H10.111 AND H11-H15 if H10=11]

**H10.111 WHAT IRRIGATION EQUIPMENT DID YOU** purchase and install? **[SPECIFY GASKETS, DRAINS, SPRINKLERS, ETC.]**: _____

**[ASK IF H10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN H10]**

H11. How many did you purchase and install? [ASK FOR EACH MEASURE MENTIONED IN H10] [IF H10 MEASURE = 'BUILDING ENVELOPE' THEN ASK HOW MANY 'SQUARE FEET']

1. [RECORD RESPONSE]
98. (Don't know)
99. (Refused)

**[ASK IF H10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN H10]**

H12. Just to confirm, did you receive an incentive from [UTILITY] or another organization for this equipment? [ASK FOR EACH MEASURE MENTIONED IN H10]

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

**[ASK FOR EACH YES IN H12]**

H13. What utility or organization provided the incentive? [ASK FOR EACH MEASURE MENTIONED IN H10]

1. **[RECORD UTILITY OR ORGANIZATION]**
98. (Don't know)
99. (Refused)

**[ASK IF H10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN H10]**

H14. What information did you rely upon to determine that the equipment installed was energy efficient? [ASK FOR EACH MEASURE MENTIONED IN H10]

1. **[RECORD RESPONSE]**
98. (Don't know)
99. (Refused)

**[ASK IF H10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN H10]**

H15. On a scale from 1 to 5, with 1 being not important at all and 5 being extremely important, please rate how important your experience with the [UTILITY] *watt*smart Business program was in your decision to install [this/these] energy efficient product(s). [ASK FOR EACH MEASURE MENTIONED IN H10]

1. **[RECORD RATING: _____]**
98. (Don't know)
99. (Refused)

**[ASK SECTION I TO ALL SURVEY RESPONDENTS]**

## *I. Firmographics*

Finally, I have a few general questions about your business.

I1. What industry is your company in? **[DON'T READ RESPONSES UNLESS NECESSARY]**

1. (Accommodation)
2. (Arts, Entertainment and Recreation)
3. (Construction)
4. (Dairy, Agricultural)
5. (Educational Services)
6. (Finance, Insurance)
7. (Food Service)
8. (Food Processing)
9. (Health Care)
10. (Manufacturing)
11. (Mining)
12. (Nonprofit and Religious Organizations)
13. (Oil and Gas)
14. (Professional, Scientific and Technical Services)
15. (Public Administration/Government Services)
16. (Retail)
17. (Refrigerated Warehouse)
18. (Real Estate/Property Management)
19. (Repair and Maintenance Service)
20. (Transportation)
21. (Warehouses or Wholesaler)
22. (Other **[SPECIFY: _____]**)
98. (Don't know)
99. (Refused)

I2. How many locations does your company operate in **[PROJECT STATE]**?

1. **[RECORD NUMBER: _____]**
98. (Don't know)
99. (Refused)

I3. Does your organization lease or own the facility or facilities?

1. (Lease)
2. (Own)
3. (Other) **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

I4. How many people are employed by your company at all locations?

1. (1-10)
2. (11-25)
3. (26-50)
4. (51-75)
5. (76-100)
6. (101-200)
7. (201-500)
8. More than 500
98. (Don't know)
99. (Refused)

I5. **[NOT ASKED]** What type of fuel is used for space heating at your facility where the [MEASURE 1] was installed?

1. Electric
2. Gas
3. (Other) **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

I6. **[NOT ASKED]** What type of fuel is used for water heating at your facility where the [MEASURE 1] was installed?

1. Electric
2. Gas
3. (Other) **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

## *J. Closing*

J1. **[NOT ASKED]** Overall, how satisfied would you say you are with the *watt*smart Business program? Would you say: **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all
98. (Don't know)
99. (Refused)

J2. Is there anything that **[UTILITY]** could have done to improve your overall experience with the *watt*smart Business program? **[DO NOT READ THE LIST, RECORD ALL THAT APPLY]**

1. (Better/more communication])
2. (Quicker response time)
3. (Larger selection of eligible equipment)
4. (Increasing the incentive amount)
5. (Simplify the application process)
6. (Simplify the website)
7. (Provide quicker approval on applications)
8. (Send incentive check out faster)
9. (Other **[SPECIFY: _____]**)
10. (No, nothing)
98. (Don't know)
99. (Refused)

J2.1 **[ASK IF J2 = 1]** You mentioned you would like better communication. Who would you like more communication from? **[RECORD RESPONSE_____]**

J2.2 **[ASK IF J2 = 2]** You mentioned a quicker response time. Who would you like a quicker response time from? **[RECORD RESPONSE_____]**

J2.3 **[ASK IF J2 = 3]** What other energy-efficient equipment should *watt*smart business offer incentives for? **[RECORD RESPONSE_____]**

J2.5 **[ASK IF J2=5]** In what way would you like them to simply the application process? **[RECORD RESPONSE_____]**

J2.6 **[ASK IF J2 = 6]** In what way would you like them to simplify the website? **[RECORD RESPONSE_____]**

J3. **[NOT ASKED]** Other than what we've already talked about, do you have any suggestions for improving the *watt*smart Business program?

1. (Yes) **[SPECIFY: _____]**
2. (No)
98. (Don't know)
99. (Refused)

J4. In the future, how would you like to stay informed about opportunities available through the wattsmart Business Program? **[DO NOT READ LIST; MULTIPLE RESPONSES POSSIBLE]**

1. (Contact with *watt*smart Business representative through phone, email, or in person)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or event)
4. (Contact with utility representative)
5. (Utility mailing, bill insert, or utility Website)
6. (Contact with a vendor/contractor)
7. (Through a trade association, trade publication or professional organization) [SPECIFY: _____])
8. (Newspaper ad)
9. (Radio ad)
10. (TV ad)
11. (Social Media (e.g., Facebook, Twitter, YouTube))
12. (Online ads)
13. (Other [SPECIFY: _____])

98. (Don't know)
99. (Refused)

***This completes the survey. Your responses are very important to [UTILITY]. We appreciate your participation and thank you for your time. Have a good day.***

