ADM ENERGY RESEARCH AND EVALUATION

CADMUS

2016–2017 Utah *watt*smart Business Program Evaluation

FINAL REPORT

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Glossary of Terms

Demand Side Management Central

Demand Side Management Central (DSMC) is Rocky Mountain Power's project management and reporting database, which provides project management tools, validation check on each project, and a data warehouse with reporting capability.

Evaluated Gross Savings

Evaluated gross savings represent total program savings, based on 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 program savings, net of what would have occurred in the program's absence. These savings are observed impacts attributable to the program. Net savings are calculated as the product of evaluated gross savings and the net-to-gross ratio:

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

Freeridership

Freeridership in energy efficiency programs is represented by 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

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

In-Service Rate

The in-service rate (also known as the installation rate) is the proportion of incented measures actually installed.

Net-to-Gross

Net-to-gross (NTG) 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 there is a 90% probability that the estimated coefficient differs from zero.

Technical Resource Library

The Technical Resource Library—the official database repository of measure definitions—is linked to the DSMC.

Trade Ally

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

Executive Summary

Through its ***watt***smart® Business program, Rocky Mountain Power (RMP) offers incentives to help commercial, industrial, and agricultural/irrigation customers maximize the energy efficiency of their equipment and operations through midstream (distributors/suppliers) and downstream (customer) incentive mechanisms. During the 2016 and 2017 program years, the ***watt***smart Business program reported gross electricity savings of 423,687,925 kWh in Utah.

RMP uses two delivery channels to offer program measures and services to customers: contracted demand-side management (DSM) delivery and internal DSM delivery. RMP contracts with two program administrators—Cascade Energy and Nexant—to manage day-to-day operations of the contracted DSM delivery channel. Through this, RMP primarily offers prescriptive incentives, marketed and delivered to customers through local trade allies that join and participate in the ***watt***smart Business Vendor Network as well as through trade allies that do not belong to the Network.

RMP contracts with Willdan Energy Solutions for turnkey delivery of the Small Business Direct Install (SBDI) offering and for administration of the oil and gas sector projects. Through the internal DSM delivery channel, RMP's project managers deliver technical energy analysis services via contracted third-party energy engineering firms and custom incentives for capital improvements and behavior-based Energy Management measures to large managed-account customers, engaged in more complex projects not covered by other offerings.[1]

RMP's in-house staff also oversee the ***watt***smart Business Energy Management offerings (Recommissioning, Industrial Recommissioning, Persistent Commissioning, or Strategic Energy Management), delivered through the same stable of contracted third-party engineering providers with expertise appropriate to the individual projects.

RMP contracted with the Cadmus team (comprised of Cadmus, ADM Associates, and VuPoint Research) to conduct impact and process evaluations of the Utah ***watt***smart Business program for the 2016 and 2017 program years. Cadmus subcontracted a portion of the impact evaluation to ADM Associates, and VuPoint Research performed the process evaluation telephone surveys. For the impact evaluation, the team assessed energy impacts, net-to-gross (NTG), and program cost-effectiveness. For the process evaluation, the team assessed program delivery and efficacy, bottlenecks, barriers, and opportunities for possible improvements.

At RMP's request, Cadmus evaluated program participants and reported the 2016–2017 evaluation findings under the following categories:[2]

- ***wattsmart Business (Typical Upgrades and Custom Analysis):*** This category includes projects delivered through contracted DSM and internal DSM delivery channels. RMP offered customers

[1] Managed accounts are typically larger than one MW of demand on an annual basis.

[2] To report NTG, Cadmus surveyed ***watt***smart Business Typical Upgrades and Custom Analysis participants using the same measure strata used by the Impact team.

prescriptive incentives (Typical Upgrades) for measures such as agricultural, compressed air, HVAC, lighting, motors, building shell, water heating, food service equipment, refrigeration, irrigation, and oil and gas pump-off controls. It also offered custom incentives (Custom Analysis) for verified first-year energy savings, resulting from installations of qualifying capital equipment upgrades not covered by Typical Upgrades incentives or other ***watt***smart Business program delivery offerings.

- ***Small Business Direct Install:*** RMP provided a free energy assessment, instant incentives, and turnkey installations for geotargeted, eligible, small business customers making recommended interior and/or exterior lighting upgrades within a designated offer window. Effective September 5, 2016, RMP restructured the Small Business Lighting (SBL) offering to a SBDI offering for retrofits, with 2017 as its first full year of operation.
- ***Midstream****:* RMP offered instant point-of-purchase incentives for qualifying LED and reduced-wattage fluorescent lamps purchased from a participating lighting distributor. Customers purchasing from nonparticipating suppliers could still apply for incentives post-purchase.
- ***Energy Management:*** RMP provided expertise and custom incentives for verified savings, achieved through improved operations and through maintenance and management practices. Capital improvements, if eligible, were incentivized through the other ***watt***smart Business program offerings.

Key Findings

Key Impact Evaluation Findings

For the impact evaluation, the Cadmus team analyzed 175 projects that contributed 13.8% of the 2016 and 2017 program savings. Table 1 summarizes the evaluation findings, including evaluated units, gross savings, and net savings.

Overall, the two program years had a gross realization rate of 100.1%, though variability occurred between measure categories. The Cadmus team calculated 85% NTG, yielding evaluated net savings of 363,944,308 kWh. Overall, the impact evaluation achieved ±5.1% precision with 90% confidence. Specific details and findings per strata are described in the report's Evaluated Gross Savings Results by Strata section.

Table 1. 2016 and 2017 *watt*smart Business Program Savings

Strata	Unique Projects	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realization Rate	Precision[a]	NTG	Evaluated Net Savings (kWh)
Agricultural	87	2,493,015	2,246,252	90%	15.9%	79%	1,774,539
Compressed Air	83	10,889,947	11,437,945	105%	8.4%	86%	9,836,633
HVAC	415	43,103,436	43,589,992	101%	4.1%	57%	24,846,295
Lighting	7,926	238,511,862	246,677,333	103%	6.4%	91%	224,476,373
Motor Systems	180	26,841,206	24,298,874	91%	8.1%	90%	21,868,987
Other	522	24,573,396	21,410,930	87%	19.6%	76%	16,272,307
Recommissioning	146	67,605,837	67,354,770	100%	0%	89%	59,945,745
Refrigeration	33	9,669,226	9,653,783	100%	0.9%	51%	4,923,429
Total	**9,392**	**423,687,925**	**426,669,878**	**100.7%**	**4.9%**	**85%**	**363,944,308**

[a] Strata precision is based on 80% confidence, overall precision is based on 90% confidence.

Table 2 and Table 3 show impact evaluation findings by program year, for 2016 and 2017, respectively. In performing that analysis, the Cadmus team combined the 2016 and 2017 program years, and applied the overall realization rates to each year.

Table 2. 2016 *watt*smart Business Program Savings

Strata	Unique Projects	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realization Rate	NTG	Evaluated Net Savings (kWh)
Agricultural	36	828,822	746,784	90%	79%	589,959
Compressed Air	35	4,587,664	4,818,522	105%	86%	4,143,929
HVAC	230	18,665,056	18,875,749	101%	57%	10,759,177
Lighting	3,497	128,830,025	133,240,530	103%	91%	121,248,883
Motor Systems	101	18,013,297	16,307,123	91%	90%	14,676,410
Other	319	15,048,289	13,111,654	87%	76%	9,964,857
Recommissioning	58	20,149,968	20,075,138	100%	89%	17,866,872
Refrigeration	13	3,818,818	3,812,719	100%	51%	1,944,487
Total	**4,289**	**209,941,939**	**210,988,218**	**100.5%**	**86%**	**181,194,574**

Table 3. 2017 *watt*smart Business Program Savings

Strata	Unique Projects	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realization Rate	NTG	Evaluated Net Savings (kWh)
Agricultural	51	1,664,193	1,499,468	90%	79%	1,184,580
Compressed Air	48	6,302,283	6,619,423	105%	86%	5,692,704
HVAC	185	24,438,380	24,714,243	101%	57%	14,087,118
Lighting	4,429	109,681,837	113,436,803	103%	91%	103,227,490
Motor Systems	79	8,827,909	7,991,752	91%	90%	7,192,576
Other	203	9,525,107	8,299,276	87%	76%	6,307,450
Recommissioning	88	47,455,869	47,279,635	100%	89%	42,078,873
Refrigeration	20	5,850,408	5,841,064	100%	51%	2,978,943
Total	**5,103**	**213,745,986**	**215,681,664**	**100.9%**	**85%**	**182,749,734**

Key Process Evaluation Findings

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

Marketing and Outreach

- Participants in each program offering learn about the offering from sources, as aligned with program design (e.g., RMP marketing, ***watt***smart Business program representatives, distributors/contractors). Among nonparticipants, however, fewer than one-third (29%, 19 of 66) knew that RMP offered technical assistance and incentives.
- Overall, RMP uses multiple touchpoints to reach customers, and, for the most part, the brand materials RMP used reflected a cohesive, consistent look that solidly indicated they were in the same brand family.

Participants

- Overall, participants expressed satisfaction with the ***watt***smart Business program. No offering received a rating less than 97% (i.e., very satisfied and somewhat satisfied combined). Concerns expressed by those less-than-somewhat satisfied indicated a communication breakdown between the program and participant, lack of follow-through by program staff, or unprofessional contractors (in the SBDI offering).
- ***watt***smart Business (Typical Upgrades and Custom Analysis) and SBDI participants reported they were very satisfied with the equipment installed (91%, n=87, and 90%, n=60 respectively).
- Ninety-four percent of Midstream participants received help from their distributors or contractors when selecting lighting (n=49); 83% were very satisfied with the help (n=46).
- Energy Management participants rated all offering elements very highly, except for the incentive amounts (n=5).
- While most participants did not offer suggestions when asked what RMP could do to improve their experience, the few participants who did offer suggestions provided the following:
  - WSB: Provide better communication/more information (8%), decrease response times (6%), increase incentive amounts (5%), Other (5%), 79% suggested no improvements (n=84)
  - SBDI: Provide a larger selection of equipment (8%), provide better communication (6%), Other (8%), 82% suggested no improvements (n=62)
  - Midstream: Increase the incentive amount (13%), speed-up response times and incentive processing (6%), provide more information (4%), 77% suggested no improvements (n=52)
  - Energy Management: Increase the incentive amounts (20%), 80% suggested no improvements (n=5).

Partial Participants

- Sixteen partial participants (44%, n=36), completed their projects outside of the program, while 20 did not. Eight of the 20 partial participant not completing their projects cited cost as the reason

- Four respondents completing projects did not applying for an incentive, three provided the following reasons:
  - [We] did not finish the paperwork (one respondent)
  - It fell off the radar (one respondent)
  - [We were] unware of the incentive (one respondent)
- Thirty-three percent of partial participants (n=43) were somewhat or very likely to participate again within six months

Nonparticipants

- Fewer than one-third (29%, n=66) of surveyed nonparticipants were aware that RMP offers technical assistance and incentives.
- Overall, customers did not participate because they did not know enough about the program or its benefits.

Cost-Effectiveness Results

As shown in Table 4, the program was cost-effective in the 2016 and 2017 evaluation years from all test perspectives, except for the Ratepayer Impact Measure (RIM) test. The program proved cost-effective from the Utility Cost Test (UCT) perspective, with a net benefit/cost ratio of 3.34.

Table 4. 2016–2017 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)	$0.040	$130,725,741	$256,100,803	$125,375,062	1.96
Total Resource Cost Test (TRC) No Adder	$0.040	$130,725,741	$232,818,912	$102,093,171	1.78
Utility Cost Test (UCT)	$0.021	$69,757,835	$232,818,912	$163,061,078	3.34
Ratepayer Impact Measure (RIM) Test		$334,387,942	$232,818,912	($101,569,030)	0.70
Participant Cost Test (PCT)		$131,917,123	$359,321,872	$227,404,748	2.72
Lifecycle Revenue Impacts ($/kWh)	$0.000303086				
Discounted Participant Payback (years)	3.23				

The RIM test measures a program's impacts on customer rates. Most energy efficiency programs do not pass the RIM test because, despite energy efficiency programs reducing 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 decrease due to the program. Typically, this only happens for demand response programs or programs targeted to the highest marginal cost hours (i.e., 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 complied the following recommendations (this report's Conclusions and

Recommendations section provides a more complete discussion of the findings and associated recommendations).

Savings Considerations

Recommendation: Increase the deemed savings amount for prescriptive HVAC VFD fan and pump motor projects. To evaluate energy savings for the six prescriptive VFD motor systems projects, the Cadmus team used deemed savings values from Cadmus' 2014 *Variable Speed Drive Loadshape Project* report, created for the Northeast Energy Efficiency Partnership[3] (NEEP; shown in Table 30 of the Savings Considerations section), resulting in realization rates greater than 100% for five of the six deemed VFD projects. The team recommends using these deemed values for HVAC fan motor projects. (Cadmus derived a 135% realization rate, based on RMP's savings value.) Additionally, Cadmus recommends requesting facility type data from the customer. Facility type data will allow the opportunity for RMP to exclude applications where VFDs may exhibit very low run hours due to low occupancy schedule (such as religious or seasonal facilities).

For prescriptive VFD projects installed on central HVAC equipment, including hot water pumps, chilled water pumps, condenser water pumps, and cooling tower fans, the Cadmus team recommends using an average deemed energy-savings value, calculated from the 2016 Pennsylvania Technical Reference Manual (PA TRM).[4] The team calculated a deemed savings factor of 1,191 kWh per year, per horsepower, for central equipment from the 2016 PA TRM. The evaluation sample did not include any prescriptive VFD projects for central equipment, but the team still recommends updating this deemed savings value to reflect typical central equipment motor sizes and efficiencies.

Recommendation: Consider revising the deemed savings for LED case lighting to match DEER. DEER recommends savings as 102.9 kWh per five-foot door for medium case lighting and 232.5 kWh per five-foot door for low temperature case lighting. This change will reduce the claimed energy savings for LED case lighting.

Marketing and Outreach

Recommendations:

- Increase consistency with direct calls to action at the end of all collateral pieces and brochures
- Consider adding graphs, charts, images, and even video to convey information and reduce the need for reading copy-heavy communications materials
- For brochures, maintain a consistent font to stay on brand

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[3] These deemed savings values are based on Cadmus' 2014 Variable Speed Drive Loadshape Project report, created for NEEP. Available online: http://www.neep.org/variable-speed-drive-loadshape-study-final-report

[4] Pennsylvania Public Utility Commission. *2016 Technical Reference Manual*. Available online: http://www.puc.pa.gov/filing_resources/issues_laws_regulations/act_129_information/technical_reference_manual.aspx

- If the brochure or overview is shared or hosted digitally, web addresses should be hyperlinked to their destinations
- Consider running additional TV spots during colder months (TV watching increases during these cooler months with less daylight)
- If not done already, request a point of view report from the media strategy agency to add a LinkedIn platform to the media mix[5]
- For the Arena Rising-out of home-signage, focus on a singular way to learn more; too many options for engaging with a program (e.g., social, multiple URLs) cause readers to gloss over the material completely
- Consider using solid backgrounds on Arena Rising out of Home signage as these typically are displayed in very busy environments
- For mobile and desktop emails used for the HVAC Check-Up, consider inserting a call-to-action further up in the copy to catch/prompt consumers falling off early without reading all the way through the copy
- As budget allows, consider incorporating video testimonials on program-specific pages to increase customer engagement and to use as a tool to provide more explanation and generate excitement without relying on the customer reading a great deal of text

Data Management

Recommendation: Going forward, include SBDI measure data for each SBDI installation in the program database, or, at a minimum, in the data provided to the evaluation team.

Small Business Direct Install

Recommendation: Provide additional training to contractors regarding behavior and work quality while on site, and review the project proposal to provide better reporting to participants about exactly what will be provided through the project. Consider providing a ceiling plan identifying lamps/fixtures to address.

Nonparticipants

Recommendation: Review the Utah marketing strategy and consider increasing marketing outreach to nonparticipants, both through RMP branding efforts and through sector outreach by program administrators. Consider increasing customer segmentation efforts to help trade allies target eligible customers.

[5] A point of view report focuses on selecting the best media vehicles for a business or organization to use in promoting its products, services or causes. These reports analyze a media outlet, such as a blog or magazine, to see if the client's target market will be served by advertising in that vehicle.

Introduction

Program Description

Rocky Mountain Power (RMP) offers ***watt***smart Business program measures, services, and incentives through two delivery channels:

- Contracted demand-side management (DSM) delivery (including Typical Upgrades, Midstream, and Small Business Direct Install [SBDI])
- DSM delivery (Custom Analysis and Energy Management)

Through the Typical Upgrades offering, RMP provides prescriptive incentives, primarily for small and midsize customers; large customers, however, may also receive the incentives. RMP contracted with Nexant and Cascade Energy to coordinate with trade allies, provide training and support, and conduct application processing services for the prescriptive incentives. RMP also contracted with Willdan Energy Services to provide administrative support and engineering analysis for oil and gas sector projects.

The ***watt***smart Business' SBDI offering provides an energy assessment and instant incentive (as a discount of project costs) for eligible retrofits at geo-targeted small business customers, delivered through Willdan—a third-party turnkey provider. SBDI launched in September 2016 to replace the enhanced small business lighting (SBL) incentives, and, in 2017, extended the amount of time spent in rural communities where demand proved higher than expected.

Through the Midstream offering, RMP targets the lighting maintenance market by offering customers instant point-of-purchase incentives on qualified LEDs, reduced wattage fluorescent lamps, and retrofit kits purchased through a participating lighting distributor. Customers purchasing through a nonparticipating distributor do not receive instant discounts, but they may apply to RMP for incentives post-purchase. Nexant also manages the participating distributors delivering this offering.

RMP targets custom incentives to large energy users that generally offer multiple opportunities for energy efficiency upgrades via projects that require custom analysis, though midsize and smaller customers also may participate in custom incentives. RMP provides energy efficiency analysis and verification of custom savings for large customers through the same stable of contracted, third-party engineering providers.

Through the Energy Management offering (e.g., Recommissioning, Industrial Recommissioning, Persistent Commissioning, or Strategic Energy Management), participating customers receive no-cost expertise and custom incentives for verified savings achieved through improved operations, maintenance, and management practices.

Program Delivery

The RMP program manager, who oversees the ***watt***smart Business program, is responsible for contracting with and managing the program's administrators (i.e., Willdan Energy Solutions, Cascade

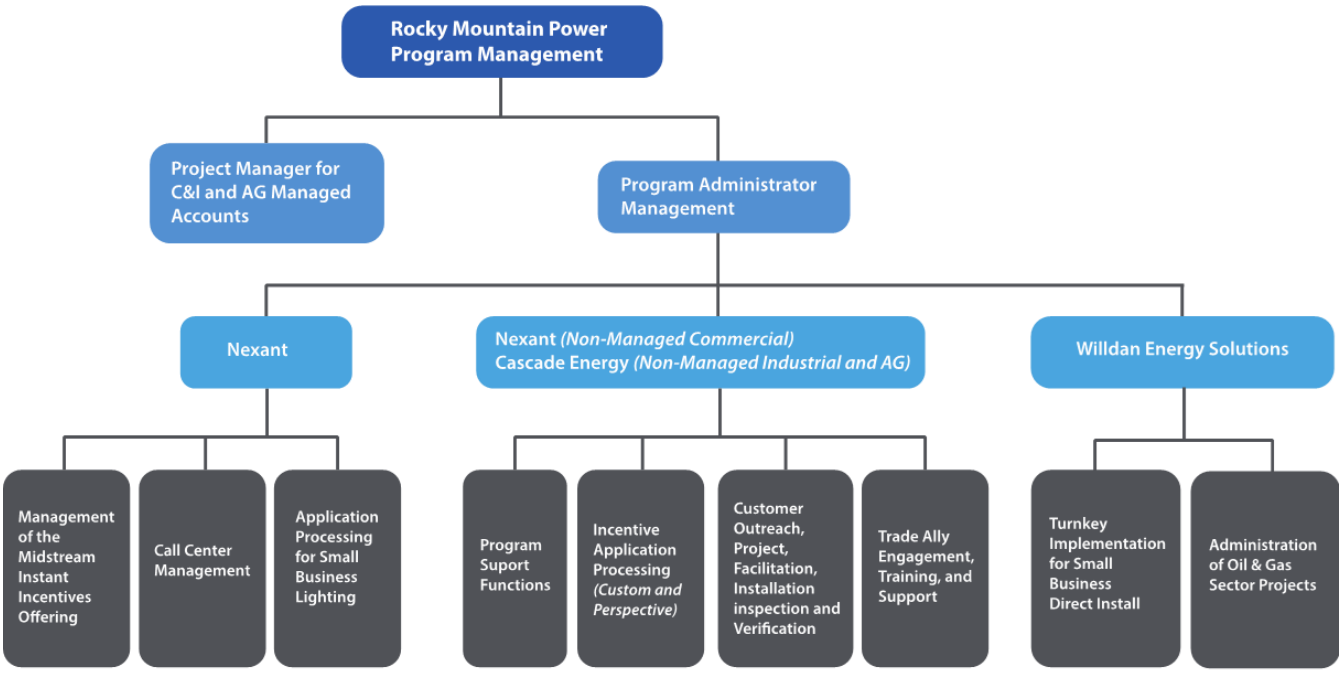
Energy and Nexant, Inc., and subcontractor Evergreen Consulting Group). In addition, the program manager oversees the following:

- Internal DSM delivery and cost-effectiveness
- Achieving and monitoring program performance and compliance
- Conducting program marketing
- Recommending changes to the program's terms and conditions

RMP's in-house project manager and regional business managers conduct outreach and deliver projects to managed accounts (typically, those larger than 1 MW). Nexant and Cascade also may conduct direct customer outreach, project facilitation, and measurement and verification for custom projects serving non-managed accounts, and, on occasion, may provide project facilitation to managed accounts at RMP's request.[6] Willdan conducts all outreach and delivery for the SBDI offering to RMP customers (with assistance from RMP's marketing staff), and administers the oil and gas sector projects, while RMP delivers Energy Management offerings through the stable of third-party engineering providers. These providers are drawn from contracted third-party engineering services that have the appropriate expertise for individual projects. Nexant and Cascade may deliver Energy Management offerings to non-managed accounts.

Figure 1 provides an overview of program management responsibilities.

Figure 1. *watt*smart Business Program Delivery Roles



[6] Typically larger than 1 MW, managed accounts are handled individually by a RMP project manager. Non-managed accounts typically are those less than 1 MW.

Evaluation Objectives

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

Table 5. Evaluation Objectives and Activities

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

Data Collection and Evaluation Activities

The Cadmus team performed on-site visits and engineering analyses for 175 projects, achieving 90% confidence and ±4.9% precision at the portfolio level. The team's process evaluation included a thorough review of program operations, marketing materials, and data tracking. The team interviewed program managers and administrators to thoroughly understand and document the program's history, objectives, and operations. The team also surveyed program participants, partial participants, and nonparticipants regarding program offerings and operations.[7]

Impact Sampling and Extrapolation Methodology

Through the Utah ***watt***smart Business program, RMP provides incentives for the 44 measure types shown in Table 6. The Cadmus team stratified these 44 measure types into the eight strata shown in the table. The team designed the sampling plan for 2016's and 2017's combined participation to achieve

[7] Participants are customers completing a measure or project through the program during the 2016 and/or 2017 evaluation period. Partial participants are customers initiating a project through the program during the same period, but not completing that project. Nonparticipants are customers that have never initiated or completed a project through the program (at least not in 2016 or 2017).

approximately ±20% precision at 80% confidence per strata, and to exceed ±10% precision at 90% confidence at the nonresidential portfolio level. To account for the wide range of project sizes, the team created a plan to divide each end-use stratum into a selected group, from which the team hand-selected any projects reporting 10% or more energy savings for the associated strata and year. The remaining projects were selected randomly.

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

Table 6. Utah 2016-2017 *watts*mart Business Program Impact Sampling

Strata	Measure Type	Number of Incentivized Projects	Reported Energy Savings (kWh)	Unique Sampled Projects
Agricultural	Fans	2	2,493,015	20
	Irrigation Pumps	50		
	Pumps	2		
	Refrigeration	2		
	Water Distribution Equipment	172		
Compressed Air	Compressed Air	54	10,889,947	23
	Custom	60		
HVAC	Controls and Thermostats	40	43,103,436	32
	Cooling	425		
	Custom	169		
	Heat Pump	89		
	HVAC	1		
	Maintenance	8		
	Motors	167		
Lighting	Capped	1	238,511,862	39
	Controls	726		
	Exterior Lighting	289		
	General Illuminance	8,713		
	Interior Lighting	9		
	Lighting	1,707		
	Non-general Illuminance	209		
Motor Systems	Custom	81	26,841,206	26
	Electronically Commutated Motor	129		
	Green Motor Rewinds	57		
Other	Cooking Equipment	15	24,573,396	11
	Custom	1,423		
	Dishwashers	23		
	Freezers	7		
	Grocery Refrigeration	41		
	Holding Cabinet	4		
	Ice Machine	33		
	Insulation	242		
	Office Equipment	3		

Strata	Measure Type	Number of Incentivized Projects	Reported Energy Savings (kWh)	Unique Sampled Projects
	Oil & Gas	4		
	Refrigerators	12		
	Roof	132		
	Water Heater	1		
	Windows	25		
Recommissioning	Custom	149	67,605,837	12
Refrigeration	Controls	1	9,669,226	12
	Custom	56		
	Fast Acting Door	16		
	Refrigeration	1		
Total		**15,350**	**423,687,925**	**175**

The Cadmus team divided the sampled projects into two categories: Selected and Random. As the name implies, Random projects were chosen randomly, with the evaluated results extrapolated to the rest of the population within the strata. Selected projects were hand-picked from projects with the highest claimed energy savings per strata, and these projects were evaluated individually, with the results included within each strata, but those realization rates were not extrapolated to the population. Figure 2 shows how the team applied the realization rates for selected and random sites within the agricultural strata to the population, per strata.

Figure 2. Realization Rate Extrapolation

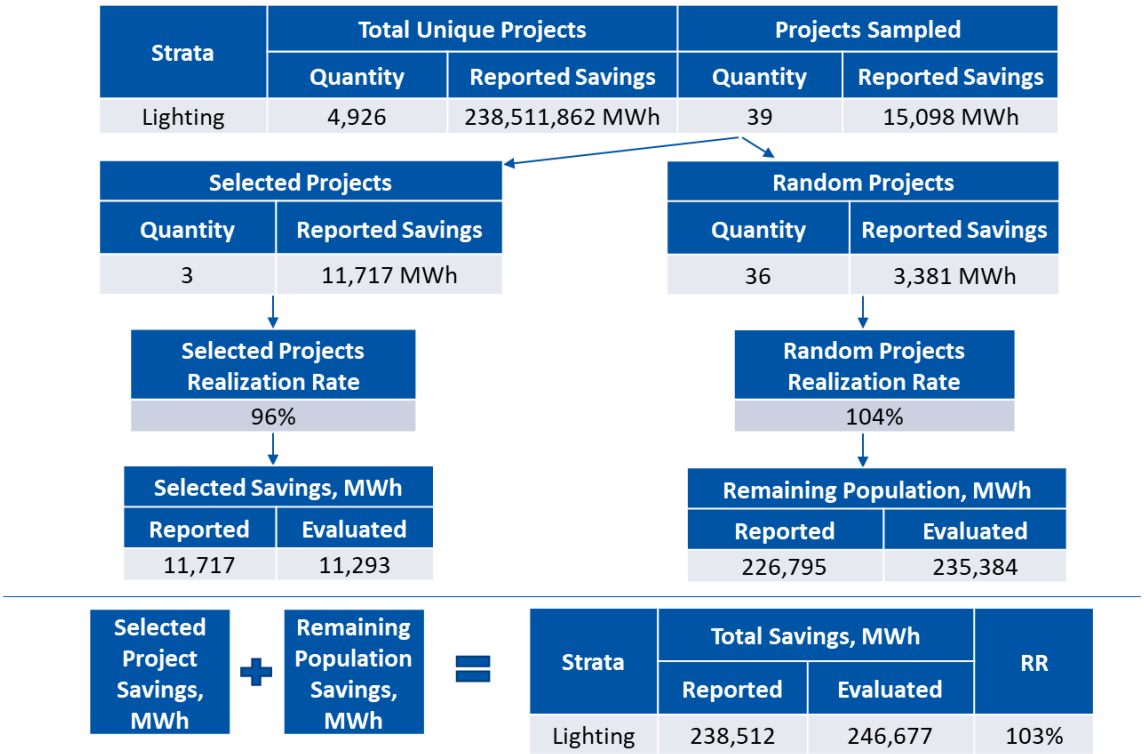


Table 7 shows the total quantity of projects sampled, the associated reported energy savings, and the percentage that this sample represents out of the population.

Table 7. Utah 2016–2017 *watts*mart Business Program Impact Sampling Summary

Strata	Sample Type	Unique Projects Sampled	Reported Energy Savings (kWh)		Percentage kWh Sampled
			Sampled Projects	All Projects	
Agricultural	Selected	1	259,777	2,493,015	43.0%
	Random	19	812,977		
Compressed Air	Selected	2	1,693,982	10,889,947	37.9%
	Random	21	2,429,657		
HVAC	Selected	2	4,656,700	43,103,436	15.3%
	Random	30	1,926,987		
Lighting	Selected	3	11,716,711	238,511,862	6.3%
	Random	236	3,380,976		
Motor Systems	Selected	5	5,401,653	26,841,206	26.5%
	Random	21	1,713,389		
Other	Selected	5	11,590,616	24,573,396	47.3%
	Random	6	35,399		
Recommissioning	Selected	2	3,367,643	67,605,837	9.4%
	Random	10	2,999,721		
Refrigeration	Selected	4	4,417,011	9,669,226	68.6%
	Random	8	2,218,013		
Total		**175**	**58,621,212**	**423,687,925**	**13.8%**

Process Sample Design and Data Collection Methods

In conducting the process evaluation, the Cadmus team grouped projects into four categories, defining these through conversations with RMP to fulfill RMP's reporting objectives:

1. ***watt***smart Business (including projects receiving Typical Upgrades incentives or Custom Analysis incentives)
2. SBDI
3. Midstream
4. Energy Management

The Cadmus team developed samples for three customer populations—participants, partial participants, and nonparticipants—using simple random sampling within each category.[8] The team defined participants as customers completing Typical Upgrades, Custom Analysis, SBDI, Midstream, or Energy Management projects through the program during the evaluation period (program years 2016 and 2017). The team defined partial participants as customers initiating Typical Upgrades, Custom Analysis, or SBDI projects through the program in 2016 or 2017, but not completing those projects. Due to the small population, the team did not stratify these customers by measure category or other strata. Rather, the team selected projects for review using simple random sampling. The team defined nonparticipants

[8] At RMP's request, due to other planned or ongoing survey activities, all managed accounts were removed from the populations prior to stratification or sampling.

as customers that never initiated or completed a project through the program or that had not done so in 2016 and 2017; the team selected these projects for review using simple random sampling.

Table 8 shows the final sample disposition for each data collection activity.[9] The *Process Evaluation* chapter's *Surveys* section provides a detailed methodology for each surveyed population.

Table 8. Utah 2016–2017 *watt*smart Business Program Data Collection and Sampling

Data Collection Activity	Population	Sampling Frame[b]	Target Completes	Achieved Completes
RMP Program Staff Interviews	N/A	N/A	N/A	4
Program Administrator Interviews	N/A	N/A	N/A	7
wattsmart Business Participant Surveys (Typical Upgrade or Custom Analysis)	Segmented Below	Segmented Below	Segmented Below	Segmented Below
Agricultural	76	66	21	21
Compressed Air	74	43	18	4
HVAC	243	129	25	12
Lighting (other than Midstream, SBL or SBDI)	1,699	987	29	29
Motor Systems	84	37	17	6
Refrigeration	33	17	11	3
Other[a]	262	99	23	12
Participant Surveys (SBDI)	865	748	62	62
Participant Surveys (Midstream)	1,208	534	60	53
Participant Survey (Energy Management)	95	31	22	5
Participant Subtotal	**4,639**	**2,691**	**288**	**207**
Partial Participant Surveys	1,893			
wattsmart Business		468	60	27
SBDI		221	52	16
Nonparticipant Surveys	54,728	34,673	68	68
Total Surveys	**61,260**	**38,053**	**468**	**318**

[a] Other included: Additional Measures, Building Shell, Water Heating, Oil & Gas, Electronics, and Food Service Equipment.

[b] The team based the sampling frame on unique customers with contact information, after removing duplicates and managed accounts.

[9] Cadmus contracted with VuPoint Research to conduct the participant, partial participant, and nonparticipant surveys. As a third-party research company, VuPoint's experience included conducting residential and nonresidential quantitative and qualitative research in the Northwest. VuPoint applied industry-recognized best practices, including employing experienced recruiters and dialing customer contacts up to five times during different times of the workday and on different workdays of the week, until either achieving the designated quota for each customer segment or exhausting the sample.

Impact Evaluation

This chapter provides impact evaluation findings for the ***watt***smart Business program, drawn from the Cadmus team's data analysis, which used the following methods:

- Participant surveys
- Partial participant surveys
- Nonparticipant surveys
- Net-to-gross (NTG) analysis
- Site visits
- Engineering measurements
- Site-level billing analysis

This section presents two evaluated saving values: gross savings and net savings. Reported gross savings are electricity savings (kWh) that RMP reported in the 2016 and 2017 *Rocky Mountain Power Energy Efficiency and Peak Reduction Annual Reports* (annual reports).[10] Net savings are program savings, net of what would have occurred in the program's absence. These savings are observed impacts attributable to the program.

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

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 and verify that savings match annual reports
	2	Verification: Adjust gross savings based on actual installation rates
	3	Unit Energy Savings: Validate saving calculations (i.e., engineering review, analysis, and meter data)
	4	Realization Rates: Extrapolate realization rates to population
Evaluated Net Savings	5	Attribution: Apply NTG adjustments

Step 1: In verifying the participant database's data accuracy, the Cadmus team reviewed the program tracking database to ensure that participants and reported savings matched annual reports.

Step 2: The team selected a sample of sites from the RMP program database, stratifying the measure distribution among sampled sites, primarily by end-use type: lighting, recommissioning, HVAC, refrigeration, motor systems, compressed air, agricultural, and other measures. As part of the 2016 and

[10] These reports are available online: http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2016/Energy_Efficiency_and_Peak_Reduction_Report_2016(6-30-17).pdf; and http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2017/Energy_Efficiency_and_Peak_Reduction_Report_2017.pdf

2017 program evaluation, the team completed 175 site visits and desk reviews, with site visits performed to verify measure installation.

Step 3: The team next reviewed all project documentation; developed an evaluation, measurement, and verification plan; and performed site visits to verify the installation, specification, and operation of incented measures. The team installed light loggers at six sites and power metering equipment at ten sites within the sample. Where possible, staff collected equipment performance trend data on site from the customer's monitoring and/or control system.

Step 4: This step involved reviewing measure savings' assumptions, equations, and inputs, including billing analysis for selected measures. For complicated or custom measures, the team conducted an engineering analysis using the appropriate measurement and verification option within the International Performance Measurement and Verification Protocol. For sites with light loggers or power meters installed, the team used logger data to determine hours-of-use (HOU) or power consumption for the metered equipment types. In some instances, the customer provided trend data from their building management systems, which the Cadmus team used to determine equipment load profiles, HOU, and performance characteristics.

Step 5: Lastly, the team used participant surveys to calculate freeridership using self-report methodology. The team also surveyed nonparticipants to determine if nonparticipant spillover (NPSO) could be credited to the program (which was not otherwise incented).

Site Visits and Engineering Measurements

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

Using a data collection form at each site visit, the team performed the following tasks:

- Verified installation and operation of equipment receiving incentives, confirming that installed equipment met program eligibility requirements, and verifying that the quantity of installed measures matched program documentation.
- Collected additional data to inform savings analyses and performed a detailed review of site project files to collect additional data for each site:
  - Where applicable, the team interviewed facility personnel involved with the project, gathering information (e.g., equipment types replaced and HOU) that could not be verified on site or through documentation reviews or metering.

Overall Evaluated Gross Savings Results

Table 10 presents reported and evaluated gross savings for the 2016 and 2017 program years, with an overall realization rate of 100.1%.

Table 10. Reported and Evaluated Gross Savings by Program Year

Program Year	Program Savings (kWh)		Gross Program Realization Rate
	Reported	Evaluated Gross	
2016	209,941,939	210,688,723	100.4%
2017	213,745,986	213,615,672	99.9%
Total	**423,687,925**	**424,304,395**	**100.1%**

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

Table 11. Reported and Evaluated Gross *watt*smart Business Program Savings by Measure Category (2016–2017)

Strata	Program Savings (kWh)		Realization Rate	Precision[a]
	Reported	Evaluated Gross		
Agricultural	2,493,015	2,246,252	90%	15.9%
Compressed Air	10,889,947	11,107,563	102%	8.4%
HVAC	43,103,436	43,589,992	101%	4.1%
Lighting	238,511,862	246,677,333	103%	6.4%
Motor Systems	26,841,206	24,298,874	91%	8.1%
Other	24,573,396	21,420,930	87%	19.6%
Recommissioning	67,605,837	67,354,770	100%	0.0%
Refrigeration	9,669,226	9,653,783	100%	0.9%
Total	**423,687,925**	**426,349,497**	**100.6%**	**4.9%**

[a] Precision calculated at 80% confidence by strata and 90% confidence overall.

Evaluated Gross Savings Results by Strata

Agricultural

RMP provides incentives for five types of agricultural projects: fans, irrigation pumps, pumps, refrigeration, and water distribution equipment, with incentives provided for 228 measures in 87 unique projects and 2,493,015 kWh in energy savings reported for the 2016 and 2017 program years. Incented agricultural projects accounted for 0.6% of all reported energy savings in Utah.

Methodology

To determine savings for incented agricultural projects in Utah, RMP used prescriptive or custom calculations or deemed savings values. Deemed savings refer to a single energy savings value per-unit, per-measure (e.g., kWh per horsepower or kWh per CFM). Prescriptive calculations required more than one input to determine energy savings (e.g., HVAC equipment performance, operating hours, and capacity). The Cadmus team evaluated 20 agricultural projects, accounting for 43% of reported energy savings within the agricultural strata. From the evaluated projects, RMP used deemed savings for 10 projects, prescriptive calculations for nine projects, and custom calculations for one project.

