AVISTA 2012-2013
PROCESS EVALUATION REPORT

May 15, 2014

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Spokane, WA 99220

The Cadmus Group, Inc.
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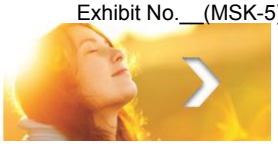

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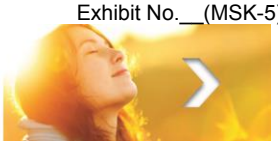

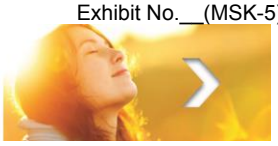

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Portfolio Executive Summary

Avista Corporation contracted with The Cadmus Group, Inc., to perform a portfolio-wide evaluation for the 2012-2013 demand-side management programs. This report presents the process evaluation findings for the residential and nonresidential sectors.

Evaluation Activities

Table ES-1 summarizes the process evaluation activities conducted by sector.

Table ES-1. PY 2012-2013 Process Evaluation Activities

Activity	Residential	Nonresidential
Avista Program Staff Interviews*	7	12
Third-Party Implementer Interviews	1	-
Contractor Interviews	-	20
Participant Surveys	1,005	210
Nonparticipant Surveys	2,160	140
Assessment of Tracking Databases	✓	✓
Review of Program Documentation	✓	✓
Review of Marketing Materials	✓	✓
Review of Stakeholder Reports	✓	✓

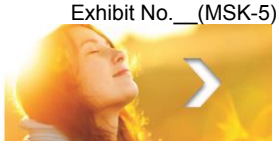
*Multiple representatives present for some interviews.

Key Residential Findings

The residential process evaluation resulted in the following key findings for the programs examined (listed in Table ES-2).

Table ES-2. PY2012 - PY2013 Residential Programs

Program Name
Natural Gas and Electric Programs
ENERGY STAR® Homes
ENERGY STAR Products
High-Efficiency Equipment
Home Audit
Manufactured Home Duct Sealing
Residential Behavior
Weatherization and Shell
Electric-Only Programs
Second Refrigerator and Freezer Recycling
Simple Steps, Smart Savings
Space and Water Conversions



- Participation levels in many of Avista's residential programs trended downward during PY2012 and PY2013. Many factors contributed to the downward trend, including reduced measure offerings and the 2013 discontinuation of natural gas incentives in Idaho. The trend experienced by Avista's programs is similar to participation trends in other regional utility DSM programs.
- The Simple Steps, Smart Savings program saw increased participation, partly due to new measure offerings. Energy-efficient showerheads were added in 2012 and LEDs were added in 2013.
- Avista's overall program design is effective, but there is room for improvement around internal communication between Avista staff.
- Avista staff showed a strong commitment to customer satisfaction, achieving fast rebate processing despite increasing complexity of applications. Avista staff have also taken steps to improve data tracking, such as integrating additional program data into a central database. In addition, program marketing through mass media channels had to be tailored to avoid customer confusion about different incentive offerings in Idaho and Washington.
- Key sources of program information for customers included contractors (17% in 2012; 28% in 2013), bill inserts (16%; 16%), and word of mouth (10%; 14%). Changes in information sources reflected changing program offerings such as the elimination of appliance rebates in 2013.
- General population awareness of Avista's rebates decreased from 63% in 2012 to 54% in 2013. Bill inserts are the most common way for the general population to learn about Avista's rebates.
- Participant satisfaction increased since the 2011 process evaluation, with 89% of 2013 participants being "very satisfied" with their program experience. Only a small number of customers expressed any level of dissatisfaction across the three years in which Cadmus conducted surveys.
- Avista's appliance rebates experienced a high level of freeridership, likely due to high market penetration of ENERGY STAR appliances and comparatively low incentive amounts—as a percent of incremental cost. Avista adjusted their program offerings to reflect this market, discontinuing appliance rebates in 2013.
- Many of Avista's customers – both participants and nonparticipants – reported installing additional energy-saving improvements without receiving any rebate because of Avista's programs' influence. These actions contribute to program spillover. Out of the 3,215 customers Cadmus surveyed in 2012 and 2013, 113 (or roughly one in every 28 customers) reported a spillover measure.

Residential Conclusions and Recommendations

This section describes the evaluation's conclusions and recommendations for the residential programs.

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Program Participation

Conclusion: Avista's implementation of new and continued support for existing third-party implemented programs such as Simple Steps, Smart Savings and Residential Behavior effectively captures energy savings in the residential market segments.

- ***Recommendation:*** Continue exploring new measures, program designs, and delivery mechanisms that leverage the national expertise of experienced third-party implementation firms. Possible programs may include additional partnership with ENERGY STAR in the form of the Home Performance with ENERGY STAR program.

Conclusion: Avista's continued investment in pilot programs provides a low-risk way test the effectiveness of new measure offerings, delivery channels, and implementation partners.

- ***Recommendation:*** Continue testing new program designs and measure offerings through the use of pilots—even if secondary sources of funding or local partners are not available.

Conclusion: While still early, evaluation findings indicate the Residential Behavior program is an effective way to capture savings in the residential market and Opower is a strong partner for program implementation.

- ***Recommendation:*** If determined to be cost-effective, consider expanding the Residential Behavior program (for example, lowering the energy consumption threshold for participation) and implementing measures to track the methods these customers use to save energy. Given that Avista has already included all cost-effective customers in their target population for this program, future opportunities for expansion may be limited.

Program Design

Conclusion: Inconsistencies continue to exist in measure and program naming and organization across program planning, tracking and reporting activities which result in less transparency in program operations and limit effective program evaluation.

- ***Recommendation:*** As part of the transition to the new data tracking system, consider aligning program and measure names with offerings articulated in annual business plans and other planning materials.

Conclusion: Reduction in Avista natural gas rebates and elimination of appliance rebates give customers fewer ways to participate in Avista energy-efficiency rebate programs.

- ***Recommendation:*** Consider ways to encourage repeat participation (such as marketing targeted at previous participants and online profiles that reduce application paperwork).

Conclusion: Considering self-report customer freeridership scores and market baseline data from the RTF is an effective way to assess the appropriateness of measure offerings.

- ***Recommendation:*** Continue use of customer freeridership and market assessments as a way to assess the appropriateness of measure offerings.

Conclusion: Many ongoing changes in Avista's program design and measure offerings are driven by the need to continue to meet cost-effectiveness requirements. Avista's examination of measure and program-level cost-effectiveness will determine the character of its portfolio in future program years.

- ***Recommendation:*** Develop a transparent process for assessing measure or program cost-effectiveness and communicating results internally. Consider ways to ensure high-quality cost-effectiveness analysis that aligns with industry best practices, such as obtaining an objective third-party review of current cost-effectiveness screening processes.

Program Implementation

Conclusion: Avista prioritization of customer satisfaction has been very successful and overall participant experience is very positive across all rebate programs.

- ***Recommendation:*** Continue Avista's commitment to customer satisfaction, but monitor:
  - Increased staffing costs; and
  - Impacts of the 90-day participation window on freeridership.

Marketing and Outreach

Conclusion: Avista implements a strong general awareness campaign around energy-efficiency, but some room exists in market segmentation and targeting specific customer groups.

- ***Recommendation:*** Utilize survey results from this evaluation and other data collection activities to understand which audiences are more likely to participate in Avista programs.

Key Nonresidential Findings

The nonresidential process evaluation resulted in the following key findings for the programs examined (listed in Table ES-3).

Table ES-3. PY2012 - PY2013 Nonresidential Programs

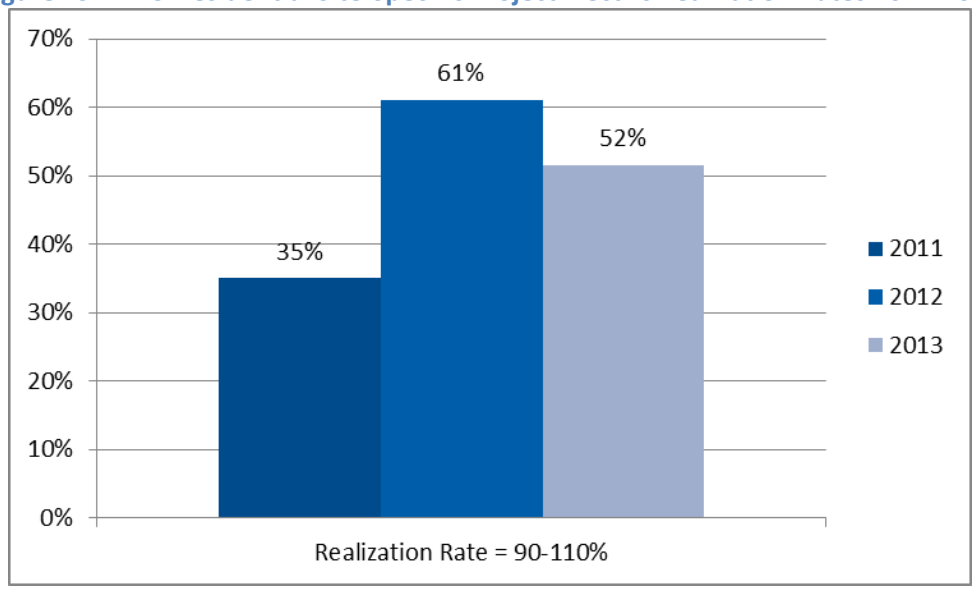
Program or Measure Name
Prescriptive Program
Lighting
PC Network Controls
Clothes Washers
Food Service
Motors
Variable Frequency Drives
Windows/Insulation
HVAC (natural gas only)

Standby Generator Block Heater
Green Motors Program
Site-Specific Program
Custom Projects Meeting Program Criteria
EnergySmart Grocer Program
Compressors
Controls
Motors
Night Covers for Refrigerated Cases
Case Lighting
Strip Curtains for Refrigerated Spaces
Insulation for Suction Lines
Hot Water Tanks

- Program participants were more likely than nonparticipants to own their facilities: according to surveys (78% of participants owned their facilities, compared with 67% of nonparticipants).
- Overall, participants reported high satisfaction ratings. The vast majority were "very satisfied": 87% for Prescriptive, 75% for Site-Specific, and 88% for EnergySmart Grocer. Only a handful of customers (roughly 1%) reported any level of dissatisfaction.
- All three nonresidential programs received the same satisfaction ratings or better than they did in 2011, with the EnergySmart Grocer program showing a 23% increase in "very satisfied" customers over 2011.
- Though still showing high overall satisfaction, the Washington Site-Specific program had the lowest level of "very satisfied" participants at 69%. Among these participants, lower levels of satisfaction stemmed from inadequate information included in the program materials, and a lower-than-desired rebate amount. However, satisfaction with Avista's staff remained high despite these minor issues: 90% or more of participants in every category were "very satisfied" with staff.
- Contractors were the primary source of program information for nonresidential program participants (37%. Other common sources of information were word of mouth (23%) and direct contact with Avista (17%).
- Among nonparticipants, awareness of Avista's energy-efficiency rebates has remained fairly constant since 2010, with around 4 in 10 nonparticipants being aware of the programs (38% in 2013).
- Avista's management and implementation of DSM programs has had some persistent organizational challenges, which may have impacted the effectiveness of implementation processes. While not limited to any specific part of Avista's DSM staff, many of the issues have primarily affected the nonresidential program processes.
- Cadmus' review of Avista's implementation and QA/QC processes showed that the accuracy of project savings estimates has increased since 2011, there is still room for improvement. Figure

ES-1 shows the percentage of electric realization rates for site-specific projects that fell within the range of 90% to 110%. This range indicates a good level of accuracy in reported savings.

Figure ES-1. Nonresidential Site-Specific Project Electric Realization Rates 2011-2013



- Cadmus' interviews with lighting contractors – conducted as a supplement to the ongoing Panel Study research – revealed that Avista's programs increase sales of energy-efficient lighting equipment for both participating and nonparticipating contractors: 16 out of 20 reported that their sales increased because of Avista's programs.
- The prescriptive program showed 9% freeridership in 2013, showing a large decrease in freeridership as compared to the 2011 result. The site-specific program showed 30% freeridership in 2013, showing an increase as compared to 2011.

Nonresidential Conclusions and Recommendations

This section describes the evaluation's conclusions and recommendations for the nonresidential programs.

Program Management and Implementation

Conclusion: Several parties over several years, internal and external to Avista, have observed the need for greater data quality assurance, in both documentation and input tracking. Quantitative inputs to the savings and rebate calculations have repercussions for tariff compliance,[1] incentive payments, and savings realization rates.

[1] As noted in Idaho Public Utilities Commission Order Number 33009 on Avista Corporation's Application for a Finding that it Prudently Incurred its 2010-2012 Electric and Natural Gas Energy Efficiency Expenditures.

- ***Recommendation:*** Avista should continue efforts to improve program processes. Cadmus understands that a reorganization of the DSM group has occurred concurrent to the delivery of this report. This change may be an opportunity for fresh perspectives, clarified responsibilities, and improved coordination within and between teams. We believe unifying the organizational structure under central leadership is a step in the right direction and may help alleviate some previously documented issues with internal communications.

  In addition to the reorganization, Cadmus recommends that Avista develop standardized processes within the DSM group, including clear delineation of roles and precise description and assignment of all processes and responsibilities for both residential and nonresidential programs. All affected parties should be included in formalizing and standardizing the DSM group's processes, roles, and responsibilities. Further, all parties must formally agree to clearly delineated responsibilities under the new organizational structure. While these activities need to be prescriptive and precise, we caution that the resulting structure should still allow some flexibility: increased clarity, transparency, and accountability should serve to enhance program delivery and customer satisfaction.

Customer Feedback

Conclusion: Customers were highly satisfied with the program overall and with individual components. Customer satisfaction has increased since 2011, which had in turn increased from 2010.

- **Recommendation:** Continue to prioritize and monitor program satisfaction.

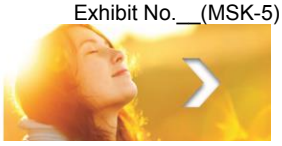
Conclusion: Customers appeared to be slightly less satisfied with the Washington Site-Specific program than with other programs. The largest source of lower satisfaction was the participants' reactions to program materials. Many customers said they received no program materials, and many participants learned about the program from their trade allies.

- ***Recommendation:*** Consider taking action to strengthen the use of program materials. Consider providing trade allies with printed program information flyers or brochures to give to customers. Maintaining up-to-date information for trade allies is critical when they are the key party delivering the program's message and participation details.

Market Feedback

Conclusion: According to commercial lighting contractor feedback, the nonresidential programs are successful in driving incremental energy-efficient equipment sales, and the market has not yet transformed to make energy efficiency standard practice.

- ***Recommendation:*** Continue to monitor market transformation indicators to measure programs' market impact over time.



Marketing and Outreach

Conclusion: The characteristics of Cadmus' survey respondents indicate that the office / professional services and local government sectors may be underserved by the programs relative to their incidence in the nonparticipant population. Further research is necessary to determine whether this is true.

- ***Recommendation:*** Identify underserved industries, and seek opportunities to target outreach to specific underserved industries:
  - Investigate overall customer industry distribution
  - Compare to participant industry distribution
  - Develop targeted outreach strategies for any underserved sectors

Quality Assurance and Verification

Conclusion: Avista monitored its site-specific project review process and instituted refinements during the evaluation period in response to feedback from users. While this has led to improvements, including notably improved reliability of reported savings in 2012, quality assurance problems may persist.

- ***Recommendation:*** Continue to monitor the effectiveness of the site-specific project review process and refine as needed. Cadmus recommends implementing the following to ensure continued improvement:
  - All large prescriptive or site-specific projects reporting savings over a threshold of 300,000 kWh or 10,000 therms should undergo a complete QA/QC review prior to incentive payment in addition to the standard Top Sheet review process. Typically, a QA/QC process reviews engineering calculations, verifies inputs, checks payback period and incentive payments for reasonableness, and ensures compliance with program requirements and tariff rules. In order to align with the above recommendation regarding program management and implementation, Cadmus recommends that Avista determine and document the specific requirements and steps in the QA/QC process through a collaborative process that will ensure accountability and balance needs for efficiency and customer satisfaction.
  - Conduct an external third-party review of Top Sheets, including reviewing a random sample of completed Top Sheets for completeness and accuracy. These were not reviewed as part of the current process evaluation, but should be included in the next process evaluation. Review should not only verify the presence of the Top Sheets, but also the quality and accuracy of the information provided.