CADMUS

# Appendix D. Pacificorp *watt*smart Business Program (2014/2015) Nonparticipant/Partial Participant Survey

| Researchable Questions | | |
|---|---|---|
| **Key Research Topics** | **Areas of Investigation** | **Related Questions** |
| **Marketing and Outreach** | Program Awareness | C1-C4, D10-D11 |
| | Future communication preferences | C5 |
| **Motivation and Barriers** | Reasons to make energy-efficient improvements; Obstacles to installing high-efficiency equipment | D1-D9, D12-D14, G1-G3 |
| **Spillover** | Assess savings spillover | Section E |
| **Firmographics** | Determine building and company characteristics of participants | Section F |

**Target Quota**:
***Nonparticipants:***
Utah Managed (20), Nonmanaged (50)
Washington Managed (20), Nonmanaged (50)
Idaho Managed (20), Nonmanaged (50)
Wyoming Managed (20), Nonmanaged (50)

***Partial participants:*** (Utah =26, Washington =19, Idaho =21, Wyoming =18)

General Instructions

- Interviewer instructions are in green **[LIKE THIS]** (the style is "Survey: Interviewer Instructions").
- CATI programming instructions are in red **[LIKE THIS]** (the style is "Survey: Programming").
- Items that should not be read by the interviewer are in parentheses like this ( ).

Variables to be Pulled into Nonparticipant Survey

- **[CUSTOMER NAME]**
- **[STANDARD INDUSTRIAL CLASS CODE]**
- **[ADDRESS] CITY NAME, STATE CODE**
- **[PROJECT STATE] STATE CODE**
- **[UTILITY]**
- NONPARTICIPANT OR PARTIAL PARTICIPANT
- MANAGED ACCOUNT

Variables to be Pulled into Partial Participant Survey

- **[CONTACT NAME]**
- **[CUSTOMER NAME]**
- **[ADDRESS] SITE ADDRESS 1, CITY, STATE**
- **[PROJECT STATE]**
- **[UTILITY]**

- **[MEASURE]**
- NONPARTICIPANT OR PARTIAL PARTICIPANT

## *A. Introduction*

A1. Hello, I'm **[INSERT NAME]** calling on behalf of **[UTILITY].** May I speak with **[CONTACT NAME]**? OR **[IF NO NAME OR NAMED RESPONDENT NO LONGER WORKS FOR COMPANY]** May I speak with the person who handles energy decisions for **[CUSTOMER NAME]**? **[IF THAT PERSON IS NOT AT THIS PHONE NUMBER, ASK FOR THEIR NAME AND PHONE NUMBER AND START AGAIN]**

1. (Yes) **[IF CORRECT PERSON, SKIP TO A3. IF TRANSFERRED TO SOMEONE ELSE, READ A2]**
2. (No or not a convenient time) **[ASK IF RESPONDENT WOULD LIKE TO ARRANGE A MORE CONVENIENT TIME OR IF YOU CAN LEAVE A MESSAGE FOR A MORE APPROPRIATE PERSON]**

98. (Don't know) **[ASK TO SPEAK WITH SOMEONE WHO KNOWS AND BEGIN AGAIN]**
99. (Refused) **[THANK AND TERMINATE]**

A2. Hello, I'm **[INSERT NAME]** calling on behalf of **[UTILITY]**. Are you the person responsible for making energy-efficiency decisions for your company at the **[ADDRESS]** location?

1. (Yes)
2. (No, person is able to come to phone) **[ASK FOR PERSON WHO IS AND START AGAIN]**
3. (No, person is not able to come to phone) **[GET NAME AND PHONE NUMBER, SCHEDULE CALL BACK]**

98. (Don't know) **[ASK TO SPEAK WITH SOMEONE WHO KNOWS AND BEGIN AGAIN]**
99. (Refused) **[THANK AND TERMINATE]**

A3. We are conducting an important survey today about **[UTILITY]**'s wattsmart Business program. [UTILITY] is actively seeking your opinions to help improve their business efficiency programs and to better understand how to assist customers in saving money and energy. This call may be monitored or recorded for quality assurances purposes. Anything you share with us today will be confidential and not attributed to any one individual or business.

1. **[IF RESPONDENT ASKS HOW LONG, SAY "Approximately 5 to 7 minutes."]**
2. **[IF NEEDED, STATE "this survey is for research purposes only and this is not a marketing call. This is the primary way for customers to provide input into the incentive programs** [UTILITY] **offers. Your perspectives help** [UTILITY] **design energy-efficiency programs to help their customers save money and energy."]**
3. **[IF CUSTOMER IS UNFAMILIAR WITH "*WATT*SMART" STATE "between 2013 and 2015 the programs energy Finanswer, Finanswer express, Recommissioning and Self-Direction Credit, and Irrigation Energy Services, were combined under one umbrella, the W*att*smart Business Program."]**
4. **[ONLY IF ASKED FOR A** [UTILITY] **CONTACT TO VERIFY THE SURVEY AUTHENTICITY, OFFER** [NIKKI KARPAVICH, 801-220-4439]

## *B. Screeners*

**[ASK PARTIAL PARTICIPANTS]**

B1. Our records show that you initiated **[DEPENDING ON MEASURE NAME READ** "a" or "an"**]** **[MEASURE]** project at **[ADDRESS]** with **[UTILTY]** in 2014 or 2015, but did not complete this project through the wattsmart Business program? Is this correct? **[IF CUSTOMER IS UNFAMILIAR WITH WATTSMART BUSINESS OR UNSURE, READ:** You may know the program by another name: Energy Finanswer, Finanswer Express, Recommissioning and Self-Direction Credit, and Irrigation Energy Services.]

1. (Yes)
2. (No, wrong year) **[RECORD CORRECT YEAR, IF POSSIBLE]**
3. (No, wrong address) **[RECORD CORRECT ADDRESS]**
4. (No, I did not participate) **[THANK AND TERMINATE]**

98. (Don't know) **[ASK TO SPEAK WITH SOMEONE WHO WOULD KNOW AND START AGAIN AT A2. IF NO ONE, THEN THANK AND TERMINATE]**

99. (Refused) **[THANK AND TERMINATE]**

[THANK AND TERMINATE TEXT] Those are all the questions we have for you today. Thank you for your help. Have a nice day!

**[ASK EVERYONE]**

B2. Did your company receive an incentive from **[UTILITY]**'s *watt*smart Business program for installing energy efficient equipment in 2014 or 2015? By energy-efficient equipment, I mean high efficiency lighting, HVAC equipment, irrigation or dairy equipment, variable speed drives, building envelope or other energy efficient equipment. **[IF CUSTOMER IS UNFAMILIAR WITH WATTSMART BUSINESS OR UNSURE, READ:** You may know the program by another name: Energy Finanswer, Finanswer Express, Recommissioning and Self-Direction Credit, and Irrigation Energy Services.]