The majority of projects evaluated by the Cadmus team involved upgrading or replacing irrigation hardware equipment, including gaskets, sprinklers, nozzles, hoses, and regulators. These projects claimed savings using a deemed savings value per unit. The team evaluated these projects, using the

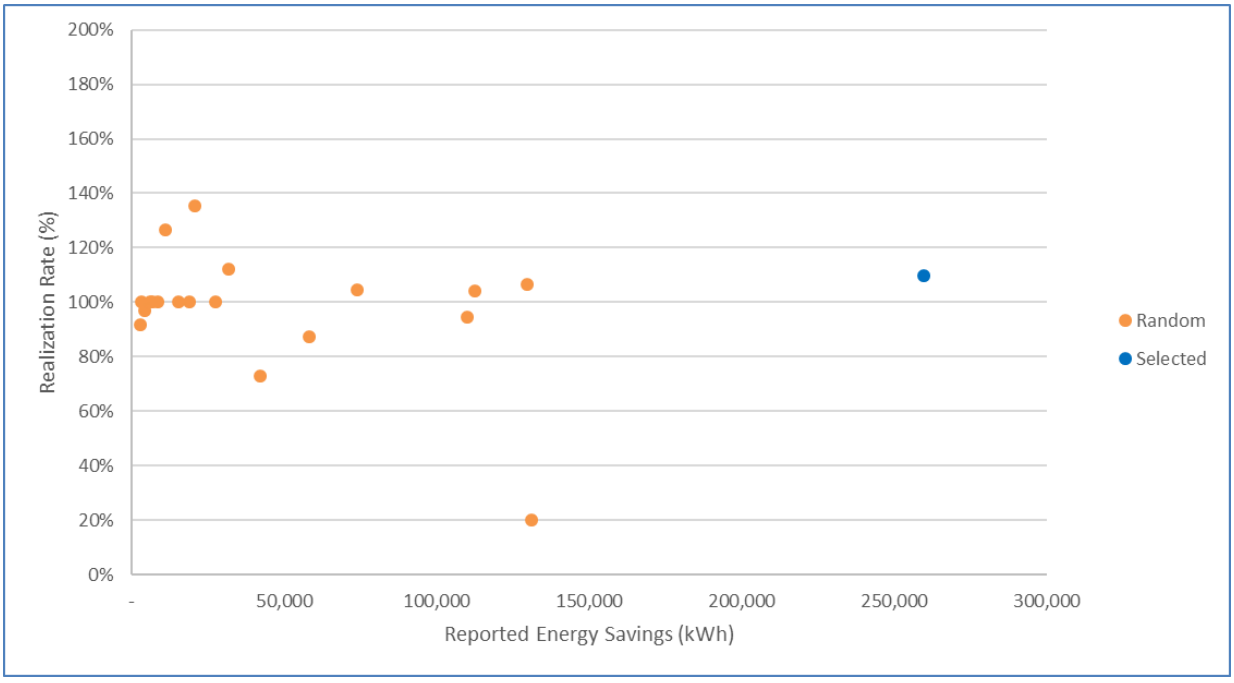
savings methodology provided within the Regional Technical Forum's (RTF) irrigation hardware measure. Critical inputs to these calculations include: the equipment quantity, hours of operation per season, and pump pressures.

For the five projects involving prescriptive calculations for installing VFDs on irrigation pumps, the administrator determined reported savings using the Irrigation Pump VFD Savings Estimator v1.4 calculator. The Cadmus team evaluated savings for these projects by updating the prescriptive calculators based on site findings.

Findings

Figure 3 indicates realization rates and associated energy savings for each sampled project.

Figure 3. Agricultural Sample Results



Two sites had realization rates greater than 120%, and two sites had realization rates below 80%. Table 12 provides specific details related to these projects.

Table 12. Agricultural Sample Detailed Findings

Project	Project Measures	Reported kWh	Evaluated kWh	Site Realization Rate	Notes
UTC01981	Irrigation pump VFD	131,126	26,204	20%	Customer manually set VFD speed to 55-60 Hz when running irrigation pump.
UTC01599	Agricultural fans serving feedlot	42,000	30,588	73%	Deemed savings from Ag fan measure within 2017 WI TRM used.
UTC01517	Drop tube, low-pressure sprinkler replacement, pressure regulator	10,826	13,723	127%	RTF calculator used.

Project	Project Measures	Reported kWh	Evaluated kWh	Site Realization Rate	Notes
UTC01315	Low-pressure sprinkler replacement, pressure regulator	20,490	27,710	135%	RTF calculator used.

A few of the more atypical measure-level realization rates can be explained as follows:

- Ten sampled projects involved replacing irrigation hardware (e.g., gaskets, sprinklers, nozzles, hoses, regulators). For these projects, the administrator reported savings using deemed values based on estimated lift, operation hours, and assumed pump efficiency from Nexant and Fazio Engineering. The Cadmus team evaluated these projects using the RTF irrigation hardware measure-calculation methodology and associated calculation tools. The RTF calculator allows the use of site-specific project data, collected during site visits for updating savings calculations. Site-specific information includes HOU, flow rates, and pump pressures. Evaluated energy savings for irrigation hardware projects varied from 73% to 135%, with a 101% average realization rate.
- One project—UTC01981—exhibited a low realization rate due to an observed pump operating strategy differing from the reported strategy. Prior to implementing the project, the customer indicated that the pump speed would modulate to maintain the pump's pressure at a setpoint. The Cadmus team, however, observed that the customer manually set the pump speed to 55 Hz or 60 Hz when enabling the pump. The customer did not indicate why the pumping strategy changed.

Compressed Air

RMP provides incentives for several types of compressed air projects, includes VFDs serving air compressors, air dryers, compressed air system setpoint and sequence optimizations, air leak reductions, and zero-loss condensate drains. RMP incented 114 measures within 83 projects, reporting 10,889,947 kWh in energy savings for the 2016 and 2017 program years, accounting for 2.6% of all reported energy savings in Utah.

Methodology

The Cadmus team evaluated 23 compressed air projects, accounting for 37.9% of all reported energy savings within the strata. From evaluated projects, RMP used prescriptive calculations for 16 projects and custom calculations for seven projects.

For the 16 projects claiming savings from prescriptive calculations, the Cadmus team reviewed the prescriptive calculator's (NW Regional Compressed Air Tool v3.0) methodology and assumptions to determine applicability. The prescriptive calculator documented customer information, compressed air

system specifications, and expected performance. Critical inputs used to calculate energy savings included the following:

- Compressor type and load control
- Compressor horsepower
- Rated flow
- Receiver volume and dryer specifications
- System pressure setpoints
- HOU

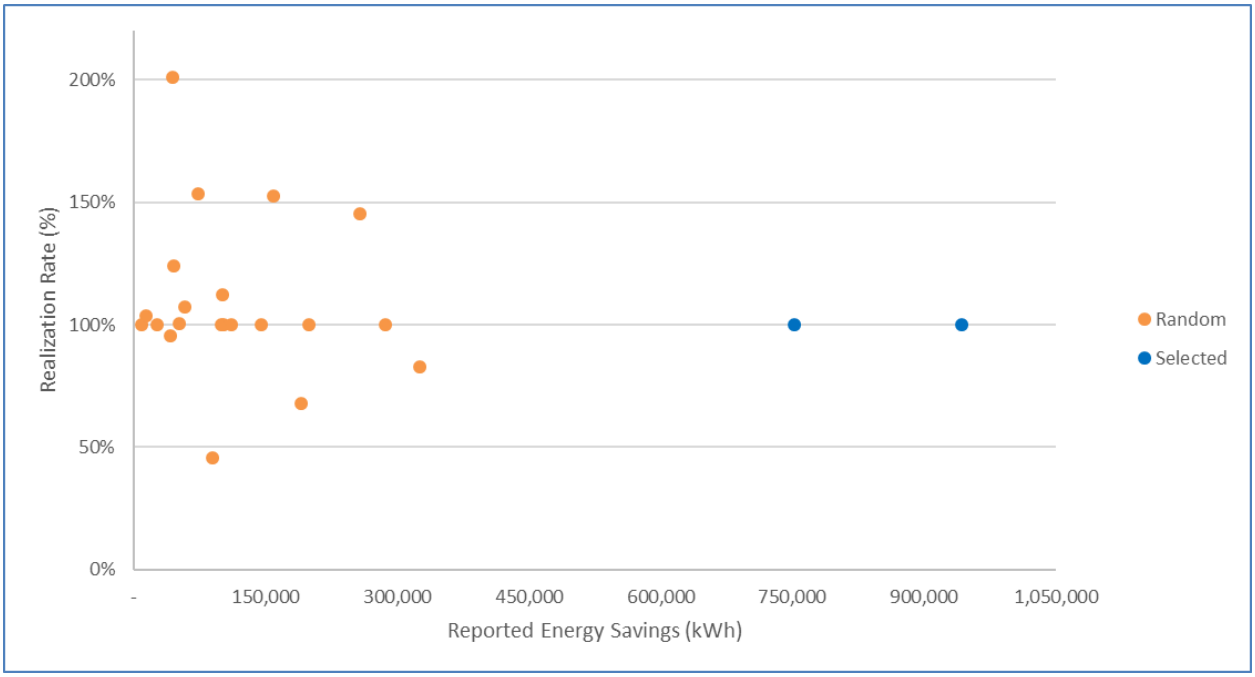
The Cadmus team performed site visits to inspect and document installed system specifications and operational setpoints. When variations appeared between project data and site findings, the team updated the NW Regional Compressed Air Tool v3.0 with revised inputs to calculate evaluated savings.

The team evaluated projects where reported savings were determined using custom workbooks and spreadsheets, installing power metering equipment where possible and recreating custom calculations based on trend data and site findings. The team installed power metering equipment on five of eight sampled projects using custom calculations. Further, the team installed motor on/off loggers at one of eight sampled projects. For the two custom calculated sites (with power metering equipment not installed or trend data unavailable), the team reviewed custom calculations for methodology and accuracy, and used site findings to revise calculation inputs where variations appeared.

Findings

Figure 4 indicates realization rates and associated energy savings for each sampled project.

Figure 4. Compressed Air Sample Results



Five sites exhibited realization rates above 120%, and two sites exhibited realization rates below 80%. For the remaining sites, the Cadmus team did not find any (or nominal) differences in reported savings.

Table 13 provides specific details for the six sites with realization rates greater than 120% or less than 80%.

Table 13. Compressed Air System Sample Results

Project	Project Measure	Reported kWh	Evaluated kWh	Site Realization Rate	Notes
UTC01125	VFD Compressor	89,594	40,751	45%	Trend data indicate compressor runs at higher speeds. The observed air compressor nameplate indicates lower air capacity than reported.
WBUT_173552	Custom improvements	191,175	129,260	68%	Air compressor utilization by facility staff changed after the project evaluation verified fewer run-hours.
WBUT_177744	VFD controlled compressor	44,900	55,689	124%	Higher run-hours observed by the team resulted in increased energy savings.
WBUT_92074	VFD compressor	258,000	375,158	145%	Metered data indicated greater HOU than estimated.
WBUT_35445	VFD compressor	158,815	242,412	153%	Savings evaluated based on the RTF calculator and observed load profile.
UTC01602	Refrigerated cycling dryer, VFD-controlled compressor	73,766	113,184	153%	Evaluated HOU were higher than reported.
WBUT_12402	VFD compressor	44,170	88,734	201%	Revised calculations based on observed load profiles and spot measurements of compressor performance.

Incentivized equipment was found on site and operational. Evaluated savings often deviated from reported savings due to variations in load profiles. Several prescriptive projects exhibited realization rates greater than 120% or less than 80%. The Cadmus team evaluated these projects by reviewing load profiles and HOU trend logs during site visits and updating the NW Regional Compressed Air Tool v3.0 with revised information. In two cases, HOU were lower than expected, with higher load levels when operating. VFD air compressors offered the most efficient equipment, achieving the greatest energy savings when operated at part-load conditions. As these units operated at nearly full-load capacity, reduced savings were realized.

HVAC

RMP incented 899 HVAC measures within 415 unique projects, consisting of the following:

- Pump and fan motor VFDs
- Air-handling units
- Air-source and ground-source heat pumps

- Packaged terminal heat pumps
- Chillers
- Cooling towers
- Indirect/direct evaporative cooling systems
- Demand control ventilation
- Heat pumps
- Scheduling controls

RMP reported energy savings of 43,103,436 kWh, accounting for 10.2% of all reported energy savings for the 2016 and 2017 program years.

Methodology

The Cadmus team evaluated 32 HVAC projects, accounting for 15.3% of all reported energy savings within the HVAC strata. Of evaluated projects, RMP used deemed savings for four projects, prescriptive calculations for 18 projects, and custom calculations for 10 projects. RMP used one of three prescriptive calculators to determine incentive amounts for prescriptive HVAC projects:

- RMP HVAC Calculator
- RMP FinAnswer Express Chiller Calculator
- RMP Indirect/Direct Evaporative Cooling Calculator

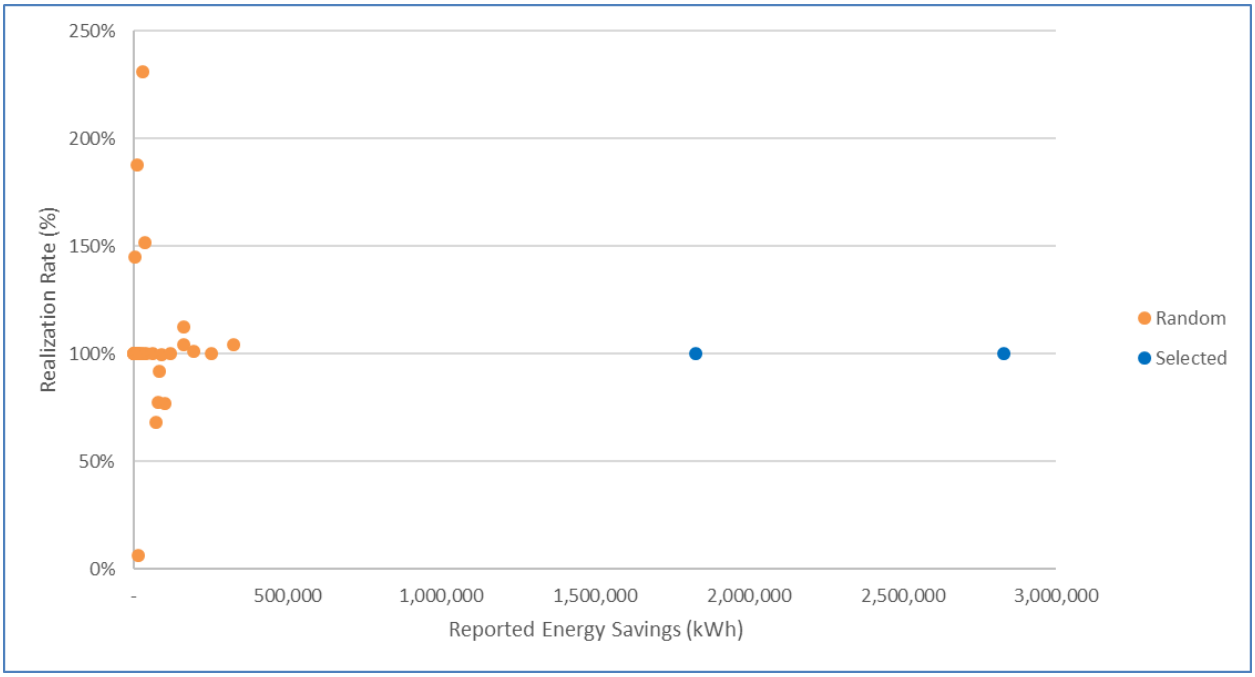
The Cadmus team reviewed the methodology and assumptions for each prescriptive calculator to determine the applicability for each project sampled. For each sampled project, the team then performed site visits to inspect and document installed equipment, interview facility staff or farmers, and review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

For projects in which the administrator used custom calculations, the team reviewed custom calculation workbooks for the energy-savings methodology, inputs, assumptions, and accuracy. If site findings deviated from claimed equipment quantities, performance specifications, or HOU, the team recreated custom calculations with the updated information. For three projects, the team installed power metering equipment and analyzed meter data to develop a load profile and to determine HOU.

Findings

Figure 5 indicates realization rates and associated energy savings for each sampled project.

Figure 5. HVAC Sample Results



Four sites exhibited a realization rate less than 80%, and four sites exhibited a realization rate greater than 120%. For the remaining sites, the Cadmus team found no (or nominal) differences between calculated savings and reported savings. Table 14 provides specific details for sites achieving realization rates greater than 120% or less than 80%.

Table 14. HVAC Sample Detailed Findings

Project	Project Measures	Reported kWh	Evaluated kWh	Site Realization Rate	Notes
UTFX1_008926	VFDs serving HVAC fans	14,066	916	7%	Metered data shows very low annual HOU.
WBUT_21777	VFDs serving HVAC fans, chilled beams, waterside economizer	72,320	49,439	68%	Evaluated savings for chilled beams and economizer based on updated heating load to match on-site findings.
UTC01557	Economizers	100,799	77,615	77%	Observed economizer disable setpoints lower than reported, resulting in fewer opportunities for free cooling.
UTC01592	Economizers	78,711	60,788	77%	Observed economizer's disable setpoints lower than reported, resulting in fewer opportunities for free cooling.
WSCHM_71189	Unitary commercial air conditioners	2,420	3,503	145%	Savings evaluated with PacifiCorp HVAC Calculator
WSBUT_70560	VFDs serving HVAC fans	36,864	55,884	152%	Evaluated savings based on NEEP VFD study.

Project	Project Measures	Reported kWh	Evaluated kWh	Site Realization Rate	Notes
UTFX1_007388	VFDs serving HVAC fans	10,820	20,330	188%	Evaluated savings based on NEEP VFD study.
UTFX1_007433	VFDs serving HVAC fans	27,720	64,040	231%	Evaluated savings based on NEEP VFD study.

The following explanations address a few of the more atypical measure-level realization rates:

- Five sampled projects involved installations of VFDs serving HVAC fans and pumps. RMP utilizes a deemed savings value of 1,082 kWh per controlled motor horsepower for VFDs serving HVAC fans and pumps. The team evaluated these projects by referencing the 2014 Variable Speed Drive Loadshape study and applying deemed savings specific to HVAC supply fans, return fans, and exhaust fans. The revised deemed savings amounts proved higher than RMP's deemed savings values.
- Two projects involved economizer retrofits to packaged air conditioning units. When these economizers were enabled, an outside air damper opened, providing cold air to serve the facility and negating the need for mechanical cooling. The economizer's disable setpoint was lower than reported, resulting in fewer HOU with free cooling available (but not utilized).

Lighting

RMP provides incentives for four types of lighting projects:

- Exterior lighting
- General illuminance
- Lighting
- Non-general illuminance

Whether for renovations or new construction, these projects involved high-efficient lighting technologies, such as CFLs, LEDs, and induction fixtures.

RMP incented 12,843 lighting measures within 7,926 unique projects and reported 238,511,862 kWh in energy savings for the 2016 and 2017 years. Incented lighting projects accounted for 56.3% of all reported energy savings in Utah.

Methodology

The Cadmus team evaluated 39 lighting projects, which accounted for 6.3% of all reported energy savings within the lighting strata. RMP used prescriptive calculations for all evaluated projects, employing the FinAnswer Express prescriptive lighting calculator or the ***watt***smart LED Midstream prescriptive lighting calculator to determine incentive amounts for most lighting projects in Utah. Other projects used custom calculations. The FinAnswer Express calculator documented customer information, project locations, light fixture specifications, energy-saving calculations, and financial information. Critical inputs used to calculate energy savings included the following:

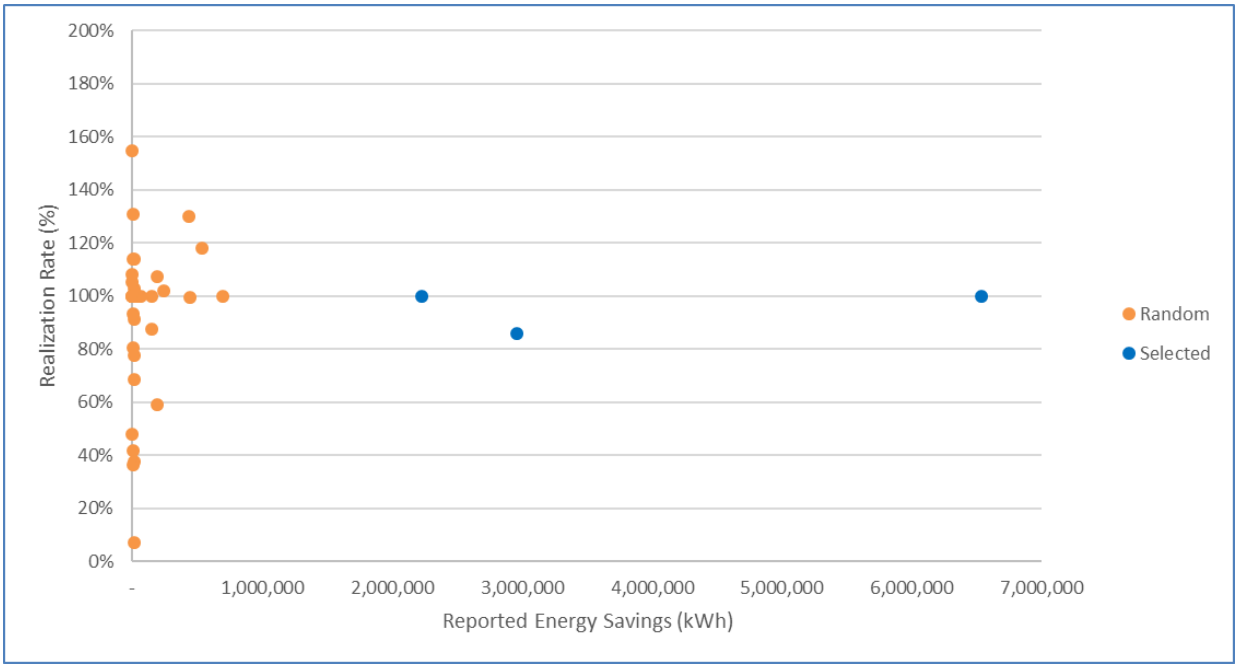
- Lighting operation schedule
- Space name, type, area, and condition
- Baseline lighting fixture location, type, quantity, controls, and wattage
- Proposed lighting fixture location, type, quantity, controls, and wattage

The team reviewed the prescriptive calculator methodology and assumptions to determine the applicability for each sampled project. Additionally, the team performed site visits at each sampled project to inspect and document installed lighting equipment. For six projects evaluated, the team installed light loggers to document HOU where incentivized lighting fixtures had been installed. This involved installing two to six light loggers per facility in representative spaces. The team determined these representative spaces were areas with fixtures where the highest energy savings were reported. The team left the loggers in place for a minimum of three weeks, then retrieved and analyzed the data. The team extrapolated measured HOU to annual HOU, updating the prescriptive calculators with the revised values.

Findings

Figure 6 indicates realization rates and associated claimed energy savings for each sampled large lighting project.

Figure 6. Lighting Sample Results



Eight sites exhibited realization rates less than 80%, and five sites exhibited realization rates greater than 120%(two not shown on the graph). For the remaining sites, the Cadmus team found no (or nominal) differences between calculated savings and reported savings. For sites with evaluated energy savings less than 80% or greater than 120%, savings differences mostly resulted from discrepancies in claimed HOU. Table 15 provides specific details.

Table 15. Lighting Sample Detailed Findings

Project	Project Measures	Reported kWh	Evaluated kWh	Site Realization Rate	Notes
36930314001001-A	Direct install	13,916	975	7%	Facility used as storage for an adjoining business, with lights off most of the day.
WLEDUT_63805	LED	10,816	3,960	37%	LED Instant Incentive program. LEDs found installed in hotel guest rooms.
WBUT_17475	LED	16,108	6,041	38%	Observed HOU were less than reported.
WLEDUT_67457	LED	4,338	1,804	42%	LED Instant Incentive program.
35538056001-A	Direct install	881	423	48%	Two of four 4-foot fixtures installed. HOU 1,825 hair salon interview vs. claimed 2,590 per small office building type.
WLEDUT_71558	LED	196,406	115,703	59%	LED Instant Incentive program. Many lamps found in storage or missing.
UTFX1_008605	LED	16,246	11,146	69%	Loggers indicated lower HOU than indicated on incentive documentation.
WSBUT_66036	LED	15,840	12,323	78%	Lamps split between two different spaces. The second space had lower HOU, based on a site interview.
UTFX1_008671	LED	439,235	570,656	130%	Loggers indicated lower HOU than indicated on incentive documentation.
WLEDUT_68101	LED	8,520	11,134	131%	LED Instant Incentive program.
WLEDUT_63432	LED	226	350	155%	LED Instant Incentive program.
WLEDUT_71915	LED	2,275	8,760	385%	LED Instant Incentive program.

Project	Project Measures	Reported kWh	Evaluated kWh	Site Realization Rate	Notes
WLEDUT_67037	LED	3,921	17,192	438%	LED Instant Incentive program.

In general, the Cadmus team found incentivized lighting fixtures installed and in good condition. A few of the more atypical measure-level realization rates require the following explanations:

- Seven sampled projects were implemented through the LED Instant Incentive program. Within this program, customers indicated their business type (chosen from 13 options), and savings were calculated based on the wattage per bulb type and HOU, based on the business type. The team performed site visits for these facilities, with savings calculated based on RMP's FinAnswer Express prescriptive lighting calculator. Often, HOU were revised based on staff interviews or were updated based on more accurate business types. HOU had the greatest impact on realization rate deviations.
- Data from light loggers installed at three facilities indicated HOU deviating from the reported documentation.
- Two direct-install lighting projects exhibited realization rates less than 80%. For both projects, the HOU were adjusted based on site findings.

Motor Systems

RMP provides incentives for several types of motor systems projects—green motor rewinds, motor upgrades, and VFDs—serving commercial HVAC and industrial processes. For the 2016 and 2017 program years, RMP incented 267 measures within 180 projects, reporting 26,841,206 kWh in energy savings. Incentivized motor systems projects accounted for 6.3% of all reported energy savings in Utah.

Methodology

The Cadmus team evaluated 26 motor systems projects, accounting for 26.5% of all reported energy savings within the motor systems strata. Of 26 evaluated projects, RMP determined claimed savings using deemed savings for 13 projects and custom calculations for 13 projects.

For projects in which the administrator used deemed savings to determine claimed energy savings, the team evaluated savings using the most appropriate savings calculation methodology, based on the RTF measure database. For prescriptive VFD projects installed on HVAC ventilation equipment (e.g., supply fans, return fans, exhaust fans), evaluated savings are based on deemed savings amounts identified within the VFD load shape study.[11] For prescriptive VFD projects installed on central plant equipment

[11] Evaluted savings values are based on the Cadmus 2014 Variable Speed Drive Loadshape Project report created for NEEP. This report is available online: http://www.neep.org/variable-speed-drive-loadshape-study-final-report

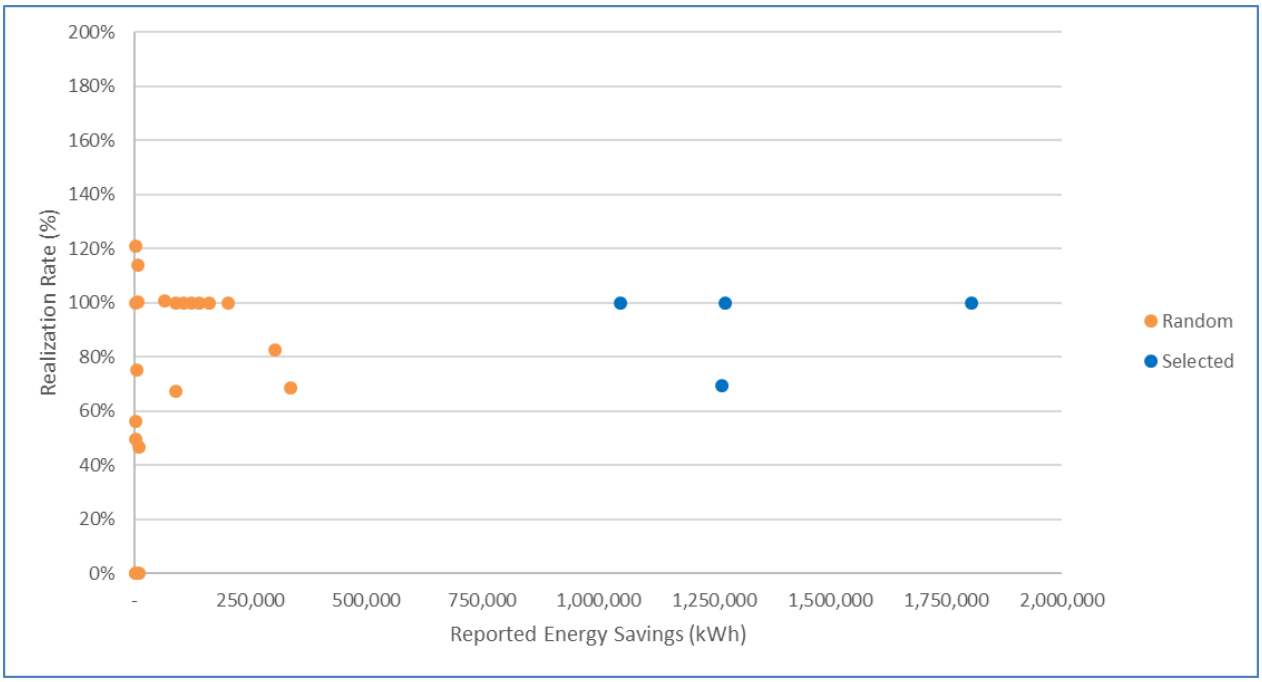
(e.g., chilled water pumps, condenser water pumps, hot water pumps, cooling tower fans), the team referenced the calculation methodology and energy savings factors identified within the PA TRM.

When using prescriptive calculations to determine claimed energy consumption savings, the Cadmus team reviewed the prescriptive calculator methodology and assumptions to determine their applicability for each project sampled. The team collected critical savings inputs (e.g., equipment quantity, capacity, efficiency, load profile, HOU) during site visits and evaluated savings by updating prescriptive calculators based on site findings.

For projects where RMP's implementation contractor used custom calculations to determine energy savings, the Cadmus team reviewed the custom calculation workbooks for the energy savings methodology, inputs, assumptions, and accuracy. If site findings deviated from claimed equipment quantities, performance specifications, or HOU, the team recreated custom calculations with updated information. The team installed power metering equipment for four custom projects and analyzed meter data to develop load profiles and determine HOU.

Figure 7 indicates realization rates and associated energy savings for each sampled project.

Figure 7. Motor Systems Sample Results



Ten sites had realization rates below 80%, and two had realization rates above 120%. The Cadmus team found no (or nominal) differences in reported savings for the remaining sites. Table 16 provides specific details for the 12 sites with realization rates greater than 120% or less than 80%.

Table 16. Motor System Sample Results

Project	Project Measure	Reported kWh	Evaluated kWh	Site Realization Rate	Notes
WSBUT_66131	Green motor rewinds	2,005	0	0%	Motor found in storage.
WSBUT_72199	Green motor rewinds	9,804	0	0%	Motor found in storage.
UTFX1_008270	Green motor rewinds	4,088	0	0%	Motor found in storage.
UTFX1_007809_5	Electronically commutated motor	10,974	5,105	47%	Calculations based on RTF calculator. Two medium temp and four low-temp, electronically commuted motors (ECMs).
WSBUT_66716	Electronically commutated motor	2,790	1,381	49%	Savings from RTF calculator. Installed fans were smaller than indicated on the application (1/20 hp vs 1/15 hp).
UTFX1_007701	Electronically commutated motor	3,469	1,951	56%	Savings based on RTF calculator. Site data seem to match application data (e.g., quantity of units, controlled wattage).
WBUT_151406	Pump motors	90,386	60,884	67%	Utility bill analysis indicates fewer energy savings than expected due to changes in the pump control methodology. System efficiency decreased.
WBUT_21308	Pipe upgrade	336,414	230,522	69%	Less flow observed through new pipe than anticipated. Customer indicated system will not reach maximum capacity until 2020.
WBUT_7179	Pump with VFD, VFD motors	1,266,568	876,250	69%	Facility staff revised the control methodology so only two pumps run instead of the expected four.
WSBUT_66091	Electronically commutated motor	5,790	4,358	75%	ECMs installed on exhaust fans in bathrooms. Occupancy sensor control fans running for 15 min when enabled.
UTFX1_007696	Electronically commutated motor	4,163	5,031	121%	ECMs calculated using RTF calculator.
WBUT_140991	VFD motors	39,936	81,527	204%	Site visit observations and interviews revealed much lower off-season fan speeds, resulting in greater energy savings for VFD-serving cooling towers.

A further explanation follows for a few of the more atypical measure-level realization rates within the evaluated projects:

- Three motors, incentivized for green motor rewind projects, were found in storage. Energy savings from these projects were achieved by performing green motor rewinds, resulting in higher motor-efficiencies than a normal rewind process. Savings, however, were only realized when placing the motor back into service. As no motors were found in service, no savings were being realized.
- Five projects involved upgrades to electronically commuted motors (ECMs) for refrigeration projects. RMP used a deemed value of 9.3 kWh/year/motor-watt, based on the California Database for Energy Efficiency Resources (DEER) and RTF databases. Cadmus evaluated these projects using the RTF calculation methodology and project-specific site findings. Four projects realized higher energy savings, and one project realized lower energy savings due to RTF calculations.

Other

RMP provides incentives for projects within the "other" category; these include building shell measures, food service equipment, oil and gas, envelope, uncategorized, and water-heating measures. This resulted in incenting 846 measures within 522 unique projects, and reporting 24,573,396 kWh in energy savings for the 2016 and 2017 program years. Other incented projects accounted for 5.8% of all reported energy savings in Utah.

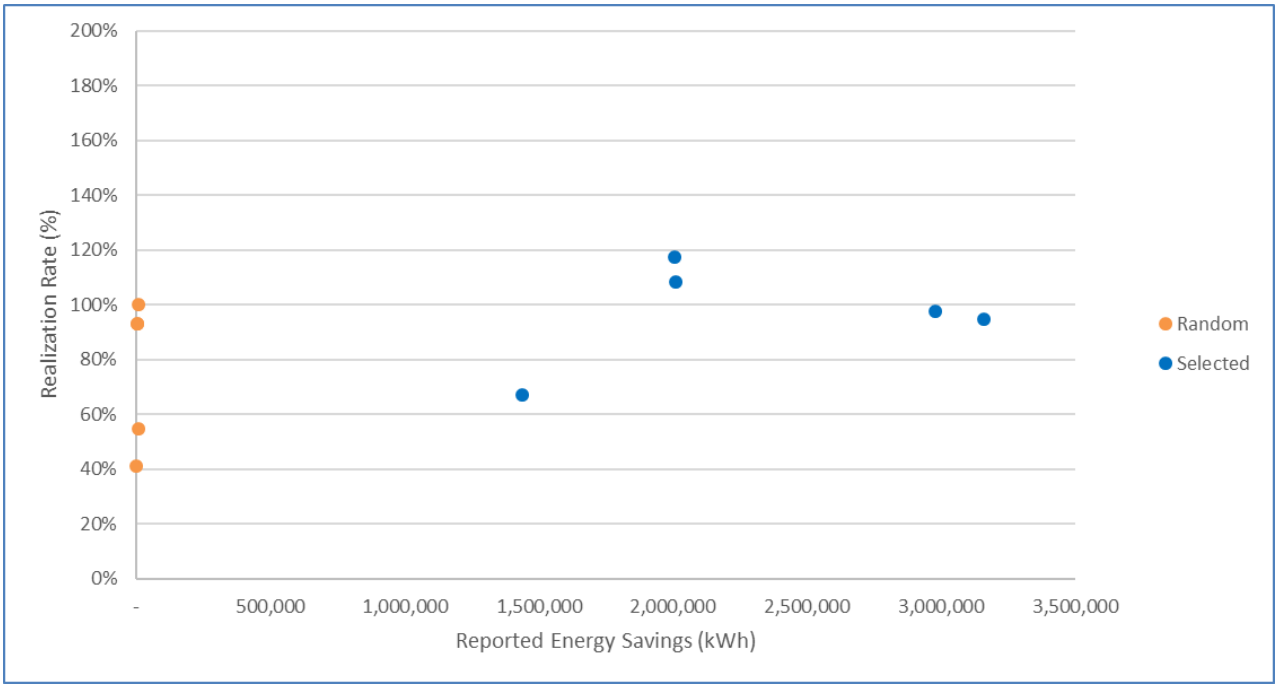
Methodology

To determine deemed savings for other projects incented in Utah, RMP used prescriptive and custom calculators and deemed savings values to determine reported energy savings. The Cadmus team evaluated 18 projects, accounting for 33.5% of reported energy savings within other strata. From the evaluated projects, RMP used deemed savings for 13 projects and custom calculations for three projects.

Findings

Figure 8 indicates realization rates and associated energy savings for each sampled project.

Figure 8. Other Sample Results



Four projects produced realization rates below 80%. Table 17 provides specific details related to these projects with low realization rates.

Table 17. Other Sample Detailed Findings

Project	Project Measures	Reported kWh	Evaluated kWh	Site Realization Rate	Notes
WSBUT_66520	Roof/Attic insulation	2,653	446	17%	Savings calculated based on PA TRM algorithms and local climate data.
UTFX1_007294	Roof/Attic insulation	1,507	621	41%	Savings calculated based on PA TRM algorithms and local climate data.
UTFX1_007618	LED case lighting	9,216	5,053	55%	RTF calculator used. Medium temperature case with lower savings than the low temperature case.
WBUT_136640	LED case lighting	1,437,696	963,375	67%	Two of 22 stores visited had not converted to LED case lighting (one store was approximately one-half LED, the other was entirely T8). Savings estimate based on RTF assumptions for T8 and T12 to LED replacements in low-temperature coolers. The customer indicated the remaining stores will be converted to LED in 2018.

A few of the more atypical measure-level realization rates require the following explanations:

- Two envelope projects involving insulation installation in a roof or attic-utilized deemed values for reported savings. These projects were evaluated using the calculation methodology from the Pennsylvania TRM and climate specific data for Utah. Based on the sampled projects specific cooling and heating loads, less than 80% of reported energy savings were realized.

Recommissioning

RMP provided incentives for 149 recommissioning projects in 145 projects, involving investigation and implementation of multiple energy efficiency measures within each facility. For the 2016 and 2017 program years, RMP reported 67,605,837 kWh in energy savings from these projects. Incented recommissioning projects accounted for 16% of all reported energy savings in Utah.