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Residential Process Report

Introduction

This residential process evaluation focuses on ten Avista programs offered to Idaho and Washington natural gas and electric customers during program years 2012 and 2013 (PY2012 and PY2013).[2] In this evaluation, Cadmus sought to address the following researchable questions:

- What are the major trends in measure offerings and program uptake, and how do they compare to other utilities?
- What barriers exist to increased customer participation, and how effectively do the programs address those barriers?
- How satisfied were customers with the programs?
- What changes to design and delivery would improve program performance?

In assessing these topics, Cadmus relied on three main data collection efforts:

- Review of program tracking data, documents, and invoice materials;
- Interviews with Avista and third-party program implementation staff; and
- Telephone surveys with participating and general population[3] customers.

In this effort, Cadmus sought to align evaluation resources with evaluation objectives and focus on areas of uncertainty and programs with higher reported gross savings. Therefore, as indicated in Table 1, evaluation activities generally centered on programs implemented directly by Avista (rather than a regional partner) and established programs rather than pilots. Table 3 provides additional detail on the scope of evaluation activities applied to each program.

Table 1. PY2012 - PY2013 Process Evaluation Scope

Program Name	Process Evaluation Scope
Natural Gas and Electric Programs	
ENERGY STAR® Homes	*Limited*
ENERGY STAR Products	Full
High-Efficiency Equipment	Full
Home Audit	*Limited*
Manufactured Home Duct Sealing	*Limited*

[2] Not all programs are offered to customers in both states. For example, the Home Audit program operated only in Spokane Washington. Avista's programs operate on calendar years, with program years running from January through December.

[3] In 2012 and 2013, Cadmus surveyed a random sample of Avista Washington and Idaho customers. Cadmus did not implement any screens for program participation when sampling, so it follows that some percentage of respondents have at one time participated in an Avista energy-efficiency program.

Program Name	Process Evaluation Scope
Residential Behavior	*Limited*
Weatherization and Shell	Full
Electric-Only Programs	
Second Refrigerator and Freezer Recycling	Full
Simple Steps, Smart Savings	*Limited*
Space and Water Conversions	Full

In addition to the programs identified in Table 1, Avista offers energy-saving opportunities to residential customers through CFL Geographic Saturation events and Aclara® Software Applications. As energy savings from these activities are generally low (CFL Geographic Saturation events) or not tracked (Aclara), Cadmus did not review them as part of this evaluation.

Program Overview

The following section briefly describes the programs reviewed in this evaluation.

ENERGY STAR® Homes

The Northwest Energy Efficiency Alliance (NEEA) administers a regional ENERGY STAR Homes Program, which Avista supports. When a home in Avista's territory makes it through the program and is certified as ENERGY STAR-compliant, Avista pays a rebate to the homebuilder. The amount of the rebate is based on Avista fuel-service(s) used in the home.

ENERGY STAR Products

This program offers direct financial incentives to motivate customers to purchase and install energy-efficient appliances. The program indirectly encourages market transformation by increasing demand for ENERGY STAR products—specifically, appliances such as refrigerators and clothes washers.

High-Efficiency Equipment

This program offers four incentive categories for electric and gas customers seeking to purchase:

- High-efficiency water heaters;
- High-efficiency natural gas furnaces or natural gas boilers;
- High-efficiency air-source central heat pumps; and
- Primary heating systems incorporating a variable-speed motor.

Prior to 2011, these measures were offered under the Water Heating and Heating and Cooling Efficiency Programs.

Home Audit

The Home Audit Program, launched in May 2010 and implemented with support from municipal partners, sought to determine home energy audits' cost-effectiveness for capturing electric and gas

savings. Eligible Avista customers must have resided in single-family homes, duplexes, or manufactured homes located in Spokane County. The program offered energy audits to customers, conducted by Building Performance Institute (BPI)-certified auditors, at no cost to eligible customers. An Energy-Efficiency Community Block Grant (EECBG), under the American Recovery and Reinvestment Act (ARRA), partially funded this program. The program operated through PY2012.

Manufactured Home Duct Sealing

This program, launched in October 2012, provides duct testing, sealing, and repair to Washington customers in electrically heated homes located in Adams, Asotin, Ferry, Franklin, Garfield, Lincoln, Spokane, Stevens, and Whitman counties. This program is offered free of charge to customers, with 60% of the funding coming from Avista's DSM funds and 40% provided through the Washington State University (WSU) Community Energy Efficiency Program (CEEP). All work is performed by UCONS LLC (UCONS), a third-party contractor.

Residential Behavior

The Residential Behavior Program is a peer-comparison program that began in spring 2013 and is scheduled to continue through 2015. Through the program, residential customers receive regular reports on their energy usage and comparisons to the usage of other customers in their immediate vicinity. Avista expects the program to increase the participation in their residential rebate programs and encourage behavior changes that result in kWh and therm savings. The program is offered at no cost to a sample of customers preselected by Avista (with assistance from Cadmus and Opower) and is implemented by Opower.

Weatherization and Shell

This program offers incentives for attic, wall, and floor insulation measures, and is available to residential electric and gas customers with homes heated with an Avista fuel.

Second Refrigerator and Freezer Recycling

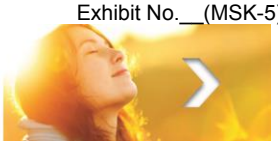
This program, available to Washington and Idaho electric customers, provides financial incentives to customers recycling refrigerators and freezers. The program seeks to reduce energy consumption by recycling up to two inefficient secondary refrigerators or freezers per home. JACO Environmental, Inc. (JACO), the implementation contractor, is responsible for scheduling, pick-up, recycling, rebate payment, and data tracking.

Simple Steps, Smart Savings

Avista sponsors an upstream, buy-down program, administered by the Bonneville Power Authority (BPA) and implemented by CLEAResult (formally Fluid Market Strategies). The program, available to customers in Washington and Idaho, offers discounted twist and specialty CFLs, LEDs, and energy efficient showerheads at many large retail locations.

Space and Water Conversions

This program offers incentives for three types of conversion:



- Replacement of electric resistance heating equipment as a primary heat source (either electric forced-air furnaces or electric baseboard heat), with central, natural gas heating systems;
- Replacement of electric resistance heating equipment with central heat pumps; and
- Replacement of electric water heaters with new, natural gas water heaters.

Table 2 lists the residential energy-efficiency programs offered in PY2012 and PY2013—along with their associated measures and incentives.

Table 2. PY2012 - PY2013 Residential Programs and Incentives

Natural Gas and Electric Saving Programs and Measures	2012 Incentive	2013 Incentive
ENERGY STAR Homes		
ENERGY STAR Home with Electric-Only or Electric and Gas	$900	$650
ENERGY STAR Home with Gas-Only	$650	$650
ENERGY STAR Products		
ENERGY STAR Freezer	$20	*N/A*
ENERGY STAR Refrigerator	$25	*N/A*
ENERGY STAR Dishwasher	$25	*N/A*
ENERGY STAR Clothes Washer	$25	*N/A*
High-Efficiency Equipment		
High-Efficiency Natural Gas Boiler or Furnace	$400	$400
High-Efficiency Air Source Heat Pump	$400	$100
Ductless Heat Pump	$200	*N/A*
Variable Speed Motor	$100	$100
High-Efficiency Electric Water Heater	$50	$30
High-Efficiency Natural Gas Water Heater	$50	$30
Home Energy Audit		
Home Audit	No cost to customer	*N/A*
Manufactured Home Duct Sealing		
Duct Testing, Sealing, and Repair	No cost to customer	
Residential Behavior		
Participating Customer	No cost to customer	
Weatherization and Shell		
Attic Insulation	$0.25 per sq. ft.	$0.25 per sq. ft.
Wall Insulation	$0.50 per sq. ft.	$0.50 per sq. ft.
Floor Insulation	$0.50 per sq. ft.	$0.50 per sq. ft.
Fireplace Damper	$100	*N/A*
Electric-Only Programs and Measures		
Space and Water Conversions		
Electric to Natural Gas Furnace	$750	$750
Electric to Air Source Heat Pump	$750	$750
Electric to Natural Gas Water Heater	$200	$200

Second Refrigerator and Freezer Recycling		
Appliance Recycled	$30	$30
Simple Steps, Smart Savings		
Showerhead	Variable upstream buy-down	
Light-Emitting Diode (LED)		
Compact Fluorescent Bulb (CFL)		

"*N/A*" indicates measure offering was eliminated. However, some rebates may have been paid in the early months of the year, as Avista offers customers a 90-day grace period between project completion and when rebate materials must be submitted.

Evaluation Methodology and Information Sources

Cadmus' approach to this residential portfolio-wide process evaluation relied on three main reviews and data-collection efforts. Table 3 indicates which data-collection activities we applied to each program.

Table 3. Data Collection Activities Applied to Each Program

Program Name	Materials Review	Staff Interview	Customer Surveys*
Natural Gas and Electric Programs			
ENERGY STAR Homes	✓	✓	
ENERGY STAR Products	✓	✓	✓
High-Efficiency Equipment	✓	✓	✓
Home Audit	✓		
Manufactured Home Duct Sealing	✓		
Opower	✓	✓	
Weatherization and Shell	✓	✓	✓
Electric-Only Programs			
Second Refrigerator and Freezer Recycling	✓		✓
Simple Steps, Smart Savings	✓		
Space and Water Conversions	✓	✓	✓

*Customer surveys asking specifically about program participation. All residential customers groups targeted in general population studies.

A description of each activity follows below.

Materials and Database Review

Cadmus' document review focused gaining an up-to-date understanding of PY2012 - PY2013 program offerings, planning assumptions, participation, and marketing methods. Our review centered on the following materials:

- Avista's in-house tracking database;

- UCONS' duct sealing tracking data;
- JACO's appliance recycling tracking database;
- CLEAResult invoice summaries;
- Avista's PY2012 and PY2013 DSM Business Plans;
- An internal Avista program implementation manual;
- Avista marketing collateral;
- The Everylittlebit.com website; and
- The Avistautilities.com website.

Program Staff and Market Actor Interviews

Interviews with program staff and market actors provided first-hand insights into program design and delivery processes, and helped evaluation staff interpret the information collected. We conducted program staff interviews in two rounds, one in January 2013 and another in January and February 2014.

Table 4 provides a summary of interview data collection.

Table 4. PY2012 - 2013 Program Staff Interviews

Interviewee Role In Program Delivery	Completed Interviews	
	2013	2014
Avista Program Implementation Staff	2*	2
Avista Policy, Planning, and Analysis Staff	1*	1*
Avista Marketing Staff		1*
Residential Behavior Implementation (Opower) Staff		1

* Multiple non-Cadmus staff participated in interview.

Cadmus interviewed six members of Avista's Washington and Idaho program staff, including:

- Demand-side management (DSM) program managers;
- Planning, Policy, and Analysis (PPA) team members; and
- Marketing staff.

Cadmus conducted these interviews in person in 2012 and by phone in 2013, using prepared interview guides. When necessary, Cadmus requested clarifying information via phone or e-mail. Staff interviews addressed the following topics:

- Changes in measure offerings;
- Goals;
- Program design;

- Implementation:
  - Marketing
  - Target markets
- Tracking; and
- Quality assurance and control (QA/QC) procedures.

Cadmus conducted only one interview with staff representing third-party implementation companies. We determined that this was appropriate for the following reasons:

- Cadmus interviewed representatives from Opower, the Residential Behavior Change program implementer, as this is a new program with high levels of participation.
- Staff from JACO and CLEAResult participated in in-depth interviews in 2012 (to inform the PY2011 evaluation effort) and interviews with Avista staff identified few program changes and limited issues.
- Cadmus did not interview staff implementing the Home Audit or the Manufactured Home Duct Sealing program. The Home Audit program completed in PY2013, and the Manufactured Home Duct Sealing Program is not expected to continue beyond PY2014.

The interview centered on the following topics:

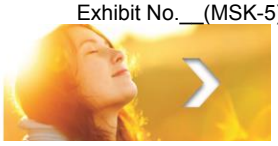
- Goals;
- Program design;
- Implementation;
- Marketing; and
- QA/QC.

Participating and General Population Customer Telephone Surveys

Telephone surveys constituted a large part of PY2012 - PY2013 evaluation data collection activities, informing both impact and process evaluations of several programs. When conducting surveys, we took special care to address potential issues of bias in the following areas:

- Sample selection (which customers to include in the survey sample frames);
- Responses (are customers answering the survey as a group representative of the sample frame); and
- Data analysis and reporting (analysis conducted with an appreciation for the sample selection and limitation of survey data collection).

We conducted all surveys with the assistance of several subcontracted market research firms, selected for their experience with different data collection techniques and market segments.



Participating Customer Surveys

Participant telephone surveys offered important insights into program experiences for six residential measure categories (five programs),[4] exploring the following topics:

- Source(s) of program awareness;
- Satisfaction;
- Awareness of energy efficiency;
- Participation barriers;
- Freeridership and spillover; and
- Customer characteristics.

Cadmus conducted the participating customer surveys in two rounds, one in March and April 2013 and a second in February 2014. This approach ensured that respondents would have a clear recollection of their participation experience. Table 5 provides a summary of unique customers (identified using Avista account number) and surveys completed in each effort.

Table 5. Residential Participant Details and Survey Sample (ID and WA)

Measure Type	2012			2013		
	Participants	Surveys	Percent	Participants	Surveys	Percent
Natural Gas and Electric Programs						
ENERGY STAR Products	6,429	149	2%	782	65	8%
Heating and Cooling Efficiency	3,747	142	4%	2,490	70	3%
Water Heating	629	88	14%	316	60	19%
Weatherization and Shell Measures	692	102	15%	313	60	19%
Electric-Only Programs						
Second Refrigerator and Freezer Recycling	1,351	133	10%	1,319	65	5%
Space and Water Conversions	171	34	20%	156	37	24%
Total	**13,019**	**648**	**5%**	**5,376**	**357**	**7%**

Cadmus designed participant survey completion targets to yield results with 90% confidence and ±10% precision levels, for measure-category level survey results. In 2012, we expanded this approach to yield results at the measure category and state level. Cadmus deemed this necessary as data collected through these surveys—specifically installation rates—were used to inform an impact assessment of

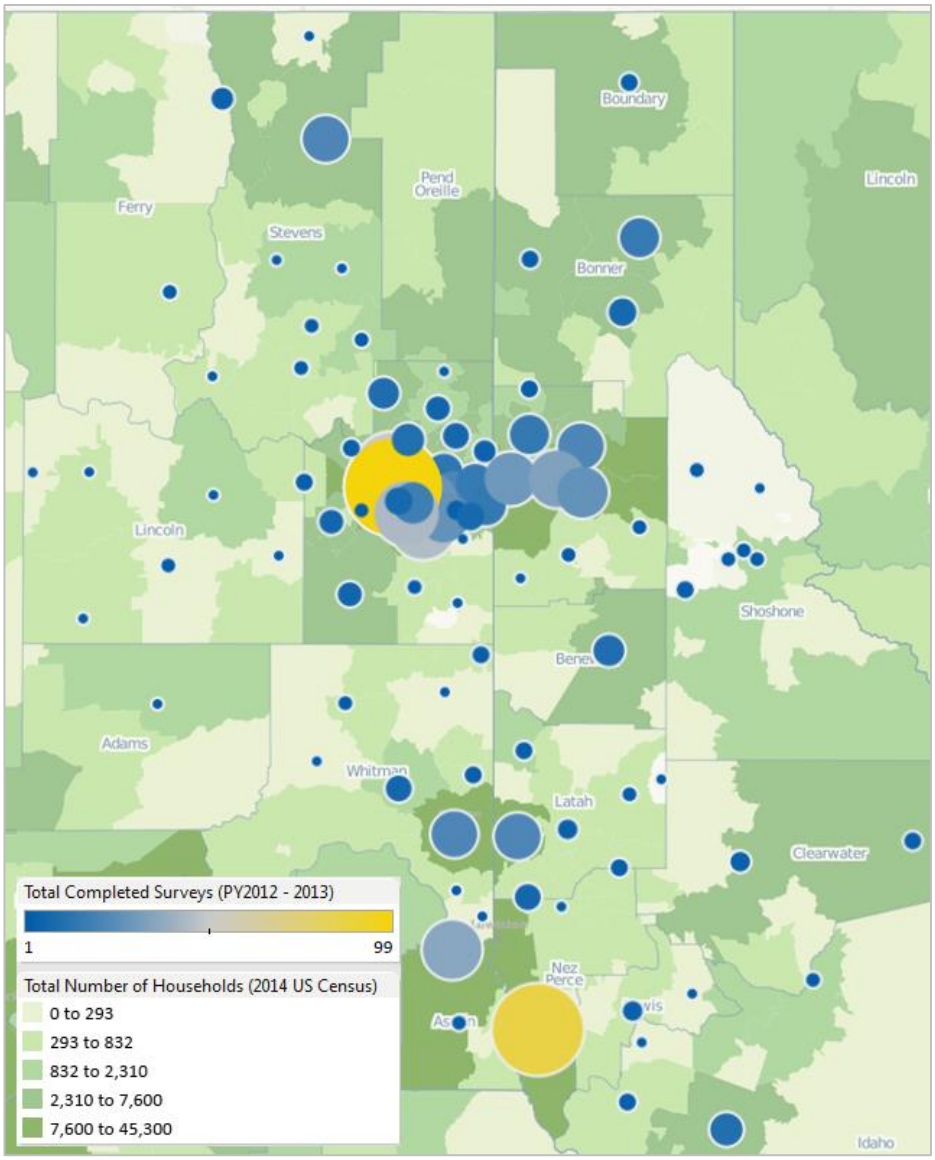
[4] In 2011, Avista combined the Heating and Cooling Efficiency and Water Heating Programs into a single program, High Efficiency Equipment. Given the differences in these measure types and to ensure comparability to survey data collected for earlier evaluations, survey targets and analysis for these respondents remain separated.