1. (Yes) **[READ:** For this survey, we are seeking those companies who did not receive an incentive. We will not take any more of your time today. Thank you.**]** **[TERMINATE]**
2. (No)

98. (Don't know) **[ASK TO SPEAK WITH SOMEONE WHO WOULD KNOW AND START AGAIN AT A2. IF NO ONE, THEN THANK AND TERMINATE]**

99. (Refused) **[THANK AND TERMINATE]**

**[THANK AND TERMINATE TEXT]** Those are all the questions we have for you today. Thank you for your help. Have a nice day!

## C. Awareness

**[ASK PARTIAL PARTICIPANTS]**

C1. Even though you did not receive an incentive; how did your organization learn about the incentives available for this project? **[DO NOT READ LIST; MULTIPLE RESPONSES POSSIBLE]**

1. (Contact with *watt*smart Business representative through phone, email, or in person)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or event)
4. (Contact with utility representative)
5. (Utility mailing, bill insert, or utility website)
6. (I contacted my contractor/vendor to ask)
7. (My contractor/vendor let me know about them)
8. (Previously participated in program/received an incentive)
9. (Through a trade association or professional organization) **[SPECIFY: _____])**
10. (Word of mouth (family, friend, or business colleague)
11. (Other **[SPECIFY: _____])**

98. (Don't know)
99. (Refused)

**[ASK EVERYONE]**

C2. **[UTILITY]** recently combined its business energy efficiency incentive programs under one name—*watt*smart Business. Before this call today had you heard of the *watt*smart Business program? **[IF NEEDED: THE PROGRAMS COMBINED INTO WATTSMART BUSINESS ARE: ENERGY FINANSWER, FINANSWER EXPRESS, RECOMMISSIONING, SELF-DIRECTION CREDIT, AND IRRIGATION ENERGY SAVERS]**

1. (Yes) **[PARTIAL PARTICIPANTS SKIP TO C4] [NONPARTICIPANTS CONTINUE TO C3]**
2. (No) **[SKIP TO C5]**

98. (Don't know) **[SKIP TO C5]**
99. (Refused) **[SKIP TO C5]**

C3. How did your organization learn about the *watt*smart Business Program? **[DO NOT READ LIST; MULTIPLE RESPONSES POSSIBLE]**

1. (Contact with *watt*smart Business representative through phone, email, or in person)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or event)
4. (Contact with utility representative)
5. (Utility mailing, bill insert, or utility website)
6. (I contacted my contractor/vendor to ask)
7. (My contractor/vendor let me know about them)
8. (Previously participated in program/received an incentive)
9. (Through a trade association or professional organization) **[SPECIFY: _____])**
10. (Word of mouth (family, friend, or business colleague)
11. (Other **[SPECIFY: _____])**

98. (Don't know)
99. (Refused)

C4. How likely is it that your business will request an incentive from the *watt*smart Business program for an energy efficiency project in the next 6 months? Would you say … [READ LIST]

1. Very likely
2. Somewhat likely
3. Not too likely
4. Not at all likely

98. (Don't know)
99. (Refused)

C5. What's the best way for **[UTILITY]** to inform you about their incentives for energy-efficient improvements? **[DO NOT READ. RECORD UP TO THREE RESPONSES]**

1. (Contact with *watt*smart Business representative through phone, email, or in person)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or event)
4. (Contact with utility representative)
5. (Utility mailing, bill insert, or utility website)
6. (Contact with a vendor/contractor)
7. (Through a trade association, trade publication or professional organization) **[SPECIFY:_____])**
8. (Newspaper ad)
9. (Radio ad)
10. (TV ad)
11. (Social Media (e.g., Facebook, Twitter, YouTube))
12. (Online ads)
13. (Other **[SPECIFY: _____])**
14. (Not interested in being informed about incentives for energy-efficient improvements)

98. (Don't know)
99. (Refused)

## *D. Motivation and Barriers*

**[ASK EVERYONE D1]**

Thank you. The next few questions are about making energy-efficient improvements for your business.

D1. What factor is the <u>most</u> important to motivate your company to make energy-efficient upgrades? **[DO NOT READ LIST; RECORD ONE RESPONSE]**

1. (To save money on energy bills, reduce energy consumption or energy demand)
2. (To obtain a program incentive)
3. (To obtain a tax credit)
4. (To replace old (but still functioning) equipment)
5. (To replace broken equipment)
6. (To improve productivity)
7. (To improve lighting quality)
8. (Other **[SPECIFY_____]**)

98. (Don't know)
99. (Refused)

**[NONPARTICIPANTS SKIP TO D7]**

**[PARTIAL PARTICIPANTS ASK D2-D6]**

D2. Did your company complete the **[MEASURE]** project you initiated with **[UTILITY]** even though you did not receive a *watt*smart Business incentive?

1. (Yes) **[SKIP TO D4]**
2. (No)

98. (Don't know) **[SKIP TO D4]**
99. (Refused) **[SKIP TO D4]**

D3. Why did you not complete the project?

1. **[RECORD RESPONSE]** **[SKIP TO E1]**

98. (Don't know) **[SKIP TO E1]**
99. (Refused) **[SKIP TO E1]**

D4. Did your company apply for a *watt*smart Business incentive? **[IF NEEDED**: You may have applied under one of the programs that became *watt*smart Business. These include Energy FinAnswer, FinAnswer Express, Recommissioning, Self-Direction Credit, and Irrigation Energy Services.]

1. (Yes)
2. (No) **[SKIP TO D6]**

98. (Don't know) **[SKIP TO E1]**
99. (Refused) **[SKIP TO E1]**

D5. Why did your project not receive an incentive?

1. **[RECORD RESPONSE]** **[SKIP TO E1]**

98. (Don't know) **[SKIP TO E1]**
99. (Refused) **[SKIP TO E1]**

D6. Why did you not apply for an incentive?