Methodology

RMP used custom calculations to determine savings for all incented recommissioning projects in Utah. The Cadmus team evaluated 12 recommissioning projects, accounting for 9.4% of reported energy savings within the recommissioning strata. The evaluated projects involved implementation of two to

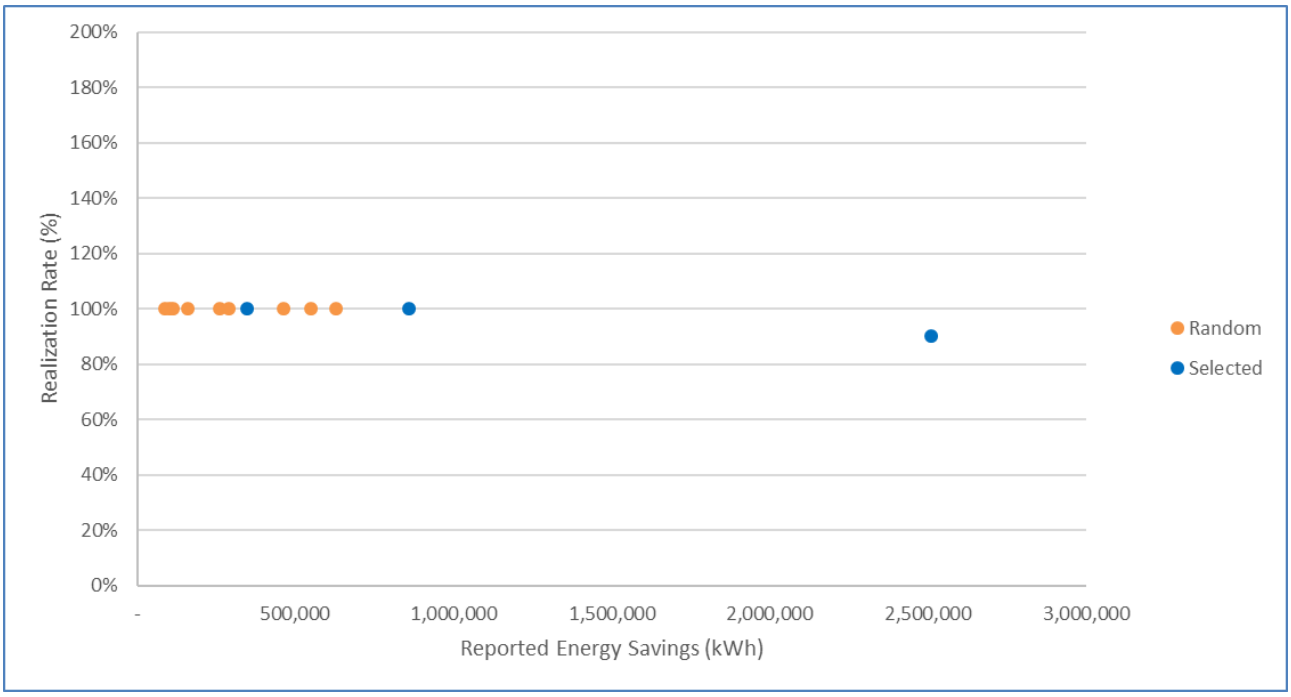
10 individual measures within each project. Customers provided spreadsheet calculations and workbooks as well as energy simulation models. All project documentation included an Energy Analysis Report, identifying potential energy efficiency measures and associated savings, and a Savings Verification Report, documenting the success of implemented measures and associated changes to claimed energy savings.

The Cadmus team evaluated recommissioning measures by reviewing Energy Analysis and Savings Verification reports and identifying equipment quantities, capacities, efficiencies, performance characteristics, control strategies, and proposed changes for each energy efficiency measure. The team performed site visits for each sampled project and physically verified all critical information on site and/or reviewed these data through a building management system. Where possible, the team collected trend data from the building management system to review system performance over an extended time period.

Findings

Figure 9 indicates realization rates and associated energy savings for each sampled project.

Figure 9. Recommissioning Sample Results



The Cadmus team found no (or nominal) differences in reported savings for remaining sites, without any sites indicating realization rates below 80% or above 120%.

Refrigeration

RMP incented 74 refrigeration measures within 33 unique projects, consisting of food service refrigeration equipment, fast-acting doors, case lighting, high-performance chillers, compressor and condenser fan VFDs, optimized refrigeration controls, and process cooling system upgrades. RMP

reported energy savings of 9,669,226 kWh, accounting for 2.3% of all reported energy savings for the 2016 and 2017 program years.

Methodology

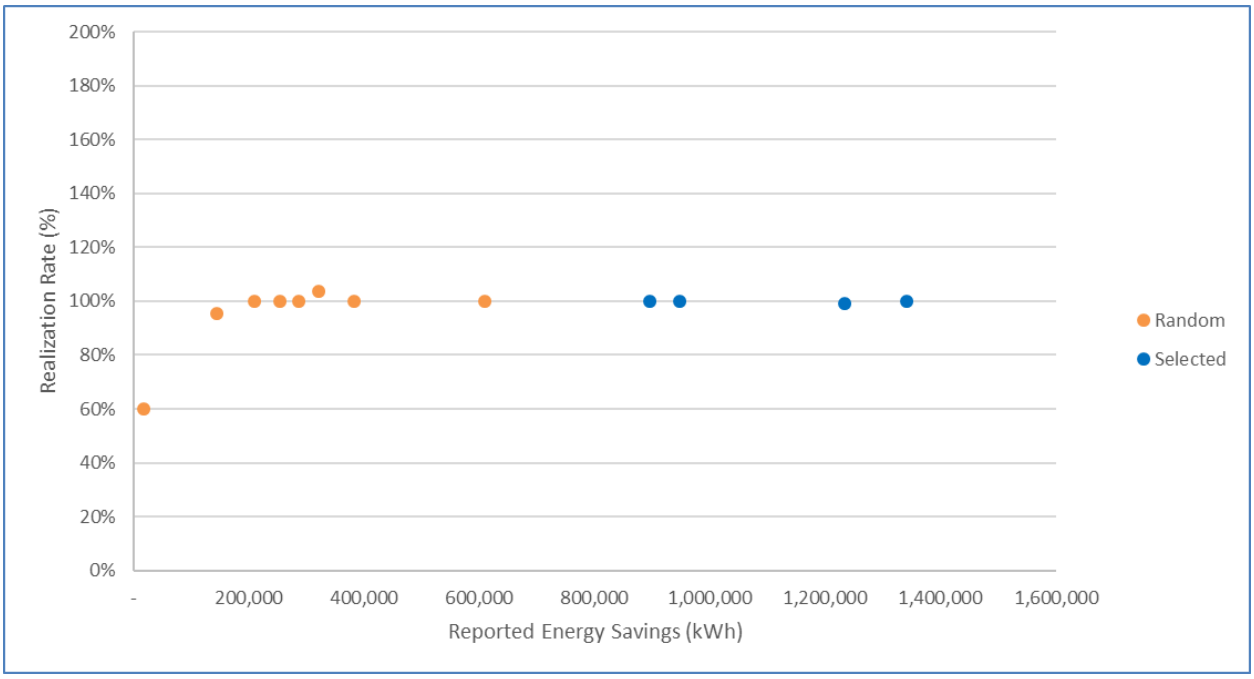
The Cadmus team evaluated 12 refrigeration projects, accounting for 68.6% of all reported energy savings within the refrigeration strata. Of evaluated projects, RMP used prescriptive calculations for six projects and custom calculations for six projects. RMP's implementation contractor performed custom project calculations for energy efficiency savings. For some complicated and large energy-saving projects, the administrator installed power meters to measure performance before and after measure implementation. For deemed calculations, RMP used energy savings established by ENERGY STAR or the RTF.

For projects requiring custom calculations, the Cadmus team reviewed the contractor's custom calculation workbooks for energy-savings methodology, inputs, assumptions, and accuracy. For projects with claimed savings determined using deemed values, the team reviewed unit energy savings calculations provided by ENERGY STAR or the RTF, and adjusted savings inputs based on site findings and interviews.

Findings

Figure 10 indicates realization rates and associated energy savings for each sampled project.

Figure 10. Refrigeration Sample Results



One site exhibited a realization rate less than 80%. For remaining sites, the Cadmus team found no (or nominal) differences between calculated savings and reported savings. Table 18 provides specific details for the project with a low realization rate.

Table 18. Refrigeration Sample Detailed Findings

Project	Project Measures	Reported kWh	Evaluated kWh	Site Realization Rate	Notes
UTC01645	Fast acting door	17,062	10,215	60%	RTF calculator used.

One project involved installing multiple, fast-acting doors at a customer site. While on site, the Cadmus team interviewed facility staff to determine use profiles for the fast-acting doors. The customer indicated that the doors were used less than indicated in the reported project documentation, and the team evaluated savings based on the updated use profile.

Evaluated Net Savings

The Cadmus team evaluated net savings by conducting a freeridership and spillover analysis using responses from surveys. Appendix A. Self-Report NTG Methodology provides detailed information about the net savings methodology, which aligns with industry best practices, as summarized in the Uniform Methods Project.[12]

Further, in estimating NPSO, the Cadmus team included a series of questions from the 2016–2017 general population survey of Utah RMP customers. This addressed savings generated by customers who, motivated by the program's reputation and marketing, conducted energy efficiency installations without receiving incentives. The team estimated NPSO as 2% of the 2016–2017 ***watt***smart Business program gross savings, applying the 2% NPSO equally across program-measure strata. Appendix D. Nonparticipant Survey Guide provides a detailed explanation of the estimated NPSO.

Table 19 presents net savings evaluation results, shown as evaluated gross savings and NTG by program-measure strata. Measure strata freeridership estimates were weighted by their evaluated program energy savings, with spillover values added to arrive at the program's overall 85% NTG estimate.

Table 19.*watt*smart Business Program NTG Results for 2016–2017

Measure Strata	Measure Responses (n)	Evaluated Gross Program Population Savings (kWh)	NTG
Agricultural	21	2,246,252	79%
Compressed Air	4	11,437,945	86%
HVAC	12	43,589,992	57%
Lighting	144	246,677,333	91%
Motor Systems	6	24,298,874	90%
Other	12	21,410,930	76%
Recommissioning	5	67,354,770	89%
Refrigeration	3	9,653,783	51%
Total	**207**	**426,669,879**	**85%[a]**

[a] Weighted by evaluated gross program population savings.

[12] The Uniform Methods Project chapter covering estimation of net savings: http://www.nrel.gov/docs/fy14osti/62678.pdf

The following sections describe the NTG methodology used and the results for the 2016-2017 ***watt***smart Business program.

Methodology

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

Freeridership and spillover constituted the NTG. The Cadmus team used the following formula to determine the final NTG ratio for all 2016 and 2017 participants:

Net-to-gross ratio = 100% – Freeridership Percentage + Participant Spillover Percentage + Nonparticipant Spillover Percentage

Freeridership Estimation

The Cadmus team determined freeridership based on an approach previously developed for RMP, which used responses from 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, in the same amount, and at the same efficiency level.

As the first step in scoring freeridership, the team reviewed participant survey responses to determine whether the exact same project (in terms of scope and efficiency level) would have occurred at the same time in the program's absence. If so, the team scored the respondent 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.

Those not fitting these criteria were scored as non-freeriders. If the project would have occurred within the same 12-month period, but at differing sizes or efficiency levels, the team scored the respondent as a partial freerider. The team then weighted program-measure, strata-specific freeridership estimates by evaluated energy savings achieved by respondents within the sample to calculate the weighted freeridership estimate for each delivery strata.

Spillover Estimation

The Cadmus team also estimated the program activities' indirect influence on the broader market. This program "spillover" estimate represented energy savings attributable to the program's intervention and influence, but not currently reported in program tracking data. Spillover savings can derive from participants and nonparticipants, but participant spillover occurs when a program influences its participants to install additional energy-efficient equipment beyond that incentivized by a program; NPSO savings occur when customers who have not participated in the program or have not for several years, are influenced by the program to install energy-efficient equipment.

The team determined participant spillover by estimating savings derived from additional measures installed and by determining 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 207 surveys, the Cadmus team converted the freeridership question responses into a freeridership estimate for each participant, using the approach described in Appendix A. Self-Report NTG Methodology.

To determine the extent that the program affected installation decisions, the team asked respondents what would have differed about their installations had the program not been an option. Table 20 summarizes participant measure responses, along with an initial freeridership estimate, calculated for each respondent.

Table 20. Measure Installations in Absence of *watt*smart Business Program (n=207)

Respondent Category	n	Percentage of Total[a]	Initial Freeridership Estimate
Would not have been installed at all	77	37%	0%
Would have been installed at the same efficiency and scope within the same year	67	32%	100%
Would have installed more than 12 months later, the measures chosen would have been less efficient, and/or the project would have been reduced in scope	49	24%	0%
Would have installed equipment at a lower efficiency than installed through the program (but better than standard efficiency) within the same year	1	< 0%	50%
Would have installed 90% of the equipment at a lower efficiency than installed through the program (but better than standard efficiency) within the same year	2	1%	45%
Would have installed 75% of the equipment at a lower efficiency than installed through the program (but better than standard efficiency) within the same year	1	< 0%	37.5%
Would have installed 75% of the equipment at the same efficiency within the same year	7	1%	75%
Would have installed 50% of the equipment at the same efficiency within the same year	2	< 0%	50%
Would have installed 40% of the equipment at the same efficiency within the same year	1	37%	40%

[a] Total may not sum to 100% due to rounding.

Due to the program delivery's portfolio nature, the Cadmus team credited past participations' influence by reducing freeridership if participants indicated that past program participation played important roles in their decisions. Given RMP's efforts to cross-promote its entire portfolio of energy efficiency programs, a respondent's prior participation in a RMP program could have influenced their decision to participate in the current program.

To calculate this credit, the Cadmus team reviewed respondents' ratings of the prior program's influence on a scale of 1 to 5, where 1 indicated "not important at all" and 5 indicated "extremely important." For those rating their previous participation as a 4 or 5, the team reduced their freeridership score by 50% or 75%, respectively. This affected 27 projects that initially received a 100% freeridership estimate, reducing 18 of their freeridership estimates by 75% and reducing nine of the estimates by 50%.[13]

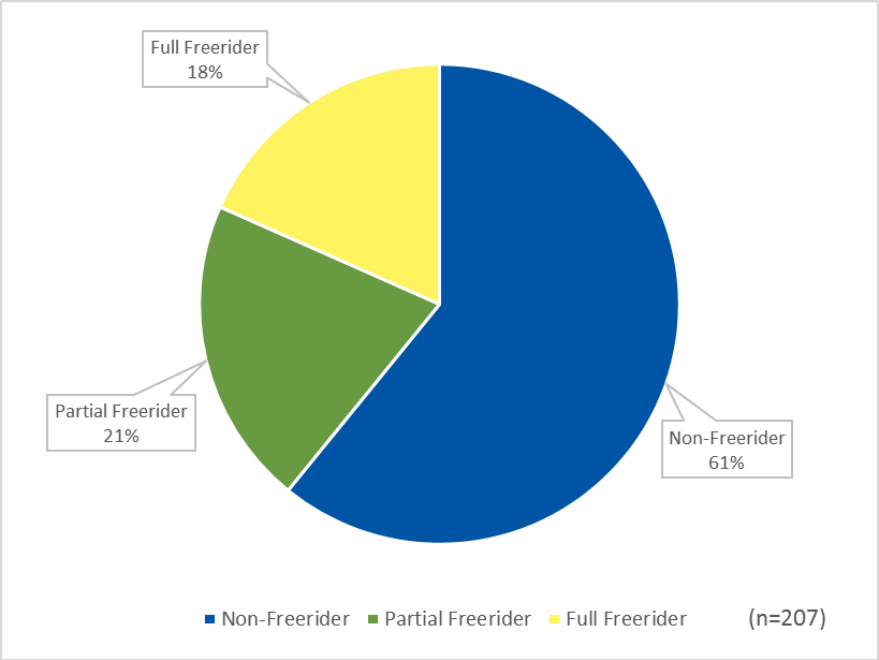
In addition, the team compared participants' statements about what they would have done in the program's absence to statements they made about factors influencing their projects. Some participants' measure-specific responses (n=61) indicated that they found the program incentive or program assistance important in their decisions, but they also said they would have installed a similar project at the same time. The team considered these responses inconsistent and requested that participants explain the program's influence on their projects in their own words.

Seven respondents provided a description that warranted freeridership adjustments. For example, when asked about the program's impact on their decisions to complete energy efficiency improvements, one participant stated: "Wouldn't have gone forward with it without the incentives." Based on this response, the team adjusted the project's freeridership score from 40% to 20%. The team adjusted another respondent's freeridership score from 50% to 25% based on the response: "It was just the amount of justification we needed to get approval from our corporate office."

Based on participants' responses and after adjusting for inconsistencies and prior program experience, the team determined freeridership by respondent, as shown in Figure 11. Overall, the team identified 18% of participants as full freeriders, 61% as non-freeriders, and 21% as partial freeriders.

[13] The Cadmus team reduced three projects' freeridership scores, initially estimated at 75%—by 75% (i.e., a 5 rating), resulting in the project's 19% adjusted freeridership score. In addition, the team reduced a project's freeridership levels—initially estimated at 37.5%—by 75% (i.e., a 4 rating), resulting in a 9% adjusted freeridership score.

Figure 11. Freeridership by Respondent



Participant Spillover Findings

After participating in the ***watt***smart Business program, some participants installed additional energy-efficient measures. The Cadmus team only attributed program spillover to additional purchases significantly influenced by ***watt***smart Business program participation, but not reported through the program. Respondents indicated the influence level on a 1 to 5 point scale, where 1 indicated not important at all and 5 indicated extremely important in response to the following request: "Please rate how important your experience with the RMP program was in your decision to install this energy efficient product." If a respondent rated a measure as a 5, the team considered the spillover measure attributable to the RMP program. Twelve respondents—11 lighting strata respondents and one other strata respondent—responded with a 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 a strata by dividing the sum of additional spillover savings by total gross program savings achieved by all respondents within a strata. This produced the results shown in Table 21.

Table 21. *watt*smart Business Program Participant Spillover

Measure Strata	Spillover Measures Installed	Spillover Measure Quantity	Total Spillover Energy Savings (kWh)	Surveyed Program Measure Strata Savings (kWh)	Spillover Percentage
Lighting	LED Lighting	1,046	67,872	2,808,771	2%
Other	Rooftop Unit	3	2,316	122,847	2%

Nonparticipant Spillover

The Cadmus team used a series of questions included in the nonparticipant surveys to estimate NPSO. NPSO refers to savings generated by customers who were motivated by RMP's program's reputation, past RMP program participation, and/or RMP's program marketing to conduct energy efficiency installations for which they did not receive an incentive. The team estimated NPSO to be 2% of total 2016–2017 ***watt***smart Business Program savings and applied the 2% NPSO estimate to each measure strata's NTG. Appendix B. Nonparticipant Spillover provides detailed nonparticipant spillover analysis methods and results.

NTG Findings

As shown in Table 22, the Cadmus team calculated an 85% program-weighted NTG by weighting each measure strata's freeridership percentage by the evaluated gross population's energy savings for each measure strata, and then adding participant spillover and nonparticipant spillover.

Table 22. *watt*smart Business Program NTG Results for 2016–2017

Measure Strata	Measure Responses (n)	Freeridership Percentage	Spillover Percentage	NPSO	NTG	Evaluated Gross Program Population Savings (kWh)
Agricultural	21	23% [a]	0%	2%	79%	2,246,252
Compressed Air	4	16% [a]	0%	2%	86%	11,437,945
HVAC	12	45% [a]	0%	2%	57%	43,589,992
Lighting	144	13% [a]	2%	2%	91%	246,677,333
Motor Systems	6	12% [a]	0%	2%	90%	24,298,874
Other	12	28% [a]	2%	2%	76%	21,410,930
Recommissioning	5	13% [a]	0%	2%	89%	67,354,770
Refrigeration	3	51% [a]	0%	2%	51%	9,653,783
Overall	**207**	**18%** [b]	**1%** [b]	**2%**	**85%**	**426,669,879**

[a] Weighted by evaluated gross program savings.

[b] Weighted by evaluated gross program population savings.

Benchmarking NTG

The Cadmus team benchmarked RMP's program against similar nonresidential programs. Table 23 shows freeridership, spillover, and NTG estimates reported for prior RMP program years and for other utilities offering similar programs and measures.

Table 23. NTG Benchmarking Comparisons[a]

Utility/Region	Reported Year	Responses (n)	Freeridership %	Spillover %	NPSO	NTG
Rocky Mountain Power Utah 2016 – 2017 *watt*smart Business program	**2018**	**207**	**18%**	**1%**	**2%**	**85%**
Rocky Mountain Power Utah 2014 – 2015 ***watt***smart Business program	2016	140	24%	0%	NA	76%
Rocky Mountain Power Utah 2012–2013 Energy FinAnswer Evaluation	2015	61	9%	0%	NA	91%
Rocky Mountain Power Utah 2012–2013 FinAnswer Express Evaluation	2015	271	21%	0%	NA	79%
Northeast Utility—C&I Prescriptive	2016	77	23%	0%	NA	77%
CY2016 Focus on Energy Non-Residential Evaluation Report—Wisconsin Statewide	2017	434	28%	1%	NA	73%
2014-2015 Massachusetts C&I Natural Gas Freeridership and Spillover Study—Statewide	2015	901	18%	4%	NA	86%

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

The 2016–2017 ***watt***smart Business program freeridership estimate (18%) was lower than the 2014–2015 ***watt***smart Business program freeridership estimate (24%). The 2012–2013 Energy FinAnswer Evaluation and the 2012–2013 FinAnswer Express Evaluation produced freeridership values of 9% and 21%, respectively.[14] These RMP program evaluations were completed using the same NTG methodology used in this evaluation.

The methodology used for the Northeast Utility C&I Prescriptive and CY2016 Wisconsin Focus on Energy Nonresidential evaluations was comparable to that used for the 2016–2017 ***watt***smart Business program, though the designs differed.

[14] Between 2013 and 2015, RMP combined a number of programs under the ***watt***smart Business program umbrella, rolling the Energy FinAnswer program into the Custom Analysis delivery channel, and the FinAnswer Express program into the Typical Upgrades delivery channel within the ***watt***smart Business program.

Process Evaluation

This section outlines Cadmus team's detailed findings from the ***watt***smart Business program's process evaluation. The team based these findings on analyzed data, collected through the materials and database review, program staff interviews, and participant, partial participant, and nonparticipant surveys. In conducting the evaluation, the team focused on assessing the following:

- The effectiveness of the program's design, marketing, and processes
- Participants' and partial participants' experience and satisfaction
- Customer participation barriers

The team focused its research activities on key research topics, consistent with the 2014–2015 evaluation of the ***watt***smart Business program, and on topics of interest identified by program stakeholders. Table 24 lists the primary research questions used.

Table 24. Research Areas and Questions

Research Areas	Researchable Questions and Topics
Program Status	How did the program perform in 2016 and 2017, and what opportunities and challenges do program staff foresee for future program years?
Awareness	How did customers learn about the RMP ***watt***smart Business program incentives?
Participation/ Motivations and Barriers	What key factors influenced participants' and partial participants' decisions to participate in the program? What were the key factors in any customer's decision to install energy efficiency improvements? What were the participation barriers for participants, partial participants, and nonparticipants?
Satisfaction	How satisfied were participants and partial participants with the program and with the program measures, incentives, and services?
Freeridership and Spillover	How influential was the program on participants' and partial participants' decisions to participate? How influential was the program on any customer's decision to install energy efficiency equipment without program incentives or services?
Firmographics	What were the business characteristics of participants in each program offering? How did participant awareness and business size compare by program delivery channel?

Methodology

The following sections provide an overview of the Cadmus team's methodology for process evaluation research examining program years 2016 and 2017.

Materials and Database Review

The Cadmus team reviewed the following sources:

- The Utah Energy Efficiency and Peak Reduction Annual Reports (for January 1, 2016, to December 31, 2016; and for January 1, 2017, to December 31, 2017)
- The 2017 ***watt***smart Small Business Direct Install Program Manual
- Exhibits that RMP provided to Cadmus; these described planned program updates during the 2016–2017 evaluation period

- The ***watt***smart Business program website
- Participant and partial participant databases
- RMP's nonresidential customer database

This chapter's Program Implementation and Delivery section (below) includes these reviews within applicable subsections (e.g., Design, Implementation, Marketing and Outreach, Database Interface and Data Management).

Utility and Administrator Staff Interviews

Building on information collected during the 2014–2015 ***watt***smart Business program evaluation, the Cadmus team developed stakeholder interview guides and collected information about key topics from program management staff. The team conducted four interviews with RMP program staff and seven interviews with Cascade, Nexant, and Willdan program staff (i.e., the program administrators for the program's contracted delivery portions). The interviews covered the following topics:

- Changes in stakeholder roles and responsibilities
- Program goals and performance
- Program design and implementation changes
- Marketing and outreach
- Program delivery and management
- Data management and quality assurance
- 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 207 participants who installed measures through the ***watt***smart Business program. The surveys included 80 participants in Typical Upgrades, 62 in SBDI, 53 in Midstream, seven in Custom Analysis, and five in Energy Management. The team designed survey instruments for each participant group, collecting 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***
  - Program delivery's effectiveness, including marketing, outreach, and delivery channels
  - Customer interactions with trade allies, distributors, program staff, and program-funded, third-party technical service providers

  - Customer satisfaction regarding specific program elements and the ***watt***smart Business program overall
  - Customers' participation challenges
- ***Program influence:*** freeridership and savings spillover
- ***Customer information***: firmographic information

Participant Sample Detail

To achieve the largest sample possible in categories with the fewer participants, the Cadmus team prioritized participants by measure categories or offerings with the smallest populations. Participants installing more than one measure type were selected for the measure type that produced the largest kWh savings. This prioritization, from highest priority (smallest population) to lowest priority (largest population) produced the following sequence:

- Refrigeration
- Compressed Air
- Agricultural
- Motor Systems
- Energy Management
- HVAC
- Other
- SBDI
- Midstream
- Lighting

Nonparticipant and Partial Participant Telephone Surveys

The Cadmus team conducted telephone surveys with 68 nonparticipants and 43 partial participants. The surveys addressed the following process evaluation topics:

- ***Customer perceptions and motivations***
  - Program awareness
  - Reasons for and barriers to making energy-efficient improvements
  - The likelihood of requesting an incentive in the future
- ***Customer experience***
  - Reasons partial participants did not complete specific projects
- ***Program influence:*** savings spillover
- ***Customer information***: firmographic information and fuels used for space and water heating

Nonparticipant Sample Detail

The team removed participants, partial participants, and managed accounts from the master list of nonresidential customers provided by RMP. For the remaining population, the team randomly called nonparticipants for surveys.

Partial Participant Sample Detail

RMP, Nexant, Cascade, and Willdan provided the Cadmus team with lists of 2016 and 2017 partial participants from each of their respective program responsibility areas. The team checked this list against a list of program participants, removing any customers who, within that same timeframe, appeared on the participant list for another project; this eliminated the possibility of double-sampling these individuals. The team also removed any managed accounts identified by RMP. For partial participants who began but did not complete multiple projects during the evaluation period, the team included projects with the greatest estimated kWh savings, and randomly selected partial participants from that sampling frame for surveys.

Program Implementation and Delivery

Drawing upon program annual reports and filings, stakeholder interviews, and participant survey data, this section addresses changes in the ***watt***smart Business program's implementation and delivery during the 2016–2017 evaluation period.

Program Overview

In 2016 and 2017, RMP focused on cost-effectiveness. In 2016, RMP took the following actions:

- Implemented flexible tariffs for all prescriptive measures for a maximum not-to-exceed incentive amount and an offered incentive amount
- Changed retrofit lighting incentives (excluding re-lamp measures) to a pay-for-savings rate vs. pay per-lamp
- Reduced lighting incentives for all mainstream commercial LED technologies
- Adjusted incentives or measure caps for evaporative pre-coolers, commercial refrigerators and freezers, network PC power management, milk pre-coolers, refrigerator/freezer recycling, and residential room air conditioners/dishwashers/refrigerators/electric water heaters/heat pump water heaters used in a business
- Added Tubular LED (TLED) measures to the Midstream offering

These changes sought to provide RMP with greater flexibility to adjust incentives in response to changing market conditions, changing equipment eligibility, changing efficiency baselines, and declining equipment costs. Under a managed transition to the new incentives, customers received a 45-day notice of impending changes and had 90 days to build and finish projects.

RMP continued to modify program tariffs through 2017 to incorporate lighting control measures with lighting retrofits, expand the Instant Incentives offering, extend small incentive amounts to distributors

for participation, and change HVAC and food service measures eligible for the Typical Upgrades incentives.

Design

To benefit small business customers, RMP restructured the SBL offering as a direct-install offer for lighting retrofits and power-strips, effective September 5, 2016. Willdan Energy Services offered turnkey services to customers agreeing to install eligible measures, identified through a free energy assessment of their facility. To enhance program cost-effectiveness, the program offered SBDI to customers in a geo-targeted area during a specified window of opportunity. Participants paid the first 25% of eligible project costs, and RMP paid the remaining 75% up to $5,000. Willdan reported replacing T8 or T12 fluorescent lamps with TLED lamps and ballasts on 2-foot and 4-foot fixtures, accounting for 90% of their work. Willdan reported plans to add air-conditioning measures and rooftop controls to the program in 2018.

Additionally, in 2017, to expand savings opportunities for small and midsized commercial customers, RMP added a midstream incentive offering to customers completing HVAC check-ups of existing 7.5- to 15-ton rooftop units, utilizing the existing program participating contractors.

Implementation

In 2016 and 2017, the program experienced several changes. One program administrator noted that, in early 2016, the program was already aware that the Typical Upgrades offering would likely overperform its savings goals and budgets; consequently, RMP reduced incentives and gave trade allies and customers a limited time to act on existing incentives. This, as described by the administrator, created some negative feelings among customers and trade allies at the time, but it did not appear to impact program performance during the following year (2017). In August 2017, RMP removed screw-in lamps from the Typical Upgrades offering, allowing them only in the Instant Incentives offering available through distributors. This time, however, the administrator reported that trade allies adapted to the change, despite their initial anger.

In March 2017, RMP launched the ***watt***smart Business Vendor Network, replacing the Energy Efficiency Alliance and requiring trade allies to reregister as program vendors and enforcing stricter requirements (i.e., increased minimum participation requirements, industry training, and proof of insurance). In fall 2017, RMP added premium vendor status, providing lighting vendors with an opportunity to gain exclusive recognition by meeting specific criteria (e.g., participation as an approved vendor for a minimum of one year, completion of five or more Typical Upgrades lighting projects, or employing at least one full-time staff member with program-specified enhanced lighting certification or credentials.

The Network provided customers with a trained pool of local trade allies (i.e., contractors and distributors) to assist in identifying and implementing energy efficiency projects. ***watt***smart Business Vendor Network members promoted the program to their customers, assisted customers with their projects, provided recommended upgrades, created proposals and bids, assisted with paperwork, and supplied and/or installed the upgrades.

Cascade and Nexant recruited and managed trade allies, each in their respective markets. For Cascade, these were trade allies that delivered industrial and agricultural measures. For Nexant, these were trade

allies delivering commercial measures eligible for prescriptive or custom incentives to small and midsized commercial customers (i.e., non-managed accounts).

Administrator staff noted that the reregistration process caused some confusion and elicited negative responses from trade allies already approved by the program. Though some trade allies and projects were lost in the transition, staff worked to reregister trade allies. They reported that some trade allies came back to the program to discover a reliable and engaged group, especially for lighting. Trade allies that did not reregister to receive the ***watt***smart Business vendor designation could submit projects to the program, but they were not listed as ***watt***smart Business vendors on the customer-facing Find a Vendor search on the program's website.

As Cascade's trade allies delivered prescriptive and custom non-lighting measures and to insure quality control, Cascade prepared all savings and incentive calculations for its trade allies, and did not require its trade allies to register with the program. Cascade also assisted industrial and agricultural customers in completing applications for some non-lighting Typical Upgrades measures (e.g., variable speed air compressors, fast-acting doors), requiring savings calculations to determine incentives. Cascade explained, however, that its process was designed to provide such assistance, and applications for typical measures not requiring these calculations (i.e., those using deemed savings) were processed easily.

Marketing and Outreach

RMP, Nexant, Cascade, and Willdan shared marketing responsibilities as well as outreach to customers during the 2016–2017 evaluation period. In addition to TV, radio, print, paid digital display, and search advertising, direct mail, email, and social media deployed by RMP, the company's project managers provided direct outreach to managed accounts. Trade ally partners, managed by program administrators, became responsible for direct boots-on-the-ground marketing to small and midsized customers as well as to large customers, other than those managed directly by RMP account managers.

Nexant (in conjunction with its subcontractor) provided marketing communications and materials to trade allies registered with the program and coordinated messaging with RMP communication staff. Nexant also hosted annual events for lighting and non-lighting program trade allies.

Somewhat different than Nexant's broad marketing to many trade allies, Cascade conducted direct business-to-business and face-to-face outreach to industrial and agricultural trade allies, and often identified new trade allies through networking with the area's U.S. Department of Agriculture office, agricultural expositions, networking with customers, or Google searches. Cascade also found it effective to develop one-on-one relationships with trade allies through repeated personal visits, phone calls, and—at times—joint-visits that trade allies made to customers (rather than organizing formal training sessions for each group).

Cascade also conducted outreach directly to customers, locating project leads for trade allies or offering scoping services to identify savings opportunities for customers. This included direct mail to all agricultural and irrigation customers, sending a one-page application form to inform them about the program and its opportunities.

Similarly, when a trade ally identified a potential customer for the ***watt***smart Business incentives, Cascade provided engineering support to assist the trade ally in reaching out to the customer, preparing the necessary calculations to show the customer's potential savings, and advising the trade ally on how to achieve higher savings from a project.

Willdan, in conducting its marketing and outreach for the SBDI offering, designed collateral and website content, which RMP reviewed and approved prior to Willdan's use in the field. Willdan engaged with RMP's regional business managers to gain introductions to civic leaders and to inform them when they would become active in their communities. To identify projects, Willdan also conducted direct business-to-business outreach.

Marketing Strategy

RMP marketing staff described the program's 2017 marketing strategy as reflecting a strong, contracted, DSM-delivery channel focus, using a network of trade allies, contractors, and vendors, and broadening the program's reach through program and non-program contractors with whom customers could have existing relationships.

RMP also outlined key strategies in its 2017 DSM annual report,[15] including the following:

- Educating customers about how the program could help them save money, reduce energy consumption, and benefit Utah
- Promoting behavioral changes that support conservation and motivate customers to reduce their consumption (whether through the program or independently)
- Showing how other customers benefitted through the program

Cadmus found the documents provided by RMP did not describe documentation of a set marketing strategy; comparing that to produced creative and the media flowchart would prove useful. However, brand guidelines were followed, and the media calendar articulated a mix of multiple touchpoints. The multiple touchpoints approach mixed well, producing easy-to-digest, impactful data, communicated through the brand's voice and through customer testimonials.

Marketing Messaging

Program Website Evaluation

On multiple occasions, the Cadmus team referenced information provided on the program's website. The team considered the site's individual program navigation clear and direct. Information provided within each measure category was useful in achieving a high-level understanding of the steps necessary to initiate a project, while supporting brochures, case studies, detailed incentive lists, policy papers, and

[15] Rocky Mountain Power. *Utah Energy Efficiency and peak Reduction Annual Report, January 1, 2017-December 31, 2017*. Available online: http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2017/Energy_Efficiency_and_Peak_Reduction_Report_2017.pdf

other documents explained program requirements. In reviewing the ***watt***smart Service & Incentives for Utah page, Cadmus noted the following:

- For new business decision-makers reading this page, the "Find a Vendor" button title might be too vague to explain why customers needed a vendor; supporting copy similar to that found on subpages ("Find a Vendor to help with your energy efficiency project") might be helpful.
- For subpages, primary navigation options in the center of the page did not mirror the navigation options on the left (and vice versa)

*Watt*smart Advertising and Outreach

Following interviews with RMP and the program administrators' staff, Cadmus' reviewed the *Rocky Mountain Power Utah Master 2017 Media Flowchart* and the *CCCom Update (January to December 2017)*, along with campaign materials linked in the flowchart. Specific findings, identified through these reviews, follow.

Key Messages

Through conversations and emails with RMP program marketing staff, Cadmus learned that RMP approached program marketing by focusing on customer case studies for use in TV, radio, and print campaigns.

Media Flowchart

- The flowchart addressed media but did not include timing for emails, bill inserts, or organic social media content—all items that complement media
- Almost no outreach efforts occurred from January through March, aside from newspaper ads and two emails
- Marketing campaigns for April through June and for September through November did not show accompanying or supporting emails
- It appeared that the commercial audience was treated as home owners and consumers, based on some platforms leveraged—a smart tactic

Marketing Materials

Overall, collateral pieces, radio spots, videos, and digital assets reflected a cohesive, consistent look that solidly appeared to belong to the same brand family. Collateral materials, however, did not include a direct call to action. Communications materials and the Overview were copy-heavy, incorporating few (if any) graphs, charts, images, or videos.

Brochures

- Brochures showed a good use of customer testimonials to open the content
- Program-specific information pages in the brochure's second half appeared to use fonts that differed from fonts used earlier in the brochure
- For a brochure, the content and program detail covered was lengthy

Program Overview

- Clearly communicated a call to action

LED Instant Incentives Flyer

- The flyer demonstrated a good use of charts, and clearly displayed header graphics

Print

- While the "Thank You" print media conveyed a positive gesture, the ad copy recognizing partners was too small to read, which could have the opposite effect in creating a negative response from partners

eBlasts

- Good use of header graphics with clear headlines
- Most ended with a clear call to action and links to learn more/take action

Arena Rising Out-of-Home

- Emphasis on each piece of creative seemed to highlight a secondary message
- Signage provided multiple ways to engage with a program (e.g., social, multiple URLs), which could cause the reader to gloss over it completely

Arena Rising Radio Spots

- Copy was clear and concise
- Related data/stats to easy-to-understand equivalency symbols (e.g., cars off the road)
- Spot finished with a clear call to action, spelled out for additional clarity

Arena Rising Video (October)

- The documentary style and testimonial showed authenticity
- The video used a good mix of art cards to reinforce specific details
- This ended well, with a URL to learn more

MAVERIK Case Study Materials/Campaign

- Well-displayed on the website and on radio, collateral, and other outlets
- Print employed the data well to drive interest, while including a call-to-action to encourage engagement
- Radio did a good job in using sound effects, a testimonial, and highlights of program benefits to inspire interest while ending with a way to learn more
- TV spot:
  - Mirrored the radio spot, using the same music for good brand consistency
  - Good use of supers to reinforce key messages in the voiceover
  - Good mix or testimonial and images projects (e.g., solar panels)
  - Final art card showed how to take action

- Digital/Social Ads:
  - YouTube, Facebook, and Static Digital ads did a solid job of distilling the important points from the longer-format marketing pieces, making then digestible in a quick scan
  - The Mobile Ad had to incorporate a savings message to inspire further action by consumers

HOUWELING's TOMATOES case study materials/campaign

- Well displayed on the website and through radio, collateral, and other forms; the website used video well
- Print/magazine creative merchandised the data to drive interest while including a call-to-action to encourage engagement
- Radio did a very solid job using sound effects, a testimonial, and highlighting benefits and actual "what was done" through the program/project to inspire interest while ending with a way to learn more
- TV spot:
  - Good use of supers to reinforce key messages in the voiceover
  - Good mix or testimonial and images of the project (e.g., solar panels)
  - Final art card showed how to take action
- Digital/Social Ads:
  - Facebook ad featured for review was general and needed a strong data point to incent consumer action
  - Animated Banner Storyboard seemed on brand and effectively communicated hard data and a call to action that should have prompted click-through

HVAC Check-Up and Instant Incentives (Midstream)

- Materials were on brand via colors, but the imagery was dated, and fonts seemed off compared to previously reviewed collateral
- Good callout of URLs and toll-free numbers so the customer could take action

HVAC Checkup (Wasatch Front)

- Mobile and Desktop emails effectively stayed on brand, supplying information at a level appropriate for the medium, leading with the RMP logo, and providing a clear call to action that included secondary links to learn more

Small Business Direct Program

- Video:
  - Used still images that seemed to interrupt the flow of preceding video shots
  - Shots were well done (i.e., well executed, planned, with smooth pans, supers, and art cards used well and timed to re-enforce voiceover
- Window sticker did not include a URL (which it easily could)

- The customer solutions brochure was on brand, pithy, with text to encourage quick scan reading, and used imagery well to re-enforce the programs discussed

HBC Webinar Invitation

- The invitation did not include a clear headline
- Contact info and a call to action of "register now" were somewhat confusing regarding the action being asked

Utah SBDI Print, Facebook and Radio Ads (Tooele and Vernal)

- Even though in black and white, the ads stayed on brand, and gave clear, geo-specific data that impressed while finishing with a clear call to action
  - Very good use of local photography to geo-target each community
- Facebook ads echoed the same message as the print ads, using local data to personalize the ad for the community that it targeted

Oil and Gas

- The handout was a little text heavy, but this may have resulted from consolidating the material to just two pages; it included a good call-to-action at the end of each page
- The horizontal banner ad lacked a clear call to action, but appeared to be on brand from a look and feel perspective

Wattsmart Communities Brochure and Program Guide

- The reverse blue copy on white backgrounds and colorful infographics felt like a brand departure
- Imagery with faded backgrounds felt like a brand departure
- Each page lacked a clear call to action

Database Interface and Data Management

During the 2014–2015 program evaluation, RMP consolidated its nonresidential DSM programs under the ***watt***smart Business program umbrella and transitioned data management to its new Demand Side Management Central software (DSMC). During the evaluation period, Nexant began using the DSMC to enter data directly into its system, then uploaded projects to RMP. As noted by Nexant's subcontractor, however, streamlining this process created some issues with different versions of DSMC forms and with accessing project data in each system, which might use different application form numbers.