Avista's residential programs. The participant survey sampling plan also drew upon multiple factors, including feasibility of reaching customers, program participant populations, and research topics of interest.

Cadmus did not conduct participant surveys with Simple Steps, Smart Savings customers, as that program has an upstream focus and therefore does not track participant contact information. Similarly, for ENERGY STAR New Homes, Cadmus did not survey residential customers purchasing rebated homes because the program paid rebates to builders, not to end-use customers. Cadmus also did not focus evaluation resources on new programs that are subject to review by their own implementation organizations (i.e., Residential Behavior) or temporary programs (e.g., Home Audit).

Within each program stratum, Cadmus randomly selected program participant contacts included in survey sample frames. A review of collected data shows geographic distribution of survey respondents clustered around urban centers, specifically the cities of Spokane, Coeur d'Alene, Pullman, Moscow, and Lewiston. This aligns with population distributions in Avista's service territory. Figure 1 provides the distribution of participating customer survey respondents.

Figure 1. Geographic Distribution of PY2012 - PY2013 Participating Customer Survey Respondents



Given the wide range in program sizes, we weighted survey responses by participation (i.e., unique customers in each measure category) when reporting responses in aggregate, thus ensuring feedback represented the overall population. Table 6 shows the weighting scheme applied to PY2012 - PY2013 survey frequencies. Findings from PY2011 surveys included in comparisons also include post-survey weightings.[5]

[5] *Avista 2011 Multi-Sector Process Evaluation Report*. Cadmus. 2012.

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Table 6. PY2012 - 2013 Participant Survey Sample Design and Weights by Program

Measure Type	Participants	Surveys	Weight
	" A"	" B"	"A / B"
2012 Population and Achieved Surveys			
ENERGY STAR Products	6,429	149	43.15
Heating and Cooling Efficiency	3,747	142	26.39
Water Heating	629	88	7.15
Weatherization and Shell Measures	692	102	6.78
Second Refrigerator and Freezer Recycling	1,351	133	10.16
Space and Water Conversions	171	34	5.03
2013 Population and Achieved Surveys			
ENERGY STAR Products	782	65	12.03
Heating and Cooling Efficiency	2,490	70	35.57
Water Heating	316	60	5.27
Weatherization and Shell Measures	313	60	5.22
Second Refrigerator and Freezer Recycling	1,319	65	20.29
Space and Water Conversions	156	37	4.22

General Population Customer Surveys

Cadmus conducted two market characterization studies to build on previous evaluation findings and supplement data from available regional resources, such as NEEA's Residential Building Stock Assessment (RBSA). The purpose of this data collection was to help strengthen Avista's understanding of:

- Saturation of key energy-efficiency measures;
- Key demographic and housing characteristics; and
- Energy-use awareness, attitudes, and behaviors.

Our primary market research activity consisted of a multi-method survey that leveraged direct mail, online web interface, and telephone calls to allow customer to complete the survey in the most convenient way. The goal of these surveys was to characterize Avista's residential customers and allow Avista to identify savings opportunities and possible new measure offerings. Cadmus also used this data collection as a way to quantify nonparticipant customer spillover. We provide additional discussion on this topic below.

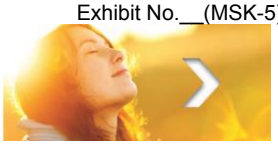

Table 7. Residential General Population Surveys Completed in 2012 and 2013

Measure Type	Completed Surveys		Total
	Washington	Idaho	
2012 Survey Effort (n=1,051)			
Paper Survey	544	313	857
Online Survey	58	36	94
Telephone Survey	69	31	100
2013 Survey Effort (n=1,109)			
Paper Survey	589	330	919
Online Survey	60	30	90
Telephone Survey	65	35	100
Total	**1,385**	**775**	**2,160**

Cadmus did not apply weights to survey frequencies during analysis. We based this decision on the following rationale:

- Customers included in the general population survey sample frames were chosen at random from Avista's entire residential population.
- The only screening was for completeness of customer contact information and removal of customers targeted as part of other EM&V surveys conducted in 2011 and 2012.
- Cadmus concluded that there is no correlation between an inherent customer trait or characteristic and the method of responding to the survey chosen.

Similar to the participant survey, the geographic distribution of survey respondents is clustered around urban centers. Figure 2 provides the distribution of general population survey respondents.

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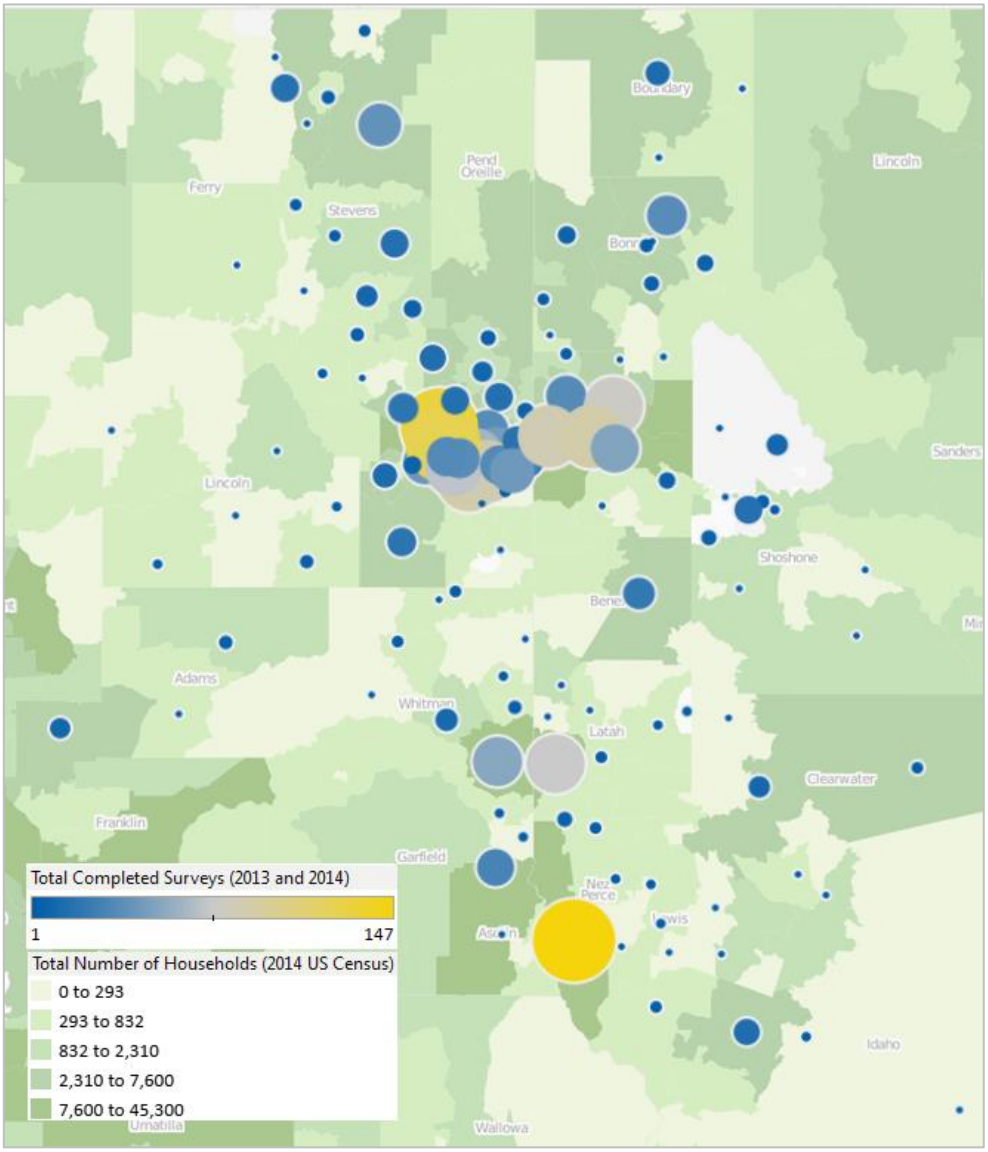
Figure 2. Geographic Distribution of 2013 and 2014 General Population Survey Respondents



All participating customer and general population survey proportions reported below only include feedback from respondents who could provide feedback—i.e., "don't know" and "refuse" responses are not included in our reporting unless noted.

Status of Evaluation Recommendations

Avista retained Cadmus to perform annual process and impact evaluations of their residential program portfolio beginning PY2010. These evaluation activities, findings, conclusions, and recommendations are

articulated in the following reports: Avista 2010 Multi-Sector Process Evaluation Report and Avista 2011 Multi-Sector Process Evaluation Report.[6]

In this evaluation effort, Cadmus reviewed the recommendations offered in these documents and assessed to what degree Avista had adopted these recommendations (by the end of PY2013). As indicated in Table 8, Avista made significant progress toward addressing these recommendations.

Table 8. Status of PY2010 and PY2011 Residential Process Recommendations

Status	PY2010 Evaluation	PY2011 Evaluation
Complete	8	4
In Progress	5	6
Limited Activity	2	2

A complete summary of recommendations and activity for addressing these recommendations is provided in Appendix A: Status of PY2010 and PY2011 Residential Evaluation Recommendations.

Program Participation

Savings and Incentives

Table 9 provides the number of incentive-based measures and reported savings. The PY2012 and PY2013 Avista Impact Evaluation Reports explore the savings shown in Table 9 in detail.

[6] *Avista 2010 Multi-Sector Process Evaluation Report*. Cadmus. 2011.
Avista 2011 Multi-Sector Process Evaluation Report. Cadmus. 2012.

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Table 9. PY2012 - PY2013 Program Populations and Adjusted Gross Savings

Measure Type	PY 2012 Measures	PY 2013 Measures	PY 2012 - PY 2013 Reported Savings	
			MWh	Therms
Natural Gas and Electric Programs				
ENERGY STAR Homes	42	18	92	5,478
ENERGY STAR Products	7,233	857	898	13,204
High-Efficiency Equipment	5,906	3,670	1,029	555,076
Home Audit	477	0	0	0
Manufactured Home Duct Sealing	574	1,719	2,594	41,978
Opower	0	73,497	9,091	239*
Weatherization and Shell	928	421	251	89,100
Electric-Only Programs				
Second Refrigerator and Freezer Recycling	1,438	1,415	1,580	0
Simple Steps, Smart Savings	435,561	596,828	49,373	0
Space and Water Conversions	187	168	3,839	0
Total	**452,346**	**678,593**	**68,747**	**705,075**

*Therm savings from the Opower program were very small and were not statistically significant.

A thorough discussion of the adjusted gross savings provided in Table 9 can be found in PY2012 - PY2013 impact evaluation reports.

Participation Trends

A review of Avista's residential portfolio over the past several years indicates several significant transitions, specifically:

- A sharp increase and subsequent decrease in participation in the ENERGY STAR Products and Weatherization and Shell Programs (between 2008 and 2013);
- Elimination of natural gas rebates in Idaho (November 1, 2012);
- Reduction in the number of rebates offered for appliances (March 1, 2013); and
- Commitment to developing and implementing new programs.

Cadmus combined historical participation data from PY2008 through PY2013 to assess participation in Avista's rebate programs at the program level. These data, shown in Figure 3, clearly indicate increased participation from PY2008 to PY2010, followed by a similarly abrupt decline in participation between PY2011 and PY2013.

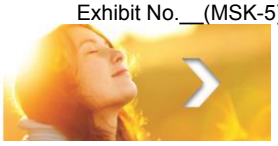
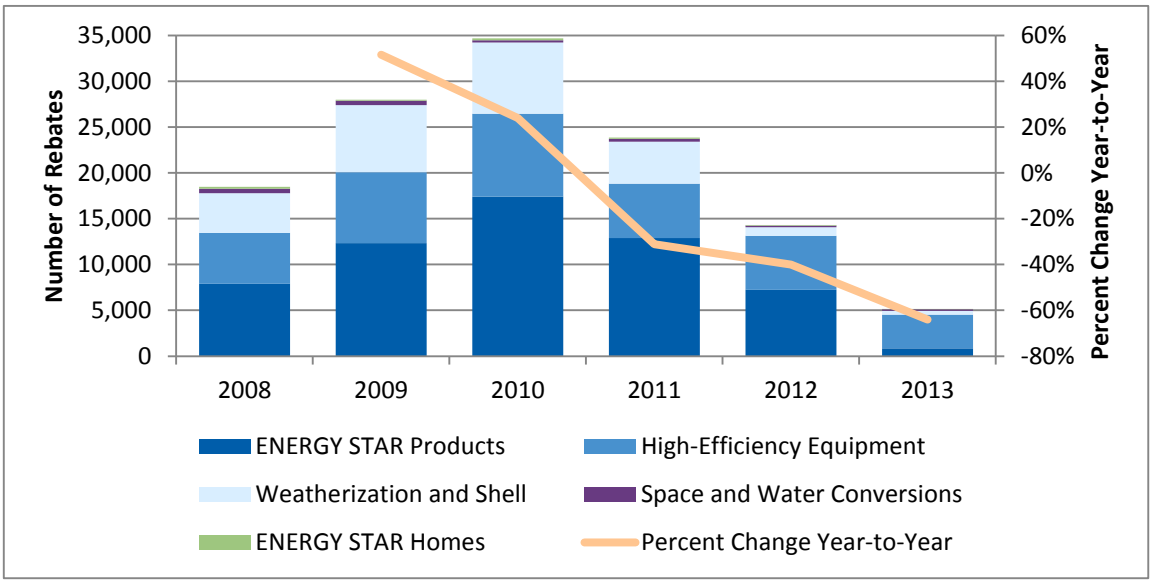
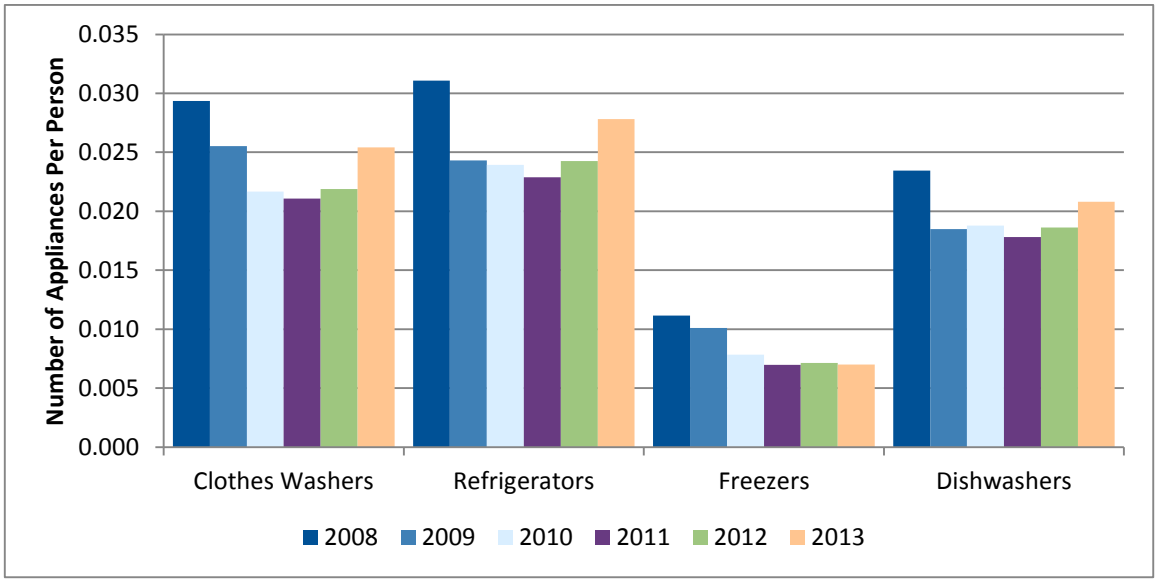


Figure 3. Reported Number of Rebates by Avista-Implemented Program: PY2008 - PY2013



This trend runs against trends observed in appliance sales data in Washington and Idaho for the same period. Overall sales generally dipped at the height of the recession and have since rebounded. Figure 4 shows population-normalized sales of several appliances in the ENERGY STAR Products Program (both code and high-efficiency) as reported by the Association of Home Appliance Manufacturers (AHAM) for Washington and Idaho from 2008 through 2013. This indicated that during this time period, a higher percent of appliance sold were likely high-efficiency.