1. (Project did not qualify) **[SKIP TO E1]**
2. (Other) **[RECORD RESPONSE]** **[SKIP TO E1]**

98. (Don't know) **[SKIP TO E1]**
99. (Refused) **[SKIP TO E1]**

**[NONPARTICIPANT ASK D7-D14 ]**

D7. I'm going to read you six statements describing situations companies experience when considering energy-efficient improvements. Please tell me to what extent you agree with each statement. If it doesn't apply to you, please let me know that. The first statement is: **[RANDOMIZE, READ STATEMENT; THEN JUST FOR THE FIRST STATEMENT READ THE FOLLOWING**: Would you say you strongly agree, somewhat agree, somewhat disagree, or strongly disagree?
**[READ LIST AND RECORD 1=STRONGLY AGREE, 2=SOMEWHAT AGREE, 3=SOMEWHAT DISAGREE, AND 4=STRONGLY DISAGREE; 97= NOT APPLICABLE, 98=DON'T KNOW, AND 99=REFUSED]**

- D2a. Making upgrades at our facility is an inconvenience.
- D2b. Making energy efficiency upgrades to this facility is too costly.
- D2c. We don't replace working equipment even if it is not energy efficient.
- D2d. My company has made all the energy efficiency improvements we can without a substantial investment.
- D2e. My company leases space, we do not want to invest in energy efficiency upgrades.
- D2f. Decisions about equipment upgrades are made at a corporate office, and we don't have much input at this facility.

D8. When calculating the return on investment for proposed capital upgrades, does your company include savings gained from energy efficiency?

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

D9. What would motivate your business to make more energy-efficient purchases or upgrades to your current equipment? **[DO NOT READ LIST; RECORD UP TO 3 RESPONSES]**

1. (Lower costs of product/equipment)
2. (Information on return on investment/help with the business case for investment)
3. (More information generally)
4. (Higher incentives)
5. (Incentives on different products/technologies)
6. (Other) **[SPECIFY]**
98. (Don't know)
99. (Refused)

**[ASK IF D9=3]**

D10. When you say you would like more information, what kind of information is most useful?

1. **[RECORD RESPONSE]**
98. (Don't know) **[SKIP TO D13]**
99. (Refused) **[SKIP TO D13]**

**[ASK IF D10=1]**

D11. Who could best to provide you with this information? For example, a *watt*smart Business representative, someone like your contractor, or a product manufacturer?

1. (*watt*smart Business)
2. (Contractor/Distributor/Vendor)
3. (Store staff)
4. (Product Manufacturer)
5. (Something else) **[SPECIFY: _____]**

98. (Don't know)
99. (Refused)

**[ASK IF D9=5]**

D12. When you say incentives on different products or technologies, what kind of products or technologies?

1. [RECORD RESPONSE]

98. (Don't know)
99. (Refused)

D13. What are the reasons you have not yet participated in a *watt*smart Business program? [DO NOT READ LIST; MULTIPLE CHOICES POSSIBLE]

1. (Don't know enough about program)
2. (Don't understand what equipment/measures are available)
3. (Don't have resources for initial investment)
4. (Don't have enough time to participate)
5. (Not sure how much savings there will be)
6. (Don't see any benefits)
7. (Have participated in past and do not see a need)
8. (Other) [SPECIFY]

98. (Don't know) **[SKIP TO E1]**
99. (Refused) **[SKIP TO E1]**

D14. What could **[UTILITY]** do to help your business participate in the *watt*smart Business program?

1. [RECORD ANSWER]

98. (Don't know)
99. (Refused)

**[ASK EVERYONE]**

## *E. Spillover*

E1. In 2014 or 2015, did you purchase and install any energy efficiency improvements on your own without any assistance (financial or technical) from a utility, vendor or other organization?

1. (Yes)
2. (No) **[SKIP TO SECTION F]**
98. (Don't know) **[SKIP TO SECTION F]**
99. (Refused) **[SKIP TO SECTION F]**

E2. What type of equipment did you purchase and install?

1. (Lighting) **[SPECIFY TYPE EXAMPLE: CFL, LED, FLUORESCENT]**: _____
   a. How many did you purchase and install **[SPECIFY]**: _____
   b. What is the wattage of the installed equipment **[SPECIFY]**: _____
   c. Where is the equipment installed? (Wall/Ceiling/Outdoors) **[SPECIFY]**: _____
   d. What type of equipment was removed or replaced **[SPECIFY]**: _____
2. (HVAC (heating and cooling)) **[SPECIFY EQUIPMENT]**: _____
   a. How many did you purchase and install **[SPECIFY]**: _____
   b. What fuel type does this equipment use **[SPECIFY]**: _____
   c. What is the efficiency rating of the equipment **[SPECIFY]**: _____
   d. What is the equipment's rated capacity **[SPECIFY]**: _____
3. (Water heating) **[SPECIFY EQUIPMENT]**: _____
   a. How may did you purchase and install **[SPECIFY]**: _____
   b. What fuel type does this equipment use **[SPECIFY]**: _____
   c. What is the efficiency rating of the equipment **[SPECIFY]**: _____
   d. What is the capacity of the water heater (if water heater with storage) **[SPECIFY]**: _____
4. (Variable drives)
   a. How may did you purchase and install **[SPECIFY]**: _____
   b. What type of motor was it installed on **[SPECIFY]**: _____
   c. What is the horsepower of the motor **[SPECIFY]**: _____
5. (Efficient motors)
   a. How many did you purchase and install **[SPECIFY]**: _____
   b. What type of equipment is the motor installed on **[SPECIFY]**: _____
   c. What is the horsepower of the motor **[SPECIFY]**: _____
6. (Refrigeration) **[SPECIFY EQUIPMENT]**: _____
   a. How much did you purchase and install **[SPECIFY]**: _____
7. (Building envelope) **[SPECIFY TYPE]**: _____
   a. How may square feet did you purchase and install **[SPECIFY]**: _____
   b. What is the efficiency (R-value, thickness) **[SPECIFY]**: _____
   c. Where was it installed (Wall/Roof/Floor) **[SPECIFY]**: _____
8. (Compressed air) **[SPECIFY TYPE OF PROJECT]**: _____
   a. How many did you purchase and install **[SPECIFY]**: _____
   b. What is the horsepower of the compressor motor **[SPECIFY]**: _____
9. (Chillers) **[SPECIFY TYPE OF EQUIPMENT]**: _____
   a. How many did you purchase and install **[SPECIFY]**: _____
   b. What size unit did you install **[SPECIFY]**: _____
10. (Pumps) **[SPECIFY WHAT IS IT INSTALLED ON)]**: _____
    a. How many did you purchase and install **[SPECIFY]**: _____
    b. What is the horsepower of the pump motor **[SPECIFY]**: _____

c. What is the efficiency rating of the pump **[SPECIFY]**: _____

11. (Irrigation (gaskets, drains, sprinklers)) **[SPECIFY]**: _____
    a. How many did you purchase and install **[SPECIFY]**: _____
12. (Other) **[SPECIFY]**: _____
    a. How many did you purchase and install **[SPECIFY]**: _____
98. (Don't know) **[SKIP TO F1]**
99. (Refused) **[SKIP TO F1]**