Data transfer differed between companies:

- Nexant's subcontractor uploaded project data to Nexant, which uploaded the data to RMP. Nexant and its subcontractor are exploring ways to streamline this process to avoid entering data twice.
- Cascade did not report issues in uploading project data into DSMC once per week.

One administrator staff said, overall, the program operated efficiently with one exception: program staff would benefit from better understanding the process by which measures were designed and entered into the program databases: "The measures as designed have so much information in them, it can be difficult to deal with them, and many measures have different versions and different effective dates, [making it] difficult to manage because of the complexity." The staff member continued: "Errors get caught because of the level of detail, and this reduces risk, but at a really big cost, higher than it needs to be."

Data Quality Assurance

RMP evaluates data quality assurance on an ongoing basis. In interview, RMP data management staff said errors—identified in projects uploaded from program administrators—decreased overall since 2014–2015. A brief uptick, observed early in 2018, was attributed to transitions in staff managing data input at one administrator. RMP said this uptick declined.

Willdan reported reconciling project files monthly without issues, unless going back to adjust project inputs (which typically only happened to one to two projects per year).

Program Database Evaluation

The Cadmus team found some issues in the different program databases provided by RMP and the administrators, making program evaluation somewhat challenging:

- The databases contained esoteric addresses for agricultural customers, a possibly unavoidable situation due to the nature of rural locations (e.g., farm fields, barns) where equipment has been installed:
  - Addresses included information that was not part of the actual address (e.g., #pumps, #Gym, #market)
- Descriptions of partial participant project dispositions varied between RMP and each administrator, meaning project designations included in the survey sample could vary by year, depending on the evaluator's interpretation
- Installed measures were not listed for SBDI projects
- Projects carrying a custom designation appeared in the Measure Type column. Measures containing the word "custom" in their name appeared in the columns Measure Subtype, Measure Name, and Measure Custom Name, but these designations did not match across columns or with those in the Measure Type column.

Program Challenges and Successes

RMP program management staff and program administrators reported that, for the most part, they received the resources needed to deliver the program in 2016 and 2017. Staff from RMP and the administrators cited the following program strengths:

- Good vendor involvement in the Industrial and Agricultural sectors
- Experienced program administrators and subcontractors

Annual improvements to the Program Guidelines for RMP contractors, including information about incentives and documentation of project payback requirements, engineering and inspection requirements, and customer eligibility

- Increasing customer participation due to the SBDI offering, particularly in rural communities

Still, program management and implementation staff noted the following challenges that they anticipate will affect the program going forward. Several of these challenges (e.g., staying ahead of changes in technology, the need for larger and larger projects to hit savings targets) were also voiced during the 2014–2015 program evaluation:

- When working with large managed account customers, the consulting engineers funded by RMP at times asked vendors to provide quotes for "more efficient" and "less efficient" systems, used to determine the incremental cost of a customer's proposed project. As these "more" and "less" efficient systems would not be built, the vendor providing the quotes received nothing for the substantial work required, making these vendors reluctant to bring projects forward due to costs involved in providing information to RMP.
- Keeping up with accelerating technology curves for lighting and lighting controls, and adapting incentives as quickly as the market changes.
- Resource constraints, including a shortage of licensed electricians and laborers; according to the administrator staff, Salt Lake county's unemployment rate was less than 2%, and difficulties have been experienced in recruiting trade allies from existing RMP programs to work in SBDI due to its remuneration structure, which pays trade allies for kWh saved rather than more typical structures, where trade allies earn on their labor and on a markup for equipment installed.
- Preapprovals that the program requires for typical incentives add time to projects. Distributors no longer stock quantities of all products, requiring customers or trade allies to order products, which can add six to eight weeks to a project after preapproval. In turn, this extends the time between a customer starting a project and their receiving a check.

Customer Response

The Cadmus team conducted telephone process surveys with 207 ***watt***smart Business program participants—87 receiving Typical Upgrades or Custom Analysis incentives, 62 receiving incentives through the SBDI offer, 53 receiving Instant Incentives through the Midstream offer, and five receiving Energy Management incentives. Though small sample populations for Energy Management incentives resulted in insufficient response rates to draw conclusions, the team reported those responses in this section and reported on survey responses from 43 partial participants and 68 nonparticipants.

*Watt*smart Business Typical Upgrades and Custom Analysis

Eighty-seven survey respondents receiving Typical Upgrades (80) or Custom Analysis incentives (seven), completed projects in seven measure categories:

1. Lighting (29)

2. Agricultural (21)
3. HVAC (12)
4. Motor Systems (6)
5. Compressed Air (4)
6. Refrigeration (3)
7. Other (12)

Among Typical Upgrades and Custom Analysis respondents, Dairy/Agricultural was the most common business sector, representing 24% (n=87). As shown in Figure 12, Manufacturing (16%) and Real Estate/Property Management (11%) were the next two largest sectors among respondents. The remainder of respondents were scattered across a variety of sectors, with no more than 7% in any one.[16] Of participants, 51% operated in a single Utah location, and another 31% operated in two to five locations (n=84). The remaining 18% operated between six and 70 locations, with no group comprising more than 2% of the total. Most respondents, 76% (n=85), owned their facilities, 18% leased them, and 6% owned and leased their facilities. Business sizes varied across a wide spectrum, with 41% of respondents having 10 or fewer employees, and 23% having 101 to 500 employees. Of the remaining businesses, 30% employed 11 to 50 staff, and 6% employed 51 to 100.

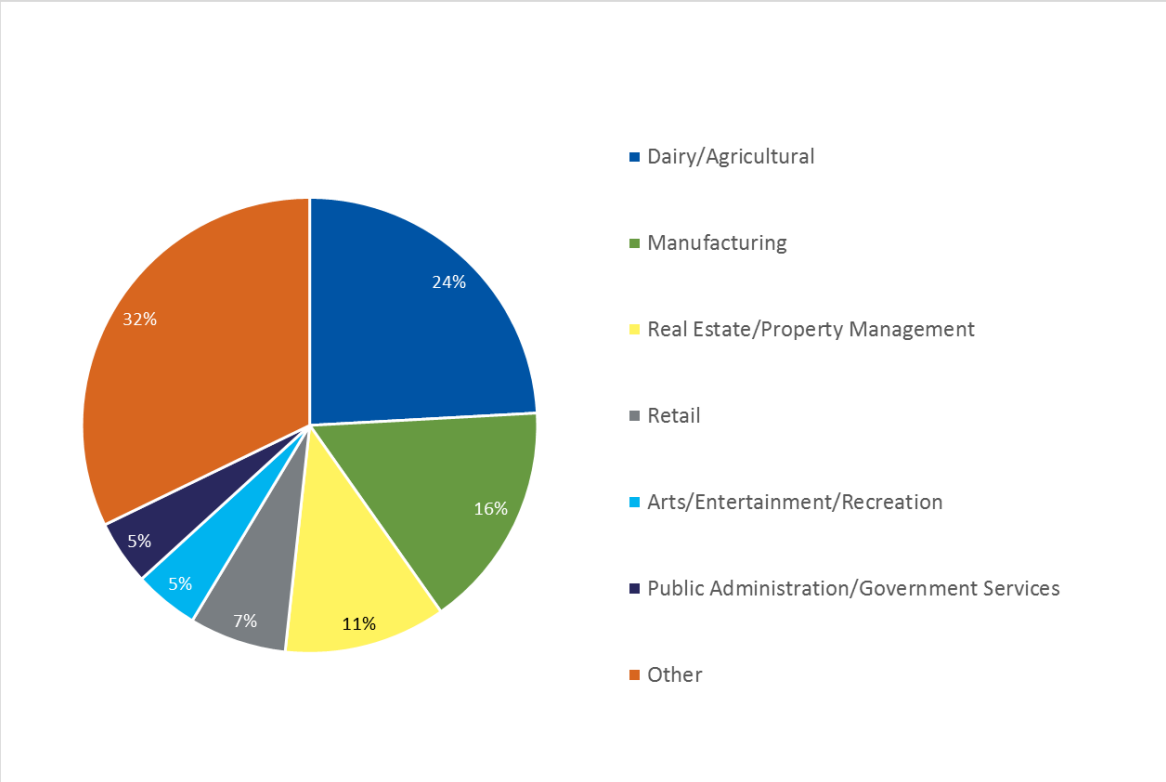
Among the seven custom project respondents, five employed more than 100 people, operating in the following sectors:

- Oil and Gas (2)
- Manufacturing (2)
- Water utility (1)

Two other custom participants were somewhat smaller, with one company in the Real Estate/Property Management sector employing 76 to 100 staff, and one Warehouse/Wholesaler employing 11 to 25 staff. All custom project respondents owned their facilities.

[16] The Other sectors category consisted of respondents in accommodation, construction, education services, food processing, food service, non-profit/religious, oil and gas, professional/scientific services, transportation, warehouses/wholesalers, ecommerce, after-market parts, and business-to-business sales.

Figure 12. Typical Upgrades and Custom Analysis Participant Respondents by Business Sector



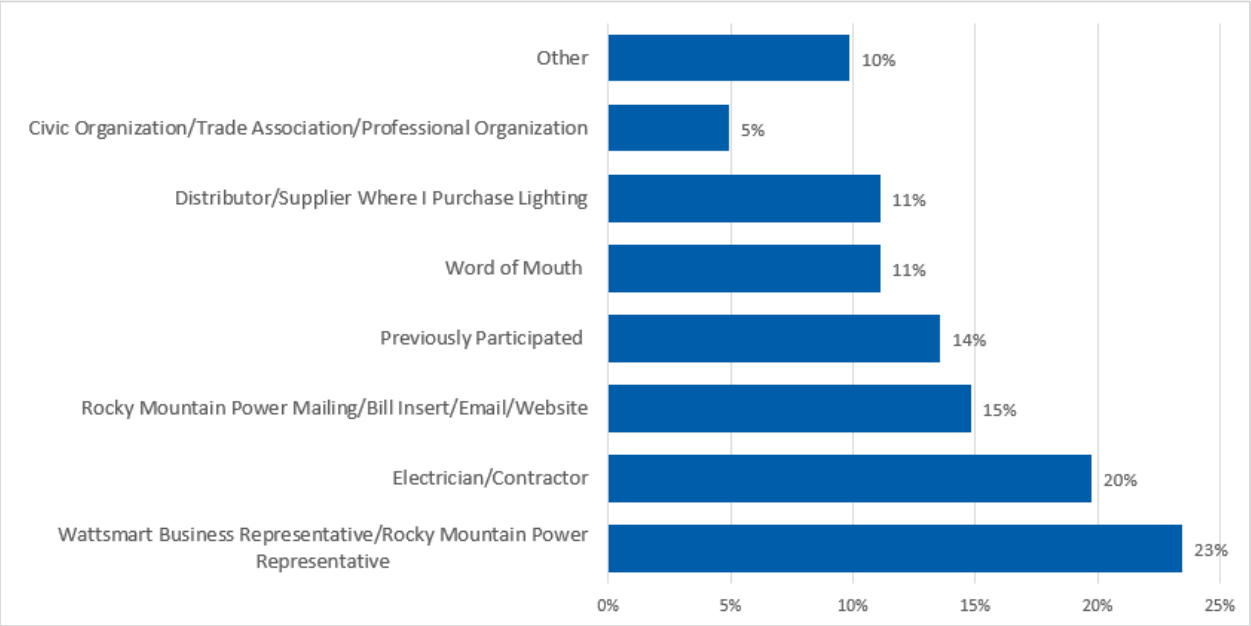
Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Participant Survey QF1. (n=87)

Awareness and Communication

Participants receiving ***watt***smart Business Typical Upgrade or Custom Analysis incentives most frequently learned about available incentives through a ***watt***smart Business or RMP Representative (23%, n=81), or from their electricians or contractors (20%).[17] Figure 13 shows other sources mentioned by participants, including RMP marketing channels, previous participation, word-of-mouth, equipment distributors, civic or trade organizations, and Other sources (***watt***smart printed program materials, ***watts***mart workshop or community event, ads, radio, a class, corporate resourcing, and research).

[17] The "n" represents the number of respondents providing a relevant response to the question. Percentages may sum to more than 100% as some respondents provided multiple responses. The analysis does not include respondents indicating "don't know" or "refused."

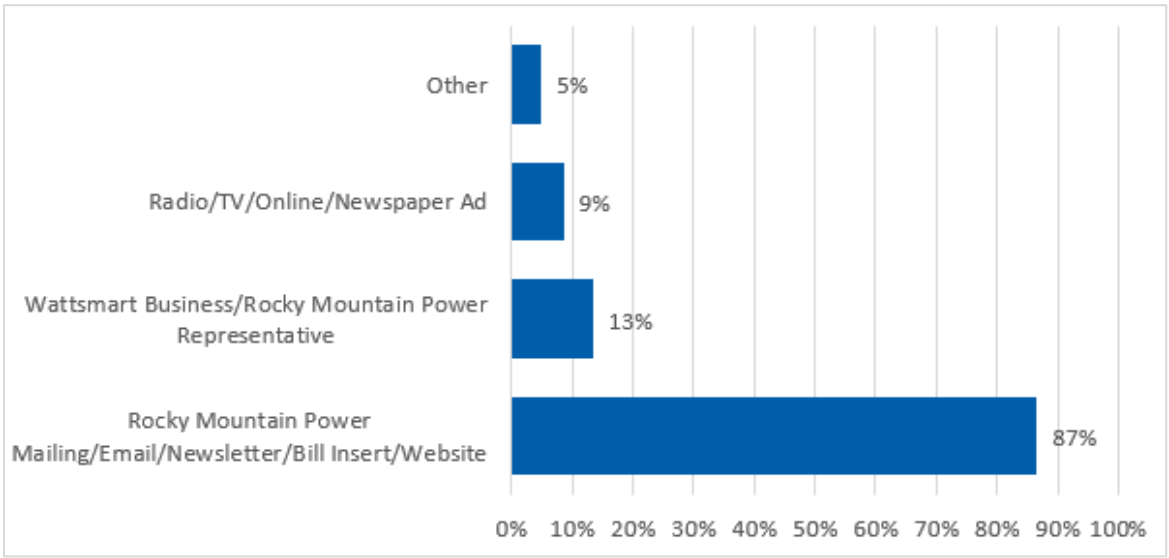
Figure 13. Typical Upgrades and Custom Analysis Participants' Information Sources



Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Participant Survey QB3. Don't know and refused responses removed. Multiple responses allowed. (n=81)

Although 15% of participants said they learned about the program incentives through RMP marketing materials, 87% of participants (n=82) preferred to stay informed through RMP's mailings, website, newsletter, or email. As shown in Figure 14, 13% of participants indicated they wanted to stay informed of RMP programs or incentives through a ***watt***smart Business or RMP Representative, and 9% preferred to stay informed through media (e.g., radio, newspaper, Internet, or TV).

Figure 14. Typical Upgrades and Custom Analysis Participants' Preferred Method of Communication to Stay Informed



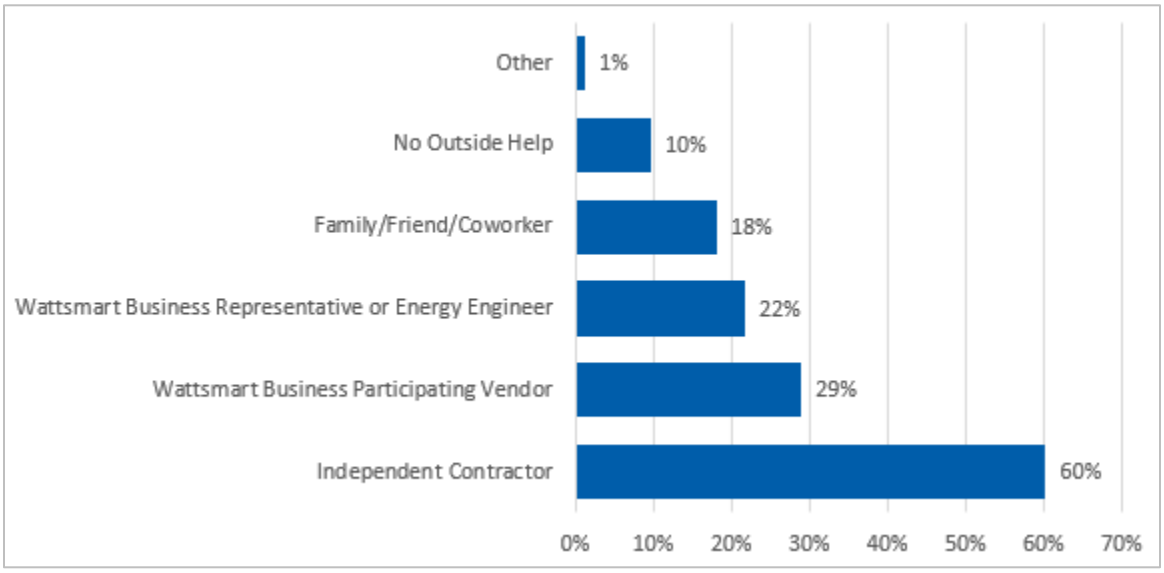
Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Participant Survey QG3. Don't know and refused responses removed. Multiple responses allowed. (n=82)

Project Initiation and Installation

In initiating their projects, most participants (60%, n=83) cited independent contractors as sources of project assistance. As shown in Figure 15, ***watt***smart participating vendors (29%), RMP ***watt***smart business representatives or energy engineers (22%), and friends, family, or coworkers (18%) frequently helped participants with their projects. Ten percent received no outside help, and 1% relied on classes to help initiate their projects.

Ninety percent of participants found it very easy (44%, n=78) or somewhat easy (46%) to complete their project applications. Of 16 respondents offering suggestions for improvement, nine recommended simplifying the application or using less technical language, and four suggested that the application require less information. Three recommended that the program provide someone to complete the application on behalf of the participants or to assist participants with completing their applications.

Figure 15. Typical Upgrades and Custom Analysis Participants' Assistance Sources



Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Participant Survey QC1. Don't know and refused responses removed. Multiple responses allowed. (n=83)

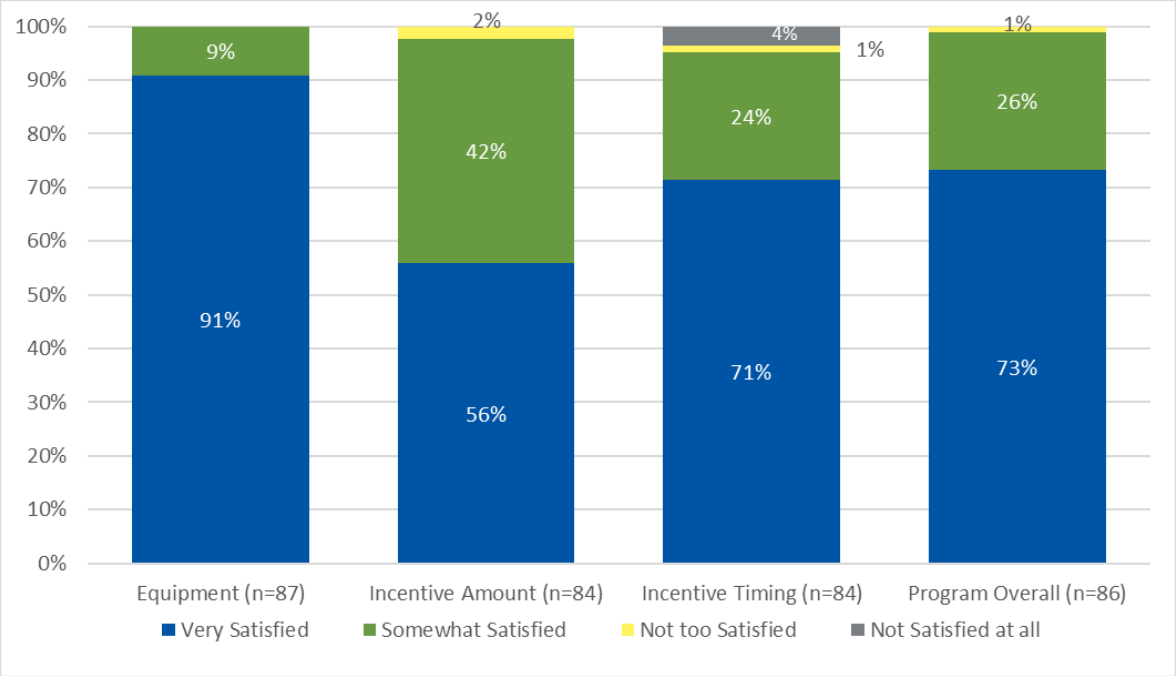
Satisfaction

Figure 16 shows respondent satisfaction levels with several program components and with the program overall. Respondents were most satisfied with equipment they purchased and installed, with 91% reporting they were very satisfied and 9% reporting they were somewhat satisfied (n=87). Although a small percentage of all respondents, of eight participants reporting they were somewhat satisfied, five installed lighting retrofits, one installed new outdoor area or roadway lighting, one installed evaporative cooling, and one installed a cool roof. Lighting participants voiced issues, including questions about the brand of LEDs used, the inability to dim lighting that proved too bright, and, in one case, an increase in the energy bill after lighting was installed. One HVAC participant described the evaporative cooling

measure as high-maintenance, with leaking and clogged pumps, and having to "constantly" replace pads.

Participants were somewhat less satisfied with the time required to receive their incentive, with 5% reporting they were not too satisfied or not at all satisfied. These participants suggested they should receive incentives within a few weeks to a month. Participants reported the lowest satisfaction levels with the incentive amounts, with 56% reporting they were very satisfied, 42% somewhat satisfied, and 2% reporting not too satisfied. When asked about incentive amounts, participants—as typically happens—suggested a wide array of amounts, up to 100% of their cost. The comments' overall tone, however, reflected a desire to cover a higher percentage of their costs, and an amount equal to that quoted in estimates from the program. One participant installing an ECM noted receiving less than in the past.

Figure 16. Typical Upgrades and Custom Analysis Participants' Satisfaction Levels

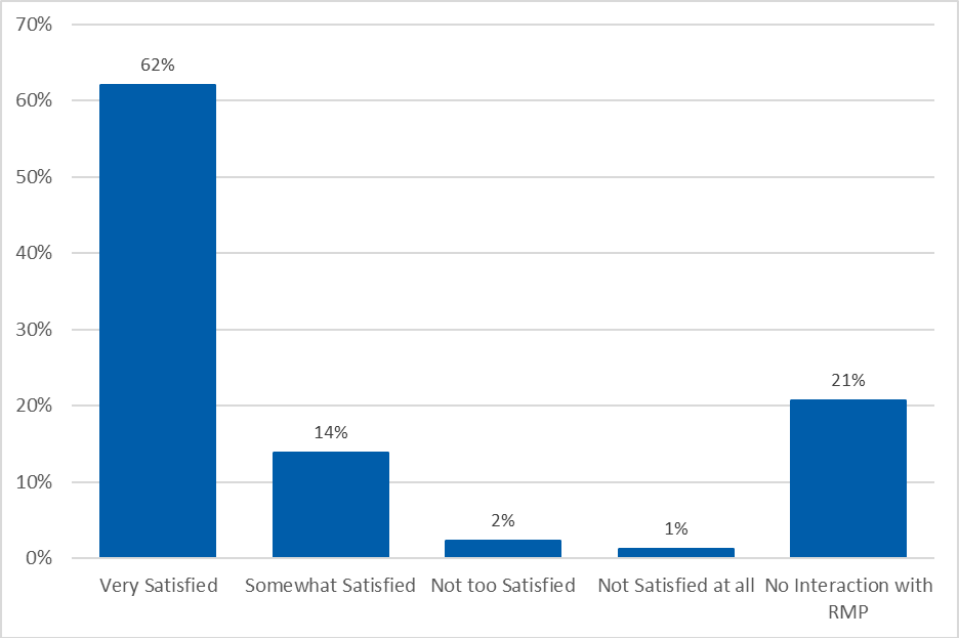


Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Participant Survey QC4, QC6, QC12, and QG1. Don't know and refused responses removed.

Seven Typical Upgrades or Custom Analysis participants reported using a participating ***watt***smart vendor to install their project, and all indicated they were very satisfied with their vendor's work.

Sixty-nine participants, reported some interaction with RMP during their project. Of these, 62% were very satisfied with their interactions, and 14% were somewhat satisfied (n=87). As shown in Figure 17, 2% (two respondents) were not too satisfied, and 1% (one respondent) was not satisfied at all. Of the two respondents who were not too satisfied, one expressed dissatisfaction that the program called him so late, and the other explained that the program "dropped the ball" with the project application and only sent the incentive because he kept the reference number. The one respondent who was not satisfied at all with the program explained that he had to track people down to get anything done.

Figure 17. Participant Satisfaction with Interaction with RMP



Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017
wattsmart Business Participant Survey QC21. Don't know and refused responses removed. (n=87)

Overall, 99% percent of participants were satisfied or somewhat satisfied with the ***watt***smart Business program (n=86). The one participant who reported being not too satisfied installed an outdoor area or roadway fixture, and did not offer suggestions to improve their program experience, but did describe difficulties in understanding the program and finding a program representative to help them, and used the customer service center or spoke to a different person each time.

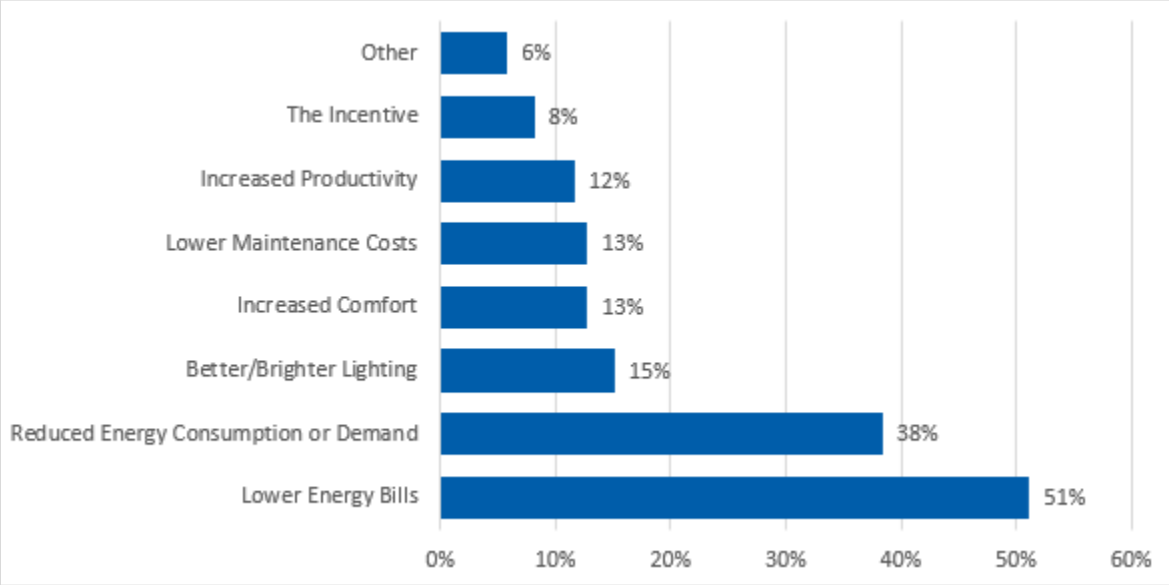
When asked how RMP could improve the program, 79% (n=84) of respondents indicated they had no suggestions, but 8% suggested better communication or more information. For example, one customer asked to be told how long it would take to process the application; another asked for more information about products to be installed. Another 6% suggested providing quicker response times, and 5% recommend increasing the incentive amount. Other suggestions included stop surveying customers (three respondents) and simplifying the process (one respondent). (The responses summed to more than 100% because the question allowed multiple responses.)

Seven participants reported wanting to install additional equipment that did not quality for incentives through the program. This included appliances (one respondent), canopy lights and other exterior lighting (three respondents), a compression cooler and refrigerator to regulate the cooler (one), an end of system transfuser (one), and metal halide wall pack lights (one). Participants did not specify the exact measure they wanted to install, but some lighting may have been available through the program.

Benefits and Challenges

Almost all respondents (99% n=86) reported that their company experienced one or more benefits due to the energy-efficient equipment installed. As shown in Figure 18, respondents most commonly reported the benefits from lower energy bills (51%) and reduced energy consumption or demand (38%).

Figure 18. Benefits of Equipment Installed by Participants in Typical Upgrades and Custom Analysis



Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Participant Survey QC18. Don't know and refused responses removed. Multiple responses allowed. (n=86)

Most respondents (78%, n=82) did not report challenges in program participation. Some respondents, however, reported challenges related to the following:

- Time required to complete the project (five)
- Receiving the incentive or invoice (three)
- Completing the paperwork (three)
- Knowing what qualifies (three)

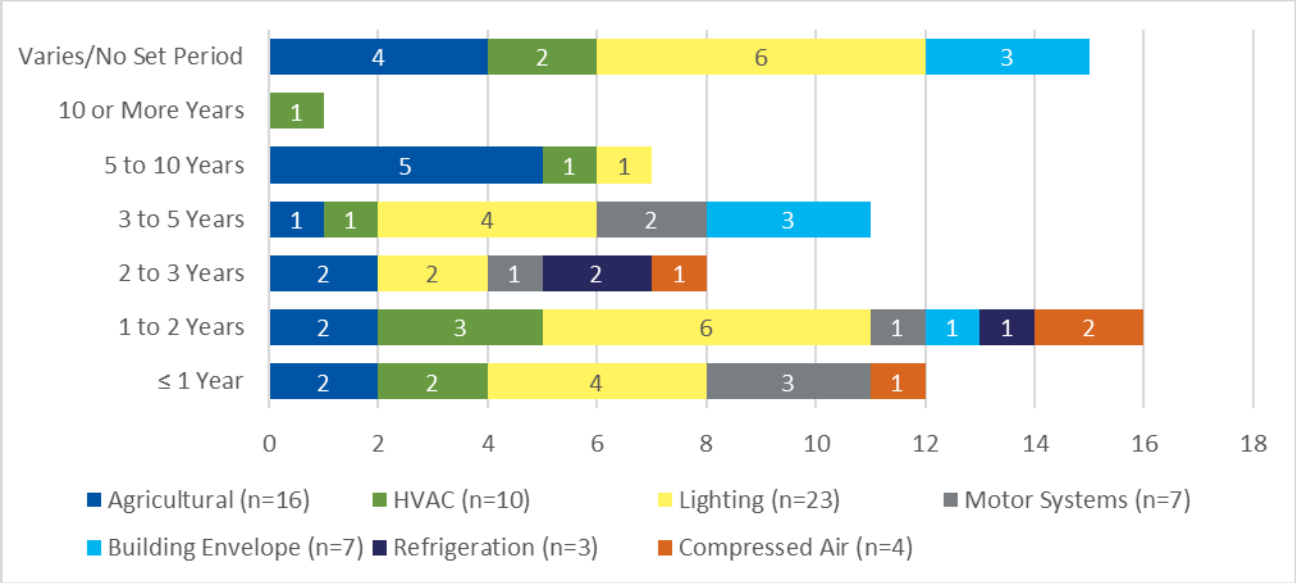
Other responses indicated challenges with weather (one), equipment broken by the contractor (one), decreased incentive amounts (one), and not having the correct power hookups (one). Participants reported these challenges across the measure spectrum, with seven installing lighting, one installing water distribution equipment, four installing VFDs on irrigation pumps, three installing cooling, and one installing insulation.

The Cadmus team found no correlation between issues voiced and specific measure categories. Fifteen respondents participated through the contracted DSM delivery channel, and three participated through a RMP representative (i.e., internal delivery channel).

The project payback period presented a potential challenge for customers. When asked what payback period they typically sought, participants reported times ranging from less than one year to 12 years,

with the majority (51%, n=70) reporting a period of three years or less; another 16% reported a period of three to five years. Figure 19 breaks out typical payback periods by measure category. The desired payback varied across measure types. All participants installing motor systems, refrigeration, or compressed air reported a desired project payback of less than five years. Only participants installing agricultural, HVAC, or lighting equipment indicated that they expected a payback that could exceed five years (11%).

Figure 19. Typical Upgrades and Custom Analysis Participants' Project Payback Period Expectations



Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Participant Survey QC8. Don't know and refused responses removed. (n=70).

Of 70 respondents reporting their expected project paybacks, seven received Custom Analysis incentives. This group expected the following paybacks, by industry:

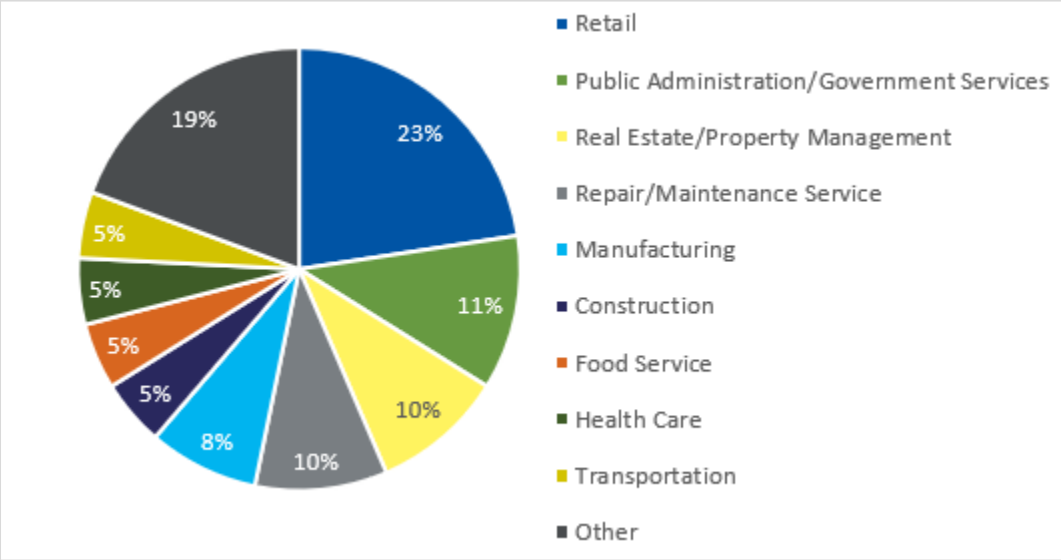
- Oil and Gas (Motor Systems): two months (one) and one year (one)
- Manufacturing (one in Refrigeration): one to two years; (one in Compressed Air): three years
- Warehouse/Wholesaler (Motor Systems): two weeks (one)
- Real Estate/Property Management (HVAC): one to two years (one)
- Water Utility (Motor Systems): five years (one)

Small Business Direct Install

As shown in Figure 20, the Cadmus team completed surveys with 62 SBDI participants, representing a wide variety of business sectors. The Retail sector represented the largest category of respondents at just 23%, and no other sector made up more than 11% of respondents. Seventy-one percent of SBDI respondents owned their facilities (n=62), and 73% operated just one facility (n=62) or two facilities (15%) in Utah. As designed for this offering, SBDI respondents primarily came from small businesses, with 90% of respondents reporting that their companies employed less than 50 people at all locations

(n=62): 60% employed 1 to 10 employees, 26% employed 11 to 25 employees, and 5% employed 26 to 50 employees. Just 6% employed more than 100 employees.

Figure 20. SBDI Participant Respondents by Business Sector

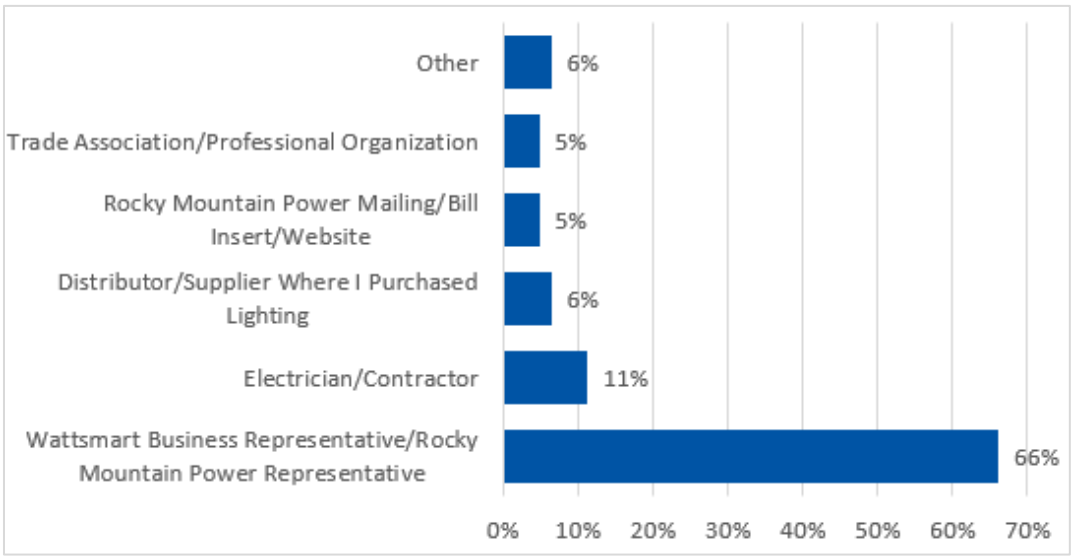


Source: RMP ***watt***smart Business Program 2016–2017 SBL/SBDI Participant Survey QF1. (n=62).