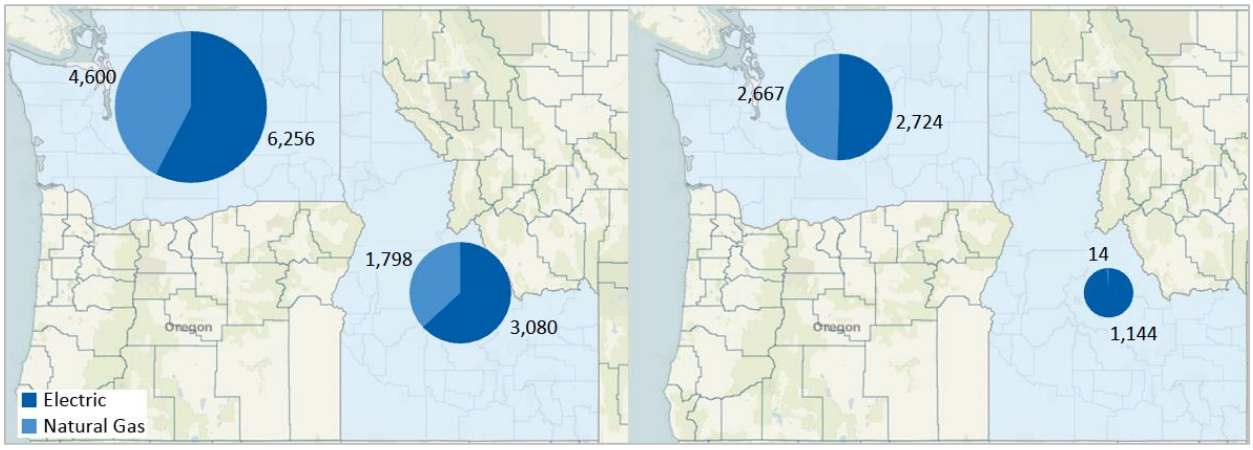
Figure 4. Population-Normalized AHAM Appliance Sales Data: 2008 - 2013



Several explanations account for this decline in program participation. During interviews conducted to inform the PY2011, PY2012, and PY2013 evaluations, Avista staff reported that a major driver of the change was the expiration of many federal and state tax credits for energy-efficiency renovations and high-efficiency appliances offered under the American Recovery and Reinvestment Act of 2009. Staff reported these tax credits prompted increased participation in late 2009 and 2010, and beginning in 2011, participation slowed without that influence. This effect was particularly noticeable in the Weatherization and Shell Program.

Another main cause of decline was the suspension of Avista's natural gas program in Idaho beginning November 1, 2012 and plans to suspend natural gas programs filed in Washington. These changes led to a dramatic change in the fuel composition of the residential programs between PY2012 and PY2013. Figure 5 provides a graphical depiction of this change. The few natural gas incentives paid in Idaho in PY2013 were for applications submitted prior to the program change.

Figure 5. Distribution of Rebates from Avista-Implemented Program Fuel Type: PY2012 - PY2013



Finally, in 2013 Avista also eliminated the ENERGY STAR appliance rebates (e.g., refrigerators, clothes washers, etc.). A primary driver of this decision was increasingly high observed customer freeridership in these measures and decreasing measureable gross savings. While Avista implemented this change in the beginning of PY2013, Avista continued to process appliance rebates for projects installed within the established 90-day grace period. This resulted in numerous units incented in the first half of 2013. Avista took this approach to limit customer confusion and dissatisfaction around termination of the measure offerings.

Not surprisingly, these changes had a large impact on the most common types of measures incented through Avista's program. Table 10 shows the most common measures incented in PY2011 - PY2013 by state, and the percent of rebates they represented.

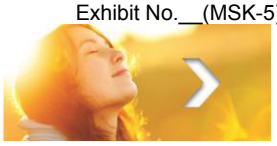


Table 10. Most Common Incented Measures: PY2011 - PY2013

Rank	2011		2012		2013*	
	Measure	Pct.	Measure	Pct.	Measure	Pct.
Washington Measures						
1	Refrigerator	15%	Natural Gas Furnace	22%	Natural Gas Furnace	47%
2	Natural Gas Furnace	12%	Refrigerator	17%	Variable Speed Motor	16%
3	Clothes Washer, Electric H20	11%	Clothes Washer - Electric Water Heater	12%	Refrigerator	6%
4	Clothes Washer, Natural Gas water Heater	11%	Clothes Washer - Natural Gas Water Heater	11%	Attic Insulation - Natural Gas Heat	4%
5	Window Replacement	8%	Variable Speed Motor	8%	Clothes Washer - Electric Water Heater	4%
Idaho Measures						
1	Refrigerator	16%	Furnace	23%	Variable Speed Motor	31%
2	Clothes Washer, Electric H20	14%	Refrigerator	19%	Clothes Washer - Electric Water Heater	20%
3	Furnace	13%	Clothes Washer - Electric Water Heater	14%	Refrigerator	14%
4	Clothes Washer, Natural Gas Water Heater	10%	Variable Speed Motor	10%	Air Source Heat Pump	12%
5	Dishwasher, Electric H2O	8%	Clothes Washer - Natural Gas Water Heater	8%	Air Source Heat Pump - Electric Heat	6%

= Natural Gas Measure

* Avista eliminated refrigerator and clothes washer measures March 1, 2013, but allowed rebates for projects completed in the 90-day grace period. This resulted in numerous rebates processed in the first half of the year.

Despite cancelling natural gas rebates in Idaho, a review of program tracking data indicates only a small decrease in the percentage of Avista customers applying for multiple program rebates in a given program year. Over the past three years, PY2011 - PY2013, approximately one-quarter of participants applied for more than one rebate. Table 11 shows the results, which exclude participants in the lighting, refrigerator recycling, and behavior programs, as these are not rebate programs.

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Table 11. Number of Measures Installed

Number of Rebates in a Given Year	Count 2011		Count 2012		Count 2013	
	Count	Percent	Count	Percent	Count	Percent
One	14,062	77%	8,953	78%	2,813	74%
Two	3,127	17%	1,936	17%	815	21%
Three	784	4%	424	4%	153	4%
Four	172	1%	91	1%	27	1%
Five or more	75	0%	46	0%	15	0%
Total	**18,220**	**100%**	**11,450**	**100%**	**3,823**	**100%**

It is not uncommon for customers to participate multiple times over several years, although, as indicated in Table 12, this is becoming less common. This downtick is likely the result of more limited rebate offerings, particularly in Idaho, than in previous years.

Table 12. Percent of Participants that Participated the Previous Year

Category	Percent
2011 participants that participated in 2010	13%
2012 participants that participated in 2011	10%
2013 participants that participated in 2012	4%
2013 participants that participated in 2011 and 2012	1%

Customer intentions expressed in PY2013 and PY2012 participant surveys show that the decline is not likely due to lack of customer interest. As indicated in Figure 6, when asked if they thought they would apply for additional rebates in the future, more than half of PY2013 respondents in every program answered in the affirmative. Further, we see a strong increase in the respondent interest in participation compared to results from PY2012 across all programs.

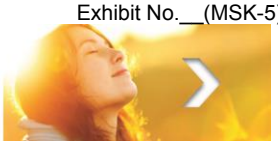
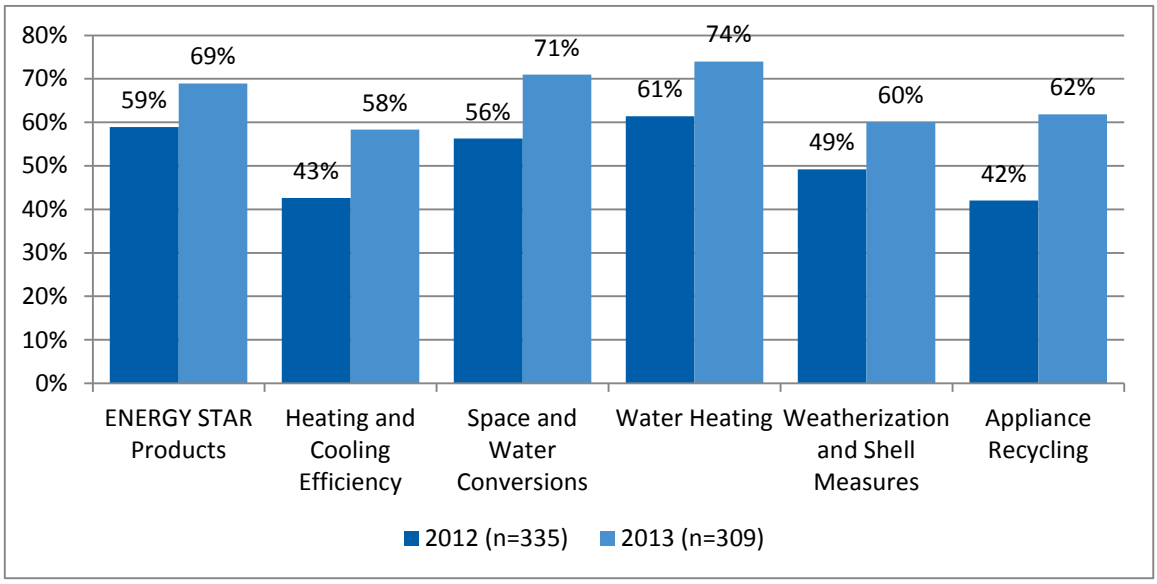


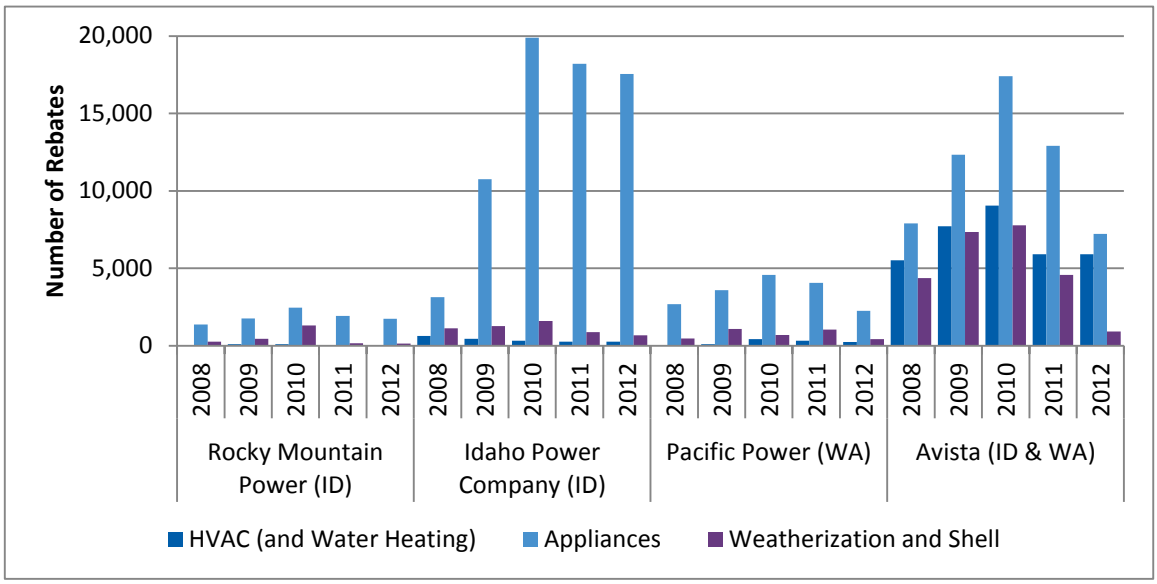
Figure 6. Customer Interest in Repeat Program Participation



The decline in rebate program participation is significant, but review of annual reports from other utilities in the region—Pacific Power in Washington, and Rocky Mountain Power and Idaho Power Company in Idaho—indicate similar reductions in participation in their electric rebate programs with comparable measure offerings.

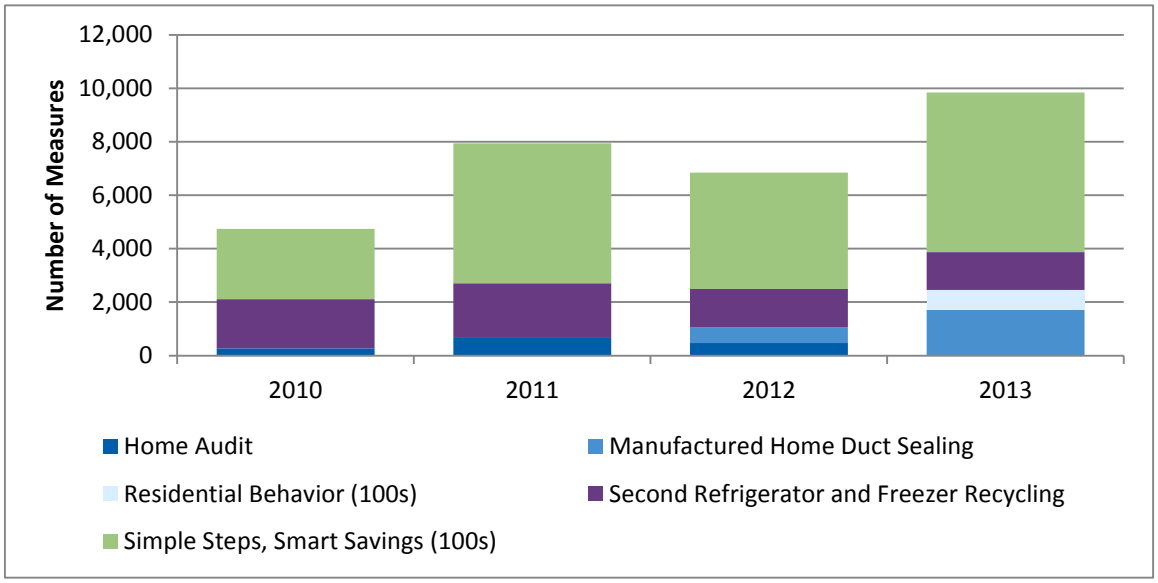
Figure 7 provides the number of reported rebates, by category, from year to year. All three utilities have experienced net negative growth, without exception, in the number of participants in these measure categories since 2011.

Figure 7. Participation Trends Among in Rebate Programs among Regional Utilities: PY2008 - PY2012



While participation in Avista's rebate programs has steadily declined for the last three years, Avista has maintained its commitment to third-party implemented programs—such as Second Refrigerator and Freezer Recycling—and regional programs such as Simple Steps, Smart Savings. Due to this support, participation in these programs has generally remained level or increased. In addition, in PY2012 - PY2013 Avista successfully implemented two pilot programs and a large, fully developed behavior change program. Figure 8 provides a summary of customer participation in these programs. For some programs, participation is shown in "100s" as participation in these programs is significantly higher than others.

Figure 8. Reported Number of Rebates by Non-Avista-Implemented Program: PY2010 - PY2013



A possible reason for growth in the Simple Steps, Smart Savings Program is the recent introduction of two additional measures: energy-efficient showerheads (introduced in PY2012); and LEDs (introduced in PY2013). Table 13 provides additional detail on uptake of these new measures.

Table 13. Simple Steps, Smart Savings Measures Incentives in PY2012 - PY2013

Program Year	Showerheads		CFLs		LEDs		Total	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
2012	1,784	0%	426,894	100%	0	0%	428,678	100%
2013	1,011	0%	564,300	95%	31,517	5%	596,828	100%

Another possible reason is the increase in the number of participating locations. According to invoice materials, 92 locations participated in PY2012 compared to 125 in PY2013. These additional locations give Avista customer greater access to incented measures.

Program Design, Management, and Implementation

This section discusses Cadmus' observations regarding design of Avista's residential programs. These observations focused on program definition and organization, logic, and implementation approach.

Overview

Overall, we found Avista's the residential program designs work well and are generally well-documented, primarily in the PY2012 and PY2013 DSM Business Plans. Further, we found Avista management and implementation organization staff to be knowledgeable about the programs and invested in their ongoing success. In general, the PY2012 and PY2013 the programs operated smoothly, with few significant issues.