**[ASK IF E2=1-12]**

E3. Just to confirm, did you receive an incentive from **[UTILITY]** or another organization for any of these measures? **[RECORD FOR EACH MEASURE MENTIONED IN E2]?**

1. (Yes)
2. (No) **[SKIP TO E5]**
98. (Don't know) **[SKIP TO E5]**
99. (Refused) **[SKIP TO E5]**

**[ASK FOR EACH YES IN E3]**

E4. What program or sponsor provided the incentive(s)? **[RECORD FOR EACH MEASURE MENTIONED IN E2]**

1. **[UTILITY]**
98. (Don't know)
99. (Refused)

**[ASK IF E2=1-12]**

E5. For these purchases, on a scale from 1 to 5, with 1 being not important at all and 5 being very important, please rate how important were each of the following on your decision to purchase and install [this/these] energy efficient improvement(s). If a factor is not applicable to you, please say so. **[NOTE: RESPONDENTS CAN ALSO STATE THAT A PARTICULAR FACTOR IS NOT APPLICABLE, PLEASE CODE N/A AS 6]**

E5.1 General information about energy efficiency provided by **[UTILITY]** ____
If needed: on a scale from 1 to 5, with 1 being not important at all and 5 being very important
If a factor is not applicable to you, please say so

E5.1a [ASK IF 5E.1 = 1-3] Does this rating differ for any of the improvements you mentioned?

1. YES
2. NO
3. Don't Know

E5.1b [ASK IF E5.1a=1] Which of the following equipment would you rate differently on the General information about energy efficiency provided by **[UTILITY]**? [Display equipment mentioned in E2. Multiple Response Allowed]

**ASK RATING FOR EACH EQUIPMENT SELECTED.** [If needed read: On a scale from 1 to 5, with 1 being not important at all and 5 being very important].

Lighting
HVAC (heating and cooling)
Water heating
Variable drives
Efficient motors
Refrigeration
Building envelope
Compressed air
Chillers
Pumps
Irrigation
[Other Specify]
None of the above

E5.2 Information from **[UTILITY]** program staff or contractors. ___
If needed: on a scale from 1 to 5, with 1 being not important at all and 5 being very important
If a factor is not applicable to you, please say so

E5.2a [ASK IF E52 =1-3] Does this rating differ for any of the other improvements you mentioned?
YES
NO
Don't Know

**ASK RATING FOR EACH EQUIPMENT SELECTED.** [If needed read: On a scale from 1 to 5, with 1 being not important at all and 5 being very important].

E5.2b [ASK IF E52a = 1] Which of the following equipment would you rate differently on the Information from **[UTILITY]** program staff or contractors? [Display equipment mentioned in E2. Multiple Response Allowed]

[If needed read: If needed: on a scale from 1 to 5, with 1 being not important at all and 5 being very important]. If needed, record rating 1 to 5 for each response.

Lighting
HVAC (heating and cooling)
Water heating
Variable drives
Efficient motors
Refrigeration
Building envelope
Compressed air
Chillers
Pumps
Irrigation
[Other Specify]
None of the above

E5.3 Your experience with a past **[UTILITY]** energy efficiency program. ___
If needed: on a scale from 1 to 5, with 1 being not important at all and 5 being very important
If a factor is not applicable to you, please say so

E5.3a [ASK IF E53=1-3] Does this rating differ for any of the other improvements you mentioned?
YES
NO
Don't Know

**ASK RATING FOR EACH EQUIPMENT SELECTED.** [If needed read: On a scale from 1 to 5, with 1 being not important at all and 5 being very important].

E5.3b [ASK IF E53a = 1] Which of the following equipment would you rate differently on your experience with a past **[UTILITY]** energy efficiency program? [Display equipment mentioned in E2. Multiple Response Allowed]

Lighting
HVAC (heating and cooling)
Water heating
Variable drives
Efficient motors
Refrigeration
Building envelope
Compressed air
Chillers
Pumps
Irrigation
[Other Specify]
None of the above

**[ASK SECTION F TO ALL SURVEY RESPONDENTS]**

## *F. Firmographics*

Finally, I have a few general questions about your business.

F1. What industry is your company in? **[DON'T READ RESPONSES UNLESS NECESSARY]**

1. (Accommodation)
2. (Arts, Entertainment and Recreation)
3. (Construction)
4. (Dairy, Agricultural)
5. (Educational Services)
6. (Finance, Insurance)
7. (Food Service)
8. (Food Processing)
9. (Health Care)
10. (Manufacturing)
11. (Mining)
12. (Nonprofit and Religious Organizations)
13. (Oil and Gas)
14. (Professional, Scientific and Technical Services)
15. (Public Administration/Government Services)
16. (Retail)
17. (Refrigerated Warehouse)
18. (Real Estate/Property Management)
19. (Repair and Maintenance Service)
20. (Transportation)
21. (Warehouses or Wholesaler)
22. (Other **[SPECIFY: _____]**)

98. (Don't know)
99. (Refused)

F2. How many locations does your company operate in **[PROJECT STATE]**?

1. **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

F3. Does your organization lease or own the facilities or facilities?

1. Lease
2. Own
3. Other **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

F4. How many people are employed by your company at all locations?

1. (1-10)
2. (11-25)
3. (26-50)
4. (51-75)
5. (76-100)
6. (101-200)
7. (201-500)
8. More than 500
9. (Other) **[RECORD VERBATIM: _____]**

98. (Don't know)
99. (Refused)

F5. What type of fuel is used for space heating at your facility?

1. Electric
2. Gas
3. (Other) **[RECORD VERBATIM:_____]**

98. (Don't know)
99. (Refused)

F6. What type of fuel is used for water heating at your facility?