Awareness and Communication

As shown in Figure 21, SBDI participants most often learned about the program through a ***watt***smart Business representative or a RMP representative (66%, n=62). Respondents mentioned several other channels, also shown in the figure, none of which accounted for more than 11% of respondents.

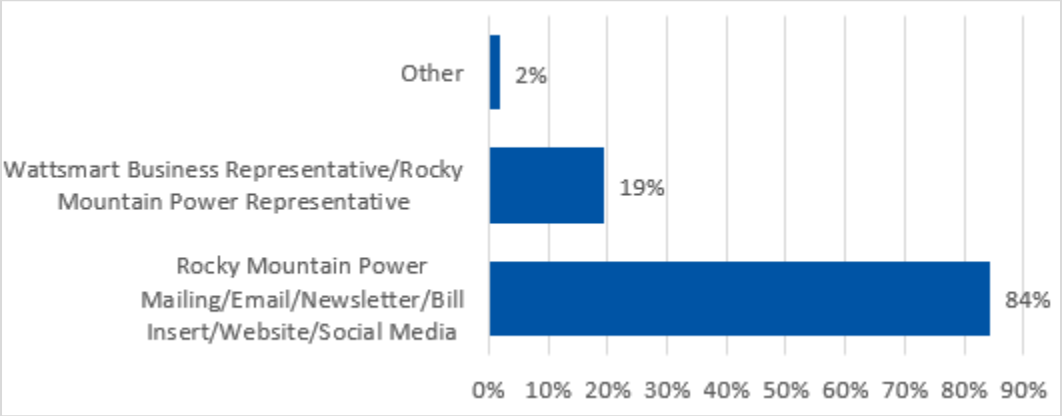
Figure 21. Sources of Program Awareness Among SBDI Participants



Source: RMP ***watt***smart Business Program 2016–2017 SBL/SBDI Participant Survey QB3. (n=62)

As shown in Figure 22, however, when asked how they preferred to stay informed about future ***watt***smart Business opportunities, 19% (n=57) preferred staying informed through a ***watt***smart Business representative or a RMP representative, and 2% preferred staying informed through a contact with a vendor or contractor. Although 5% of respondents learned about the program through a RMP mailing, bill insert, or website, 84% indicated that they preferred staying informed about future ***watt***smart Business opportunities through a RMP mailing, bill insert, social media, or website.

Figure 22. Preferred Information Sources for SBDI Participants

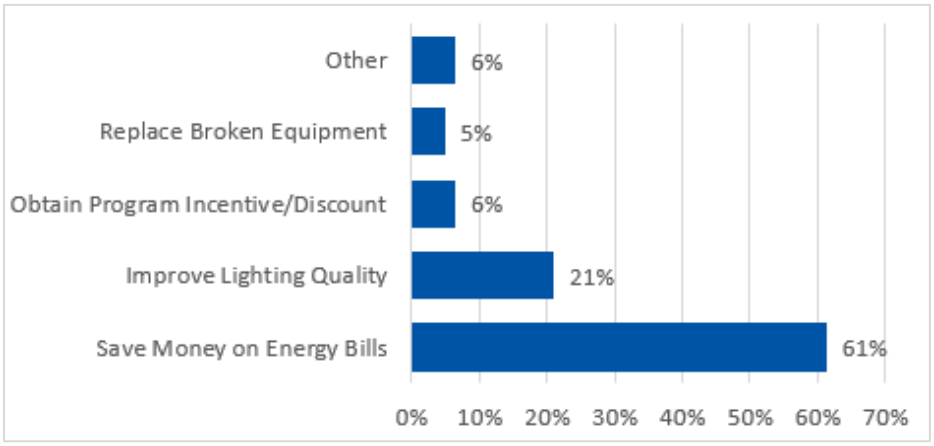


Source: RMP ***watt***smart Business Program 2016–2017 SBL/SBDI Participant Survey QG3. Don't know and refused responses removed. (n=57).

Motivation and Participation

When asked what motivated them to participate in the SBDI offer, most participants (61%, n=62) cited saving money on energy bills, and another 21% cited improving lighting quality. As shown in Figure 23, respondents less frequently cited other motivations, including obtaining the program incentive (6%) and replacing old equipment (5%). Of information included in the project proposal, a majority of SBDI participants (83%, n=54) indicated that cost-savings information proved most influential in their decisions to proceed with their projects.

Figure 23. SBDI Participants' Motivation to Participate



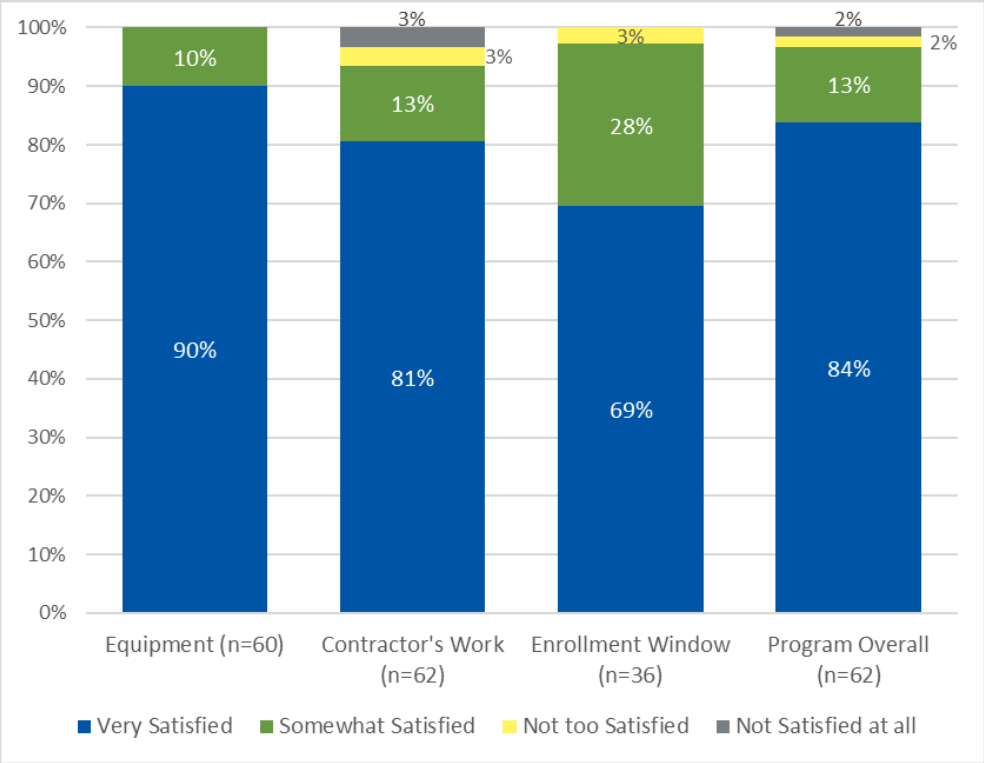
Source: RMP ***watt***smart Business Program 2016– SBL/SBDI Participant Survey QC1. Don't know and refused responses removed. (n=62)

Satisfaction

Figure 24 shows SBDI participants' satisfaction levels with three program elements: the equipment installed, the contractor's work, and the enrollment window, in addition to the program overall. Similar to Typical Upgrades and Custom Analysis participants, SBDI participants expressed greatest satisfaction with the program equipment, with 100% of respondents (n=60) indicating they were very satisfied or somewhat satisfied. Over 90% reported they were very satisfied (81%, n=62) or somewhat satisfied (13%) with the contractor's work, though 6% percent of respondents indicated they were not too satisfied (3%, n=62) or not at all satisfied (3%) with the contractor's work. Of 12 respondents who were less than very satisfied with the contractor's work, five described incomplete or poor-quality work (such as lights falling off, a lack of organization on site [three respondents], the contractor "leaving a mess" at the project's conclusion or equipment broken and not replaced, contractors with "attitude" or too talkative (two respondents), or explaining that the equipment they received covered less of the scope they anticipated (two respondents). Sixteen of 62 participants said they wanted to install equipment not offered in the project proposal, including lighting in areas not covered by the proposal or different types of lighting (e.g., 8-foot tubes, outdoor lighting, shelf lighting); 14 asked their contractors about this additional equipment, and five were directed to other ***watt***smart Business offerings, where the equipment might be incentivized.

Although respondents were least likely to be very satisfied with the enrollment window timeframe (69%, n=36), just one respondent reported a rating of not too satisfied, and no respondents indicated they were not at all satisfied. Ninety-seven percent of respondents reported they were very satisfied (84%, n=62) or somewhat satisfied (13%) with the program overall.

Figure 24. Participants' Satisfaction Levels with SBDI Elements

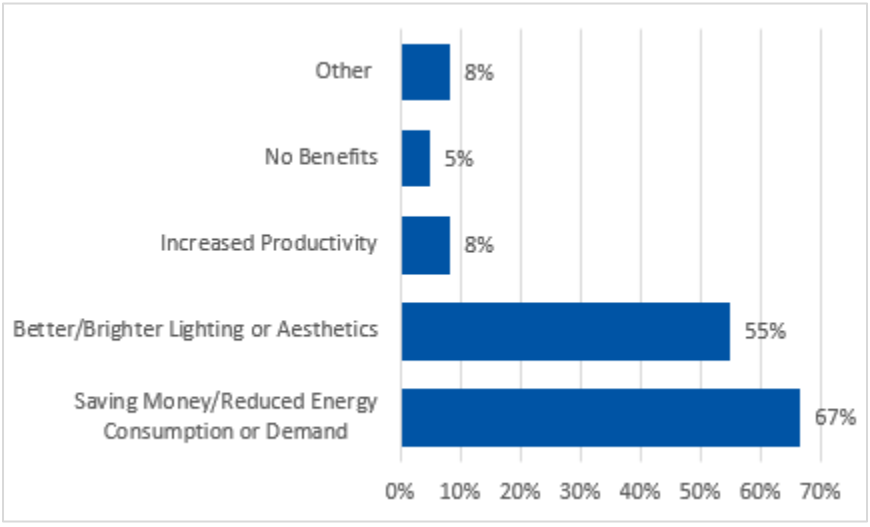


Source: RMP ***watt***smart Business Program 2016–2017 SBL/SBDI Participant Survey QC6, QC8, QC15 and QG2. Don't know and refused responses removed.

Benefits and Challenges

All SBDI respondents indicated that their companies experienced some benefits from participating in the program. Most commonly, participants cited saving money or reducing energy consumption (67%, n=60) and better or brighter lighting (55%), followed by 8% of participants reporting increased productivity. As shown in Figure 25, 5% (three participants) reported experiencing no benefits. One of these three said the new lighting was no better than that replaced, and one did not realize savings.

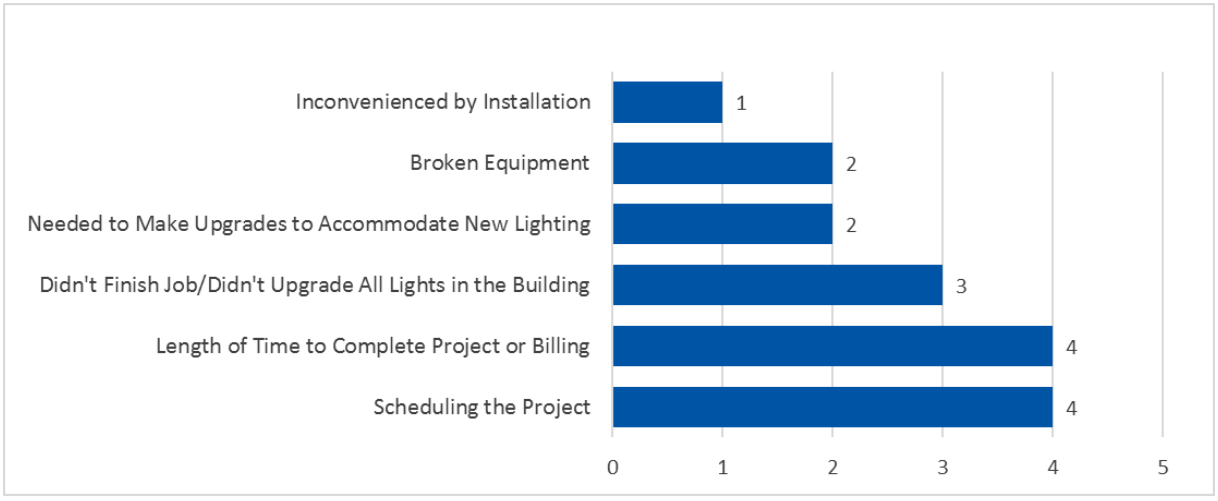
Figure 25. Customer-Reported Benefits of Equipment Installed Through SBDI



Source: RMP ***watt***smart Business Program 2016–2017 SBL/SBDI Participant Survey: QC16. Don't know and refused responses removed. Multiple responses allowed (n=60).

Though almost three-fourths of SBDI participants (74%, n=62) reported no challenges in program participation, as shown in Figure 26, 16 reported challenges, making comments similar to those made by respondents dissatisfied with their contractor's work. Five respondents duplicated their comments, and the remaining 11 detailed additional challenges, not mentioned previously in the surveys. All 16 respondents participated in 2017.

Figure 26. Customer-Reported Challenges with SBDI Participation



Source: RMP ***watt***smart Business Program 2016–2017 SBL/SBDI Participant Survey: QC17. Don't know and refused responses removed. Multiple responses allowed (n=16).

When asked how RMP could help overcome these challenges, seven respondents said there was nothing that RMP can do (n=14). Other respondents suggested wider time ranges for installation (two respondents), increased communications (two respondents), and more oversight of contractors (one

respondent). Two other respondents suggested that, for lighting projects, all lighting in the building should be upgraded at once.

When asked if they had recommendations for improving their overall SBDI experience, 82% (n=62) said they did not have suggestions. Of those providing suggestions, the following key themes emerged:

- Offer a large selection of equipment (five), including outdoor lights, and for additional locations/lighting types in the building (two)
- Provide better or more communication (four)

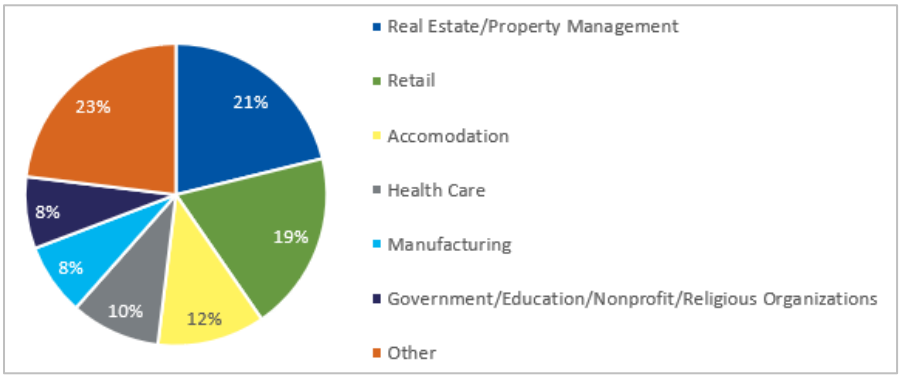
One participant offered a suggestion common to direct-install programs, saying, when approached by field staff, their business would appreciate "Getting a call [by RMP] just to make it more secure, so it's not a scam or anything."

Midstream

The Cadmus team surveyed 53 participants about their experiences with the Midstream offering. As shown in Figure 27, the largest sectors represented by these participants included real estate and property management (21%, n=52), retail (19%), and accommodation (12%). Of these 53 participants, 59% percent owned their facilities in Utah, 18% owned some facilities and leased others, and 12% only leased their facilities. The remaining 10% managed the facility or worked on site where the lamps were installed.

Business sizes varied for Midstream participants, with 49% employing 50 or fewer people, and 51% employing 51 to more than 500 people. Businesses employing 1 to 10 people made up the largest category (29%, n=49), and those employing 101 to 500 made up the second-largest category (24%). The number of locations also varied for businesses: 40% (n=50) operated in a single Utah location, 38% operated in 2 to 10 locations, 18% operated in 11 to 100 locations, and 4% operated in more than 200 locations.

Figure 27. Midstream Participant Respondents by Business Sector

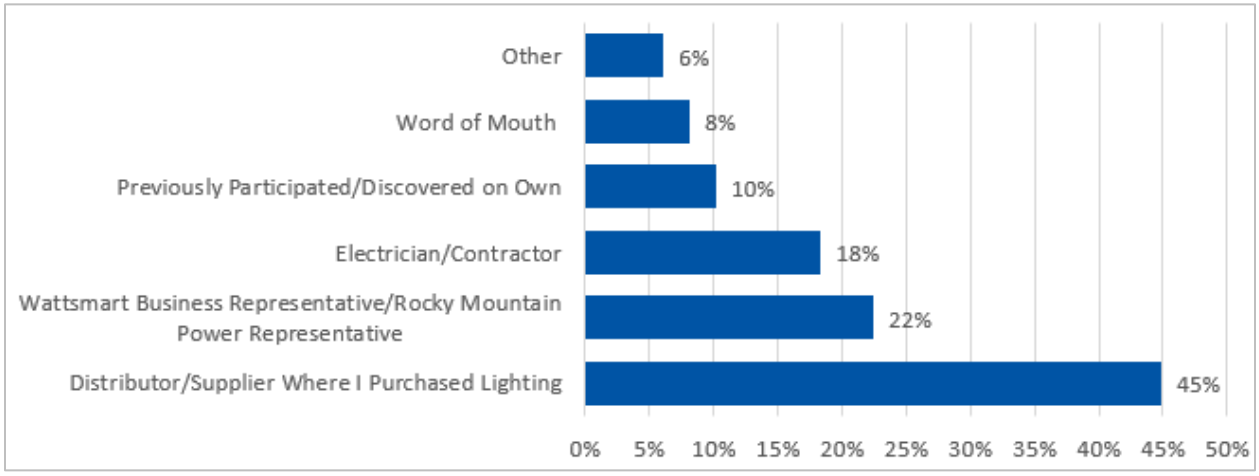


Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Midstream Participant Survey QF1. Don't know and refused responses removed. (n=52).

Awareness and Communication

Reflecting the program design for this delivery channel, Lighting Instant Incentive participants most commonly learned about the incentives through distributors or suppliers where they purchased lighting (45%, n=49). Participants next most frequently reported learning about the incentives through a ***watt***smart Business or RMP representative (22%), or through their electrician or contractor (18%). Figure 28 shows the response frequency for each information channel. Information sources reported in the Other channel included a phone call from an unknown source (one) and a ***watt***smart Business sponsored workshop or community event (two).

Figure 28. Midstream Participants' Information Sources



Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Midstream Participant Survey QB3. Don't know and refused responses removed. Multiple responses allowed. (n=49).

Although only one participant reported learning about the program through RMP marketing materials, 78% of participants (n=50) said they would like to stay informed of future ***watt***smart Business opportunities through RMP mailings, bill inserts, emails, or the utility website. The remaining respondents said that wanted to stay informed through their lighting supplier or contractor (16%), a phone call (8%), a ***watt***smart sponsored workshop or community event (two respondents), and online ads (one respondent).

Motivation and Satisfaction

Participants most commonly purchased lamps for a larger lighting retrofit project (43%, n=53), rather than relamping a facility area as part of ongoing maintenance (32%), to replace burned out lamps (19%), or to save energy (6%).

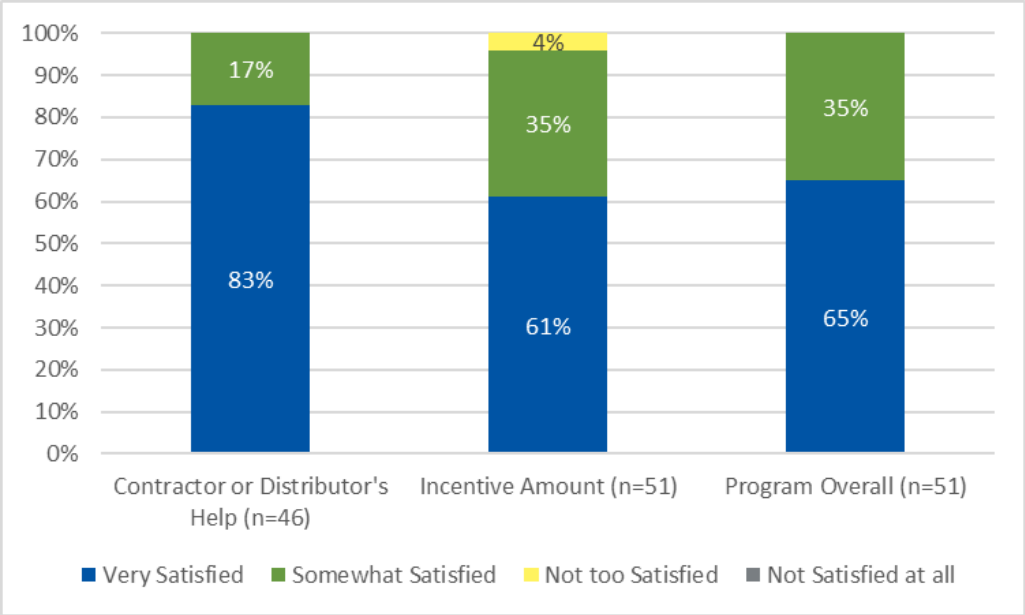
Sixty-three percent of participants (n=51) said they purchased lamps directly from a distributor rather than through a contractor (33%), and 4% said they purchased lighting products from distributors and contractors. Ninety-four percent of participants (n=49) received assistance from contractors or distributors in making their lighting selections, and 83% (n=46) were very satisfied with the help they received, as shown in Figure 29.

Of participants purchasing lighting from a distributor, all said it was very easy (87%, n=30) or somewhat easy (13%) to find a distributor offering the instant discount. Among all participants, 63% (n=52) said it was very easy to find the product they wanted to purchase, and 33% said it was somewhat easy. Two participants, both of whom purchased equipment through distributors, said it was not too easy to find products they wanted to purchase. When asked what could make it easier to find that equipment, one participant recommended that the program provide more information about manufacturers' eligible equipment brand names, and the other respondent recommended that the program provide a broader selection of eligible bulbs.

Ninety-six percent of participants were very satisfied (61%, n=51) or somewhat satisfied (35%) with the incentive amount that they received, also shown in Figure 29. Only two respondents provided suggestions for improving incentives: one said the incentive could cover one-half of the cost, and the other respondent simply recommended making the incentive "better than what it was."

All participants were satisfied with the program overall, with 65% (n=51) saying they were very satisfied, and 35% saying that they were somewhat satisfied, shown in Figure 29. When asked what RMP could have done to improve their overall program experience, 77% (n=52) responded that nothing had to be done. Thirteen percent of respondents recommended increasing the incentive amount. Other suggestions included speeding up the application responses or incentive processing times (6%) and providing more information (4%). One respondent commented: "When we submit approvals, I'm not sure where they go, but quicker turnarounds would be better for [our] budget approvals."

Figure 29. Lighting Instant Incentive Participants' Satisfaction Levels



Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Midstream Participant Survey QC6, C9, G1. Don't know and refused responses removed.

Energy Management

The Cadmus team surveyed five Energy Management participants, all of whom implemented recommissioning projects. Participants fell into a variety of business sectors: educational services (two), manufacturing (one), food processing (one), and water and waste water utilities (one). The food processing and manufacturing businesses both owned and operated one facility each in Utah, but they had a large number of employees (the food processing business employed more than 200 people, and the manufacturing business employed 101 to 200 people). Both educational services customers employed more than 500 people each, and one owned and operated 40 facilities in Utah, while the other owned and leased 10 facilities. The water and waste water utility customer employed 11 to 25 people in Utah but could not provide a location count.

Energy Management participants learned of the program through a variety of ways:

- Contact with a ***watt***smart Business representative or RMP representative (one)
- Distributor or supplier where the customer purchased equipment (one)
- A contractor (one)
- Word-of-mouth (one)
- A previous project (one)

Three of the five preferred to learn of future RMP offerings through a RMP mailing, email, bill insert, or website. One wanted to learn of future offerings through social media, and one chose through their ***watt***smart Business or RMP representative.

All five participants found the program paperwork very easy to complete (three) or somewhat easy (two). When asked which factor proved most important to the customers' decision to participate, three participants (food processing, manufacturing, and water and waste water utility customers) cited saving money on energy bills as the most important factor. One education services customer said the program incentive was the most important factor, and the other educational services customer said "no cost and third-party verification" were the most important factors. The latter educational services customer was also motivated to help the environment.

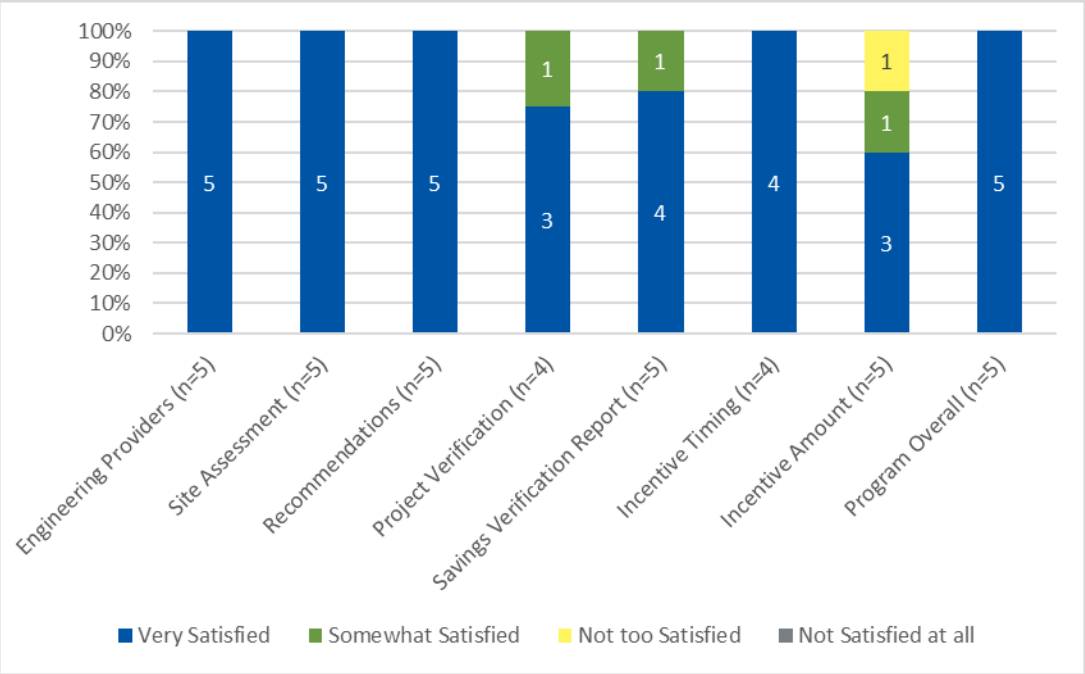
All five participants were very satisfied with the Energy Management Provider funded by RMP and with the detailed site assessment and the recommendations presented in the Savings and Incentive Report. One participant describing the engineer's impact said, "The engineering support made it easier to get a contractor in and made it easier for us to complete the project and allowed us to be able to complete the project when we did."

Four participants were very satisfied and one was somewhat satisfied with the project verification completed by the Energy Management Provider, as shown in Figure 30. The somewhat satisfied participant explained that the follow-up review conducted by the Energy Management Provider did not seem as thorough as the initial site assessment. Four participants were very satisfied with the final Savings and Verification Report. One participant, different than the other participant not satisfied with

the follow-up review, was somewhat satisfied with the report, but did not provide a reason for being less than very satisfied.

As shown in Figure 30, four of five participants were very satisfied with the time required to receive the incentive, and one did not report a satisfaction level. Three participants were very satisfied with the incentive amount. The educational services customer motivated to help the environment was only somewhat satisfied with the incentive, but they explained the incentive was not the reason for undertaking the project. The water and waste water utility customer was not too satisfied with the incentive, explaining they were originally quoted an incentive amount 30% higher. Both the manufacturing and food services customers expected payback periods of one year, the water and wastewater utility customer expected a payback period of three to six months, one educational services customer expected a payback period of five years, and the other educational services participant did not know. All participants said they were very satisfied with the program overall.

Figure 30. Participants' Satisfaction Levels with Energy Management Elements



Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Energy Management Survey QC5, QC7, QC10, QC12, QC14, QC16, QC30, G1. Don't know and refused responses removed.

Participants said they experienced several benefits due to participating in the program, including the following:

- Using less energy (three participants, n=5, multiple responses allowed)
- Saving money on utility bills (three participants)
- Saving money on maintenance costs (two participants)

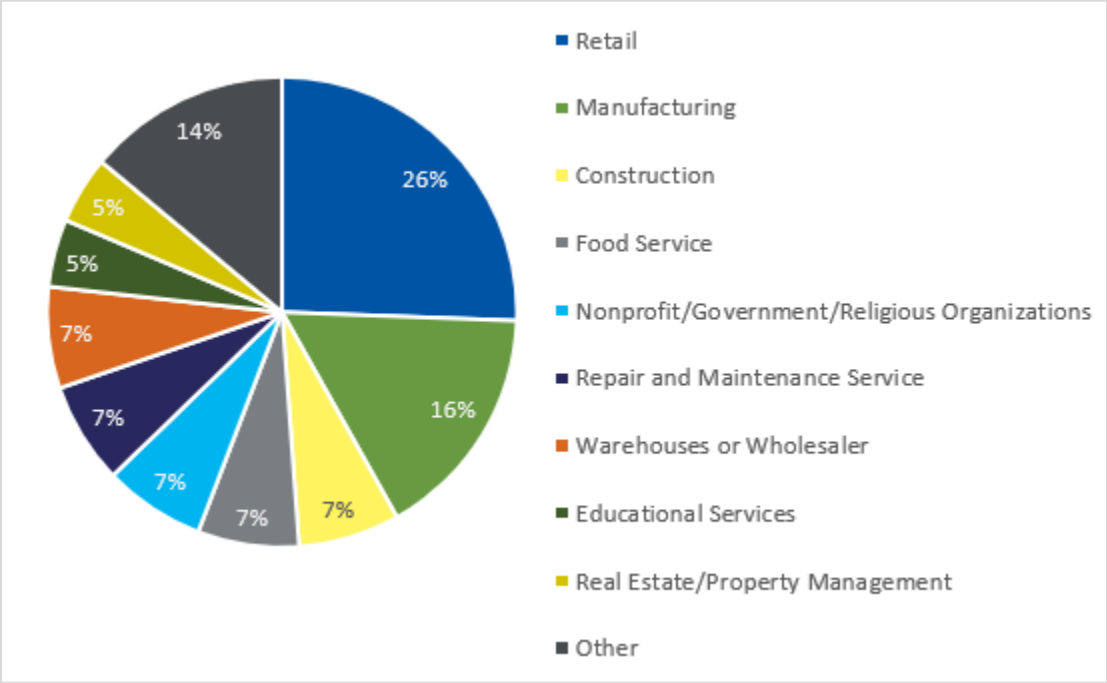
Just one of five participants reported a challenge in program participation. That participant explained that the process took a great deal of internal staff time by an employee who knew the HVAC system to coordinate with the program engineer.

Partial Participants

The Cadmus team surveyed 43 partial participants—27 in the Typical Upgrades offering and 16 from the SBDI offering. Twenty-five respondents started lighting projects, one started an irrigation project, and one started a food service project through Typical Upgrades. Sixteen respondents started direct-install projects through the SBDI offer.

Figure 31 shows the distribution of business types among these respondents. Unlike the participant sample, where the dairy and agriculture sector made up the largest category, the largest groups of partial participants represented the retail (26%, n=43) or manufacturing (16%) sectors.

Figure 31. Partial Participant Respondents by Business Sector



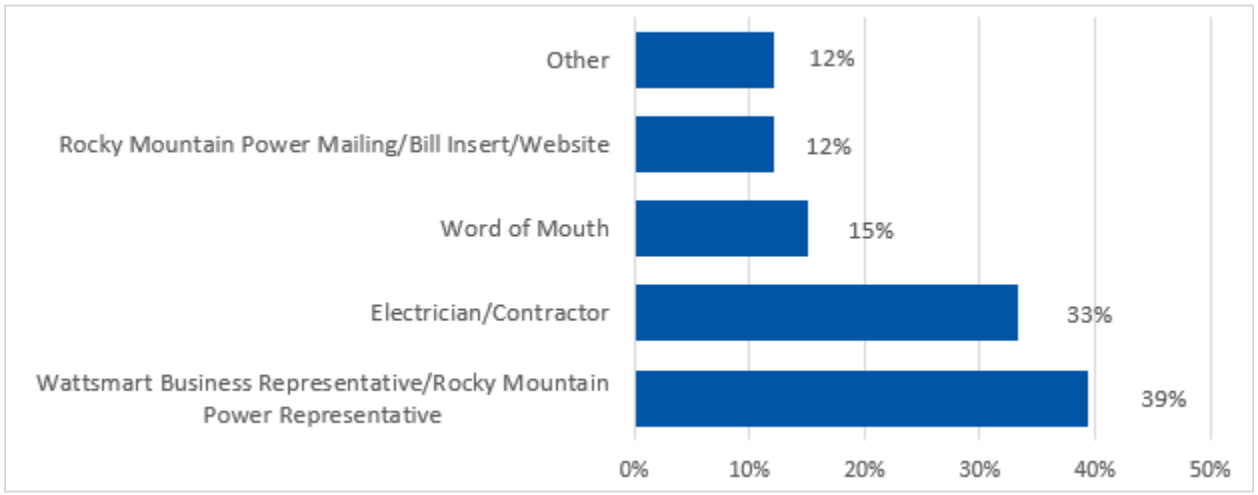
Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Nonparticipant-Partial Participant Survey QF1. (n=43).

Businesses ranged in size from 1 to 10 employees to more than 500 employees, but the partial participants mostly were small businesses. Of 43 partial participants, 78% employed 50 or fewer people: 45% employed 1 to 10 people, 25% employed 11 to 25 people, and 8% employed 26 to 50 people. Eighteen percent employed more than 100 people. Sixty-seven percent of partial participants owned all of their facilities, 26% leased facilities, and 7% owned and leased facilities. Seventy-seven percent operated in one to three Utah locations.

Awareness

As with participants in Typical Upgrades, Custom Analysis, and the SBDI offering, most partial participants learned about the program through contacts with the ***watt***smart Business or RMP representative (39%, n=33) or through their electrician or contractor (33%). Although just 12% learned about the program through marketing materials (e.g., RMP mailing, bill inserts, website), 76% (n=41) cited those marketing materials as their preferred method of staying informed of energy efficiency incentives. Fifteen percent preferred to stay informed through their ***watt***smart Business or RMP representatives, and 10% preferred stay informed through email. Two respondents recommended a cell phone call, and one respondent indicated social media as the best channel.[18]

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



Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Nonparticipant-Partial Participant Survey QC1. Don't know and refused responses removed. (n=33).

Motivation and Barriers

When asked which factors were most important in motivating their businesses to make energy-efficient upgrades, 82% partial participants cited saving money on energy bills (n=39) and 13% cited the program incentive. Just 3% each were primarily motivated to improve productivity or replace broken equipment.

Twenty of 36 partial participants (56%) did not complete the project they started. Out of the 20 partial participants who provided reasons for why they did not complete their projects, eight cited cost as a deterrent.[19] Other reasons included a change in business location (two), lack of building ownership (two), poor timing (two), the project was difficult to coordinate or implement (three), ineligible measures or difficulty working with RMP (two), and eligible LED lighting did not match the partial participant's equipment (one). Sixteen partial participants completed their projects without ***watt***smart Business program incentives: eight applied but were unsure why they did not receive an incentive, or

[18] This survey question allowed multiple responses.

[19] In 2017, RMP teamed with HBC Energy Capital, which helps match customers to lending partners that can provide financing options for their energy efficiency projects.

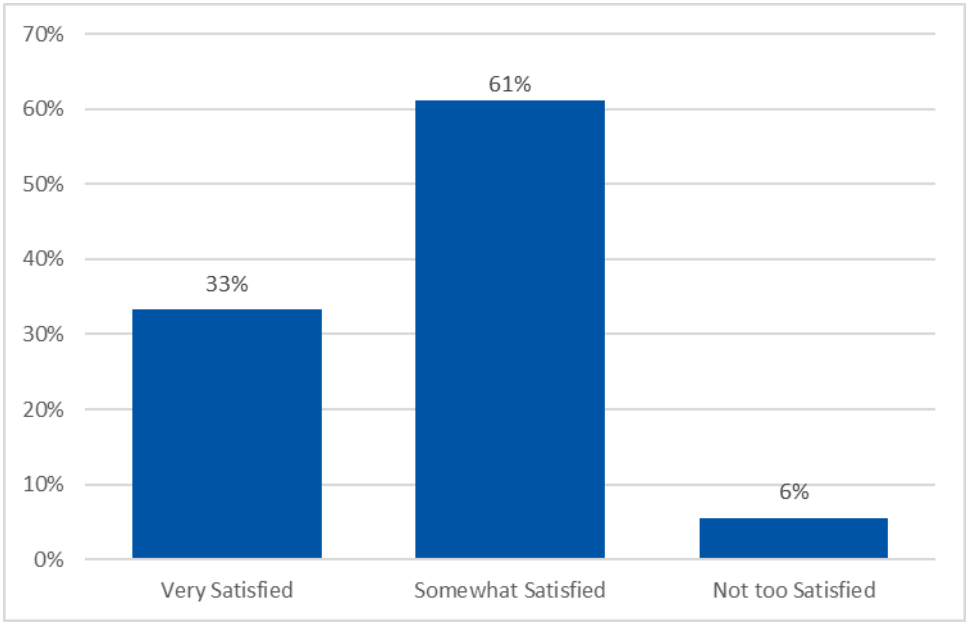
thought it was paid to their contractor, four did not apply, and four did not know if their businesses had applied. Three who installed SBDI projects but did not apply said they were unaware of the incentives or the application just "fell off the radar."

Satisfaction

While 33% of partial participants reported they were very satisfied with the program overall (n=36), as shown in Figure 33, 61% reported being somewhat satisfied, only 6% said they were not too satisfied, and none said they were not at all satisfied. Those saying they were not too satisfied cited insubstantial savings opportunities, and one found it confusing to receive an audit but not be told what they should do.

When asked how the utility could improve their program experience, 60% (n=43) of respondents said there was nothing RMP could do. Of the remaining 17 respondents, nine suggested better communications, more information, or follow-up could improve the program experience. For example, one partial participant said, "It's kind of confusing, it wasn't straightforward, when they did the audit and didn't tell us what to do." Three respondents explained that they found the contractors pushy, unprofessional, or untrustworthy, and one respondent indicated that lack of trust in the contractor caused his company not to complete the project, even though the incentive application was approved. Other responses included increasing incentives, increasing more locations for lighting installation, and provide quicker application approvals.