However, Cadmus did find one persistent program design issue. First noted in Cadmus' 2010 residential program process evaluation,[7] the naming convention of programs composing the residential portfolio is somewhat inconsistent across Avista Business Plans, marketing materials, and internal documents. In reviewing materials, it became clear that programs are often referred to with different names, and are organized differently within the portfolio. Table 14 identifies several programs as examples.

Table 14. Example of Residential Program Naming Convention

2013 DSM Plan		Customer-Facing Materials	
Group	**Program Name**	**Group**	**Program Name**
Residential Programs	HVAC	New Construction / Home Improvement	High Efficiency Equipment
	Shell	Home Improvement	Weatherization
	Fuel-Efficiency		Conversion from Electric
	ENERGY STAR Homes	ENERGY STAR Homes	ENERGY STAR / ECO-Rated Homes

Program Logic

Camus developed the logic model provided as Figure 9 to articulate the logic behind the residential programs included in this evaluation.

[7] *Avista 2011 Multi-Sector Process Evaluation Report*. Cadmus. 2012.

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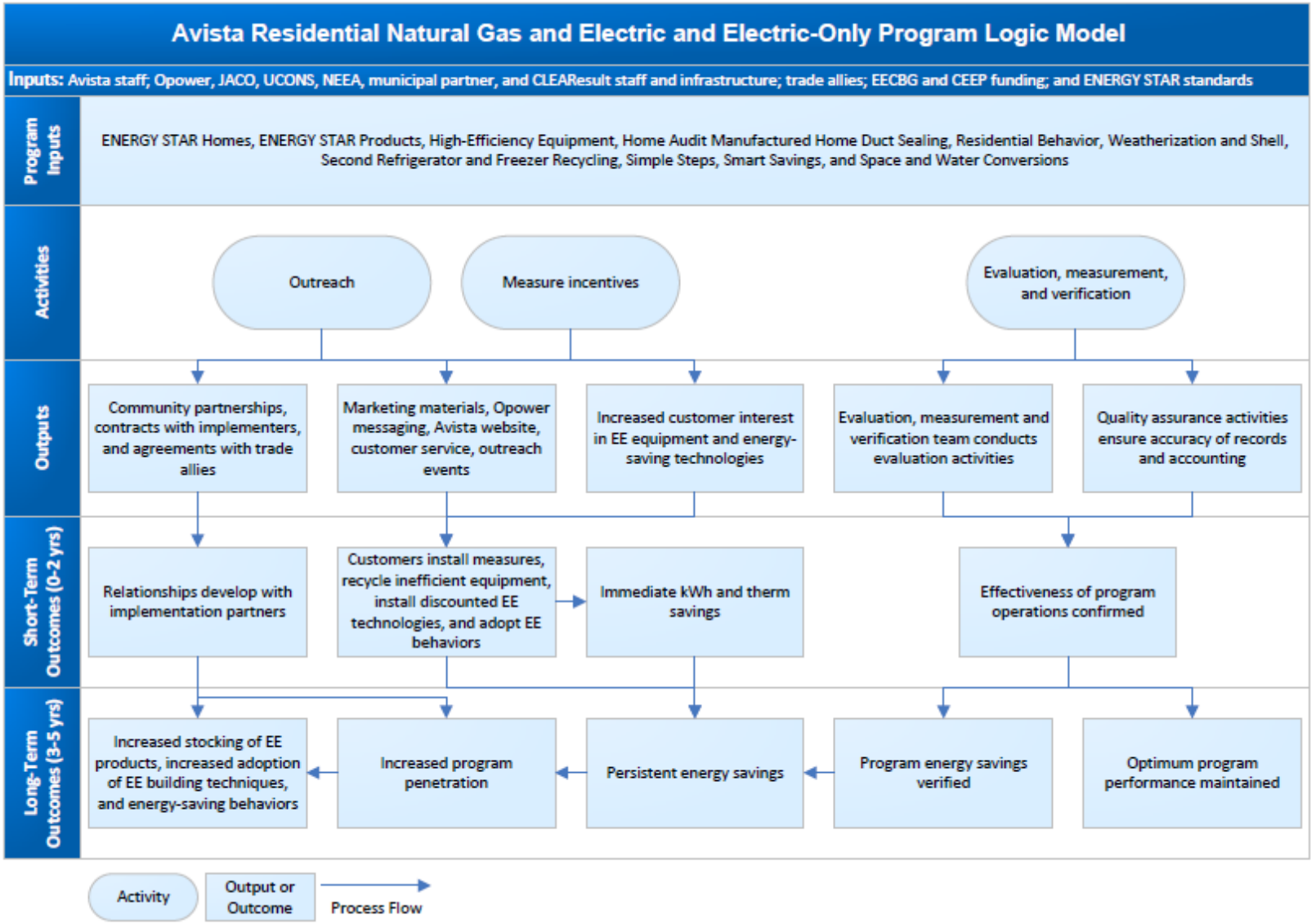
Figure 9. Avista Residential Program Logic Model



Implementation Approaches

The residential portfolio includes programs with Avista administers, programs with third-party implementers, and programs operated as partnerships. This section summarizes our observations regarding Avista's implementation decisions for each residential program.

Avista residential programs are implemented both internally and with the assistance of several third-party organizations. Table 15 provides a summary.

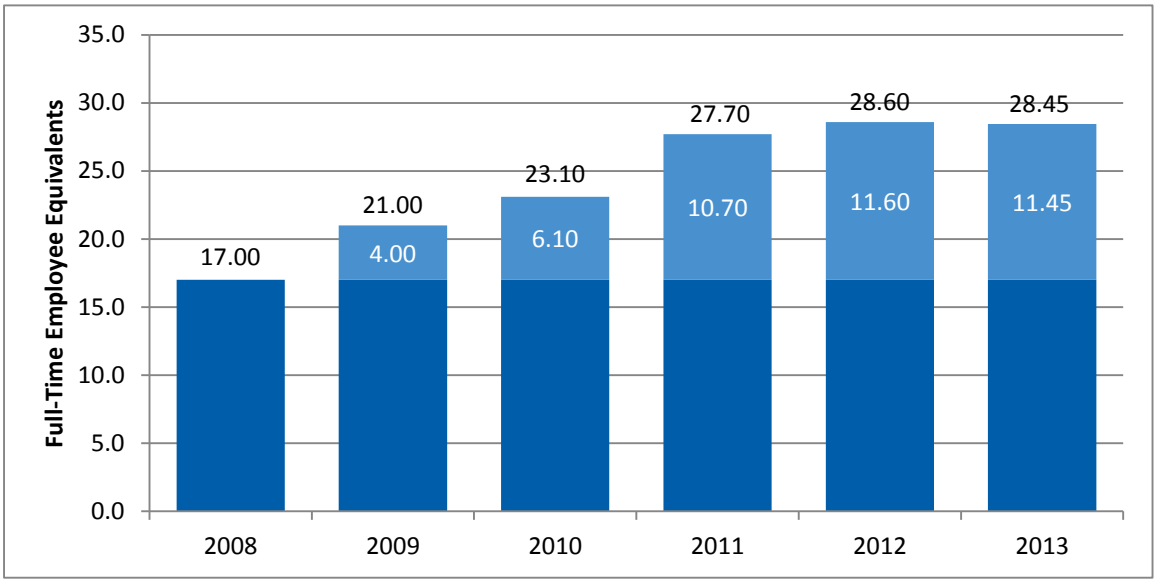
Table 15. Avista Residential Program Implementation Approach

Program	Implementer	Avista's Role / Responsibilities
Natural Gas and Electric Programs		
ENERGY STAR Homes	Avista and NEEA	Mgmt., marketing, QA/QC, and rebate payment
ENERGY STAR Products	Avista	All implementation activities
High-Efficiency Equipment	Avista	
Home Audit	Municipal Partners	Mgmt., marketing, QA/QC, and funding
Manufactured Home Duct Sealing	UCONS	
Residential Behavior	Opower	Mgmt. QA/QC, and invoice payment
Weatherization and Shell	Avista	All implementation activities
Electric-Only Programs		
Second Refrigerator and Freezer Recycling	JACO	Mgmt. QA/QC, and invoice payment
Simple Steps, Smart Savings	CLEAResult	
Space and Water Conversions	Avista	All implementation activities

Staffing

Despite these implementation partnerships, over the past several years, Avista has continued to invest in the implementation and management of its energy-efficiency portfolio. A review of Avista DSM labor projections articulated in the 2012 and 2013 DSM Business Plans indicates a generally increasing number of full-time-equivalent (FTE) staff dedicated to program implementation and management activities (Figure 10).

Figure 10. Avista DSM Labor Projections: PY2008 - PY2013



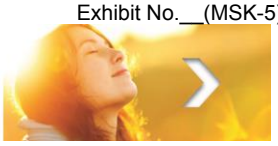
Also reflected in this staffing increase is the addition of a third and fourth Avista program manager in 2012. Avista added these program managers for the additional work associated with the Residential Behavior and Manufactured Home Duct Sealing Programs. Both staff had previous experience with Avista's residential energy-efficiency programs. Interviews with Avista staff indicate staffing levels during PY2012 and PY2013 were adequate and no significant implementation staffing issues arose.

The four program managers have responsibilities beyond residential program management. To support these program managers, a team of staff contributed to day-to-day program operations, including customer outreach, application review and processing, and data management. In addition to oversight, the program managers also conduct regular quality-assurance tasks. For example, the program manager responsible for Simple Steps, Smart Savings regularly visited participating retail stores to ensure correct prices and correct display of point-of-purchase signage.

As Cadmus did not study Avista's costs in administering these programs, this report does not address their relative efficiency. However, following a recommendation in the PY2011 process evaluation report, Avista and Cadmus staff discussed the possible benefits of contracting elements of the program implementation (e.g., rebate processing). The conversations, while focused, identified no compelling reasons for Avista to consider transferring additional program elements to third-parties at that time.

Customer Interaction

Feedback from Avista staff indicates customer satisfaction is a high priority for the organization, and energy-efficiency programs are viewed as a powerful method to engage with customers. To ensure customer satisfaction, Avista staff take care in program marketing to limit messaging that might confuse customers—such as why natural gas rebates are available in Washington but not Idaho—and to process rebate applications promptly—a common area for customer dissatisfaction in utility rebate programs.



A review of program data indicates Avista has a strong record of processing rebates within days of receipt, although in PY2013 processing time slipped slightly (Table 16). This increased processing time is likely related to the elimination of the appliance rebates, leaving only the more complicated rebate applications that may take longer to process.

The increase in processing time shown in Table 16, two days on average in PY2013 compared to less than a day in PY2012 and PY2011, is also primarily the result of a few applications with processing times far outside the normal range (e.g., greater than 100 days) skewed the average processing time upward. Many of these database entries contain notes indicating issues with customer application completeness.

Table 16. Rebate Processing Times: PY2011 - PY2013

Rebate Processing Time (Days)	2011	2012	2013
Average number of days	**0.43**	**0.61**	**2.12**
Less than one day	73%	80%	56%
One day	19%	10%	17%
Two days	2%	2%	4%
Three days	4%	3%	4%
Four days	1%	2%	5%
Five or more days	1%	2%	14%

To achieve these quick application reviews, Avista implements a structured review process supported by several internal staff. Review staff also regularly follow up directly with customers via telephone calls in the evening, when customers are likely to be home, to address application issues directly. In addition, an increased percent of participants are submitting their application paperwork in electronic format online (Table 17).

Table 17. Percent of Applications Submitted In Electronic Format Online by Program

Program	2012	2013
All programs	**5%**	**14%**
ENERGY STAR Homes	2%	6%
ENERGY STAR Products	2%	2%
High-Efficiency Equipment	8%	17%
Weatherization and Shell	7%	8%
Space and Water Conversions	5%	12%

To inform both the impact and process assessments, Cadmus conducted desk reviews of more than two hundred applications in 2013 and 2014. Table 18 provides a summary.

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Table 18. Summary of Cadmus Desk Reviews

Application Type	PY2012 Evaluation	PY2013 Evaluation
ENERGY STAR Homes	20	18
ENERGY STAR Products	106	119
Home Improvement *(HE equipment, weatherization, and conversion)*	100	102
Total	**226**	**239**

While application processing is generally quick, Cadmus' review of original application materials from PY2012 and PY2013 identified some issues with completeness of documentation. Table 19 lists elements that were missing in original application materials, as identified in our application review. No issues were identified in ENERGY STAR Home applications.

Table 19. Summary of Missing Application Elements

	Invoice	Energy Guide Label	AHRI Certificate
PY2012 Review			
ENERGY STAR Products	1	36	
Home Improvement	1		19
PY2013 Review			
ENERGY STAR Products	2	23	
Home Improvement			14

Internal Communication

During the PY2011 process evaluation effort, Cadmus identified different perspectives among Avista staff around program planning and goal setting. In the PY2011 report, we noted: *"program managers depicted the Planning, Policy, and Analysis (PPA) team as the driver of the planning processes, while the PPA team noted program planning was the responsibility of the program managers. This disconnect appeared to result in unmet expectations for both teams, and may have impeded effective collaboration."*

To address this and other collaboration issues, between PY2012 and PY2013, Avista invested heavily in a self-evaluation of internal communication protocols (primarily between engineers, account executives, program managers, and PPA staff), and staff roles and responsibilities. To facilitate this assessment, Avista retained the services of Milepost Consulting, a third-party consulting firm specializing in process improvement. Cadmus was not directly involved in these activities.

According to Avista staff, this self-evaluation effort has had a limited impact in addressing the issues, and communication and collaboration between groups continues to present challenges. Further, Avista initiated a reorganization of the DSM team in April 2014, which placed program implementation and PPA staff under one common Senior Director. Cadmus strongly supports Avista's commitment to internal process improvements and decision to adjust the internal organization.

Third-Party Program Implementation

Avista uses third-party implementation contractors for four programs, not including the Home Audit Program: (1) Manufactured Home Duct Sealing; (2) Residential Behavior; (3) Second Refrigerator and Freezer Recycling; and (4) Simple Steps, Smart Savings. We provide a summary of these arrangements and an assessment of their effectiveness in the Effectiveness of Implementers section, below.

Effectiveness of Implementers

Using third-party implementers presents advantages and disadvantages. Generally, utilities maintain direct implementation of programs requiring intimate knowledge of unique customers (e.g., large commercial and industrial customers). Programs benefitting from a uniform approach involve national accounts, or require certain market expertise available from a third-party firm. Research conducted for this—and previous—Avista evaluation efforts leads us to conclude that Avista has succeeded in identifying which programs are most suitable for third-party contracting and partnering.

The PY2011 evaluation report provides the results of detail interviews conducted with implementation staff at JACO and CLEAResult. As few changes have been made to these programs since these interviews took place in late spring 2012, we focused our evaluation efforts on Opower. Opower implements the Residential Behavior Program, which began in June 2013.

Opower

Opower is a publicly held (as of April 4, 2014) software-as-a-service company that partners with utilities to implement behavior-change programs. Based in Arlington, Virginia, Opower has been involved in the energy-efficiency space since 2007 and currently partners with nearly 100 utilities in the United States and abroad.[8] In April 2014, Cadmus staff interviewed the Opower sales and engagement manager responsible for Avista's program.

Residential Behavior Program Description

The Residential Behavior Program encourages electric customers to implement free or low-cost measures and adopt energy use practices and behaviors that reduce electric consumption. Program participants were selected by Avista (with support from Opower and Cadmus) and receive a Home Energy Report from Opower in the mail. All customer calls are addressed by Avista's call center. The Home Energy Reports include the following information:

- Comparisons of a customer's usage in the current year to consumption in the same months in the previous year.
- Comparison of a customer's consumption to consumption of other, comparable customers in the same geographical area. This is known as the "Neighbor Comparison."
- Tips about how to save energy and reduce demand during peak times. These tips include:

[8] Opower. April 8, 2014. http://opower.com/company.

- General conservation tips such as turning down the thermostat, turning off lights, shortening showers, etc.
- Low-cost energy-efficiency tips, such as replacing incandescent bulbs with CFLs, installing weather stripping, and using power strips.
- Tips about ways to reduce peak loads during peak load season and shift energy use to off-peak periods.
- Information on other Avista residential programs.

No financial incentives are provided through this program.

According to the program theory, by educating customers about their energy use and conservation strategies, customers will gain knowledge to increase their energy efficiency and achieve cost savings. In addition, customers will become more engaged with Avista.

Currently Opower reports only electric savings to Avista, although some customers may also have natural gas service and may take actions to reduce their use of this fuel as well. Avista and Opower may take steps to quantify these savings in the future.