1. Electric
2. Gas
3. (Other) **[RECORD VERBATIM:_____]**

98. (Don't know)
99. (Refused)

## *G. Closing*

**[PARTIAL PARTICIPANTS ONLY: ASK G1-G3] [NONPARTICIPANTS GO TO CLOSING STATEMENT]**

G1. Overall, how satisfied would you say you are with the *watt*smart Business program? Would you say: **[READ LIST]**

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all

98. (Don't know)
99. (Refused)

**[IF G1=3 OR 4]**

G2. Why do you say you were **[INSERT ANSWER FROM G1]** with the program?

1. **[RECORD VERBATIM: _____]**
98. (Don't know)
99. (Refused)

G3. Is there anything that **[UTILITY]** could have done to improve your overall experience with the *watt*smart Business program? **[DO NOT READ THE LIST, RECORD ALL THAT APPLY]**

1. (Better/more communication **[SPECIFY: WHO WOULD YOU LIKE MORE COMMUNICATION FROM? _____]**)
2. (Quicker response time **[SPECIFY: WHO WOULD YOU LIKE A QUICKER RESPONSE TIME FROM? __]**)
3. (Larger selection of eligible equipment **[ASK: WHAT ENERGY-EFFICIENT EQUIPMENT SHOULD WATTSMART BUSINESS OFFER INCENTIVES FOR? _____]**)
4. (Increasing the incentive amount)
5. (Simplify the application process) **[ASK: IN WHAT WAY? _____]**)
6. (Simplify the website) **[ASK: IN WHAT WAY? _____]**)
7. (Provide quicker approval on applications)
8. (Send incentive check out faster)
9. (Other **[SPECIFY: _____]**)
10. (No, nothing)
98. (Don't know)
99. (Refused)

***This completes the survey. Your responses are very important to [UTILITY]. We appreciate your participation and thank you for your time. Have a good day.***

# Appendix E. Measure Category Cost-Effectiveness

Completed at the end-use category level, cost-effectiveness was reported for evaluated net savings. Net results apply the evaluated NTG to evaluated gross savings. Table E1 shows cost-effectiveness inputs for net results.

**Table E1. Idaho *watts*mart Business End-Use Category Cost-Effectiveness Inputs**

| Input Description | 2014 | 2015 | Total |
|---|---|---|---|
| **Average Measure Life*** | | | |
| Agricultural | 11 | 7 | 9 |
| Other | 15 | 13 | 13 |
| Motor Systems | 15 | 14 | 14 |
| HVAC | 15 | 15 | 15 |
| Compressed Air | N/A | 15 | 15 |
| Lighting | 14 | 14 | 14 |
| Refrigeration | 15 | 14 | 15 |
| **Evaluated Net Energy Savings (kWh/year)**** | | | |
| Agricultural | 1,372,022 | 1,517,468 | 2,889,490 |
| Other | 6,160 | 100,600 | 106,759 |
| Motor Systems | 1,402,705 | 1,017,486 | 2,420,191 |
| HVAC | 49,051 | 108,416 | 157,467 |
| Compressed Air | - | 45,242 | 45,242 |
| Lighting | 1,726,209 | 3,466,792 | 5,193,001 |
| Refrigeration | 544,509 | 8,476 | 552,985 |
| **Total Utility Cost (including incentives)***** | | | |
| Agricultural | $283,454 | $220,377 | 503,831 |
| Other | $3,357 | $38,542 | 41,899 |
| Motor Systems | $245,023 | $126,364 | 371,387 |
| HVAC | $10,458 | $15,198 | 25,656 |
| Compressed Air | $0 | $6,556 | 6,556 |
| Lighting | $390,202 | $550,871 | 941,073 |
| Refrigeration | $122,615 | $1,342 | 123,957 |
| **Incentives** | | | |
| Agricultural | $183,910 | $224,507 | 408,417 |
| Other | $8,928 | $125,694 | 134,622 |
| Motor Systems | $91,470 | $84,253 | 175,723 |
| HVAC | $8,082 | $28,402 | 36,483 |
| Compressed Air | $0 | $7,033 | 7,033 |
| Lighting | $301,764 | $1,134,884 | 1,436,648 |
| Refrigeration | $75,105 | $1,100 | 76,205 |
| **Commercial Retail Rate** | **$0.0866** | **$0.0872** | **N/A** |
| **Industrial Retail Rate** | **$0.0698** | **$0.0653** | **N/A** |

| | | | |
|---|---|---|---|
| **Irrigation Retail Rate** | **$0.0886** | **$0.0922** | **N/A** |

*Weighted average measure category lives are based on individual measure lifetimes and weighted by savings and the frequency of installations.

**Evaluated savings reflect impacts at the customer meter.

***Rocky Mountain Power provided program costs and incentives in annual report data, allocating program costs by weighted savings.

## *Agricultural*

Table E2, Table E3, and Table E4 show the agriculture end-use category cost-effectiveness results for net evaluated savings. The agricultural end-use category proved cost-effective from the PTRC, UCT and PCT perspectives (Table E2).

**Table E2. Idaho Agricultural 2014-2015 Net**
**(2014 Decrement East System 70% – Load Shape Irrigation)**
**(2015 Decrement East Industrial 40% - Load Shape Irrigation)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.075 | $1,817,206 | $1,942,739 | $125,533 | 1.07 |
| TRC | $0.075 | $1,817,206 | $1,766,126 | ($51,080) | 0.97 |
| UCT | $0.036 | $884,469 | $1,766,126 | $881,657 | 2.00 |
| RIM | | $2,479,679 | $1,766,126 | ($713,552) | 0.71 |
| PCT | | $1,618,458 | $2,339,776 | $721,318 | 1.45 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000023490 |
| Discounted Participant Payback (years) | | | | | 6.90 |

**Table E3. Idaho Agricultural 2014 Net**
**(2014 Decrement East System 70% – Load Shape Irrigation)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.058 | $710,468 | $1,050,663 | $340,195 | 1.48 |
| TRC | $0.058 | $710,468 | $955,148 | $244,681 | 1.34 |
| UCT | $0.038 | $467,364 | $955,148 | $487,784 | 2.04 |
| RIM | | $1,298,731 | $955,148 | ($343,583) | 0.74 |
| PCT | | $520,749 | $1,197,773 | $677,024 | 2.30 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000011489 |
| Discounted Participant Payback (years) | | | | | 3.03 |

Table E4. Idaho Agricultural 2015 Net
(2015 Decrement East Industrial 40% – Load Shape Irrigation)

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.092 | $1,180,447 | $951,488 | ($228,959) | 0.81 |
| TRC | $0.092 | $1,180,447 | $864,989 | ($315,458) | 0.73 |
| UCT | $0.035 | $444,885 | $864,989 | $420,105 | 1.94 |
| RIM | | $1,259,598 | $864,989 | ($394,609) | 0.69 |
| PCT | | $1,170,817 | $1,218,061 | $47,243 | 1.04 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000012990 |
| Discounted Participant Payback (years) | | | | | 9.52 |

## *Other*

Table E5, Table E6, and Table E7 show the other end-use category cost-effectiveness results for net evaluated savings. The other end-use category did not prove cost-effective from any test perspective (Table E5).