Figure 33. Partial Participant Satisfaction Levels



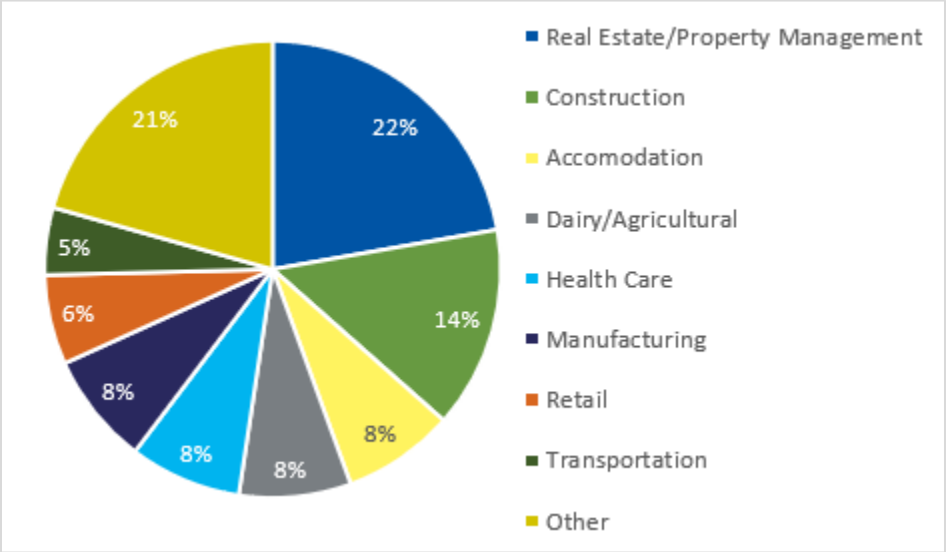
Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 ***watt***smart Business Nonparticipant-Partial Participant Survey QG1. Don't know and refused responses removed. (n=36).

Nonparticipants

The Cadmus team surveyed 68 nonparticipants who never completed a project through the program or who had not done so within the past two years. As shown in Figure 34, nonparticipant respondents

included several business types, with the largest groups representing the Real Estate/Property Management sector (22%, n=63) and the construction sector (14%).

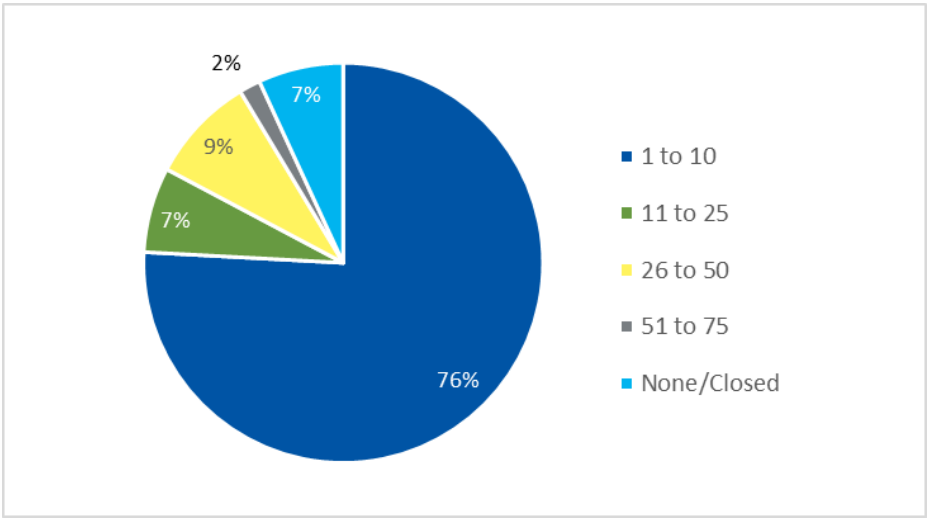
Figure 34. Nonparticipant Respondents by Business Sector



Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 Nonparticipant-Partial Participant Survey QF1. Don't know and refused responses removed. (n=63).

Most respondents (79%, n=61) operated one location in Utah, and, as shown in Figure 35, 76% (n=58) had 10 or fewer employees. Sixty-five percent of respondents (n=63) owned at least one of their facilities. Seventy-two percent (n=58) of nonparticipants used natural gas to heat their facilities and 19% used electricity. The remainder (9%) used gas and electricity, other fuels (such as oil), or did not heat their space. Nonparticipants also relied on natural gas for water heating (64%), with 31% using electricity, and the remainder not heating water (n=55).

Figure 35. Nonparticipant Businesses Number of Employees

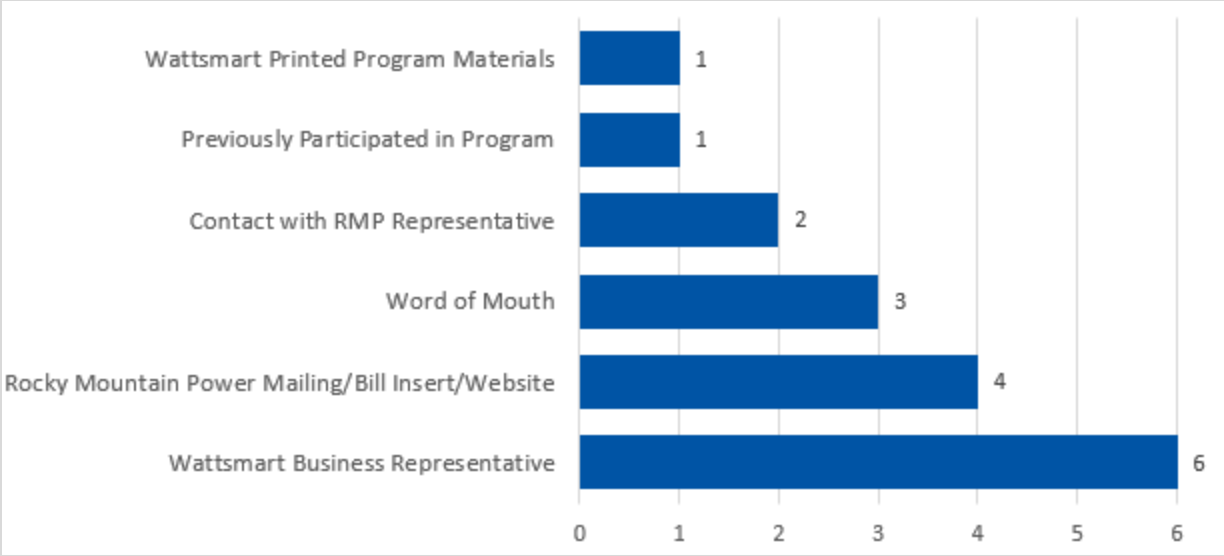


Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 Nonparticipant-Partial Participant Survey QF4. Don't know and refused responses removed. (n=58).

Awareness

Fewer than one-third of nonparticipants (29%, 19 of 66) knew that RMP offered technical assistance and incentives prior to participating in the survey, and only two of the 19 were likely to request an incentive in the next six months. Figure 36 shows that respondents most commonly learned of the program through a ***watt***smart Business representative (six, n=16) or an RMP marketing, such as mailings or bill inserts (four).

Figure 36. Nonparticipants Source of Awareness of *watt*smart Business Program

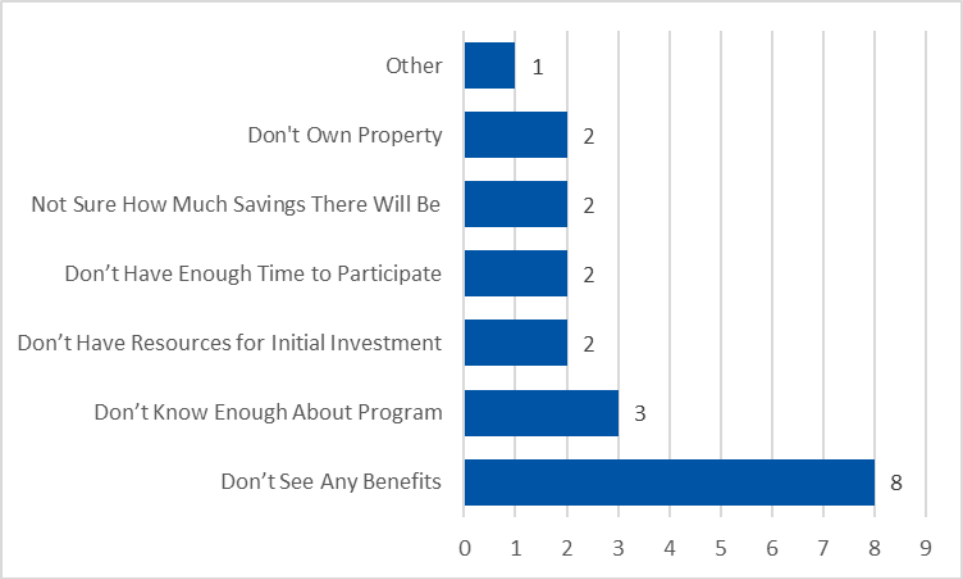


Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 Nonparticipant-Partial Participant Survey QC3. Don't know and refused responses removed. (n=16).

Motivation

As shown in Figure 37, among those saying they were aware of RMP's incentives, most respondents did not understand the value the program could provide, reporting they did not see benefits in participating (eight of 19) or did not know enough about it (three). Other common reasons for not participating included lack of time and money to invest, or not owning their property.

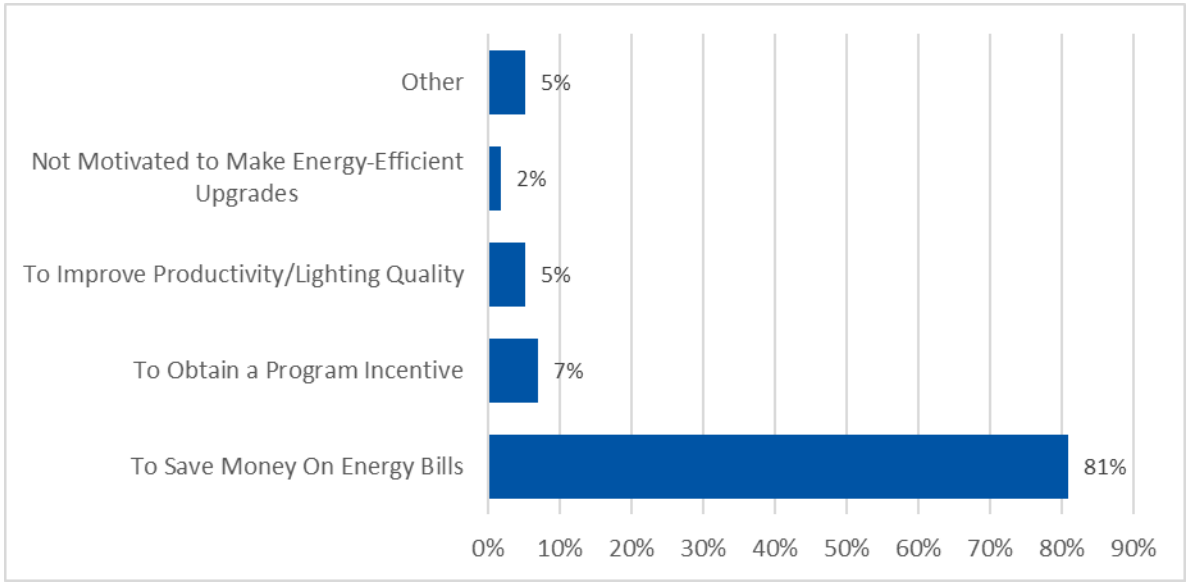
Figure 37. Reasons All Participants have not yet Participated



Source: Rocky Mountain Power ***watt***smart Business 2016–2017 Nonparticipant-Partial Participant Survey QD13. Don't know and refused responses removed. Multiple Responses Allowed (n=19).

When asked what would motivate them to make energy efficiency upgrades, respondents most commonly said cited saving money on energy bills (81%, n=58), and one respondent cited reducing energy consumption. As shown in Figure 38, an additional 7% would be motivated by a program incentive, and only 5% wished to improve productivity or lighting quality. Two respondents, included as Other, said it would depend on the cost or payback period of the upgrades, and one said nothing would provide that motivation.

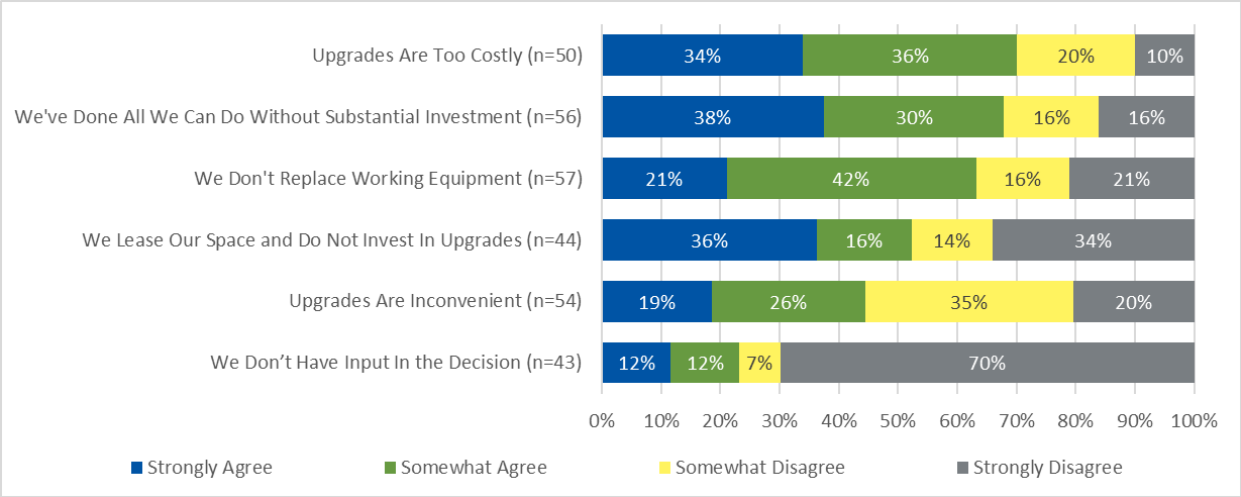
Figure 38. Factors that Motivate Energy Efficiency Upgrades



Source: Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 Nonparticipant-Partial Participant Survey QD1. Don't know and refused responses removed. (n=58).

To further explore nonparticipant attitudes about making energy efficiency upgrades, the team asked respondents to what extent they agreed with the barrier statements shown in Figure 39. Respondents most likely strongly agreed/somewhat agreed that upgrades were too costly (70% agreed, n=50); they had done all they could without substantial investment (68% agreed, n=56); they do not replace working equipment (63% agreed, n=57); and they do not invest in upgrades in a leased space (52% agreed, n=44). A minority of participants agreed with the statements that upgrades were inconvenient (45% agreed, n=54) and they did not have input in the decision (24% agreed, n=43).

Figure 39. Nonparticipants Attitudes About Energy Efficiency Improvements



Source: Rocky Mountain Power ***watt***smart Business Program 2016–2017 Nonparticipant-Partial Participant Survey QD7a-D7e. Not Applicable and Don't know responses were 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.[20] The California Standard Practice Manual for assessing DSM program cost-effectiveness describes the benefit/cost ratios for the following five tests:

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

Table 25 summarizes the five tests' components.

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

Test	Benefits	Costs
PTRC	Present value of avoided energy and capacity costs,[a] 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[a]	Program administrative and marketing costs, and costs incurred by participants
UCT	Present value of avoided energy and capacity costs[a]	Program administrative, marketing, and incentive costs
RIM	Present value of avoided energy and capacity costs[a]	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

[a]These tests include avoided line losses.

[20] 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 26 provides selected cost analysis inputs for each year, including evaluated energy savings, discount rates, line losses, inflation rates, 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 2015 Integrated Resource Plan.

Table 26. Selected Cost Analysis Inputs

Input Description	2016	2017	Total Evaluated Net Savings
Evaluated Net Energy Savings (kWh/year) [a]	181,194,574	182,749,734	362,944,308
Discount Rate	6.66%	6.66%	N/A
Commercial Line Loss	8.71%	8.71%	N/A
Industrial Line Loss	5.85%	5.85%	N/A
Irrigation Line Loss	9.24%	9.24%	N/A
Inflation Rate [b]	1.9%	1.9%	N/A
Total Program Costs	$37,500,711	$34,405,448	$71,906,160

[a] Savings are realized at the meter, while benefits account for line loss.

[b] The inflation rate is based on RMP'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. The Cadmus team determined future retail rates using a 1.9% annual escalator.

wattsmart Business program benefits included energy savings and their associated avoided costs. For the cost-effectiveness analysis, the Cadmus team used this study's evaluated net energy savings and measure lives from sources such as the RTF.[21] For all analyses, the team used avoided costs associated with the RMP 2015 IRP Eastside Class 2 DSM Decrement Values.[22]

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

Table 27 presents the 2016 and 2017 program years' 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 test]). 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 Utah is the UCT, which achieved a 3.34 benefit/cost ratio for the combined years' net savings.

The RIM test measures a program's impacts on customer rates. Most programs do not pass the RIM test, given that, 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 will decrease due

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

[22] RMP's *Class 2 DSM Decrement Study*, dated April 20, 2015, details the IRP decrements and is available online: http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2015/2015_Class_2_DSM_Decrement_Study.pdf

to the program. Typically, this only happens for demand response programs or programs targeted to the highest marginal cost hours (when marginal costs are greater than rates).

Table 27. *watt*smart Business Program Cost-Effectiveness Summary of 2016 and 2017 Net Savings

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/ Cost Ratio
PTRC	$0.040	$130,725,741	$256,100,803	$125,375,062	1.96
TRC	$0.040	$130,725,741	$232,818,912	$102,093,171	1.78
UCT	$0.021	$69,757,835	$232,818,912	$163,061,078	3.34
RIM		$334,387,942	$232,818,912	($101,569,030)	0.70
PCT		$131,917,123	$359,321,872	$227,404,748	2.72
Lifecycle Revenue Impacts ($/kWh)					$0.000303086
Discounted Participant Payback (years)					3.23

Table 28 presents the 2016 program 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 test). For this scenario, the ***watt***smart Business program proved cost-effective from all perspectives except the RIM test.

Table 28. *watt*smart Business Program Cost-Effectiveness Summary of 2016 Net Savings

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/ Cost Ratio
PTRC	$0.040	$70,532,923	$133,884,150	$63,351,227	1.90
TRC	$0.040	$70,532,923	$121,712,863	$51,179,941	1.73
UCT	$0.021	$37,500,711	$121,712,863	$84,212,152	3.25
RIM		$181,245,275	$121,712,863	($59,532,411)	0.67
PCT		$71,049,088	$194,008,432	$122,959,344	2.73
Lifecycle Revenue Impacts ($/kWh)					$0.000177647
Discounted Participant Payback (years)					2.79

Table 29 presents the 2017 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 test). Also for this scenario, the ***watt***smart Business program proved cost-effective from all perspectives, except the RIM test.

Table 29. *watt*smart Business Program Cost-Effectiveness Summary of 2017 Net Savings

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/ Cost Ratio
PTRC	$0.040	$64,201,661	$130,356,283	$66,154,622	2.03
TRC	$0.040	$64,201,661	$118,505,712	$54,304,051	1.85
UCT	$0.021	$34,405,448	$118,505,712	$84,100,264	3.44
RIM		$163,341,969	$118,505,712	($44,836,257)	0.73
PCT		$64,921,846	$176,323,314	$111,401,468	2.72
Lifecycle Revenue Impacts ($/kWh)					$0.000149634
Discounted Participant Payback (years)					2.70

Conclusions and Recommendations

RMP, in collaboration with its administrators—Cascade Energy, Nexant, and Willdan Energy Solutions—successfully delivers energy efficiency incentives and services to its customers, as designed in the ***watt***smart Business program. RMP also effectively transitioned the SBL offering to SBDI, while increasing the size of customer facilities served and maintaining customer satisfaction levels. Customers expressed satisfaction across the contracted DSM and internal DSM delivery channels. Cadmus found no significant differences in overall satisfaction levels between participants in the three contracted DSM delivery channels (e.g., ***watt***smart Business, SBDI, and Midstream). Participants in Energy Management—offered by RMP through an internal delivery channel—reported very high satisfaction levels with the program and its components.

Customers in the Typical Upgrades and Custom Incentives, SBDI, and Energy Management offerings recognized and reported multiple benefits from their participation, and participants in each group reported saving money. While more than 70% of participants in each offering—Typical Upgrades and Custom Analysis, SBDI, and Energy Management—did not report challenges in participating in the program, participants in each group did report some challenges. These included the following:

- Understanding what equipment qualified
- Scheduling and completing their projects within program-designated timeframes
- Reduced incentive amounts
- Completing the required paperwork
- Issues with contractor performance

Participants' suggestions to improve their program experiences indicated a need for RMP and administrators—particularly Willdan—to focus on better and more frequent communications between participants and the program representatives (administrators, contractors, trade allies). A larger selection of eligible equipment and installations in more areas of a building also would address concerns of those in SBDI. These suggestions remained consistent among partial participants (primarily Typical Upgrades and SBDI customers), who, reporting lower satisfaction levels than participants who completed their projects and received incentives through the program, also suggested better communication, more information and follow-up, and better contractor selection and oversight.

Finally, nonparticipants remained largely unaware of the program. RMP may benefit by increasing targeted outreach to nonparticipants, not only to raise awareness of the incentives and technical services offered, but to overcome nonparticipants' preconception that they cannot afford to install energy-efficient upgrades, and their lack of understanding regarding how they might benefit from the program.

The 2016 and 2017 program evaluation yielded an overall gross realization rate of 100.1%, with a precision of ±5.1% at 90% confidence. Varying degrees of realization rates and precision fell within each of the nine measure categories. The Cadmus team calculated NTG as 85% for the program overall.

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

Savings Considerations

Conclusion—Prescriptive VFDs

RMP's deemed savings value for prescriptive VFD projects does not account for motor service, though all six prescriptive VFD motor systems projects in the evaluation sample used RMP's deemed value to determine savings. To evaluate energy savings for these projects, the Cadmus team used deemed savings values from Cadmus' *2014 Variable Speed Drive Loadshape Project* report, created for NEEP, leading to realization rates greater than 100% for five of the six deemed VFD projects. Deemed savings from Cadmus' study varied, based on motor use (e.g., supply, return, exhaust).

Recommendation—Prescriptive VFDs

Based on the study's findings, the Cadmus team recommends increasing deemed savings for prescriptive VFD projects to match Cadmus' *2014 Variable Speed Drive Loadshape Project* report for HVAC fan projects (with savings shown in Table 30).

Table 30. Deemed Energy Savings for HVAC Fan Projects

HVAC Fan Motor Type	Deemed Energy Savings (kWh/year/hp)[a]
Supply Fan Motor	2,033
Return Fan Motor	1,788
Exhaust Fan Motor	1,788

[a]Deemed savings values based on the Cadmus 2014 *Variable Speed Drive Loadshape Project* report created for NEEP, available online: http://www.neep.org/variable-speed-drive-loadshape-study-final-report

For central equipment (e.g., hot/chilled water pumps, condenser water pumps, cooling tower fans), the team recommends using average savings from the 2016 PA TRM. Using the average energy savings factors, operating hours, and a 75% default load factor from the PA TRM, and assuming a 93% motor full-load efficiency (the National Electrical Manufacturers Association's premium efficiency for a 20-horsepower motor) results in a deemed savings factor of 1,191 kWh per year, per horsepower. The evaluation sample did not include prescriptive VFD projects for central equipment, but the team still recommend updating this deemed savings value to reflect typical central equipment motor sizes and efficiencies.

Conclusion – Case Lighting

Rocky Mountain Power's deemed savings value for case lighting is higher than the calculated values provided by the Regional Technical Forum. Evaluated savings for all LED case lights were lower than the reported value resulting in reduced realization rates.

Recommendation – Case Lighting

The Cadmus team recommends revising the deemed savings to match the DEER workpaper for low and medium temperature case lighting. Recommended deemed energy savings provided in Table 30.

Table 31. Deemed Energy Savings for LED Case Lighting Projects

Refrigerated Display Case Type	Deemed Energy Savings (kWh / 5-foot door)
Medium Temperature Display Case	102.9
Low Temperature Display Case	232.5

Marketing and Outreach

Conclusion

RMP's marketing efforts reflect a multiple touch-points approach, that the Cadmus team found easy to understand, impactful, and—for the most part—brand consistent. Additionally, RMP's ***watt***smart Business program participants reported learning about program incentives from multiple sources, including RMPs mailings, email, and the website.

At the same time, many RMP customers not participating in the program remained unaware, even in general terms, that RMP offered technical assistance and incentives (71%, n=66). Among the 22% of nonparticipants (15 of 68) that reported installing energy-efficient equipment (predominately lighting) without receiving financial or technical assistance from a utility, vendor, or other organization, less than one-fifth (3) said general information that RMP provided about energy efficiency proved very important in their decisions to install the equipment; two said information from RMP program staff or contractors was very important. This low awareness among the general nonparticipant population provides RMP with an opportunity to increase awareness and participation through additional customer segmentation (discussed below under Nonparticipants) and through continued branding and broad outreach efforts. The team provides the following recommendations for fine-tuning the program website, collateral, and creative used to promote energy efficiency and, specifically, the program.

Recommendation

- Increase consistency with direct calls to action that end all collateral pieces and brochures.
- Consider adding graphs, charts, images, and even video to convey information and reduce the need for reading copy-heavy communications materials.
- For brochures, maintain a consistent font to stay on brand.
- If the brochure or overview is shared or hosted digitally, web addresses should be hyperlinked to their destinations.
- Consider running additional TV spots during colder months (TV watching increases in cooler months with less daylight).
- If not already completed, request a point of view report from the agency that runs the media strategy regarding adding the LinkedIn platform to the media mix.
- For the Arena Rising out of Home signage, focus on a singular way to learn more; offering too many methods for readers to engage with a program (e.g., social, multiple URLs) may cause them to gloss over the information completely.

- Consider using solid backgrounds on Arena Rising out of Home signage, given these tend to be displayed in very busy environments.
- For mobile and desktop emails used for the HVAC Check-Up, consider inserting a call to action further up in the copy to catch/prompt consumers falling off early without reading all the way through the copy.
- As budget allows, consider incorporating video testimonials on program-specific pages to increase customer engagement and to serve as a tool for providing further explanations and generating excitement, without relying on the customer to read additional text.

Data Management

Conclusion

While the project's database not including measure information for individual SBDI projects did not significantly impede the program's evaluation, having such information would have added depth and understanding to the study and could be used in the process evaluation team's survey of SBDI participants, and in evaluating that delivery channel's alignment with program design.

Recommendation

Going forward, include SBDI measure data in the program database for each SBDI installation, or, at a minimum, in the data provided to the evaluation team.

Small Business Direct Install

Conclusion

While Willdan reaches small business customers, and participants report high satisfaction levels with their equipment installed and the contractor's work, 26% of participants reported challenges with program participation. These challenges focused on two areas: issues with scheduling installation contractors and their professionalism on site, and communications between program staff and participants (resulting in differing expectations for the scope of work).

Recommendation

Provide additional training to contractors regarding behaviors and work quality to maintain while on site, and review the project proposal to provide better reporting to participants about exactly what the project will provide. Consider providing a ceiling plan, identifying lamps/fixtures to be addressed.

Nonparticipants

Conclusion

With only 29% of customers aware that RMP offers technical assistance and incentives, and with customers reporting they did not participate because they did not know enough about the program or its benefits, RMP has an opportunity to pick up new participants through raising customers' awareness

of the program. While not all customers will find it cost-effective to engage with the program, gaining a small percentage of the total nonparticipating C&I customer base represents a large opportunity.

Recommendation

Review the marketing strategy for Utah and consider increasing marketing outreach to nonparticipants, both through branding efforts by RMP and sector outreach by the program administrators. Consider increasing customer segmentation efforts to help trade allies target eligible customers.

Appendices

Appendix A. Self-Report 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 measure strata level NTG ratios. The Cadmus team used the same net savings methodology that has been used since the 2009-2011 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 2016-2017 ***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., trade allies install additional energy efficiency equipment for customers that choose not to participate as a results of the program).

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

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:

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

The initial 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 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.

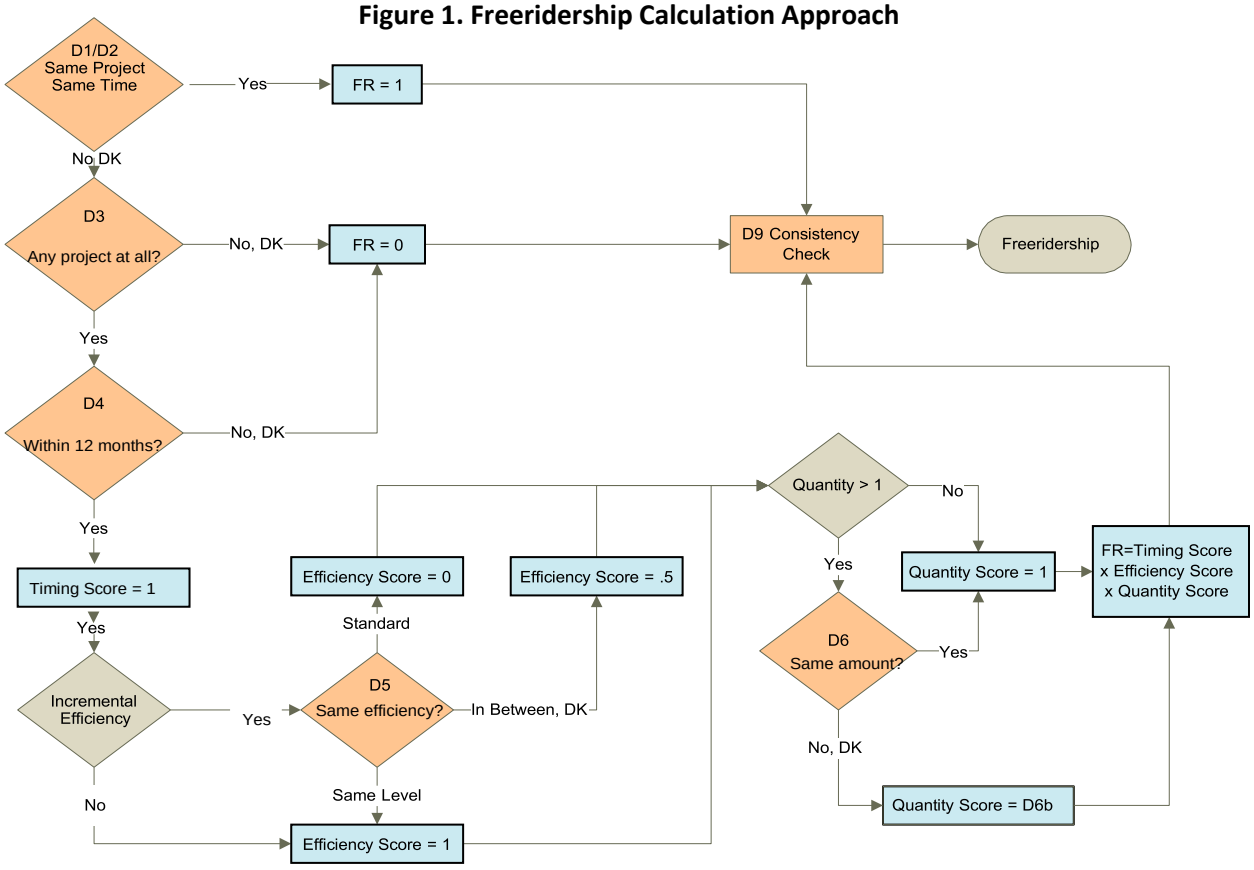
After adjusting the initial freeridership ratio for past program participation, a series of consistency check questions were reviewed. These questions asked about the influence of the program's interventions (e.g., financial incentives, technical assistance) and address the counter-factual (e.g., what would have happened without the program). For example, if the respondent stated that the financial incentive was extremely important to their decision (D9.2 = 5 – extremely important) but that they would have installed the exact same equipment at the same time without the program (D2 = Yes and D1= Yes), the interviewer asks them to describe in their own words what impact the program had on their decision

(D8). 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. Table 1 provides detailed scoring and descriptions of each question.

Table 1. Freeridership Calculation Approach

Question	Question Text	Scoring
D1	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
D2	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 D2=yes and D1=yes then freeridership = 1
D3	Without the program, would you have installed any [MEASURE] equipment?	If D4=no, freeridership = 0
D4	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
D5	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 If between high efficiency and baseline, efficiency score = 0.5 If baseline efficiency, efficiency score = 0
D6	Would you have installed more, less, or the same amount of [MEASURE] without the program?	If same or more, quantity score = 1 If less, quantity score = percentage of equipment not installed
D9.6	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 D9.6 = 5, reduce adjusted free-ridership by 75% If D9.6 = 4, reduce adjusted free-ridership by 50%
D9.2	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
D9.4	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
D8	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 D9.2 or D9.4 Initial freeridership score is reduced by 50% if D8 response merits an adjustment 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 2 provides detailed scoring and descriptions of each "like" spillover question.

Table 2. Participant Spillover Calculation Approach

Question	Question Text	Scoring
E9	Since participating in this program, have you purchased and installed any other energy efficiency improvements on your own without any assistance from a utility or other organization?	If no, potential spillover savings = 0
E10	What type of equipment did you install?	If no, potential spillover savings = 0
E10.# Series	Measure specific efficiency, capacity, fuel type questions	If responses indicated non-program qualifying unit, potential spillover savings = 0
E11	How many did you purchase and install?	E11 x program-evaluated per-unit savings = potential spillover savings
E12	Did you receive an incentive from Rocky Mountain Power or another organization for this equipment?	If yes, potential spillover savings = 0.
E15	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).	"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 measure strata level spillover percentages by dividing the sum of additional spillover savings by the total incentivized gross savings achieved for all respondents in the measure strata:

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

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 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 68 nonparticipating customers from a sample of 34,673 randomly generated nonresidential nonparticipant accounts provided by Rocky Mountain Power.

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 Rocky Mountain Power. This question determined whether Rocky Mountain Power's energy efficiency initiatives motivated energy-efficient purchases. The surveys asked respondents to address the following factors:

- General information about energy efficiency provided by Rocky Mountain Power
- Information from Rocky Mountain Power program staff or contractors
- Past participation experience participating in a Rocky Mountain Power 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 2016-2017 ***watt***smart Business program evaluation activities.

Using the variables shown in Table 1, the Cadmus team determined total NPSO generated by Rocky Mountain Power's marketing and outreach efforts during the 2016 and 2017 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
C	Sample Usage	Rocky Mountain Power Customer Database
D	Sample NPSO	A ÷ C
E	Total Population Usage kWh	Rocky Mountain Power Customer Database
F	NPSO kWh Savings Applied to Population	D x E
G	Total Gross Program Evaluated kWh Savings	2016-2017 ***watt***smart Business Evaluation
H	NPSO as a Percentage of Total 2016-2017 ***watt***smart Business Evaluated kWh Savings	F ÷ G

Results

Of 68 Rocky Mountain Power nonparticipant customers surveyed, two nonparticipant respondents reported installing measures attributed to Rocky Mountain Power's influence. Table 2 presents measures types and gross evaluated kWh savings the Cadmus team attributed to Rocky Mountain Power, generating total savings of 12,021 kWh.

Table 2. NPSO Response Summary

Reported Spillover Measure Type	Quantity	Unit Energy Savings (kWh)[1]	Total Savings (kWh)
VFD	1	10,264 per unit	10,264
Lighting	1	1,757 per unit	1,757
Total	**2**		**12,021**

[1] Unit energy savings (kWh) estimated for each measure were generated from the 2016-2017 ***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.

The NPSO represents energy savings from companies that did not participate in the 2016-2017 ***watt***smart Business program who reduced their energy consumption and attributed their action to information provided by Rocky Mountain Power or past participation in a Rocky Mountain Power energy efficiency program.

Cadmus found NPSO as a percentage of total 2016-2017 ***watt***smart Business Evaluated kWh Savings in Utah to be 2% (H). Table 3 below details the analysis steps. The first step is taking the total sample spillover savings from the 68 respondents (12,021 kWh (A)) and dividing it by the total sample usage (6,069,785 kWh (C)). This results in the Sample NPSO (.2% (D)).

The sample NPSO is then applied to the total population of consumption as calculated using average consumption by revenue class multiplied by the number of customers in each class (3,980,773,286 kWh (E)), as provided to Cadmus by Rocky Mountain Power[1].

The total population energy usage is then multiplied by the Sample NPSO to obtain the population NPSO savings (7,883,689 kWh (F)). This savings is then divided by the total gross program kWh savings (424,304,395 (G)) found in the 2016-2017 ***watt***smart Business Evaluation to calculate the NPSO of 2%.

Table 3. Utah NPSO *watt*smart Results

Variable	Metric	Value	Source
A	Total kWh Spillover Savings from Survey Respondents	12,021	Survey data / Engineering Analysis
B	Total Nonparticipant Customers Surveyed	68	Survey disposition
C	Sample Usage	6,069,785	Rocky Mountain Power Customer Database
D	Sample NPSO	0.2%	A ÷ C
E	Total Population Usage kWh	3,980,773,286	2016-2017 wattSmart Business Evaluation
F	NPSO kWh Savings Applied to Population	7,883,689	D x E
G	Total Gross Program Evaluated kWh Savings	426,669,878	2016-2017 ***watt***smart Business Evaluation
H	NPSO as a Percentage of Total 2016-2017 ***watt***smart Business Evaluated kWh Savings	2%	F ÷ G

[1] NPSO savings were not extrapolated to industrial customers to provide a conservative estimate.

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Appendix C. PacifiCorp *watt*smart Business Program (2016–2017) *watt*smart Business Participant Survey

Researchable Questions		
Key Research Topics	**Areas of Investigation**	**Related Questions**
Screening	Project initiation process	C1
Marketing and Outreach	Program Awareness	B3, C16-C17
	Future communication preferences	G3
Barriers	Obstacles to installing high-efficiency equipment	C2, C3, C14, C15, C19, C20
Satisfaction	Assess satisfaction with Program application process, various program components and reasons for dissatisfaction among participants	C4-C13, C18, C21, C22, G1,G2
Firmographics	Determine building and company characteristics of participants	Section F
Decision Making	Key factors influencing customers' decision to participate in program	C1, C18,
Freeridership and Spillover	Assess net savings	Sections D and E

Target Quota = See samples for each state

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

- **[UTILITY]**
- **[MEASURE.NAME.FINAL] MEASURE1**
- **[PROGRAM YEAR]**
- **[CONTACT NAME]**
- **[CUSTOMER NAME]**
- **[SITE ADDRESS 1]**
- **[SITE CITY]**
- **[PROJECT STATE]**
- **[CUSTOMER INCENTIVE]**
- **[BILL_CREDIT]**

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 **[UTILITY]** INCENTIVE FOR **[CUSTOMER 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 **[CUSTOMER 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 1], [SITE CITY]** location? **[IF SITE ADDRESS 1 IS BLANK, JUST READ THE CITY]**

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 wattsmart 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 10-15 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. **[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]**, at **[SITE ADDRESS 1]** in **[INSERT PROGRAM YEAR]**? Is this correct? **[MULTIPLE RESPONSE]**

1. (Yes)
2. (No, wrong year) [RECORD CORRECT YEAR IF POSSIBLE]
3. (No, wrong address) [RECORD CORRECT ADDRESS]
4. (No, wrong measure) [CORRECT BELOW]
   (MEASURE 1 IS INCORRECT [Correct: _____]) [CALL THIS VARIABLE C_MEASURE]
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 this upgrade? The incentive may have been in the form of a check from the utility, a utility bill credit, 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 or utility representative)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or community event)
4. (Utility mailing, bill insert, or utility Website)
5. (Through my electrician or contractor)
6. (Previously participated in program/received an incentive)
7. (Through a civic organization, trade association or professional organization) [SPECIFY: _____])
8. (Through the distributor or supplier where I purchase lighting)
9. (Word of mouth (family, friend, or business colleague)
10. (Other [SPECIFY: _____])
98. (Don't know)
99. (Refused)

C. Wattsmart Business

Thank you. I'd like to ask you about your project where you installed **[INSERT MEASURE1 OR C_MEASURE**1].