Residential Behavior Program Implementation

Avista implemented this program using an experimental research design with random assignment of customers eligible for the program to treatment and control groups. From their residential customer population, Avista, with support from Opower and Cadmus, selected approximately 70,000 customers for inclusion in a treatment group and 13,000 customers in two, state-specific, control groups (a total of 26,000 customers). Avista did not consider natural gas-only customers. Based on initial cost-effectiveness analysis for program planning, Avista set a minimum energy consumption threshold of 18,000 kWh per year for targeted households. In order to fully populate the participant and control groups in both Washington and Idaho, Avista reduced this threshold to approximately 16,000 kWh as the program was deployed.

Treatment group customers received Home Energy Reports beginning in June 2013 and then according to the schedule provided in Table 20. To use implementation resources such as printing and call center staff as efficiently as possible, Opower mails reports in batches staggered throughout the month. Control group customers did not receive Home Energy Reports and were not informed that they belonged to the control group. Opower uses this general approach for most of the programs it implements.

Table 20. Home Energy Report Deliver Schedule

	PY2013						PY2014				
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Home Energy Reports sent	✓	✓	✓		✓		✓		✓		✓

Opower works with Avista's billing department to access customer billing data. Using these data, Opower staff quantify program kWh savings. Cadmus reviewed the saving estimates as part of the PY2013 impact assessment and performed an independent billing analysis to determine gas and electric savings.[9]

According to Opower implementation staff, the Residential Behavior Program has operated as anticipated since inception with only minor challenges. Staff report a very strong relationship with Avista, noting the Avista team is: *"super responsive, very polite, and very nice to deal with…overall it's one of the health[iest] client relationships we have."* The only challenge noted has been with the customer usage data used to populate the Home Energy Reports, but both Opower and Avista are aware of the issue and are working to streamline the process.

Participant feedback to the program has been positive. While data were not readily available for this evaluation, implementation staff estimated that—so far—less than one percent of participants have contacted Avista expressing dissatisfaction in the program, and opt-out rates are lower than expected. Only 1.0% of customers in Washington and 1.1% of customers in Idaho have requested to be removed from program mailings as of April 2014.

Future of the Residential Behavior Program

Given the success of the program, in terms of both implementation and achieved energy savings, Avista and Opower have discussed the possibility of either expanding the program or fine-tuning by targeting specific customer groups. No firm plans are in place, but discussions around this topic are scheduled for later in spring 2014 in order to consider results of Cadmus' impact evaluation of the program. Given that Avista has already included all cost-effective customers in their target population for this program, future opportunities for expansion may be limited.

Data Tracking

For each residential program evaluated, Avista or the program implementer provided Cadmus with tracking data. Tracking data were contained in five separate files:

- Avista's internal, multi-program tracking database;
- Manufactured Home Duct Sealing tracking spreadsheets;
- JACO tracking database;
- Opower tracking database; and
- Simple Steps, Smart Savings invoice material.

Cadmus examined each dataset to:

[9] *Avista 2012-2013 Washington Electric Impact Evaluation Report.* Cadmus. 2014.
Avista 2012-2013 Idaho Electric Impact Evaluation Report. Cadmus. 2014.

- Determine data fields tracked;
- Inform process and impact evaluation activities; and
- Assess the data-tracking processes' effectiveness.

The assessment also sought to identify potential evaluability barriers presented by current tracking processes.

Data Tracking Summary

Avista's Internal Multi-Program Tracking Database

The tracking database included participant, measure-level data for the following programs:

- ENERGY STAR Homes;
- ENERGY STAR Products;
- High-Efficiency Equipment;
- Home Audit;
- Weatherization and Shell; and
- Space and Water Conversions.

The internal, multi-program database serves as the electronic repository for customer data collected from application forms, including data for programs Avista implements internally. The two annual extracts provided for this evaluation effort contained 38 variables, constituting six kinds of information. Table 21 summarizes these data.

Table 21. Avista Internal Tracking Database Fields

Database Fields	Data Type	Example Field Names
Customer Information	Number / Text	*"State, CUSTOMER_NME, Home Sq Ftg, Year Built"*
Incented Equipment Information	Date / Number / Text	*"Cost, Efficiency Rating, New R Value, Install Date"*
Measure / Rebate Quantities	Number	*"Number of Rebates"*
Measure and Program Designation	Number / Text	*"Marketing Measure Type, Marketing Measure Desc"*
Payment and Savings	Number	*"Rebate Amount, Est KWH Saved, Est Therms Saved"*
Processing Date-Stamps and Notes	Date / Text	*"App Rcvd Date, Payment Processed Date"*

We also know from *ad hoc* requests that Avista tracks several other data in addition to the items outlined above. These variables include a "Do Not Solicit" customer flag and several customer contact and billing information fields with additional detail and formatting.

Manufactured Home Duct Sealing Tracking Spreadsheets

The Manufactured Home Duct Sealing data extract reviewed in this evaluation contained three quarterly summaries. Tracking data contained 36 fields, including: customer address; Avista account information;

duct-sealing services performed; and energy savings estimates. We understand from conversations with program staff that information on each job are provided in bulk by UCONS, the implementer and additional fields are then added by Avista staff during the QC process.

JACO Tracking Database

JACO tracks data on participating customers, their pick-up orders, and refrigerators and freezers recycled through the program. These data are provided in three separate, integrated spreadsheets, allowing comprehensive tracking of customers' and units' movements through the program.

Through our experience evaluating Avista's Second Refrigerator and Freezer Recycling program and other similar utility-sponsored appliance recycling programs implemented by JACO, we know these data files are consistent in content and format with JACO's standard program tracking. While these data are detailed, providing extensive information on the customer, pick-up, and equipment recycled, Cadmus noted the absence of an Avista customer account number. JACO assigned customers their own unique customer identification numbers.[10] This made it difficult to match customers participating in this program to other program tracking databases.

Opower Tracking Database

Opower, the Residential Behavior program implementer, provided the program tracking data we reviewed for this program. The tracking database contained only 10 fields for each participating customer, listed in Table 22.

Table 22. Opower Data Tracking Fields

Opower Database Fields
"opower_customer_id"
"utility_customer_id"
"customer_name"
"service_address"
"recipient_status"
"opt_out_date"
"inactive_date"
"include_in_test_analysis"
"deployment_wave"
"first_generated_date"

Through our experience evaluating other residential behavior programs implemented by Opower, we know these data files are consistent in content and format with their standard program tracking.

[10] Customers sign up for the program, either online via Avista's website or by calling JACO's toll-free number. They are asked a few questions to verify eligibility, they must be Avista electric customers, and their refrigerator or freezer must meet certain criteria to participate.

However, unlike tracking data from other third-party program implementers, this dataset includes Avista customer account number (utility_customer_id).

Simple Steps, Smart Savings Invoice Material

Cadmus received data on the Simple Steps, Smart Savings Program. This program tracks monthly reporting from CLEAResult. In interviews conducted to inform both this and the PY2011 evaluation, Avista and CLEAResult staff noted monthly reporting for this program often involved delays and adjustments, caused by difficulties in obtaining sales data from retailers in a timely manner. CLEAResult monthly invoices contained detailed data at the measure level, reporting adjustments to previous months, and current monthly sales at each participating retailer by Stock Keeping Unit code (SKU). Data reviewed for this evaluation contained slightly different fields, but both provided information on:

- Participating retailer (e.g., name and location);
- Measures (e.g., manufacturer, type, SKU, watts/GPM, etc.);
- Sales and sales adjustments; and
- Reporting period.

Planned Changes in Avista Data Tracking

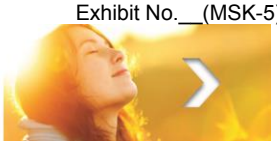
In addition to maintaining the internal tracking database discussed above, Avista is currently engaged in a large, multi-year transition to an advanced customer care and billing system, supported by Oracle®. This transition has been in progress since 2012. In July 2014, Avista hopes to begin moving some aspects of its energy-efficiency program tracking to this new system. Anticipated benefits with this new system include improved access to complete customer account information, enhanced market segmentation tools, and targeted marketing campaigns.

Marketing and Outreach

Marketing Approach

Avista develops, executes, and oversees the marketing efforts to promote its residential rebate programs in Washington and Idaho. These efforts include paid media, social media, earned media, direct mail, website, and broad-based awareness building through the *"When it comes to energy efficiency, every little bit adds up" (Every Little Bit)* campaign, along with the *Efficiency Matters* campaign. Most of the outreach tactics include general promotion of the residential rebates, with individual measure or program promotion as needed. Additionally, some program implementers supplement Avista's marketing through their own turnkey efforts. Avista's energy-efficiency marketing efforts are also coordinated with regional efforts.

Cadmus conducted a review of Avista's residential energy-efficiency rebate program marketing efforts to:



- Gain an understanding of PY2012 and PY2013 energy-efficiency and program marketing strategies and processes;
- Understand customer response and gauge effectiveness of marketing efforts; and
- Identify gaps and/or opportunities for consideration in future marketing efforts.

As part of this effort, Cadmus conducted a marketing materials review. We also reviewed marketing-related survey results and Avista marketing staff interview findings.

Marketing Objectives and Strategies

As found through review of the 2013 marketing plan and as supported through the interview with Avista marketing staff, the overarching outreach objectives are to increase awareness of and participation in Avista's energy-efficiency programs for residential customers. The outreach strategy is to use varied media to highlight customer success stories and communicate program benefits through engaging and interactive promotions and partnerships. Avista's DSM plan also indicates that residential programs have a strong presence and coordination with regional efforts, such as those offered by NEEA.

In our interview with Avista's key marketing staff, we discussed energy efficiency marketing successes and challenges in the PY2013 year. Overall, Avista staff reported the marketing efforts had been successful—specifically the online *Every Little Bit* and *Efficiency Matters* campaigns and high-performing targeted online advertisements. Staff indicated the crossover between Washington and Idaho (and offerings, based on fuel type and regulations) continues to prove challenging with regard to messaging and delivery of mass media. Staff reported they believe the *Every Little Bit* and *Efficiency Matters* campaigns are helping to increase broad-based reach to audiences without the use of mass media. In looking forward, staff indicated a need to enhance energy-efficiency awareness and participation through deeper and more meaningful customer engagement. Avista staff hope to learn more about customer motivators and how staff can increase customer engagement along the path to participation in residential energy-efficiency programs.

Planning and Processes

Avista staff conducts the planning, design, and execution of the residential rebate program marketing efforts. As indicated in the PY2012 and PY2013 DSM plans, there is an internal collaborative process to develop general energy-efficiency marketing and promotions. This process incorporates feedback from the Energy Solutions, Services Development and Marketing, and PPA teams. Some of the turn-key programs, such as the Second Refrigerator and Freezer Recycling Program, include supplemental marketing as part of their program design and implementation plans.

Avista's marketing staff uses the Avista Design System Guidelines to ensure that energy-efficiency marketing and outreach materials deliver a consistent look, feel, and message. The guidelines address items such as logos, color palettes, and fonts, and give an overview of applications, with examples of properly branded materials and collateral. All PY2012 and PY2013 general energy-efficiency marketing materials appear to be aligned with the guidelines. The *Every Little Bit* and *Efficiency Matters* campaigns

and Online Energy Advisor tool present slightly varied creative assets, although generally appear to follow the brand guidelines (i.e., fonts, logos, etc.).

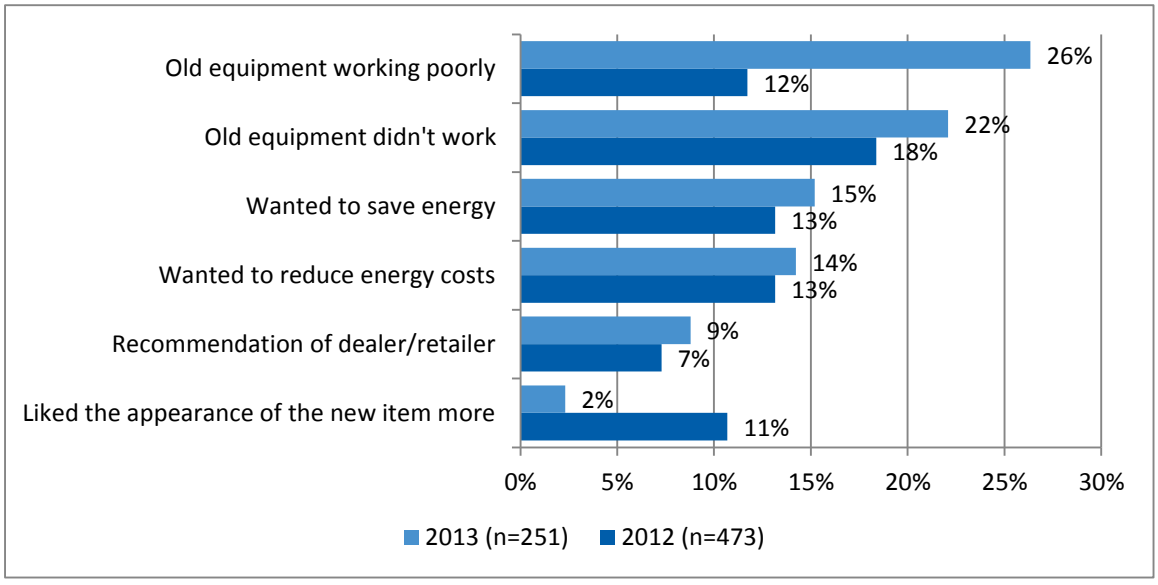
Target Audience and Customer Motivators

The target audience for Avista's residential rebate programs is general, and Avista has not specifically segmented customers or targeted outreach efforts. However, based on interviews with Avista staff, the marketing strategy uses a variety of outreach channels to reach a mix of demographics. For example, print ads are used to reach an older customer audience, while online advertisements are aimed at a younger demographic. Although segmentation efforts have been limited to date, Avista staff hopes to have a better grasp of customer segments and preferences in the future.

Avista reported conducting a residential customer market research survey in 2013 with 400 customers in both Washington and Idaho. The purpose of the research was to gauge awareness of Avista's programs and to gain insights to key motivators and messages. Avista will use these data to develop its PY2014 marketing and messaging strategies.

The participant surveys conducted by Cadmus also explored motivations for program participation. The most common responses from PY2012 and PY2013 are provided in Figure 11. The most commonly reported deciding factors were old equipment working poorly (26%, up from 12% in 2012) and old equipment not working (22% up from 18% in 2012). The two responses totaled 48% in 2013. Responses reflect the changing composition of residential rebate offerings. The response "like the appearance of the new item more" is a common response amount customers who received a rebate for an energy-efficient appliance—which were eliminated in PY2013.

Figure 11. Most Commonly Reported Measure Purchase and Installation Motivations



Outreach Channels

Avista conducts residential energy-efficiency marketing through a variety of channels. In addition to the general energy-efficiency marketing tactics outlined below, Avista conducts broad-based awareness efforts through its *Every Little Bit* campaign, as described in the following section. Besides the *Efficiency Matters* campaign (which are implemented in partnership with KREM 2, a CBS affiliates), there are no mass media or cross-cutting promotional efforts related directly to program offerings, to avoid potential customer confusion across state lines.[11] Notable outreach tactics used in PY2012 and PY2013 include:

- Paid media: print and online (targeted SEO) banner advertisements;
- Social media: Facebook, specifically for campaign and ticket giveaway;
- Earned media: local public relations as available;
- Direct mail and bill inserts: general and (targeted) program-specific;
- Newsletters and e-mail blasts: general outreach;
- Website: website (avistautilities.com) was built in 2012; and
- Vendor outreach meetings: general overview about programs, application process, project qualifications and customer eligibility.

Every Little Bit and *Efficiency Matters* Campaigns

The *Every Little Bit* campaign launched in 2007 and was informed by findings from market research efforts that gauged customer awareness, willingness to participate, and barriers to participation. The broad-based, multi-media awareness campaign was designed to increase customer engagement and drive awareness of Avista's energy-efficiency program offerings. Over the years, the campaign has used multiple channels, including website, web banners, print and broadcast outreach (radio and television), print material (brochures, signage, etc.), outdoor billboards, social media, and community events. The objective of the campaign is to educate and inform customers about general energy efficiency programs, with the goal of driving participation. The call-to-action drives customers to Avista's campaign website (www.everylittlebit.com) to take advantage of energy saving programs from Avista.