Table E5. Idaho Other 2014-2015 Net
(2014 Decrement East System 70% – Load Shape Industrial Machinery General)
(2015 Decrement East Industrial 40% – Load Shape Industrial Machinery General)

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.231 | $235,714 | $70,176 | ($165,538) | 0.30 |
| TRC | $0.231 | $235,714 | $63,796 | ($171,918) | 0.27 |
| UCT | $0.163 | $166,265 | $63,796 | ($102,469) | 0.38 |
| RIM | | $235,321 | $63,796 | ($171,525) | 0.27 |
| PCT | | $239,294 | $210,987 | ($28,307) | 0.88 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000004684 |
| Discounted Participant Payback (years) | | | | | N/A |

Table E6. Idaho Other 2014 Net
(2014 Decrement East System 70% – Load Shape Industrial Machinery General)

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.272 | $17,586 | $5,183 | ($12,403) | 0.29 |
| TRC | $0.272 | $17,586 | $4,712 | ($12,874) | 0.27 |
| UCT | $0.190 | $12,285 | $4,712 | ($7,574) | 0.38 |
| RIM | | $16,981 | $4,712 | ($12,269) | 0.28 |
| PCT | | $17,352 | $14,654 | ($2,698) | 0.84 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000000330 |

| | |
|---|---|
| Discounted Participant Payback (years) | N/A |

**Table E7. Idaho Other 2015 Net**
**(2015 Decrement East Industrial 40% – Load Shape Industrial Machinery General)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.228 | $232,656 | $69,322 | ($163,334) | 0.30 |
| TRC | $0.228 | $232,656 | $63,020 | ($169,636) | 0.27 |
| UCT | $0.161 | $164,235 | $63,020 | ($101,216) | 0.38 |
| RIM | | $232,882 | $63,020 | ($169,862) | 0.27 |
| PCT | | $236,724 | $209,409 | ($27,315) | 0.88 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000005043 |
| Discounted Participant Payback (years) | | | | | N/A |

## *Motor Systems*

Table E8, Table E9, and Table E10 show the motor systems end-use category cost-effectiveness results for net evaluated savings. The motor systems end-use category proved cost-effective from all perspectives except for the RIM (Table E8).

**Table E8. Idaho Motor Systems 2014-2015 Net**
**(2014 Decrement East System 70% – Load Shape Commercial Cooling)**
**(2015 Decrement East Commercial Cooling 14% – Load Shape Commercial Cooling)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.034 | $823,756 | $2,992,684 | $2,168,928 | 3.63 |
| TRC | $0.034 | $823,756 | $2,720,622 | $1,896,866 | 3.30 |
| UCT | $0.022 | $531,140 | $2,720,622 | $2,189,482 | 5.12 |
| RIM | | $2,737,704 | $2,720,622 | ($17,082) | 0.99 |
| PCT | | $563,571 | $2,860,444 | $2,296,873 | 5.08 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000000507 |
| Discounted Participant Payback (years) | | | | | 2.09 |

**Table E9. Idaho Motor Systems 2014 Net**
**(2014 Decrement East System 70% – Load Shape Commercial Cooling)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.033 | $483,398 | $1,512,403 | $1,029,005 | 3.13 |
| TRC | $0.033 | $483,398 | $1,374,911 | $891,514 | 2.84 |
| UCT | $0.023 | $335,183 | $1,374,911 | $1,039,728 | 4.10 |
| RIM | | $1,661,463 | $1,374,911 | ($286,551) | 0.83 |
| PCT | | $291,139 | $1,707,934 | $1,416,794 | 5.87 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000008291 |
| Discounted Participant Payback (years) | | | | | 1.37 |

**Table E10. Idaho Motor Systems 2015 Net**
**(2015 Decrement East Commercial Cooling 14% – Load Shape Commercial Cooling)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.035 | $363,026 | $1,578,869 | $1,215,842 | 4.35 |
| TRC | $0.035 | $363,026 | $1,435,335 | $1,072,309 | 3.95 |
| UCT | $0.020 | $209,008 | $1,435,335 | $1,226,328 | 6.87 |
| RIM | | $1,147,919 | $1,435,335 | $287,416 | 1.25 |
| PCT | | $290,575 | $1,229,267 | $938,692 | 4.23 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | ($0.000008534) |
| Discounted Participant Payback (years) | | | | | 1.95 |

## *HVAC*

Table E11, Table E12, and

Table E13 show the HVAC end-use category cost-effectiveness results for net evaluated savings. The HVAC end-use category proved cost-effective from the UCT and PCT perspectives (Table E11).

**Table E11. Idaho HVAC 2014-2015 Net**
**(2014 Decrement East System 70% – Load Shape HVAC)**
**(2015 Decrement East Industrial 40% – Load Shape HVAC)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.081 | $126,437 | $122,075 | ($4,362) | 0.97 |
| TRC | $0.081 | $126,437 | $110,977 | ($15,459) | 0.88 |
| UCT | $0.040 | $62,236 | $110,977 | $48,742 | 1.78 |
| RIM | | $203,906 | $110,977 | ($92,929) | 0.54 |
| PCT | | $121,782 | $208,428 | $86,647 | 1.71 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000002641 |
| Discounted Participant Payback (years) | | | | | 7.24 |

**Table E12. Idaho HVAC 2014 Net**
**(2014 Decrement East System 70% – Load Shape HVAC)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.075 | $38,936 | $44,603 | $5,667 | 1.15 |
| TRC | $0.075 | $38,936 | $40,549 | $1,612 | 1.04 |
| UCT | $0.038 | $19,850 | $40,549 | $20,699 | 2.04 |
| RIM | | $66,450 | $40,549 | ($25,901) | 0.61 |
| PCT | | $34,291 | $65,862 | $31,570 | 1.92 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000000749 |
| Discounted Participant Payback (years) | | | | | 5.41 |

**Table E13. Idaho HVAC 2015 Net**
**(2015 Decrement East Industrial 40% – Load Shape HVAC)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.083 | $93,328 | $82,631 | ($10,697) | 0.89 |
| TRC | $0.083 | $93,328 | $75,119 | ($18,209) | 0.80 |
| UCT | $0.040 | $45,209 | $75,119 | $29,910 | 1.66 |
| RIM | | $146,610 | $75,119 | ($71,491) | 0.51 |
| PCT | | $93,318 | $152,062 | $58,744 | 1.63 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000002031 |
| Discounted Participant Payback (years) | | | | | 6.38 |

## *Compressed Air*

Table E14 shows the compressed air end-use category cost-effectiveness results for net evaluated savings. The compressed air end-use category proved cost-effective from all perspectives except for the RIM.