C1. 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]**. **[READ LIST AND MARK ALL THAT APPLY 98 = DON'T KNOW TO ALL 99= REFUSED ALL] [RANDOMIZE LIST]**

1. A *watt*smart Business program participating vendor
2. Your independent contractor
3. A *watt*smart Business representative or Energy Engineer
4. Your **[UTILITY]** account representative
5. A family member, friend, or coworker?
6. Other **[SPECIFY: Who else was involved? _____]**

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

C2. 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 C2=2, 3 OR 4]

C3. What would have made this paperwork easier to complete?

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

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

C4. 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 C4=2, 3 OR 4]

C5. What incentive amount would have been enough for you to say you were very satisfied?

[RECORD VERBATIM: _____

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

C6. 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 C6=2, 3 OR 4]

C7. What amount of time would have been appropriate? **[RECORD VERBATIM: _____]**

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

C8. What payback period does you company typically look for on these kinds of projects? **[RECORD VERBATIM: _____]**

98. (Don't know)

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

C9. I'm going to read you a short list. Please tell me who, if anyone, was involved in helping you install the **[INSERT MEASURE1 OR C_MEASURE**1].

1. A *watt*smart Business program participating vendor
2. Your independent contractor **[SKIP TO C12]**
3. Someone else **[SPECIFY: _____] [SKIP TO C12]**
98. (Don't know) **[SKIP TO C12]**
99. (Refused) **[SKIP TO C12]**

C10. How satisfied were you with the work provided by the participating vendor that installed the **[INSERT MEASURE1 OR C_MEASURE**1]? 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 C10=2, 3 OR 4]

C11. Why do you say that?

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

C12. How satisfied were you with the **[MEASRURE1 OR C MEASURE1]** 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 C12=2, 3 OR 4]

C13. Why do you say that?

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

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

C14. Was there other energy-efficient equipment you wanted to install, which did not qualify for *watt*smart Business incentives?

1. (Yes)
2. (No) **[SKIP TO C18]**

98. (Don't know) **[SKIP TO C18]**
99. (Refused) **[SKIP TO C18]**

[IF C14=1]

C15. What equipment?

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

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

[IF C9=1]

C16. Did you ask the participating vendor installing your project about this other equipment?

1. (Yes)
2. (No)

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

[IF C16=1]

C17. Did the participating vendor direct you to the other *watt*smart Business programs as a place where that equipment may be eligible for incentives?

1. (Yes)
2. (No)

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

C18. 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)

C19. What challenges, if any, did you encounter participating in the *watt*smart Business program incentives?

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

[IF C19=1]

C20. 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 C20=5]

C20.5 You mentioned you would like more information. What type of information do you need? **[RECORD VERBATIM: _____]**

C21. 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
5. I did not interact with **[UTILITY]** during this project

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

[IF C21=2, 3, OR 4]

C22. Why do you say you were **[INSERT ANSWER FROM C21]** with **[UTILITY]**?

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

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

D. Freeridership

Thank you. Next, I'd like to ask you about your decision to purchase the **MEASURE1/C_MEASURE1]**.

D1. Without the program, meaning without either the technical assistance or the financial incentive, would you have still completed the exact same [MEASURE_1/C_MEASURE1] project?

1. (Yes)
2. (No) [SKIP TO D3]

98. (Don't know) [SKIP TO D3]
99. (Refused) [SKIP TO D3]

D2. Without the program, meaning without either the technical assistance or the financial incentive, would you have still installed the [MEASURE_1/C_MEASURE1] at the same time?

1. (Yes) [SKIP TO D7]
2. (No) [SKIP TO D4]

98. (Don't know) [SKIP TO D4]
99. (Refused) [SKIP TO D4]

D3. Without the program, would you have installed any [MEASURE_1/C_MEASURE1] equipment?

1. (Yes)
2. (No) [SKIP TO D8]

98. (Don't know) [SKIP TO D8]
99. (Refused) [SKIP TO D8]

D4. Without the program, in terms of timing, when would you have installed the [MEASURE_1/C_MEASURE1]?

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 D8]
98. (Don't know)
99. (Refused)

D5. Relative to the energy efficiency of [MEASURE_1/C_MEASURE1] 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)

D6. Would you have installed more, less, or the same amount of [MEASURE_1/C_MEASURE1] without the program?

1. (More)
   D6a. Compared to the installed amount, how much more?
   [RECORD PERCENTAGE: _____]
2. (Less)
   D6b. Compared to the installed amount, how much less?
   [RECORD PERCENTAGE: _____]
98. (Don't know)
99. (Refused)

D7. Prior to hearing about the program, was the cost of [MEASURE_1/C_MEASURE1] included in your organization's most recent capital budget?

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

D8. In your own words, can you please describe what impact the program had on your decision to complete these energy efficiency improvements for [MEASURE_1/C_MEASURE1]?

D9. With the *watt*smart Business program, your company received financial incentives of **[CUSTOMER INCENTIVE OR BILL CREDIT]** for installing **[MEASURE_1/C_MEASURE1]**.

For the **[MEASURE_1/C_MEASURE1]** 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

E. Spillover

E1. 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 F]**
98. (Don't know) **[SKIP TO SECTION F]**
99. (Refused) **[SKIP TO SECTION F]**

E2. Did you purchase and install any energy efficient improvements that are the same as the [**MEASURE_1/C_MEASURE1]** you installed through the program?

1. (Yes)
2. (No) **[SKIP TO E9]**
98. (Don't know) **[SKIP TO E9]**
99. (Refused) **[SKIP TO E9]**

E3. How many did you purchase and install?

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

E4. 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)

E5. 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 E5=1]

E6. What program or sponsor provided the incentive?

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

E7. 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 these energy efficient product(s).

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

[ASK IF E5=2]

E8. Why did you not apply for an incentive from **[UTILITY]** for this equipment?

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

E9. 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 F]**
98. (Don't know) **[SKIP TO SECTION F]**
99. (Refused) **[SKIP TO SECTION F]**

E10. 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, freezers)
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 F]**
98. (Don't know) **[SKIP TO SECTION F]**
99. (Refused) **[SKIP TO SECTION F]**

[ASK E10.11-E10.14 AND E11-E15 if E10=1]

E10.11 What type of lighting was purchased and installed? **[SPECIFY TYPE EXAMPLE: CFL, LED, FLUORESCENT]**: _____
E10.12 What is the wattage of the lighting? **[SPECIFY]**: _____
E10.13 In what location was it installed (Wall/Ceiling/Outdoors)? **[SPECIFY]**: _____
E10.14 What type of equipment was removed or replaced? **[SPECIFY]**: _____

[ASK E10.21-E10.24 AND E11-E15 if E10=2]

E10.21 What type of HVAC equipment was purchased and installed? **[SPECIFY TYPE]**: _
E10.22 What Fuel type is used? **[SPECIFY]**: _____
E10.23 What is the efficiency rating of the equipment? **[SPECIFY]**: _____
E10.24 What is the capacity of the equipment? **[SPECIFY]**: _____

[ASK E10.31-E10.34 AND E11-E15 if E10=3]

E10.31 What type of water heating equipment was purchased and installed? **[SPECIFY TYPE]**: _____
E10.32 What Fuel type is used? **[SPECIFY]**: _____
E10.33 What is the efficiency rating of the equipment? **[SPECIFY]**: _____
E10.34 (If water heater with storage) What is the capacity of the equipment? **[SPECIFY]**:

[ASK E10.41-E10.42 AND E11-E15 if E10=4]

E10.41 What type of motor was it installed on? **[SPECIFY TYPE]**: _____
E10.42 What is the horsepower of the motor? **[SPECIFY]**: _____

[ASK E10.51-E10.52 AND E11-E15 if E10=5]

E10.51 What equipment was the motor installed on? **[SPECIFY TYPE]**: _____
E10.52 What is the horsepower of the motor? **[SPECIFY]**: _____

[ASK E10.61 AND E11-E15 if E10=6]

E10.61 What type of refrigeration or freezer equipment was purchased and installed? **[SPECIFY TYPE]**: _____

[ASK E10.71-E10.73 AND E11-E15 if E10=7]

E10.71 What building envelope measure was purchased and installed? **[SPECIFY TYPE]**:
E10.72 What is the efficiency (R-value) of the measure? **[SPECIFY]**: _____
E10.73 In what location was it installed (Wall/Roof/Floor)? **[SPECIFY]**: _____

[ASK E10.81-E10.82 AND E11-E15 if E10=8]

E10.81 FOR What type of application was the compressed air equipment purchased and installed? **[SPECIFY APPLICATION]**: _____
E10.82 What is the horsepower of the compressor motor? **[SPECIFY]**: _____

[ASK E10.91-E10.92 AND E11-E15 if E10=9]

E10.91 FOR What type of application was the chiller purchased and installed? **[SPECIFY APPLICATION]**: _____
E10.92 What size chiller did you install? **[SPECIFY]**: _____

[ASK E10.101-E10.103 AND E11-E15 if E10=10]

E10.101 FOR What type of application was the pump purchased and installed? **[SPECIFY APPLICATION]**: _____
E10.102 What is the horsepower of the motor for the pump? **[SPECIFY]** _____
E10.103 What is the efficiency rating of the pump? **[SPECIFY]**: _____

[ASK E10.111 AND E11-E15 if E10=11]

E10.111 WHAT IRRIGATION EQUIPMENT DID YOU purchase and install? **[SPECIFY GASKETS, DRAINS, SPRINKLERS, ETC.]**: _____

[ASK IF E10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN E10]

E11. How many did you purchase and install? [ASK FOR EACH MEASURE MENTIONED IN E10] [IF E10 MEASURE = 'BUILDING ENVELOPE' THEN ASK HOW MANY 'SQUARE FEET']

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

[ASK IF E10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN E10]

E12. Just to confirm, did you receive an incentive from **[UTILITY]** or another organization for this equipment? [ASK FOR EACH MEASURE MENTIONED IN E10]

1. (Yes)
2. (No)

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

[ASK FOR EACH YES IN E12]

E13. What utility or organization provided the incentive? [ASK FOR EACH MEASURE MENTIONED IN E10]

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

[ASK IF E10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN E10]

E14. What information did you rely upon to determine that the equipment installed was energy efficient? [ASK FOR EACH MEASURE MENTIONED IN E10]

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

[ASK IF E10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN E10]

E15. 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 E10]

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

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

F3. Does your organization lease or own the facility 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
98. (Don't know)
99. (Refused)

G. Closing

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)

G2. 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)

G2.1 **[ASK IF G2 = 1]** You mentioned you would like better communication. Who would you like more communication from? **[RECORD RESPONSE_____]**

G2.2 **[ASK IF G2 = 2]** You mentioned a quicker response time. Who would you like a quicker response time from? **[RECORD RESPONSE_____]**

G2.3 **[ASK IF G2 = 3]** What other energy-efficient equipment should *watt*smart business offer incentives for? **[RECORD RESPONSE_____]**

G2.5 **[ASK IF G2=5]** In what way would you like them to simply the application process? **[RECORD RESPONSE_____]**

G2.6 **[ASK IF G2 = 6]** In what way would you like them to simplify the website? **[RECORD RESPONSE_____]**

G3. In the future, how would you like to stay informed about opportunities available through the *watt*smart Business Program? **[DO NOT READ LIST; MULTIPLE RESPONSES POSSIBLE]**

1. (Contact with *watt*smart Business representative or utility representative)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or event)
4. (Utility mailing, email, newsletter with bill, bill insert, or utility Website)

5. (Contact with a vendor/contractor)
6. (Through a trade association, trade publication or professional organization) [SPECIFY: _____])
7. (Newspaper ad)
8. (Radio ad)
9. (TV ad)
10. (Social Media (e.g., Facebook, Twitter, YouTube))
11. (Online ads)
12. (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

Pacificorp *watt*smart Business Program
(2016 - 2017) Small Business Lighting/
Small Business Direct Install Participant Survey

Researchable Questions		
Key Research Topics	**Areas of Investigation**	**Related Questions**
Screening	Project initiation process	C1, C4, C5
Marketing and Outreach	Program Awareness	B3, C14
	Future communication preferences	G3
Barriers	Obstacles to installing high-efficiency lighting	C17-C19
Satisfaction	Assess satisfaction with Program application process, various program components and reasons for dissatisfaction among participants	C1-C3, C6-C9, C15, C16
Firmographics	Determine building and company characteristics of participants	Section F
Decision Making	Key factors influencing customers' decision to participate in program	C1, C5
Freeridership and Spillover	Assess net savings	Sections D and E

Target Quota = See samples for individual states

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

- **[UTILITY]**
- **[PROGRAM NAME]**
- **[MEASURE.NAME.FINAL] MEASURE1**
- **[PROGRAM YEAR]**
- **[CONTACT NAME]**
- **[CUSTOMER NAME]**
- **[SITE ADDRESS 1]**
- **[SITE CITY]**
  [PROJECT STATE]
- **[CUSTOMER INCENTIVE]**

A. Introduction

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 facility manager, energy manager or someone who is familiar with your participation in the **[UTILITY] [PROGRAM NAME]** incentive program? **[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 **[UTILITY].** Are you 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)
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 1], [SITE CITY]** 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 [PROGRAM NAME]** 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 10 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. **[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 **[FOR SBL READ:** installed energy efficient lighting including **[MEASURE1]] [FOR SBDI READ:** participated in the **[MEASURE1]** program**]**, at **[SITE ADDRESS 1]** in **[PROGRAM YEAR]**? Is this correct? **[MULTIPLE RESPONSE]**

1. (Yes)
2. (No, wrong year) [RECORD CORRECT YEAR IF POSSIBLE]
3. (No, wrong address) [RECORD CORRECT ADDRESS]
4. (No, wrong measure) [CORRECT BELOW]
   (MEASURE 1 IS INCORRECT [Correct: _____]) [CALL THIS VARIABLE C_MEASURE]
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 this upgrade? The incentive may have been in the form of a check from the utility, 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 or utility representative)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or community event)
4. (Utility mailing, bill insert, or utility Website)
5. (Through my electrician or contractor)
6. (Previously participated in program/received an incentive)
7. (Through a trade association or professional organization) [SPECIFY: _____])
8. (Through the vendor, distributor or supplier where I purchase lighting)
9. (Word of mouth (family, friend, or business colleague)
10. (Other [SPECIFY: _____])
98. (Don't know)
99. (Refused)

C. *Small Business Direct Install/Small Business Lighting/wattsmart Small Business Lighting Incentives*

Thank you. I'd like to ask you about your participation in the **[PROGRAM NAME]** incentives.

C1. What factor was most important to your company's decision to participate in the **[PROGRAM NAME]** incentives? **[DO NOT READ LIST; RECORD ONE RESPONSE]**

1. (To save money on energy bills)
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)

[IF PROGRAM NAME= SMALL BUSINESS LIGHTING OR WATTSMART SMALL BUSINESS LIGHTING ASK C2. IF PROGRAM NAME =SMALL BUSINESS DIRECT INTALL SKIP TO C4]

C2. How easy was it to schedule a *watt*smart Small Business Lighting 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 C2=2, 3 OR 4]

C3. What would have made it easier to schedule a *watt*smart Small Business approved contractor?

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

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

C4. After the free energy assessment, did you receive a project proposal with estimates of your incentive or discount and cost savings?

1. (Yes)
2. (No) **[SKIP TO C6]**

98. (Don't know) **[SKIP TO C6]**
99. (Refused) **[SKIP TO C6]**

[IF C4=1]

C5. What information in the project proposal was most influential in your decision to proceed with your project….? **[PROBE FOR SPECIFICS OF WHAT WAS INFLUENTIAL]**

1. (Cost savings)
2. (Energy savings)
3. (Other) **[RECORD VERBATIM: _____]**
4. (Nothing)

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

C6. 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 C6=2, 3 OR 4]

C7. Why do you say you were **[INSERT ANSWER FROM C6]** with the work provided by the contractor?

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

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

C8. 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 C8=2, 3 OR 4]

C9. Why do you say you were **[INSERT ANSWER FROM C8]** with the equipment provided by the contractor?

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

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

C10. Was there other lighting equipment you wanted to install, which was not offered in your **[PROGRAM NAME]** project proposal?

1. (Yes)
2. (No) **[SKIP TO C14]**
98. (Don't know) **[SKIP TO C14]**
99. (Refused) **[SKIP TO C14]**

[IF C10=1]

C11. What equipment?

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

C12. Did you ask the contractor installing your project, about this other equipment?

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

[IF C12=1]

C13. Did the contractor direct you to the other *watt*smart Business programs as a place where that equipment may be eligible for incentives?

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

[IF PROGRAM NAME = SMALL BUSINESS DIRECT INSTALL ASK C14]

C14. **[UTILITY]** offered the Small Business Direct incentives in your community, during a specified window of time. Were you aware you had a limited time to enroll in the Small Business Direct incentives?

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

C15. **[IF C14=1]** Thinking about the timeframe of your project, how satisfied were you with the window of time in which you could enroll in the Small Business Direct incentives? 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)

C16. What would you say are the main benefits your company has experienced as a result of the lighting installed? [DO NOT READ LIST; RECORD ALL THAT APPLY; PROBE FOR MULTIPLE RESPONSES]

1. (The incentive)
2. (Savings money, reducing energy consumption or energy demand)
3. (Increased occupant comfort)
4. (Better aesthetics/better or brighter lighting)
5. (Increased productivity)
6. (Saving money on maintenance costs)
7. (Other **[SPECIFY: _____]**)
8. (NO BENEFITS)

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

C17. What challenges, if any, did you encounter participating in the **[PROGRAM NAME]** incentives?

1. **[SPECIFY: _____]**
2. (No challenges)

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

[ASK IF C17=1]

C18. 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 C18=5]

C18.5 You mentioned providing better information about the program. What type of information do you need? **[SPECIFY: _____]**

C19. Do you have any suggestions for improving the **[PROGRAM NAME]** offering?

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

D. Freeridership

Thank you. Next, I'd like to ask you about your decision to **[FOR SBL READ:** purchase**]** **[FOR SBDI READ:** install**]** the **MEASURE1/C_MEASURE1]** equipment.

D1. Without the program, meaning without either the technical assistance or the financial incentive, would you have still completed the exact same **[MEASURE_1/C_MEASURE1]** project?

1. (Yes)
2. (No) **[SKIP TO D3]**
98. (Don't know) **[SKIP TO D3]**
99. (Refused) **[SKIP TO D3]**

D2. Without the program, meaning without either the technical assistance or the financial incentive, would you have still installed the **[MEASURE_1/C_MEASURE1]** equipment at the same time?

1. (Yes) **[SKIP TO D6]**
2. (No) **[SKIP TO D4]**
98. (Don't know) **[SKIP TO D4]**
99. (Refused) **[SKIP TO D4]**

D3. Without the program, would you have installed any **[MEASURE_1/C_MEASURE1]** equipment?

1. (Yes)
2. (No) **[SKIP TO D7]**
98. (Don't know) **[SKIP TO D7]**
99. (Refused) **[SKIP TO D7]**

D4. Without the program, in terms of timing, when would you have installed the **[MEASURE_1/C_MEASURE1]** equipment?

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 D7]**
98. (Don't know)
99. (Refused)

D5. Would you have installed more, less, or the same amount of **[MEASURE_1/C_MEASURE1]** equipment without the program?

1. (More)
   - D5a. Compared to the installed amount, how much more?
     [RECORD PERCENTAGE: _____]
2. (Less)
   - D5b. Compared to the installed amount, how much less?
     [RECORD PERCENTAGE: _____]

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

D6. Prior to hearing about the program, was the cost of **[MEASURE_1/C_MEASURE1]** equipment included in your organization's most recent capital budget?

1. (Yes)
2. (No)

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

D7. In your own words, can you please describe what impact the program had on your decision to complete **[FOR SBL READ:** these energy efficiency improvements for**]** **[FOR SBDI READ:** this installation of**]** **[MEASURE_1/C_MEASURE1]** equipment?

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

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

D8. With the **[PROGRAM NAME]** program, your company received financial incentives of **[CUSTOMER INCENTIVE]** for installing **[MEASURE_1/C_MEASURE1]** equipment.

For the **[MEASURE_1/C_MEASURE1]** 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 type of lighting
6. Previous participation with a **[UTILITY]** program

E. Spillover

E1. Now I'd like to ask about energy efficient lighting improvements **other than those** you installed through the program. Since participating in this program, have you purchased and installed any additional energy-efficient lighting on your own without any assistance from a utility 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. Did you purchase and install any energy-efficient lighting that is the same as the [**MEASURE1/C_MEASURE1**] you installed through the program?

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

E3. How many did you purchase and install?

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

E4. Did you receive an incentive from **[UTILITY]** or another organization for this lighting?

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

[ASK IF E4=1]

E5. What program or sponsor provided the incentive?

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

E6. 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] [PROGRAM NAME]** program was in your decision to install this lighting.

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

[ASK IF E4=2 OTHERWISE SKIP TO SECTION F]

E7. Why did you not apply for an incentive from **[UTILITY]** for this equipment?

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

E8. What type of efficient lighting did you purchase and install? **[SPECIFY TYPE EXAMPLE: CFL, LED, FLUORESCENT]**: _____

E8.11 What is the wattage of the lighting? **[SPECIFY]:** _____

E8.12 In what location was it installed (Wall/Ceiling/Outdoors)? **[SPECIFY]:** _____

E8.13 What type of equipment was removed or replaced? **[SPECIFY]:** _____

E9. How many did you purchase and install?

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

E10. Just to confirm, did you receive an incentive from **[UTILITY]** or another organization for this energy-efficient lighting?

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

[ASK IF E10=1]

E11. What utility or organization provided the incentive?

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

E12. What information did you rely upon to determine that the lighting installed was energy efficient?

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

E13. 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]** LED Instant Incentive Program was in your decision to install this lighting.

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

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

F3. Does your organization lease or own the facility 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
98. (Don't know)
99. (Refused)

G. Closing

G1. Overall, how satisfied would you say you are with the **[PROGRAM NAME]** 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)

G2. Is there anything that **[UTILITY]** could have done to improve your overall experience with the **[PROGRAM NAME]** 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)

G2.1 **[ASK IF G2 = 1]** You mentioned you would like better communication. Who would you like more communication from? **[RECORD RESPONSE_____]**

G2.2 **[ASK IF G2 = 2]** You mentioned a quicker response time. Who would you like a quicker response time from? **[RECORD RESPONSE_____]**

G2.3 **[ASK IF G2 = 3]** What other energy-efficient equipment should *watt*smart business offer incentives for? **[RECORD RESPONSE_____]**

G2.5 **[ASK IF G2=5]** In what way would you like them to simply the application process? **[RECORD RESPONSE_____]**

G2.6 **[ASK IF G2 = 6]** In what way would you like them to simplify the website? **[RECORD RESPONSE_____]**

G3. 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 or utility representative)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or event)
4. (Utility mailing, email, newsletter with bill, bill insert, or utility Website)
5. (Contact with a vendor/contractor)
6. (Through a trade association, trade publication or professional organization) [SPECIFY: _____])
7. (Newspaper ad)
8. (Radio ad)
9. (TV ad)
10. (Social Media (e.g., Facebook, Twitter, YouTube))
11. (Online ads)
12. (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

PacifiCorp *watt*smart Business Program

(2016 - 2017) Instant Incentives-Lighting (Midstream) Participant Survey

Researchable Questions		
Key Research Topics	**Areas of Investigation**	**Related Questions**
Screening	Project initiation process	C1, C8
Marketing and Outreach	Program awareness	B1-B3
	Future communication preferences	G3
Barriers	Obstacles to installing high-efficiency lighting	C2-C5
Satisfaction	Assess satisfaction with distributor/contractor and instant discount	C6-C7, C9-C10, G1, G2
Freeridership and Spillover	Assess net savings	Sections D and E
Firmographics	Determine building and company characteristics of participants	Section F

Target Quota = See samples for each state

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]**
- **[CUSTOMER.NAME]**
- **[SITE.ADDRESS 1]**
- **[SITE.CITY]**
- **[PROJECT. STATE]**
- **[UTILITY]**
- **[PROGRAM.YEAR]**
- **[MEASURE.NAME.FINAL] MEASURE1**
- **[CUSTOMER.INCENTIVE]**

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 or energy manager or the person who is familiar with your participation in the **[INSERT UTILITY]** Instant Incentive program? **[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 VOICE MAIL]**
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 CUSTOMER 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 1] [SITE CITY]** 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 wattsmart Business Instant Incentive Lighting Program. **[INSERT UTILITY]** is actively seeking your opinions to help improve energy efficiency programs and to better understand how to assist customers in saving money and energy. This call may be monitored or recorded for quality assurance 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 5-7 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 its customers save money and energy."]**
3. **[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 lighting including **[MEASURE1]**, for **[INSERT SITE ADDRESS 1]** in **[INSERT PROGRAM YEAR]**? Is this correct? [Multiple Response]

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]
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 A1. 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 this new **[MEASURE1/C_MEASURE1]**? The incentive was in the form of check from the utility or an instant discount on your 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 available for this project? **[DO NOT READ LIST; MULTIPLE RESPONSES POSSIBLE]**

1. (Contact with *watt*smart Business representative or utility representative)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or community event)
4. (Utility mailing, bill insert, or utility website)
5. (Through my electrician or contractor)
6. (Previously participated in program/received an incentive)
7. (Through a trade association or professional organization**)** **[SPECIFY: _____]**)
8. (Through the vendor, distributor or supplier where I purchase lighting)
9. (Word of mouth (family, friend, or business colleague)
10. (Other **[SPECIFY: _____]**)
98. (Don't know)
99. (Refused)

C. Midstream (Instant Incentives)

Thank you. I'd like to ask you about the lamps you purchased through the Instant Incentive program.

C1. Did your company purchase your lamps direct from a distributor or through your contractor? **[DO NOT READ LIST; RECORD ONE ANSWER]**?

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

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

[IF C1= 2]

C2. How easy was it to find a distributor offering the instant discount? 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=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 **[MEASURE1/C_MEASURE1]** 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=3 OR 4]

C5. What would have made it easier?

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

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

[ASK C6 IF C1=1 OR 2 [IF C1 = 3, 98, 99 SKIP TO C8]

C6. Did the **[INSERT RESPONSE FROM C1]** provide assistance with the selection of the lamps you purchased?

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

[IF C6 = 1]

C7. How satisfied were you with their help? 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)

C8. When you made this purchase of the **[MEASURE1/C_MEASURE1]**, were you…? **[RECORD ONE RESPONSE]**

1. Replacing burned out lamps
2. Relamping an area of your facility as part of ongoing maintenance
3. Purchasing lamps for a larger lighting retrofit project
4. Or some other reason **[SPECIFY_____]**

C9. Thinking about the incentive you received, how satisfied were you with the amount of the 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 C9=3 OR 4]

C10. What incentive amount would have been enough for you to say you were very satisfied?

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

D. Freeridership

Thank you. Next, I'd like to ask you about your decision to purchase the **MEASURE1/C_MEASURE1]**.

D1. Without the **[UTILITY]** incentive **[IF C6 = 1 OR 2 READ "AND ASSISTANCE FROM THE DISTRIBUTOR OR CONTRACTOR"]**, would you have still purchased **[MEASURE1/C_MEASURE1]**?

1. (Yes)
2. (No) **[SKIP TO D3]**
98. (Don't know) **[SKIP TO D3]**
99. (Refused) **[SKIP TO D3]**

D2. Without the **[UTILITY]** incentive **[IF C6 = 1 OR 2 READ "AND ASSISTANCE FROM THE DISTRIBUTOR OR CONTRACTOR"]**, would you have still purchased the **[MEASURE1/C_MEASURE1]** at the same time?

1. (Yes) **[SKIP TO D6]**
2. (No) **[SKIP TO D4]**
98. (Don't know) **[SKIP TO D4]**
99. (Refused) **[SKIP TO D4]**

D3. Without the **[UTILITY]** incentive **[IF C6 = 1 OR 2 READ "AND ASSISTANCE FROM THE DISTRIBUTOR OR CONTRACTOR"]**, would you have purchased any **[MEASURE1/C_MEASURE1]**?

1. (Yes)
2. (No) **[SKIP TO D7]**
98. (Don't know) **[SKIP TO D7]**
99. (Refused) **[SKIP TO D7]**

D4. Without the **[UTILITY]** incentive **[IF C6 = 1 OR 2 READ "AND ASSISTANCE FROM THE DISTRIBUTOR OR CONTRACTOR"]**, In terms of timing, when would you have purchased the **[MEASURE1/C_MEASURE1]**? **[READ LIST]**

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 D7]**
98. (Don't know)
99. (Refused)

D5. Would you have purchased more, less, or the same amount of [MEASURE1/C_MEASURE1] without the incentive **[IF C6 = 1 OR 2 READ "AND ASSISTANCE FROM THE DISTRIBUTOR OR CONTRACTOR"]**?

1. (More)
   D5. a. Compared to the installed amount, how much more? **[RECORD PERCENTAGE: _____]**
2. (Less)
   D5. b. Compared to the installed amount, how much less? **[RECORD PERCENTAGE: _____]**
3. (Same)
98. (Don't know)
99. (Refused)

D6. Prior to hearing about the program, was the cost of [MEASURE1/C_MEASURE1] included in your organization's most recent capital or maintenance budget?

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

D7. In your own words, can you please describe what impact the **[UTILITY]** instant incentive offer **[IF C6 = 1 OR 2 READ "AND ASSISTANCE FROM THE DISTRIBUTOR OR CONTRACTOR"]** had on your decision to purchase [MEASURE1/C_MEASURE1]?

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

D8. With the instant incentive, your company received a discount of, **[CUSTOMER INCENTIVE]** for purchasing **[MEASURE_1/C_MEASURE1]**.

For this **[MEASURE_1/C_MEASURE1]** purchase, 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 lamps to purchase. 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 distributor or contractor
2. Information provided by [**UTILITY]** on energy saving opportunities
3. The **[UTILITY]** discount or incentive
4. Familiarity with this type of lighting
5. Previous participation with a **[UTILITY]** program

E. Spillover

E1. Now I'd like to ask about energy-efficient lighting improvements **other than those** you installed through the program. Since participating in this program, have you purchased and installed any additional energy-efficient lighting on your own **without** any assistance from a utility 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. Did you purchase and install any energy-efficient lighting that is the same as the [**MEASURE1/C_MEASURE1**] you installed through the program?

1. (Yes)
2. (No) **[SKIP TO E8]**
98. (Don't know) **[SKIP TO E8]**
99. (Refused) **[SKIP TO E8]**

E3. How many did you purchase and install?

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

E4. Did you receive an incentive from **[UTILITY]** or another organization for this lighting?

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

[ASK IF E4=1]

E5. What program or sponsor provided the incentive?

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

E6. 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]** Instant Incentive program was in your decision to install this lighting.

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

[ASK IF E4=2 OTHERWISE SKIP TO SECTION F]

E7. Why did you not apply for an incentive from **[UTILITY]** for this equipment?

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

E8. What other type of efficient lighting did you purchase and install? **[SPECIFY TYPE EXAMPLE: CFL, LED, FLUORESCENT**: _____**]**

E8.11 What is the wattage of the lighting? **[SPECIFY: _____]**

E8.12 In what location was it installed (Wall/Ceiling/Outdoors)? **[SPECIFY: _____]**

E8.13 What type of equipment was removed or replaced? **[SPECIFY: _____]**

E9. How many did you purchase and install?

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

E10. Just to confirm, did you receive an incentive from **[UTILITY]** or another organization for this energy-efficient lighting?

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

[ASK IF E10=1]

E11. What utility or organization provided the incentive?

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

E12. What information did you rely upon to determine that the lighting installed was energy efficient?

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

E13. 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]** LED Instant Incentive Program was in your decision to install this lighting.

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

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

F3. Does your organization lease or own the facility 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
98. (Don't know)
99. (Refused)

G. Closing

G1. Overall, how satisfied would you say you are with the Instant Incentive 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)

G2. Is there anything that **[UTILITY]** could have done to improve your overall experience with the Instant Incentive 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)

G2.1 **[ASK IF G2 = 1]** You mentioned you would like better communication. Who would you like more communication from? **[RECORD RESPONSE_____]**

G2.2 **[ASK IF G2 = 2]** You mentioned a quicker response time. Who would you like a quicker response time from? **[RECORD RESPONSE_____]**

G2.3 **[ASK IF G2 = 3]** What other energy-efficient equipment should *watt*smart business offer incentives for? **[RECORD RESPONSE_____]**

G2.5 **[ASK IF G2=5]** In what way would you like them to simply the application process? **[RECORD RESPONSE_____]**

G2.6 **[ASK IF G2 = 6]** In what way would you like them to simplify the website? **[RECORD RESPONSE_____]**

G3. 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 or utility representative)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or community event)
4. (Utility mailing, emailing, newsletter w/bill, bill insert, or utility Website)
5. (Through my electrician or contractor)
6. (Through a trade association, trade publication or professional organization) **[SPECIFY: _____]**)
7. (Through the vendor, distributor or supplier where I purchase lighting)
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

PacifiCorp *watt*smart Business Program
(2016–2017) *Energy Management* Participant Survey

Researchable Questions		
Key Research Topics	**Areas of Investigation**	**Related Questions**
Screening	Project initiation process	C1
Marketing and Outreach	Program Awareness	B3
	Future communication preferences	G3
Barriers	Obstacles to installing high-efficiency equipment	C3-C4, C34-C35
Satisfaction	Assess satisfaction with Program application process, various program components and reasons for dissatisfaction among participants	C5-C32, G1, G2
Firmographics	Determine building and company characteristics of participants	Section F
Decision Making	Key factors influencing customers' decision to participate in program. Benefits received.	C1, C2, C9, C33
Freeridership and Spillover	Assess net savings	Sections D and E

Target Quota = See samples for individual states

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

- **[UTILITY]**
- **[PROGRAM YEAR]**
- **[CONTACT NAME]**
- **[PROJECT NAME]**
- **[SITE ADDRESS 1]**
- **[SITE CITY]**
- **[PROJECT STATE]**
- **[MEASURE SUB TYPE]**
- **[MEASURE CUSTOM NAME]**
- **[CUSTOMER INCENTIVE]**
- **[BILL_CREDIT]**

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 your participation in the **[UTILITY]** incentives for the **[PROJECT NAME]** project? **[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 the **[PROJECT NAME]** project? **[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 READ A1 AGAIN]**
99. (Refused) **[THANK AND TERMINATE]**

A2. Are you the person responsible for making energy-efficiency decisions for your company at the **[SITE ADDRESS 1], [SITE CITY]** location?

1. (Yes)
2. (No, person is able to come to phone) **[ASK FOR PERSON WHO IS AND RE-READ A2]**
3. (No, person is not able to come to phone) **[GET NAME AND PHONE NUMBER, SCHEDULE CALL BACK – START CALLBACK AT A1]**
98. (Don't know) **[ASK TO SPEAK WITH SOMEONE WHO KNOWS AND RE-READ A2]**
99. (Refused) **[THANK AND TERMINATE]**

A3. We are conducting an important survey today about **[INSERT UTILITY]**'s Energy Management 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 10-15 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. **[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 completed a **[MEASURE SUB TYPE]** project at **[SITE ADDRESS 1]** in **[INSERT PROGRAM YEAR]**? Is this correct? **[IF MEASURE CUSTOM NAME IN SAMPLE READ:** This included **[MEASURE CUSTOM NAME]**. **[MULTIPLE RESPONSE]**

1. (Yes)
2. (No, wrong year) [RECORD CORRECT YEAR IF POSSIBLE]
3. (No, wrong address) [RECORD CORRECT ADDRESS]
4. (No, wrong measure) [CORRECT BELOW]

   B1.4A (ASKED IF MEASURE SUB TYPE IS INCORRECT [Which of the following did you complete?

   1 Industrial Recommissioning
   2 Persistent Recommissioning
   3 Recommissioning
   4 Strategic Energy Management

   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

   [ASSIGN VARIABLE C_MEASURE SUB TYPE based on response to B1.4A]

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 this project?

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 for this **[MEASURE SUB TYPE OR C MEASURE SUB TYPE]** project? **[DO NOT READ LIST; MULTIPLE RESPONSES POSSIBLE]**

1. (Contact with *watt*smart Business representative or utility representative)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or community event)
4. (Utility mailing, bill insert, or utility Website)
5. (Previously participated in program/received an incentive)
6. (Through a civic organization, trade association or professional organization) [SPECIFY: _____])
7. (Through the vendor or supplier where I purchase equipment)
8. (Word of mouth (family, friend, or business colleague)

9. (Other [SPECIFY: _____])
98. (Don't know)
99. (Refused)

C. Energy Management

C1. What factors were important to your company's decision to participate in the **[MEASURE SUB TYPE OR C MEASURE SUB TYPE]** incentives? **[DO NOT READ LIST; RECORD ALL THAT APPLY]**

1. (To save money on energy bills)
2. (To save energy)
3. (To obtain professional services of the Energy Management Provider/identify operational issues in the building systems or processes)
4. (To obtain a program incentive)
5. (To improve productivity)
6. (Other **[SPECIFY_____]**)
98. (Don't know)
99. (Refused)

C2. Thinking about the factor(s) you just mentioned, what was the most important to your company's decision to participate? **[DO NOT READ LIST; RECORD ONE RESPONSE]**

1. (To save money on energy bills)
2. (To save energy)
3. (To obtain professional services/ services of the Energy Management Provider/identify operational issues in the building systems or processes)
4. (To obtain a program incentive)
5. (To improve productivity)
6. (Other **[SPECIFY_____]**)
98. (Don't know)
99. (Refused)

C3. Thinking about the general application and any supplemental 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 C3=2, 3 OR 4]

C4. What would have made this paperwork easier to complete?

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

C5. 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 C5=2, 3 OR 4]

C6. What incentive amount would have been enough for you to say you were very satisfied?

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

C7. 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 C7=2, 3 OR 4]

C8. What amount of time would have been appropriate? [Record answer in days, weeks, months]

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

C9. What payback period does you company typically look for on these kinds of projects?

[RECORD SPECIFIC PERIOD OF TIME, EX 1-2 MONTHS, 1 YEAR, 2-3 YEARS)

[RECORD VERBATIM: _____]

98. (Don't know)

Thank you, now I'd like to ask you a few questions about the information and services provided for your project, by the **[UTILITY]** funded, Energy Management Provider.