During subsequent years, the program design shifted to become progressively more specific. Most recently, KREM 2's Project Green, Toyota and Avista have teamed up in support of energy efficiency, and initiated the *Efficiency Matters* campaign. Through this campaign, customers entered to win a Toyota Prius by pledging a commitment to energy efficiency. Objectives of the most recent campaign were to:

- Increase awareness of and participation in Avista's energy conservation measures and rebate programs;
- Increase traffic to www.everylittlebit.com;

[11] Avista also partnered with the *Inlander* newspaper and ACE Hardware to promote its Home Energy Advisor online audit tool.

- Increase traffic and "likes" to the *Efficiency Matters* Facebook page; and
- Allows people to receive ongoing energy-efficiency tips.

Through its partnership with KREM TV and Toyota, Avista's campaign garnered more than 103,000 entries in 2013, with 4,159 people searching for the *Every Little Bit* keyword. There were 66,907 total entries the previous year.

Materials and Messaging

Cadmus reviewed all residential energy-efficiency marketing materials provided by Avista. Overall, the general marketing materials present a consistent look and feel, and follow the Avista Design System Guidelines (e.g., fonts, colors, layout, and applications). Materials typically include the Avista logo (appropriately) and a call-to-action, which is usually one of Avista's websites (or campaign URL). The online advertisements direct customers to the program webpage, which serves as a portal for customer engagement, education and interaction and provides links to rebates and tips. Several of the general marketing materials also include program-appropriate imagery, which may help customers understand and relate to the promoted offerings.

Through our review of PY2012 and PY2013 materials, we found there are several uniform resource locators (URLs) included in the collateral, and some items including more than one URL (e.g., www.everylittlebit.com, www.everylittlebit.com/findrebates, www.avistautilities/resrebates). Inconsistent use or use of more than one URL may distract customers and possibly cause confusion.

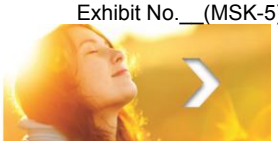
While the materials reviewed focused primarily on the general residential rebate marketing materials, Cadmus also reviewed *Every Little Bit* and *Efficiency Matters* campaign outreach materials and Avista's energy-efficiency web pages, and conducted a high-level review of the Online Energy Advisor materials as a point of reference. Based on this cursory overview of the suite of programs and platforms, Cadmus found that there are varied creative assets across the channels and platforms. While the general energy-efficiency promotional materials present a look and feel consistent with the brand guidelines, the *Every Little Bit* and *Efficiency Matters* campaigns and Online Energy Advisor platforms leverage additional assets. For example, the *Every Little Bit* landing page (www.everylittlebit.com) also includes assets from the Online Energy Advisor personas (with the "shield" creative) and creative developed by a third-party implementer.

Marketing Execution and Measurement

Avista tracks metrics for its individual campaigns and ties results back to awareness and website traffic. In PY2013, Avista staff reported tracking online advertisements (click-through rates), *Every Little Bit* and *Efficiency Matters* campaign metrics (participants and traffic), estimated impressions through paid media and response to direct mail (as applicable).

Sources of Participant Awareness

To help assess the effectiveness of Avista's and the implementer's marketing; Cadmus asked participants how they heard of the program in which they participated. Respondents cited a variety of



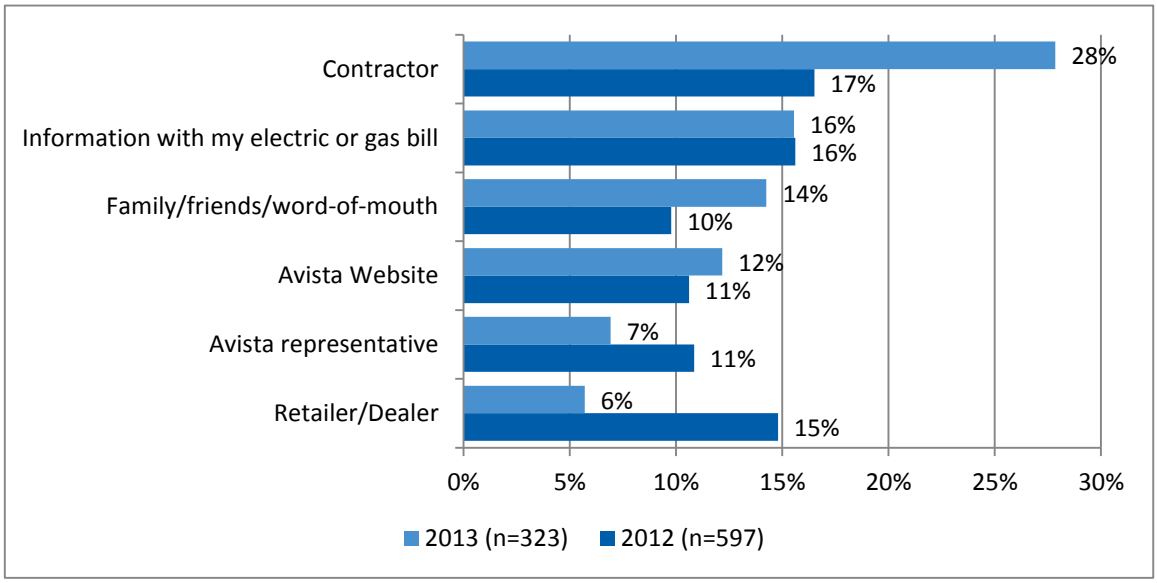
sources of program awareness. Figure 12 lists the top ways respondents said they first heard about the program in both the PY2012 and PY2013 surveys.

PY2013 respondents who could provide an answer reported hearing about the program through their contractor (28%), with other responses fairly evenly distributed across information from electric or gas bill (16%), word of mouth (14%), and the Avista website (12%). When Cadmus compared 2012 and 2013 findings, a few key differences emerged:

- More respondents heard about the program from a contractor in 2013 (17% in 2012, 28% in 2013).
- Fewer respondents heard about the program from a retailer/distributor in 2013 (15% in 2012, 6% in 2013).
- Fewer respondents heard about the program from an Avista representative in 2013 (11% in 2012, 7% in 2013).

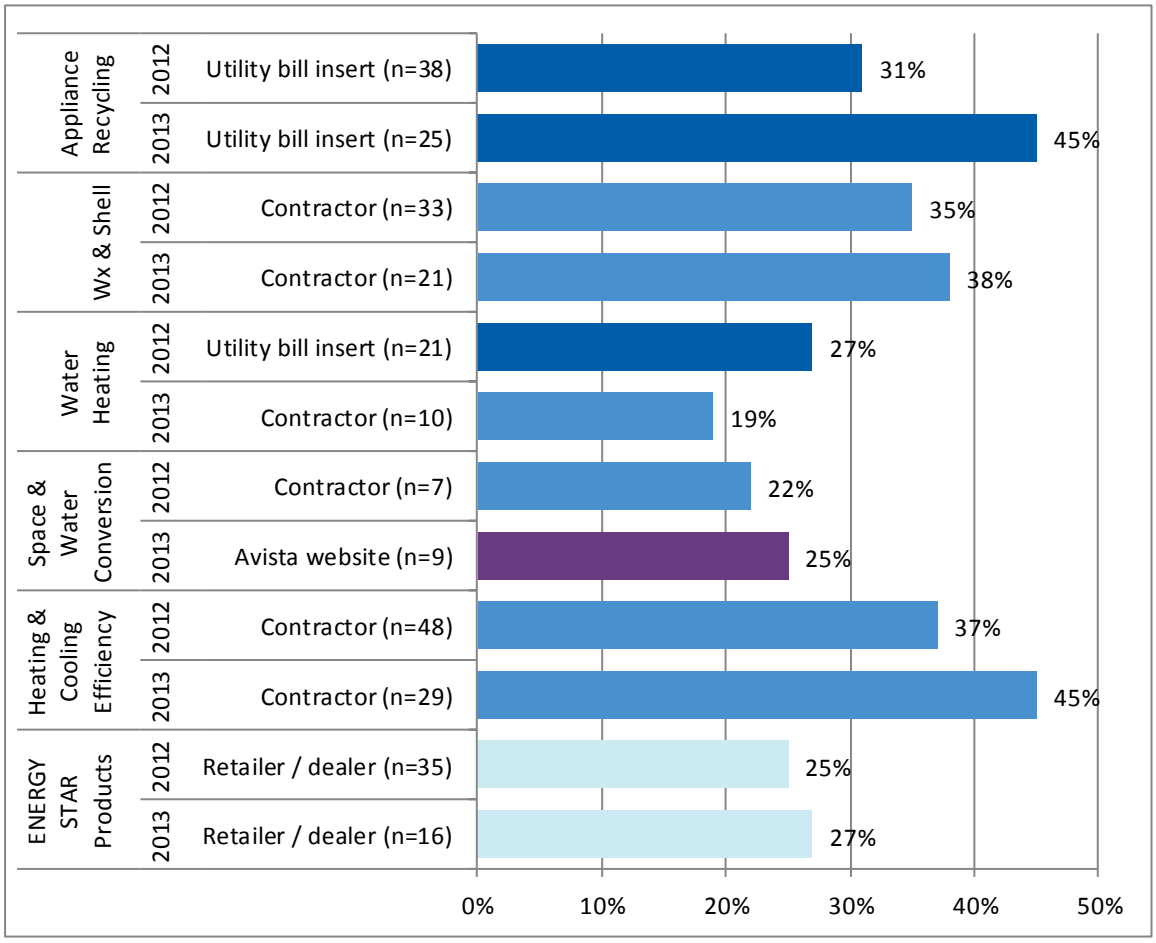
Figure 12 provides additional customer responses.

Figure 12. Most Commonly Reported Ways Participants First Heard About the Program



Not surprisingly, the ways participating customers first learned of the Avista rebates differs by program. For example, we would expect customers seeking HVAC and weatherization rebates heard of the program from their contractor, while ENERGY STAR Products customers more commonly heard of the rebate from a retailer. Figure 13 provides the most common responses by program.

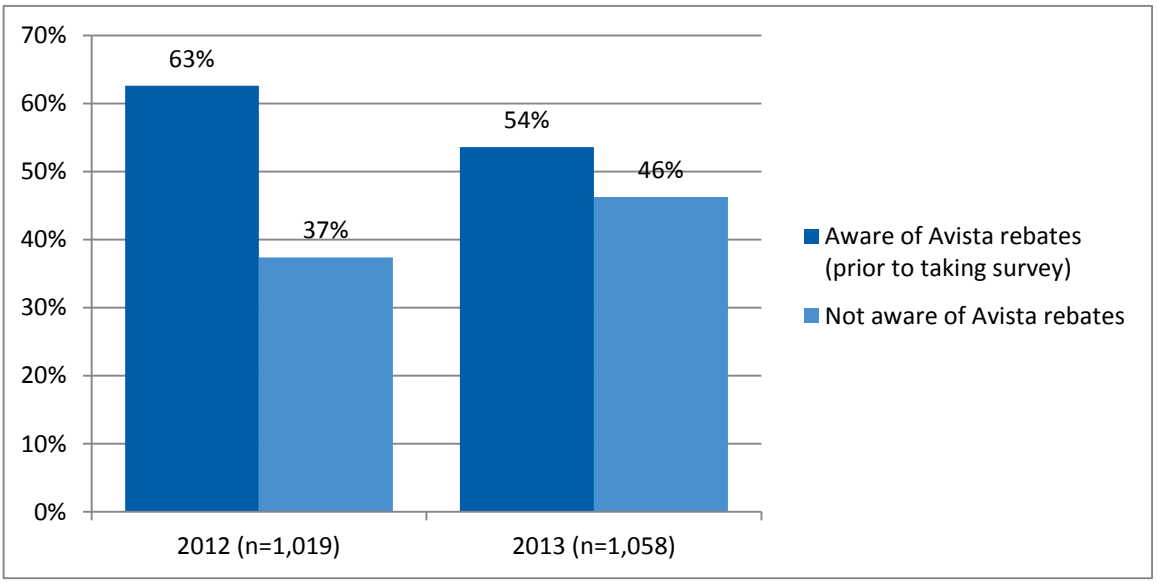
Figure 13. Most Commonly Reported Ways Participants First Heard About the Program by Program



Avista Customer Awareness of Energy-Efficiency Rebates

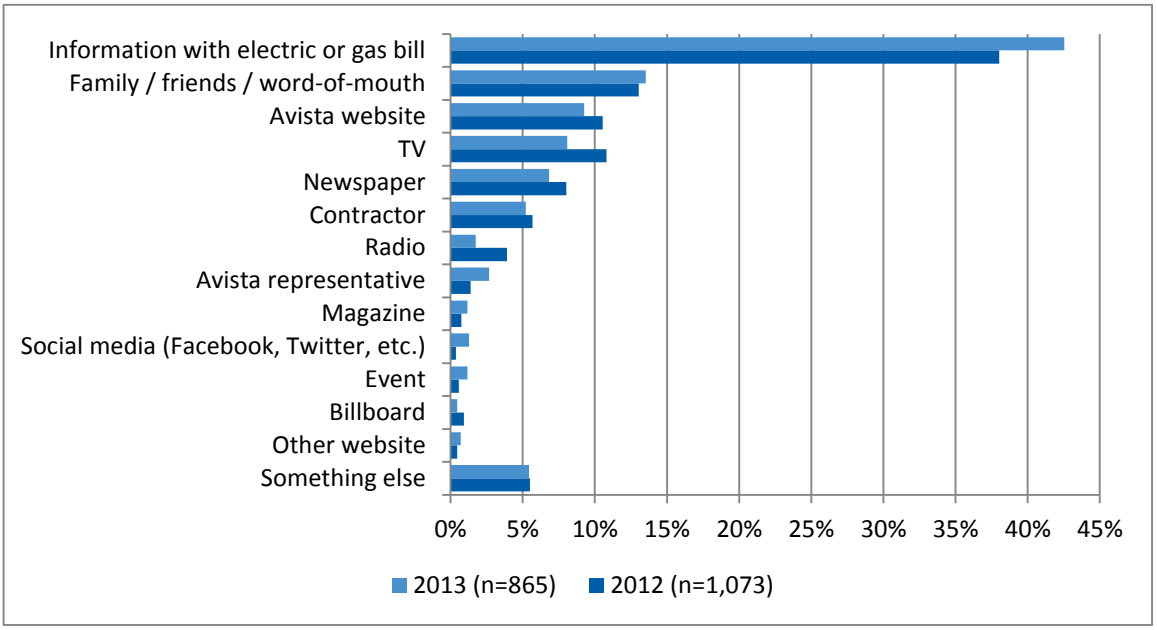
More than half of Avista's residential customers report being aware Avista offers rebates for energy-saving equipment and weatherization improvements when asked as part of the Avista general population studies. Indicated in Figure 14, 63% of customer surveys in 2012 and 54% of customers surveyed in 2013 reported being aware of Avista rebates (prior to completing the survey). The decrease in awareness reported in 2013 compared to 2012 may reflect the reduction in rebate offerings in Idaho as well as the challenges Avista faced in marketing dissimilar measure offerings across the two states.

Figure 14. Avista General-Population Customer Awareness



Customers who reported being aware of Avista rebates indicated that information in their utility bill was the most common way they learned of the measure offerings (38% in 2012 and 43% in 2013). Word of mouth (13% and 14%), the Avista website (11% and 9%) and TV advertisements (11% and 8%) were the next-most-common responses, although feedback was diverse. Figure 15 provides additional detail.

Figure 15. Source of General-Population Customer Awareness



Participant Experience and Satisfaction

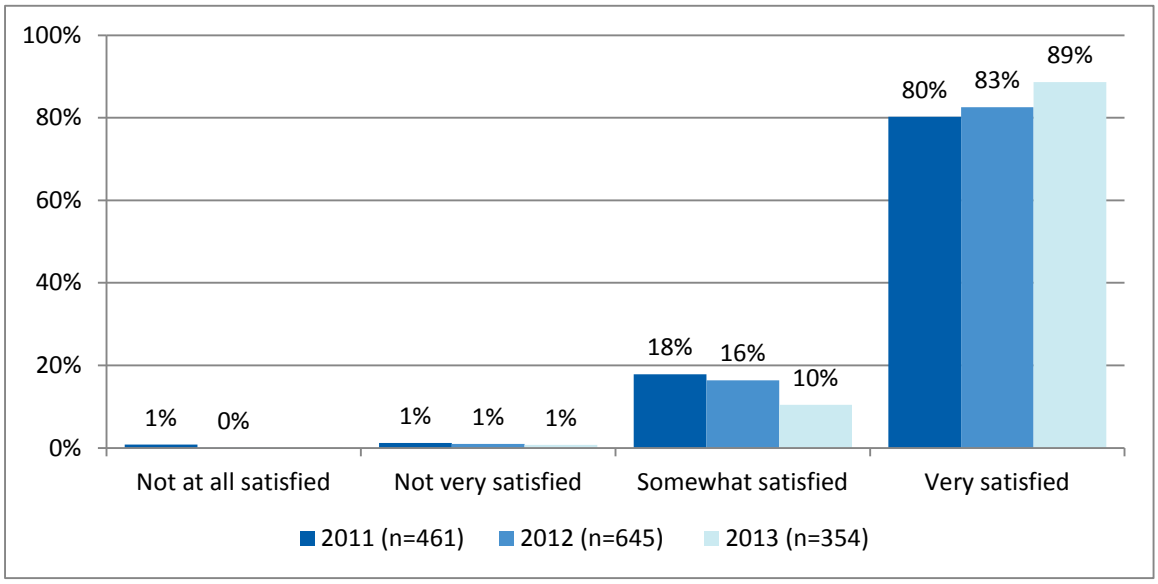
To assess customer satisfaction in the residential program and program elements, Cadmus included questions around these topics in participant customer surveys. Overall, as in past evaluations, Cadmus

observed generally very high customer satisfaction across the programs and program elements. The sections below provide additional detail.