**Table E14. Idaho Compressed Air 2015 Net**
**(2015 Decrement East Industrial 40% – Load Shape Industrial Machinery General)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.034 | $16,310 | $33,381 | $17,071 | 2.05 |
| TRC | $0.034 | $16,310 | $30,346 | $14,036 | 1.86 |
| UCT | $0.028 | $13,589 | $30,346 | $16,757 | 2.23 |
| RIM | | $46,411 | $30,346 | ($16,065) | 0.65 |
| PCT | | $11,895 | $47,060 | $35,165 | 3.96 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000000456 |
| Discounted Participant Payback (years) | | | | | 1.37 |

## *Lighting*

Table E15, Table E16, and Table E17 show the lighting end-use category cost-effectiveness results for net evaluated savings. The lighting end-use category proved cost-effective from all perspectives except for the RIM (Table E15).

**Table E15. Idaho Lighting 2014-2015 Net**
**(2014 Decrement East System 70% – Load Shape Commercial Lighting)**
**(2015 Decrement East Commercial Lighting 53% – Load Shape Commercial Lighting)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.065 | $3,258,902 | $3,767,865 | $508,964 | 1.16 |
| TRC | $0.065 | $3,258,902 | $3,425,332 | $166,431 | 1.05 |
| UCT | $0.045 | $2,272,460 | $3,425,332 | $1,152,872 | 1.51 |
| RIM | | $6,783,250 | $3,425,332 | ($3,357,918) | 0.50 |
| PCT | | $2,868,568 | $6,866,748 | $3,998,180 | 2.39 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000099699 |
| Discounted Participant Payback (years) | | | | | 3.94 |

**Table E16. Idaho Lighting 2014 Net**
**(2014 Decrement East System 70% – Load Shape Commercial Lighting)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.063 | $1,100,196 | $1,477,857 | $377,661 | 1.34 |
| TRC | $0.063 | $1,100,196 | $1,343,506 | $243,311 | 1.22 |
| UCT | $0.040 | $691,966 | $1,343,506 | $651,541 | 1.94 |
| RIM | | $2,251,513 | $1,343,506 | ($908,007) | 0.60 |
| PCT | | $865,846 | $2,203,651 | $1,337,805 | 2.55 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000027431 |
| Discounted Participant Payback (years) | | | | | 3.27 |

**Table E17. Idaho Lighting 2015 Net**
**(2015 Decrement East Commercial Lighting 53% – Load Shape Commercial Lighting)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.066 | $2,302,476 | $2,442,523 | $140,047 | 1.06 |
| TRC | $0.066 | $2,302,476 | $2,220,475 | ($82,000) | 0.96 |
| UCT | $0.048 | $1,685,755 | $2,220,475 | $534,720 | 1.32 |
| RIM | | $4,833,551 | $2,220,475 | ($2,613,076) | 0.46 |
| PCT | | $2,136,103 | $4,973,660 | $2,837,556 | 2.33 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000077584 |
| Discounted Participant Payback (years) | | | | | 2.84 |

## *Refrigeration*

Table E18, Table E19, and Table E20 show the refrigeration end-use category cost-effectiveness results for net evaluated savings. The refrigeration end-use category proved cost-effective from all perspectives except for the RIM (Table E18).

**Table E18. Idaho Refrigeration 2014-2015 Net**
**(2014 Decrement East System 70% – Load Shape Industrial Machinery General)**
**(2015 Decrement East Industrial 40% – Load Shape Industrial Machinery General)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.047 | $270,870 | $466,406 | $195,536 | 1.72 |
| TRC | $0.047 | $270,870 | $424,005 | $153,136 | 1.57 |
| UCT | $0.034 | $200,009 | $424,005 | $223,996 | 2.12 |
| RIM | | $622,452 | $424,005 | ($198,446) | 0.68 |
| PCT | | $179,265 | $591,310 | $412,046 | 3.30 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000005892 |
| Discounted Participant Payback (years) | | | | | 2.28 |

**Table E19. Idaho Refrigeration 2014 Net**
**(2014 Decrement East System 70% – Load Shape Industrial Machinery General)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.047 | $269,474 | $460,853 | $191,379 | 1.71 |
| TRC | $0.047 | $269,474 | $418,957 | $149,483 | 1.55 |
| UCT | $0.034 | $197,720 | $418,957 | $221,237 | 2.12 |
| RIM | | $614,671 | $418,957 | ($195,714) | 0.68 |
| PCT | | $179,097 | $583,582 | $404,485 | 3.26 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000005663 |
| Discounted Participant Payback (years) | | | | | 2.32 |

**Table E20. Idaho Refrigeration 2015 Net**
**(2015 Decrement East Industrial 40% – Load Shape Industrial Machinery General)**

| Cost-Effectiveness Test | Levelized $/kWh | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|---|---|---|---|---|---|
| PTRC (TRC + 10% Conservation Adder) | $0.017 | $1,489 | $5,923 | $4,434 | 3.98 |
| TRC | $0.017 | $1,489 | $5,384 | $3,896 | 3.62 |
| UCT | $0.028 | $2,442 | $5,384 | $2,943 | 2.21 |
| RIM | | $8,299 | $5,384 | ($2,915) | 0.65 |
| PCT | | $179 | $8,243 | $8,064 | 46.05 |
| Lifecycle Revenue Impacts ($/kWh) | | | | | $0.000000087 |
| Discounted Participant Payback (years) | | | | | 0.10 |