[ASK C10-C17 IF MEASURE SUB TYPE OR C MEASURE SUB TYPE ≠ STRATEGIC ENERGY MANAGEMENT]

C10. Overall, how satisfied were you with the detailed site assessment that was conducted by the engineering services Provider for this project? 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 C10=2, 3 OR 4]

C11. Why do you say that?

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

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

C12. How satisfied were you with the recommendations presented in the Savings and Incentive Report for this project? 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 C12=2, 3 OR 4]

C13. Why do you say that?

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

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

C14. After you implemented the project, how satisfied were you with the project verification completed by the Energy Management Provider? 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 C14=2, 3 OR 4]

C15. Why do you say that?

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

C16. How satisfied were you with the final Savings and Verification Report? Would you say…? **[READ LIST]**

1. Very satisfied **[SKIP TO C30]**
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all
98. (Don't know) **[SKIP TO C30]**
99. (Refused) **[SKIP TO C30]**

[IF C16=2, 3 OR 4]

C17. Why do you say that?

1. **[RECORD VERBATIM: _____]** **[SKIP TO C30]**
98. (Don't know) **[SKIP TO C30]**
99. (Refused) **[SKIP TO C30]**

[ASK C18-C29 IF MEASURE SUB TYPE OR C MEASURE SUB TYPE =STRATEGIC ENERGY MANAGEMENT]

C18. Overall, how satisfied were you with the energy management assessment conducted for this project? 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 C18=2, 3 OR 4]

C19. Why do you say that?

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

C20. How satisfied were you with the coaching your organization received from the Energy Management Provider for this project? 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 C20=2, 3 OR 4]

C21. What would have increased your satisfaction with the coaching your organization received?

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

C22. During the phase in which you and your Energy Management Provider determined the energy savings for your facility, an Energy Map was created, energy data was collected and analyzed, and an energy savings model and dashboard were built. Following this, the Energy Management Provider would have discussed each of these with your organization. Thinking about this phase, how satisfied were you with the Energy Map? 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 C22=2, 3 OR 4]

C23. Why do you say that?

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

C24. Thinking about this same phase, how satisfied were you with the information you received about the energy data analysis? 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 C24=2, 3 OR 4]

C25. Why do you say that?

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

C26. Again, thinking about this same phase, how satisfied were you with the savings model? 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 C26=2, 3 OR 4]

C27. Why do you say that?

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

C28. As a final step in this phase, the Energy Management Provider estimated the energy savings for your facility and created an SEM Savings Memorandum. How satisfied were you with the information you received in this memorandum? 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 C28=2, 3 OR 4]

C29. Why do you say that?

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

[ASK ALL C30-C34]

C30. Overall how satisfied were you with the engineering services provider funded by **[UTILITY]**? 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 C30=2, 3 OR 4]

C31. Why do you say that?

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

C32. Overall, how satisfied were you with the **[MEASURE SUB TYPE OR C MEASURE SUB TYPE]** 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)

C33. What would you say are the main benefits your company has experienced as a result of your participation in the **[MEASURE SUB TYPE OR C MEASURE SUB TYPE]** program]? [DO NOT READ LIST; RECORD ALL THAT APPLY; PROBE FOR MULTIPLE RESPONSES]

1. (Saving money on our utility bills; lower energy bills)
2. (Using less energy, reducing energy consumption or energy demand)
3. (Obtained professional services of the Energy Management Provider/identified operational issue in the building systems or processes)
4. (The incentive)
5. (Improved productivity)
6. (Saving money on maintenance costs)

7. (Other **[SPECIFY: _____]**)
8. (NO BENEFITS)
98. (Don't know)
99. (Refused)

C34. Other than what you've already told me, did you encounter any challenges participating in the **[MEASURE SUB TYPE OR C MEASURE SUB TYPE]** program?

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

[IF C34=1]

C35. 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 C35=5]

C35.5 You mentioned you would like more information. What type of information do you need? **[RECORD VERBATIM: _____]**

D. Freeridership

[IF MEASURE SUB TYPE OR C_MEASURE SUB TYPE=STRATEGIC ENERGY MANAGEMENT SKIP TO E16]

Thank you. Next, we have a few questions about other energy-efficiency improvements you might have made.

[ASK D1-D9 IF MEASURE SUB TYPE OR C MEASURE SUB TYPE ≠STRATEGIC ENERGY MANAGEMENT]

D1. Without the **[MEASURE SUB TYPE OR C MEASURE SUB TYPE]** program, meaning without either the technical assistance or the financial incentive, would you have still completed the exact same **[MEASURE SUB TYPE OR C MEASURE SUB TYPE]** project?

1. (Yes)
2. (No) [SKIP TO D3]

98. (Don't know) [SKIP TO D3]
99. (Refused) [SKIP TO D3]

D2. Without the program, meaning without either the technical assistance or the financial incentive, would you have still completed the [**MEASURE SUB TYPE OR C MEASURE SUB TYPE**] project at the same time?

1. (Yes) [SKIP TO D7]
2. (No) [SKIP TO D4]
98. (Don't know) [SKIP TO D4]
99. (Refused) [SKIP TO D4]

D3. Without the program, would you have completed any [**MEASURE SUB TYPE OR C MEASURE SUB TYPE**] project?

1. (Yes)
2. (No) [SKIP TO D8]
98. (Don't know) [SKIP TO D8]
99. (Refused) [SKIP TO D8]

D4. Without the program, in terms of timing, when would you have completed the [**MEASURE SUB TYPE OR C MEASURE SUB TYPE**] project?

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 D8]
98. (Don't know)
99. (Refused)

D5. Relative to the energy efficiency of [**MEASURE SUB TYPE OR C MEASURE SUB TYPE**] project completed through the program, how would you characterize the efficiency of the recommissioning project you would have completed without the program?

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

D6. Would you have recommissioned more, less, or the same amount of equipment without the program?

1. (More)
   D6a. Compared to the amount recommissioned through the program, how much more? **[RECORD PERCENTAGE: _____] [NUMERIC 0-100,998(DON'T KNOW),999 (REFUSED)**
2. (Less)

D6b. Compared to the amount recommissioned through the program, how much less? **[RECORD PERCENTAGE: _____] [NUMERIC 0-100, 998 (DON'T KNOW), 999 (REFUSED)**

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

D7. Prior to hearing about the program, was the cost of your recommissioning project included in your organization's most recent capital budget?

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

D8. In your own words, can you please describe what impact the program had on your decision to complete this [**MEASURE SUB TYPE OR C MEASURE SUB TYPE**] project?

D9. With the **[MEASURE SUB TYPE OR C MEASURE SUB TYPE]** program, your company received financial incentives of **[CUSTOMER INCENTIVE]** for your project.
For the project, 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 recommission. 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. Recommendations provided by **[UTILITY]**'s engineering services Provider on energy saving opportunities
2. Information on payback
3. The **[UTILITY]** incentive
4. Verification of proper installation, repairs, and/or control strategies
5. Previous participation with a **[UTILITY]** program **[RECORD RATINGS AND SPECIFY PROGRAM___]**

E. Spillover

E1. Now I'd like to ask about recommissioning projects **other than** those you completed through the program. Since participating in this program, have you completed any additional recommissioning projects on your own without any assistance from a utility 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. Did you complete a recommissioning project that is the same as the [**MEASURE SUB TYPE OR C MEASURE SUB TYPE]** project you completed through the program?

1. (Yes)
2. (No) **[SKIP TO E9]**
98. (Don't know) **[SKIP TO E9]**
99. (Refused) **[SKIP TO E9]**

E3. How many projects did you complete?

1. [RECORD RESPONSE] [Numeric 0-97)
98. (Don't know)
99. (Refused)

E4. Relative to the energy efficiency of the project completed through the program, how would you characterize the efficiency of this project?

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)

E5. Did you receive an incentive from **[UTILITY]** or another organization for this recommissioning?

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

[ASK IF E5=1]

E6. What program or sponsor provided the incentive?

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

E7. 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] [MEASURE SUB TYPE OR C MEASURE SUB TYPE]** program was in your decision to recommission this equipment(s).

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

[ASK IF E5=2]

E8. Why did you not apply for an incentive from **[UTILITY]** for this recommissioning project?

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

E9. In **[PROGRAM YEAR]** did you purchase and install ***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 F]**
98. (Don't know) **[SKIP TO SECTION F]**
99. (Refused) **[SKIP TO SECTION F]**

E10. What type of equipment did you install? **[DO NOT READ LIST. RECORD ALL THAT APPLY]**

1. (Lighting equipment)
2. (HVAC equipment (heating and cooling)/HVAC controls/Ventilation/Fans)
3. (Water heating equipment)
4. (Variable frequency drive)
5. (Efficient motor)
6. (Refrigeration equipment)
7. (Building envelope measures)
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 F]**
98. (Don't know) **[SKIP TO SECTION F]**
99. (Refused) **[SKIP TO SECTION F]**

[ASK E10.11-E10.14 AND E11-E15 if E10=1]

E10.11 What type of lighting was purchased and installed? **[SPECIFY TYPE EXAMPLE: CFL, LED, FLUORESCENT]**: _____
E10.12 What is the wattage of the lighting? **[SPECIFY]**: _____
E10.13 In what location was it installed (Wall/Ceiling/Outdoors)? **[SPECIFY]**: _____
E10.14 What type of equipment was removed or replaced? **[SPECIFY]**: _____

[ASK E10.21-E10.24 AND E11-E15 if E10=2]

E10.21 What type of HVAC equipment was purchased and installed? **[SPECIFY TYPE]**: _
E10.22 What Fuel type is used? **[SPECIFY]**: _____
E10.23 What is the efficiency rating of the equipment? Is that HSFP, EER or SEER? [Record as HSFP or EER or SEER (ex 13 SEER)] **[SPECIFY]**: _____
E10.24 What is the capacity, in tons, of the equipment? [Record in tons (5 tons, 10 tons etc.)] **[SPECIFY]**: _____

[ASK E10.31-E10.34 AND E11-E15 if E10=3]

E10.31 What type of water heating equipment was purchased and installed? **[SPECIFY TYPE]**: _____

E10.32 What Fuel type is used? **[SPECIFY]**: _____

E10.33 What is the energy factor of the equipment? [Record energy factor (ex .54 EF or 2 EF)] **[SPECIFY]**: _____

E10.34 (If water heater with storage) What is the capacity, in gallons, of the equipment? [Record in gallons] **[SPECIFY]**:

[ASK E10.41-E10.42 AND E11-E15 if E10=4]

E10.41 What type of motor was it installed on? **[SPECIFY TYPE]**: _____

E10.42 What is the horsepower of the motor? **[SPECIFY]**: _____

[ASK E10.51-E10.52 AND E11-E15 if E10=5]

E10.51 What equipment was the motor installed on? **[SPECIFY TYPE]**: _____

E10.52 What is the horsepower of the motor? **[SPECIFY]**: _____

[ASK E10.61 AND E11-E15 if E10=6]

E10.61 What type of refrigeration or freezer equipment was purchased and installed? **[SPECIFY TYPE]**: _____

[ASK E10.71-E10.73 AND E11-E15 if E10=7]

E10.71 What building envelope measure was purchased and installed? **[SPECIFY TYPE]**:

E10.72 What is the efficiency (R-value) of the measure? **[SPECIFY]**: _____

E10.73 In what location was it installed (Wall/Roof/Floor)? **[SPECIFY]**: _____

[ASK E10.81-E10.82 AND E11-E15 if E10=8]

E10.81 FOR What type of application was the compressed air equipment purchased and installed? **[SPECIFY APPLICATION]**: _____

E10.82 What is the horsepower of the compressor motor? **[SPECIFY]**: _____

[ASK E10.91-E10.92 AND E11-E15 if E10=9]

E10.91 FOR What type of application was the chiller purchased and installed? **[SPECIFY APPLICATION]**: _____

E10.92 What size chiller, in tons, did you install? [Record in tons (5-ton, 10 ton etc.)] **[SPECIFY]**: _____

[ASK E10.101-E10.103 AND E11-E15 if E10=10]

E10.101 FOR What type of application was the pump purchased and installed? **[SPECIFY APPLICATION]**: _____

E10.102 What is the horsepower of the motor for the pump? **[SPECIFY]** _____

E10.103 What is the efficiency rating of the pump? [Record percentage (ex 94%)] **[SPECIFY]**: _____

[ASK E10.111 AND E11-E15 if E10=11]

E10.111 WHAT IRRIGATION EQUIPMENT DID YOU purchased and install? **[SPECIFY GASKETS, DRAINS, SPRINKLERS, ETC.]**: _____

[ASK IF E10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN E10 = 1- 12]

E11. How many did you purchase and install? [ASK FOR EACH MEASURE MENTIONED IN E10 = 1-12] [IF E10 MEASURE = 7 'BUILDING ENVELOPE' THEN ASK HOW MANY 'SQUARE FEET']

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

[ASK IF E10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN E10]

E12. Just to confirm, did you receive an incentive from **[UTILITY]** or another organization for this equipment? [ASK FOR EACH MEASURE MENTIONED IN E10]

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

[ASK FOR EACH YES IN E12]

E13. What utility or organization provided the incentive? [ASK FOR EACH MEASURE MENTIONED IN E10]

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

[ASK IF E10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN E10]

E14. What information did you rely upon to determine that the equipment installed was energy efficient? [ASK FOR EACH MEASURE MENTIONED IN E10]

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

[ASK IF E10=1-12] [ASK ABOUT EACH ITEM MENTIONED IN E10]

E15. 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] [MEASURE SUB TYPE OR C MEASURE SUB TYPE]** program was in your decision to install [this/these/ energy-efficient product(s)? [ASK FOR EACH MEASURE MENTIONED IN E10]

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

[IF MEASURE SUB TYPE OR C MEASURE SUB TYPE≠STRATEGIC ENERGY MANAGEMENT SKIP TO F1]
[ASK E16 IF MEASURE SUB TYPE OR C MEASURE SUB TYPE =STRATEGIC ENERGY MANAGEMENT]

E16. Does your organization have other facilities within the **[UTILITY]** service territory?

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

E17. Please describe any [**MEASURE SUB TYPE OR C MEASURE SUB TYPE**] activities at your other locations within **[UTILITY]**'s territory, that you implemented **since** participating in the program, without an incentive from **[UTILITY]**.

1. **[RECORD RESPONSE]**
2. (None) **[SKIP TO SECTION F]**
98. (Don't know) **[SKIP TO SECTION F]**
99. (Refused) **[SKIP TO SECTION F]**

E18. 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] [MEASURE SUB TYPE OR C MEASURE SUB TYPE]** program was in your decision to implement [this/these/ activity(s)?]

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

[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 NUMBER: _____] [NUMERIC 1-500]**
2. More than 500

998 (Don't know)

999 (Refused)

F3 Does your organization lease or own the facility 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
98. (Don't know)
99. (Refused)

G. Closing

G1. Overall, how satisfied would you say you are with the **[MEASURE SUB TYPE OR C MEASURE SUB TYPE]** 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)

G2. Is there anything that **[UTILITY]** could have done to improve your overall experience with the [**MEASURE SUB TYPE OR C MEASURE SUB TYPE**] 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)

G2.1 **[ASK IF G2 = 1]** You mentioned you would like better communication. Who would you like more communication from? **[RECORD RESPONSE_____]**

G2.2 **[ASK IF G2 = 2]** You mentioned a quicker response time. Who would you like a quicker response time from? **[RECORD RESPONSE_____]**

G2.3 **[ASK IF G2 = 3]** What other energy-efficient equipment should *watt*smart business offer incentives for? **[RECORD RESPONSE_____]**

G2.5 **[ASK IF G2=5]** In what way would you like them to simply the application process? **[RECORD RESPONSE_____]**

G2.6 **[ASK IF G2 = 6]** In what way would you like them to simplify the website? **[RECORD RESPONSE_____]**

G3. In the future, how would you like to stay informed about opportunities available through the [**MEASURE SUB TYPE OR C MEASURE SUB TYPE]** program? **[DO NOT READ LIST; MULTIPLE RESPONSES POSSIBLE]**

1. (Contact with *watt*smart Business representative or utility representative)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or event)
4. (Utility mailing, email, newsletter with bill, bill insert, or utility Website)
5. (Contact with a vendor/contractor)
6. (Through a trade association, trade publication or professional organization) [SPECIFY: _____])
7. (Newspaper ad)
8. (Radio ad)
9. (TV ad)
10. (Social Media (e.g., Facebook, Twitter, YouTube))
11. (Online ads)
12. (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 (2016/2017) 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:
California=68
Washington=68
Utah=68
Idaho=68
Wyoming=68

Partial participants: See quota tab in Partial Participants 2016-2017 Sample for VuPoint

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]**
- **[CUSTOMER NAME]**
- **[SITE.ADDRESS 1]**
- **[SITE CITY]**
- **[SITE STATE]**
- **[UTILITY]**
- **[MEASURE.NAME.FINAL] MEASURE**
- **[YEAR] PROGRAM YEAR**

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 **[SITE.ADDRESS 1]** 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**. [IF SITE STATE=CA AND IF PARTICIPANT=PARTIAL PARTICIPANT, READ:** For completing this survey, we will enter your name into a drawing for the chance to win a $100-dollar gift card.**]** 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. **[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 **[SITE.ADDRESS 1]** with **[UTILTY]** in **[YEAR]**, but did not complete this project through the wattsmart Business Program. You may have first discussed this project with **[UTILITY],** or submitted an application as early as 2013, but the project was officially created in **[YEAR] IS** this correct?

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 **[FOR PARTIAL PARTICIPANTS READ:** this equipment?**]** **[FOR NONPARTICIPANTS READ:** energy efficient equipment in 2016 or 2017? 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.**]**

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 THEN SKIP TO C4]

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 or utility representative)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or community event)
4. (Utility mailing, bill insert, or utility website)
5. (Through my electrician or contractor)
6. (Previously participated in program/received an incentive)
7. (Through a trade association or professional organization) **[SPECIFY: _____])**
8. (Through a vendor, distributor or supplier where I purchase lighting)
9. (Word of mouth (family, friend, or business colleague)
10. (Other **[SPECIFY: _____])**
98. (Don't know)
99. (Refused)

[ASK NONPARTICIPANTS C2]

C2. Prior to this call today, were you aware that **[UTILITY]** offers technical expertise and cash incentives to help their commercial and industrial customers like you, improve your business' electric energy efficiency?

1. (Yes)
2. (No) **[SKIP TO C5]**
98. (Don't know) **[SKIP TO C5]**
99. (Refused) **[SKIP TO C5]**

[ASK IF C2=1]

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)

[ASK IF C1=1-12 OR 98 OR 99, OR IF C3=1-12 OR 98 OR 99]

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. MULTIPLE RESPONSES POSSIBLE]**

1. (Contact with *watt*smart Business representative, or utility representative)
2. (*watt*smart printed program materials)
3. (*watt*smart sponsored workshop or community event)
4. (Utility mailing, mail, newsletter with bill, bill insert, or utility website)
5. (Through my electrician or contractor)
6. (Through a trade association, trade publication or professional organization) **[SPECIFY: _____]**)
7. (Through the vendor, distributor or supplier where I purchase lighting)
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 most important to motivate your company to make energy-efficient upgrades?
[DO NOT READ LIST; RECORD ONE RESPONSE]

1. (To save money on energy bills)
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 *watts*mart 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 *watts*mart Business incentive?

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 2016 or 2017, 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]**

E4. What program or sponsor provided the incentive(s)? **[RECORD FOR EACH MEASURE MENTIONED IN E2]**

1. **[SPECIFY]**
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 E5.1 = 1-5 AND MORE THAN 1 SELECTED IN E2]** Does this rating differ for any of the improvements you mentioned?

1. (Yes)
2. (No)
98. (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 E5.2 = 1-5 AND MORE THAN 1 SELECTED IN E2]** Does this rating differ for any of the other improvements you mentioned?

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

E5.2b **[ASK IF E5.2A = 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]**

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

E5.3 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 E5.3=1-5 AND MORE THAN 1 SELECTED IN E2]** Does this rating differ for any of the other improvements you mentioned?

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

E5.3b **[ASK IF E5.3A = 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]**

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

[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

[ASK PARTIAL PARTICIPANTS G1-G4] [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)

G4. May I please get the spelling of your name, and your mailing address to enter you into the drawing for the $100-dollar gift card? The winner will be notified within the next month.

1. **[RECORD NAME]**
2. **[RECORD MAILING ADDRESS]**

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 Utah's *Watt*smart program.

Table E1. Utah w*atts*mart Business End-Use Category Cost-Effectiveness Inputs

Input Description	2016	2017	Total
Average Measure Life*			
Agricultural	11.9	12.1	12.0
Other	12.8	13.3	13.0
Motor Systems	14.0	14.9	14.3
HVAC	14.2	15.8	15.1
Compressed Air	15.0	14.6	14.7
Lighting	13.1	13.9	13.5
Recommissioning	12.3	3.6	6.2
Refrigeration	13.0	14.3	13.8
Evaluated Net Energy Savings (kWh/year)**			
Agricultural	589,959	1,184,580	1,774,539
Other	9,964,857	6,307,450	16,272,307
Motor Systems	14,676,410	7,192,576	21,868,987
HVAC	10,759,177	14,087,118	24,846,295
Compressed Air	4,143,929	5,692,704	9,836,633
Lighting	121,248,883	103,227,490	224,476,373
Recommissioning	17,866,872	42,078,873	59,945,745
Refrigeration	1,944,487	2,978,943	4,923,429
Total Utility Cost (including incentives)***			
Agricultural	$180,258	$579,634	$759,892
Other	$4,000,936	$2,438,978	$6,439,914
Motor Systems	$4,116,568	$1,459,323	$5,575,891
HVAC	$4,489,604	$4,435,758	$8,925,362
Compressed Air	$1,124,905	$1,129,607	$2,254,512
Lighting	$20,224,503	$20,358,170	$40,582,673
Recommissioning	$2,455,780	$3,020,358	$5,476,138
Refrigeration	$908,157	$983,620	$1,891,777
Incentives			
Agricultural	$95,822	$158,092	$253,914
Other	$2,467,889	$2,086,154	$4,554,043
Motor Systems	$2,281,461	$944,295	$3,225,756
HVAC	$2,588,099	$3,605,814	$6,193,913
Compressed Air	$657,536	$805,465	$1,463,001

Lighting	$17,742,233	$13,140,756	$30,882,989
Recommissioning	$402,999	$949,117	$1,352,116
Refrigeration	$519,115	$789,007	$1,308,122
Commercial Retail Rate	**$0.085**	**$0.084**	**N/A**
Industrial Retail Rate	**$0.061**	**$0.059**	**N/A**
Irrigation Retail Rate	**$0.078**	**$0.079**	**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 all test perspectives except the RIM (Table E2).

Table E2. Utah Agricultural 2016-2017 Net
(2015 Decrement East Commercial Cooling 14% – Load Shape Irrigation)
(2015 Decrement East Industrial 40% – Load Shape Industrial)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.063	$1,005,388	$1,994,115	$988,727	1.98
TRC	$0.063	$1,005,388	$1,812,832	$807,444	1.80
UCT	$0.045	$723,699	$1,812,832	$1,089,133	2.50
RIM		$1,976,556	$1,812,832	($163,725)	0.92
PCT		$665,483	$1,829,938	$1,164,455	2.75
Lifecycle Revenue Impacts ($/kWh)					$0.000000571
Discounted Participant Payback (years)					3.27

Table E3. Utah Agricultural 2016 Net
(2015 Decrement East Commercial Cooling 14% – Load Shape Irrigation)
(2015 Decrement East Industrial 40% – Load Shape Industrial)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.056	$311,574	$660,732	$349,158	2.12
TRC	$0.056	$311,574	$600,666	$289,092	1.93
UCT	$0.033	$180,258	$600,666	$420,408	3.33
RIM		$604,192	$600,666	($3,526)	0.99
PCT		$287,516	$632,447	$344,931	2.20

Lifecycle Revenue Impacts ($/kWh)	$0.000000013
Discounted Participant Payback (years)	3.56

Table E4. Utah Agricultural 2017 Net
(2015 Decrement East Commercial Cooling 14% – Load Shape Irrigation)
(2015 Decrement East Industrial 40% – Load Shape Industrial)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.066	$740,022	$1,422,186	$682,164	1.92
TRC	$0.066	$740,022	$1,292,897	$552,875	1.75
UCT	$0.052	$579,634	$1,292,897	$713,263	2.23
RIM		$1,463,764	$1,292,897	($170,868)	0.88
PCT		$403,139	$1,277,244	$874,105	3.17
Lifecycle Revenue Impacts ($/kWh)					$0.000000589
Discounted Participant Payback (years)					2.13

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 proved cost-effective from all perspectives except for the RIM (Table E5).

Table E5. Utah Other 2016-2017 Net
(2015 Decrement East Commercial Cooling 14% – Load Shape HVAC)
(2015 Decrement East Plug Load 71% – Load Shape Commercial Plug Load)
(2015 Decrement East Industrial 40% – Load Shape Industrial)
(2015 Decrement East Water Heating 53% – Load Shape Water Heating)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.062	$9,024,271	$11,041,469	$2,017,198	1.22
TRC	$0.062	$9,024,271	$10,037,699	$1,013,428	1.11
UCT	$0.044	$6,287,621	$10,037,699	$3,750,078	1.60
RIM		$15,903,987	$10,037,699	($5,866,288)	0.63
PCT		$9,421,619	$17,076,894	$7,655,275	1.81
Lifecycle Revenue Impacts ($/kWh)					$0.000017505
Discounted Participant Payback (years)					4.39

Table E6. Utah Other 2016 Net
(2015 Decrement East Plug Load 71% – Load Shape Commercial Plug Load)
(2015 Decrement East Industrial 40% – Load Shape Industrial)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.065	$5,667,416	$6,316,808	$649,392	1.11
TRC	$0.065	$5,667,416	$5,742,553	$75,136	1.01
UCT	$0.046	$4,000,936	$5,742,553	$1,741,617	1.44

RIM		$9,655,144	$5,742,553	($3,912,591)	0.59
PCT		$5,439,960	$9,907,636	$4,467,676	1.82
Lifecycle Revenue Impacts ($/kWh)					$0.000011675
Discounted Participant Payback (years)					3.93

Table E7. Utah Other 2017 Net
(2015 Decrement East Commercial Cooling 14% – Load Shape HVAC)
(2015 Decrement East Industrial 40% – Load Shape Industrial)
(2015 Decrement East Water Heating 53% – Load Shape Water Heating)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.059	$3,580,421	$5,039,323	$1,458,902	1.41
TRC	$0.059	$3,580,421	$4,581,203	$1,000,782	1.28
UCT	$0.040	$2,438,978	$4,581,203	$2,142,225	1.88
RIM		$6,665,016	$4,581,203	($2,083,813)	0.69
PCT		$4,246,838	$7,646,731	$3,399,892	1.80
Lifecycle Revenue Impacts ($/kWh)					$0.000006901
Discounted Participant Payback (years)					4.06

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. Utah Motor Systems 2016-2017 Net
(2015 Decrement East Industrial 40% – Industrial Machinery General)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.037	$8,171,854	$15,709,025	$7,537,170	1.92
TRC	$0.037	$8,171,854	$14,280,932	$6,109,077	1.75
UCT	$0.025	$5,484,769	$14,280,932	$8,796,163	2.60
RIM		$19,300,812	$14,280,932	($5,019,881)	0.74
PCT		$6,504,309	$18,517,952	$12,013,643	2.85
Lifecycle Revenue Impacts ($/kWh)					$0.000017506
Discounted Participant Payback (years)					2.73

Table E9. Utah Motor Systems 2016 Net
(2015 Decrement East Industrial 40% – Industrial Machinery General)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.040	$5,969,682	$10,492,385	$4,522,704	1.76
TRC	$0.040	$5,969,682	$9,538,532	$3,568,850	1.60
UCT	$0.028	$4,116,568	$9,538,532	$5,421,964	2.32

RIM		$13,525,362	$9,538,532	($3,986,830)	0.71
PCT		$4,593,972	$12,735,677	$8,141,705	2.77
Lifecycle Revenue Impacts ($/kWh)					$0.000014589
Discounted Participant Payback (years)					2.43

Table E10. Utah Motor Systems 2017 Net
(2015 Decrement East Industrial 40% – Industrial Machinery General)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.031	$2,348,837	$5,564,067	$3,215,230	2.37
TRC	$0.031	$2,348,837	$5,058,243	$2,709,406	2.15
UCT	$0.019	$1,459,323	$5,058,243	$3,598,920	3.47
RIM		$6,160,095	$5,058,243	($1,101,852)	0.82
PCT		$2,037,566	$6,167,375	$4,129,809	3.03
Lifecycle Revenue Impacts ($/kWh)					$0.000003796
Discounted Participant Payback (years)					2.39

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 all perspectives except for the RIM (Table E11). In 2017 the HVAC end-use category proved cost effective from all test perspectives (Table E13).

Table E11. Utah HVAC 2016-2017 Net
(2015 Decrement East Com Cooling 14% – Load Shape HVAC)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.061	$15,926,554	$34,348,588	$18,422,035	2.16
TRC	$0.061	$15,926,554	$31,225,990	$15,299,436	1.96
UCT	$0.033	$8,648,387	$31,225,990	$22,577,602	3.61
RIM		$31,273,867	$31,225,990	($47,877)	1.00
PCT		$23,240,224	$45,662,585	$22,422,361	1.96
Lifecycle Revenue Impacts ($/kWh)					$0.000000160
Discounted Participant Payback (years)					5.90

Table E12. Utah HVAC 2016 Net
(2015 Decrement East Com Cooling 14% – Load Shape HVAC)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.066	$7,430,499	$14,512,020	$7,081,521	1.95
TRC	$0.066	$7,430,499	$13,192,746	$5,762,247	1.78
UCT	$0.040	$4,489,604	$13,192,746	$8,703,142	2.94

RIM		$14,297,573	$13,192,746	($1,104,828)	0.92
PCT		$9,699,989	$19,795,063	$10,095,074	2.04
Lifecycle Revenue Impacts ($/kWh)					$0.000004043
Discounted Participant Payback (years)					4.84

Table E13. Utah HVAC 2017 Net
(2015 Decrement East Com Cooling 14% – Load Shape HVAC)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.058	$9,061,892	$21,157,684	$12,095,791	2.33
TRC	$0.058	$9,061,892	$19,234,258	$10,172,365	2.12
UCT	$0.028	$4,435,758	$19,234,258	$14,798,500	4.34
RIM		$18,106,914	$19,234,258	$1,127,344	1.06
PCT		$14,442,015	$27,590,299	$13,148,284	1.91
Lifecycle Revenue Impacts ($/kWh)					($0.000003734)
Discounted Participant Payback (years)					5.82

Compressed Air

Table E14, Table E15, and Table E16 show the compressed air end-use category cost-effectiveness results for net evaluated savings. The compressed air end-use category proved cost-effective from all

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.037	$3,673,912	$6,908,684	$3,234,773	1.88
TRC	$0.037	$3,673,912	$6,280,622	$2,606,710	1.71
UCT	$0.022	$2,183,978	$6,280,622	$4,096,644	2.88
RIM		$8,402,329	$6,280,622	($2,121,707)	0.75
PCT		$3,375,164	$8,643,348	$5,268,184	2.56
Lifecycle Revenue Impacts ($/kWh)					$0.000007399
Discounted Participant Payback (years)					3.69

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Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.037	$3,673,912	$6,908,684	$3,234,773	1.88
TRC	$0.037	$3,673,912	$6,280,622	$2,606,710	1.71
UCT	$0.022	$2,183,978	$6,280,622	$4,096,644	2.88
RIM		$8,402,329	$6,280,622	($2,121,707)	0.75
PCT		$3,375,164	$8,643,348	$5,268,184	2.56

Lifecycle Revenue Impacts ($/kWh)	$0.000007399
Discounted Participant Payback (years)	3.69

Table E14).

Table E14. Utah Compressed Air 2016-2017 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)	$0.037	$3,673,912	$6,908,684	$3,234,773	1.88
TRC	$0.037	$3,673,912	$6,280,622	$2,606,710	1.71
UCT	$0.022	$2,183,978	$6,280,622	$4,096,644	2.88
RIM		$8,402,329	$6,280,622	($2,121,707)	0.75
PCT		$3,375,164	$8,643,348	$5,268,184	2.56
Lifecycle Revenue Impacts ($/kWh)					$0.000007399
Discounted Participant Payback (years)					3.69

Table E15. Utah Compressed Air 2016 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)	$0.047	$2,026,840	$3,114,713	$1,087,873	1.54
TRC	$0.047	$2,026,840	$2,831,557	$804,717	1.40
UCT	$0.026	$1,124,905	$2,831,557	$1,706,652	2.52
RIM		$3,905,625	$2,831,557	($1,074,068)	0.72
PCT		$1,813,338	$3,890,932	$2,077,593	2.15
Lifecycle Revenue Impacts ($/kWh)					$0.000003930
Discounted Participant Payback (years)					4.29

Table E16. Utah Compressed Air 2017 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)	$0.030	$1,756,767	$4,046,650	$2,289,883	2.30
TRC	$0.030	$1,756,767	$3,678,773	$1,922,006	2.09
UCT	$0.019	$1,129,607	$3,678,773	$2,549,166	3.26
RIM		$4,796,184	$3,678,773	($1,117,412)	0.77
PCT		$1,665,843	$5,068,927	$3,403,084	3.04
Lifecycle Revenue Impacts ($/kWh)					$0.000003850
Discounted Participant Payback (years)					2.27

Lighting

Table E17, Table E18, and Table E19 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 E17).

Table E17. Utah Lighting 2016-2017 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)	$0.039	$85,102,531	$162,926,340	$77,823,809	1.91
TRC	$0.039	$85,102,531	$148,114,854	$63,012,323	1.74
UCT	$0.018	$39,311,480	$148,114,854	$108,803,374	3.77
RIM		$229,214,487	$148,114,854	($81,099,632)	0.65
PCT		$83,355,508	$238,747,084	$155,391,576	2.86
Lifecycle Revenue Impacts ($/kWh)					$0.000282819
Discounted Participant Payback (years)					3.18

Table E18. Utah Lighting 2016 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)	$0.038	$45,503,427	$86,715,535	$41,212,108	1.91
TRC	$0.038	$45,503,427	$78,832,304	$33,328,877	1.73
UCT	$0.017	$20,224,503	$78,832,304	$58,607,801	3.90
RIM		$124,307,437	$78,832,304	($45,475,133)	0.63
PCT		$47,275,997	$132,119,084	$84,843,087	2.79
Lifecycle Revenue Impacts ($/kWh)					$0.000175499
Discounted Participant Payback (years)					1.31

Table E19. Utah Lighting 2017 Net
(2015 Decrement East Commercial 53% – Load Shape Commercial Lighting)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/ Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.040	$42,236,404	$81,286,444	$39,050,041	1.92
TRC	$0.040	$42,236,404	$73,896,768	$31,660,364	1.75
UCT	$0.019	$20,358,170	$73,896,768	$53,538,598	3.63
RIM		$111,893,859	$73,896,768	($37,997,091)	0.66
PCT		$38,482,406	$113,729,425	$75,247,019	2.96
Lifecycle Revenue Impacts ($/kWh)					$0.000130907
Discounted Participant Payback (years)					1.34

Recommissioning

Table E17, Table E18, and Table E19 show the recommissioning end-use category cost-effectiveness results for net evaluated savings. The recommissioning end-use category proved cost-effective from all perspectives except for the RIM (Table E17).

Table E20. Utah Recommissioning 2016-2017 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	$5,222,146	$19,670,104	$14,447,958	3.77
TRC	$0.017	$5,222,146	$17,881,913	$12,659,767	3.42
UCT	$0.017	$5,287,543	$17,881,913	$12,594,370	3.38
RIM		$23,529,961	$17,881,913	($5,648,048)	0.76
PCT		$1,379,163	$21,789,951	$20,410,788	15.80
Lifecycle Revenue Impacts ($/kWh)					$0.000023122
Discounted Participant Payback (years)					0.95

Table E21. Utah Recommissioning 2016 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)	$0.015	$2,505,089	$10,726,697	$8,221,608	4.28
TRC	$0.015	$2,505,089	$9,751,543	$7,246,454	3.89
UCT	$0.015	$2,455,780	$9,751,543	$7,295,763	3.97
RIM		$12,862,244	$9,751,543	($3,110,701)	0.76
PCT		$508,212	$12,095,655	$11,587,443	23.80
Lifecycle Revenue Impacts ($/kWh)					$0.000012734
Discounted Participant Payback (years)					0.31

Table E22. Utah Recommissioning 2017 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)	$0.020	$2,898,013	$9,539,038	$6,641,026	3.29
TRC	$0.020	$2,898,013	$8,671,853	$5,773,840	2.99
UCT	$0.021	$3,020,358	$8,671,853	$5,651,495	2.87
RIM		$11,378,188	$8,671,853	($2,706,335)	0.76
PCT		$928,957	$10,339,937	$9,410,980	11.13
Lifecycle Revenue Impacts ($/kWh)					$0.000023486
Discounted Participant Payback (years)					0.25

Refrigeration

Table E23, Table E24, and Table E25 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 E23).

Table E23. Utah Refrigeration 2016-2017 Net
(2015 Decrement East Industrial 40% – Load Shape Refrigeration)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.055	$2,599,086	$3,502,478	$903,392	1.35
TRC	$0.055	$2,599,086	$3,184,071	$584,985	1.23
UCT	$0.039	$1,830,358	$3,184,071	$1,353,713	1.74
RIM		$4,785,943	$3,184,071	($1,601,872)	0.67
PCT		$3,975,653	$7,054,119	$3,078,466	1.77
Lifecycle Revenue Impacts ($/kWh)					$0.000005586
Discounted Participant Payback (years)					5.99

Table E24. Utah Refrigeration 2016 Net
(2015 Decrement East Industrial 40% – Load Shape Refrigeration)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.060	$1,118,395	$1,345,259	$226,864	1.20
TRC	$0.060	$1,118,395	$1,222,963	$104,568	1.09
UCT	$0.049	$908,157	$1,222,963	$314,806	1.35
RIM		$2,087,697	$1,222,963	($864,735)	0.59
PCT		$1,430,104	$2,831,939	$1,401,835	1.98
Lifecycle Revenue Impacts ($/kWh)					$0.000003540
Discounted Participant Payback (years)					4.27

Table E25. Utah Refrigeration 2017 Net
(2015 Decrement East Industrial 40% – Load Shape Refrigeration)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
PTRC (TRC + 10% Conservation Adder)	$0.052	$1,579,305	$2,300,890	$721,585	1.46
TRC	$0.052	$1,579,305	$2,091,718	$512,413	1.32
UCT	$0.032	$983,620	$2,091,718	$1,108,098	2.13
RIM		$2,877,949	$2,091,718	($786,231)	0.73
PCT		$2,715,082	$4,503,377	$1,788,295	1.66
Lifecycle Revenue Impacts ($/kWh)					$0.000002709
Discounted Participant Payback (years)					6.30