Overall Program Satisfaction

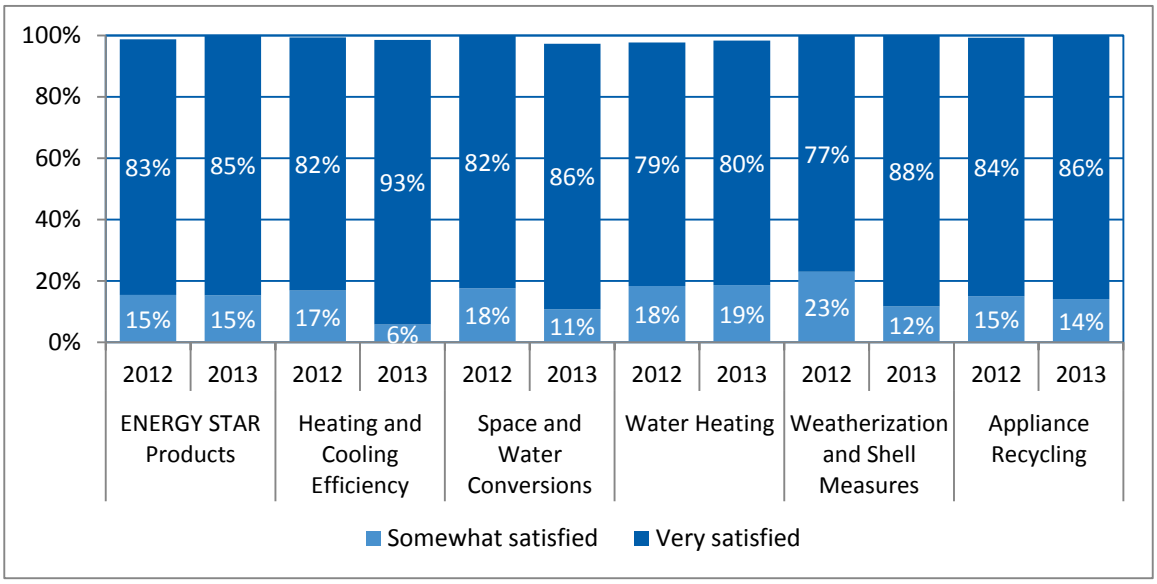
Cadmus asked surveyed participants to rate their overall satisfaction with the program as well as their satisfaction with various program aspects. As Figure 16 shows, overall satisfaction with the programs in PY2013 was very high, with 99% of participants describing themselves as somewhat satisfied or very satisfied with the program in which they participated. This finding closely resembles findings from PY2011 and PY2012, where 98% and 99% of respondents reported satisfaction, respectively. While general satisfaction remained the same across program years, the proportion of participants that were very satisfied rose steadily each year from PY2011 through PY2013.

Figure 16. Overall Participant Satisfaction across All Programs



As Figure 17 shows, participants expressed generally consistent, high overall satisfaction across programs, with an appreciable increase in very satisfied Heating and Cooling Efficiency Program participants from 2012 (82%) to 2013 (93%).

Figure 17. Overall Participant Satisfaction by Program and Year



Rebate Amount and Promptness Satisfaction

In the survey, Cadmus asked participants how satisfied they were with the amount of the rebate they received and how quickly they received the rebate.

Rebate Amount

As shown in Figure 18, respondents reported slightly lower satisfaction levels with rebate amounts than with the overall program. This is not uncommon, as most peopled feel they would be made happier if provided with a larger rebate. As shown in Figure 19, participants expressed generally consistent satisfaction with rebate amounts across all programs. However, participant satisfaction (those who said they were somewhat or very satisfied) with the Water Heating Program decreased slightly from 97% in 2012 to 90% in 2013. It is unclear what prompted this decline.

Figure 18. Weighted Rebate Amount Satisfaction for all Programs

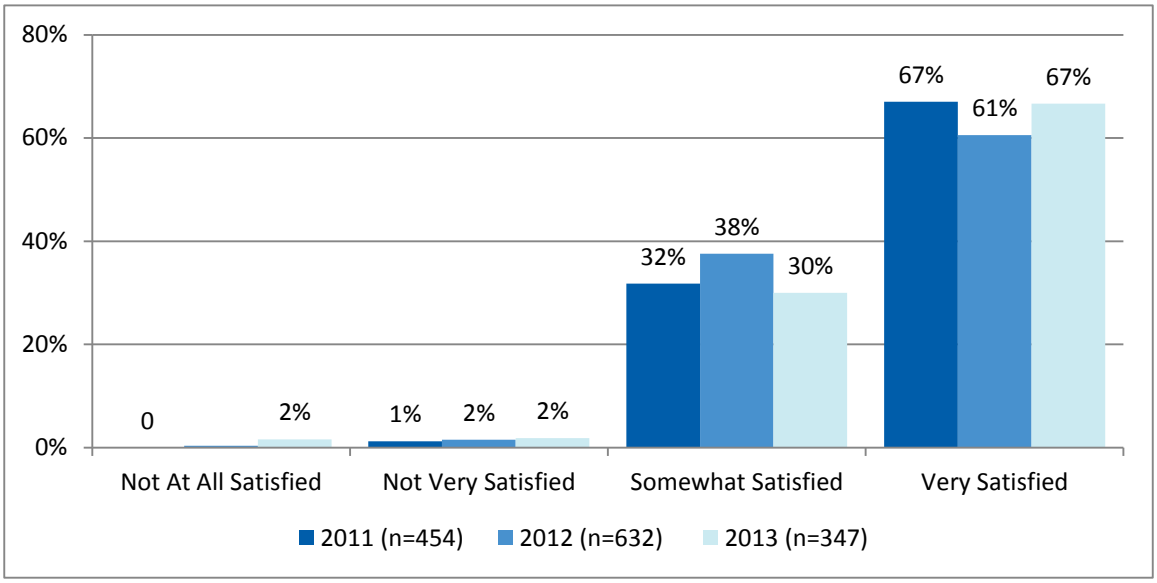
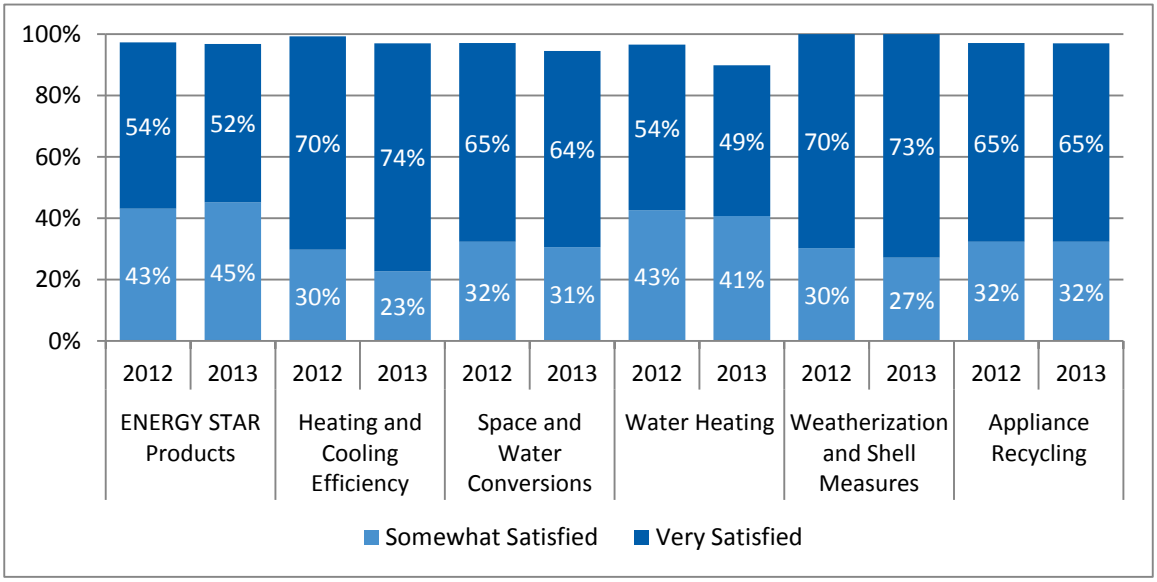


Figure 19. Rebate Amount Satisfaction by Program and Year



Promptness of Rebate Payment

As shown in Figure 20, respondents reported slightly lower satisfaction with rebate promptness than overall program satisfaction, but slightly higher satisfaction than with the rebate amount. The proportion of respondents who were very satisfied with rebate promptness increased slightly from 81% in 2011 to 88% in 2012, but decreased to 80% in 2013. This may reflect the minor uptick in rebate processing times identified in Table 16.

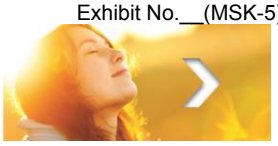
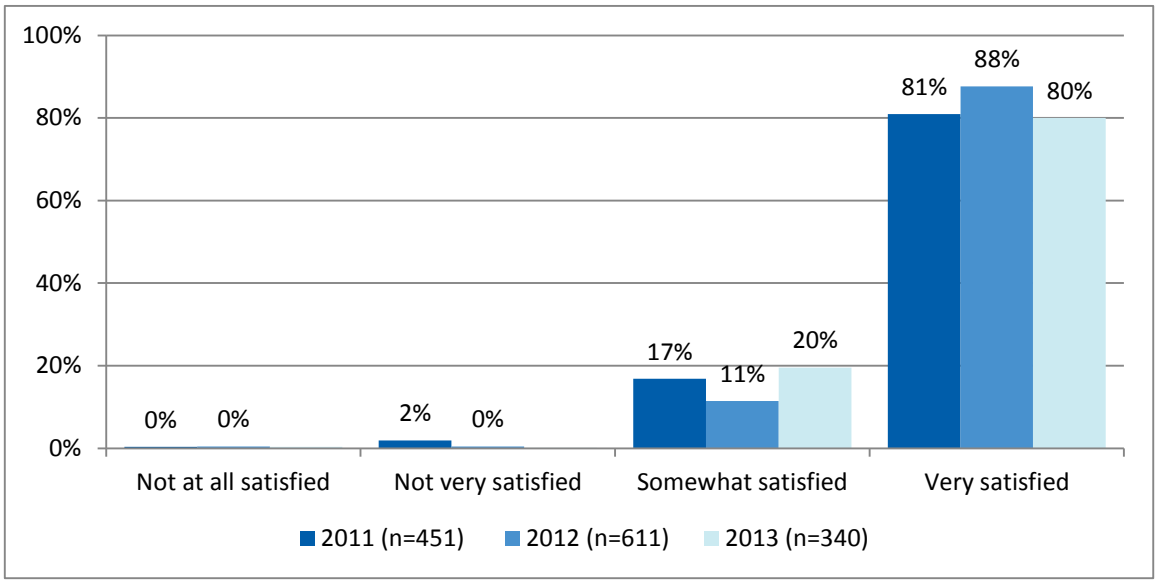
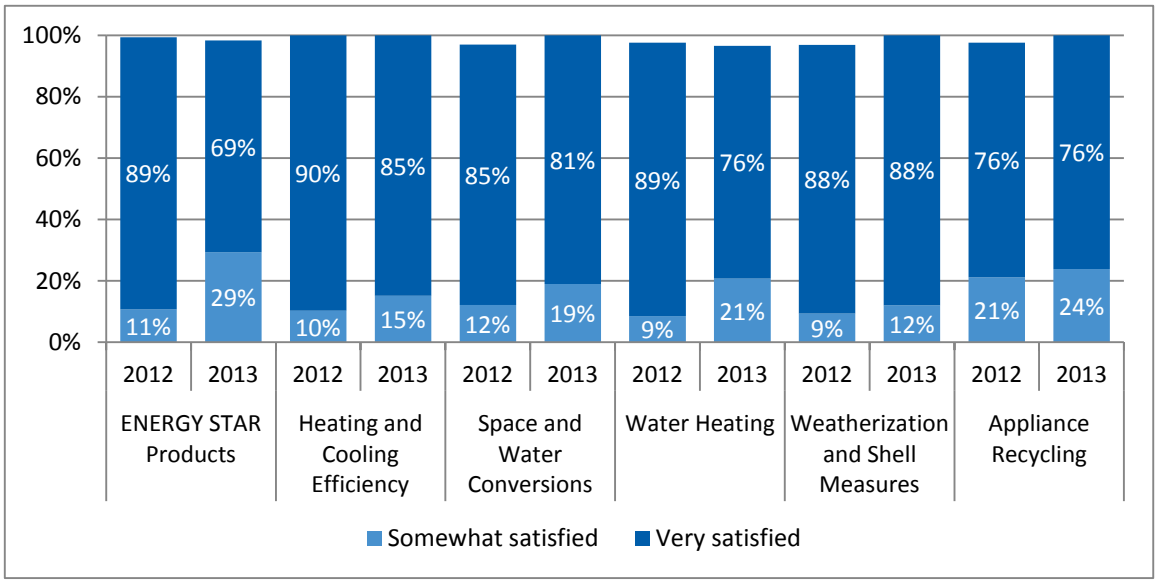


Figure 20. Weighted Rebate Promptness Satisfaction for All Programs



As Figure 21 shows, respondent satisfaction with rebate promptness was relatively high across programs. However, the proportion of respondents who were very satisfied with the promptness of their Energy Star product rebates decreased from 89% in 2012 to 69% in 2013.

Figure 21. Rebate Promptness Satisfaction for All Programs



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Residential Program Freeridership and Spillover

Freeridership

Freeridership, the percentage of savings likely to have occurred in the program's absence, traditionally refers to participants who would have undertaken an action promoted by a program had the incentive or other program activities not been available. Full freeriders would have undertaken exactly the same action at the same time (i.e., the program had no effect on the degree or timing of their actions). Partial freeriders would have taken some action, but would not have undertaken the action to the level promoted by the program, or would not have taken the action at the time they did.

For the PY2012 - PY2013 evaluation, Cadmus estimated freeridership by measure type: appliances; HVAC and water heating; and weatherization and shell using data from surveys with participating customers. We established this grouping based on the needs of the impact evaluation. The customer self-report approach to estimating freeridership adheres to standard industry methodologies. However, the approach does present a potential shortcoming: it may not always be entirely appropriate for capturing the market transformation impacts of multiyear programs. For example, a multiyear program may alter the availability of higher-efficiency products in a region by influencing dealers' and retailers' stocking practices. In addition, by increasing dealer experience and comfort with more efficient products, or by impacting demand for efficient products, a program may influence the mix of products manufactured. Customers, when choosing between various makes and models of a given product, may not be aware that a program affected their efficiency selection.

Therefore, while a customer may correctly state that he or she would have chosen a particular product in the program's absence, the availability of that product may have been a result of the program. While the customer would count as a freerider, the customer may have had less-efficient options without the program. A more thorough description of the freeridership methodology is provided in: Avista 2012-2013 Washington Electric Impact Evaluation Report; and Avista 2012-2013 Idaho Electric Impact Evaluation Report.[12]

Figure 22 show the freeridership results for the PY2012 and PY2013 program, by fuel type. Estimates from previous evaluations are also provided for context. Further, due to limited participants, before PY2012, Cadmus did not break out freeridership scores by fuel. Cadmus did not calculate separate freeridership estimates for conversion measures in PY2010 and PY2011 for the same reason.

[12] *Avista 2012-2013 Washington Electric Impact Evaluation Report.* Cadmus. 2014.
Avista 2012-2013 Idaho Electric Impact Evaluation Report. Cadmus. 2014.

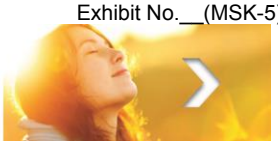
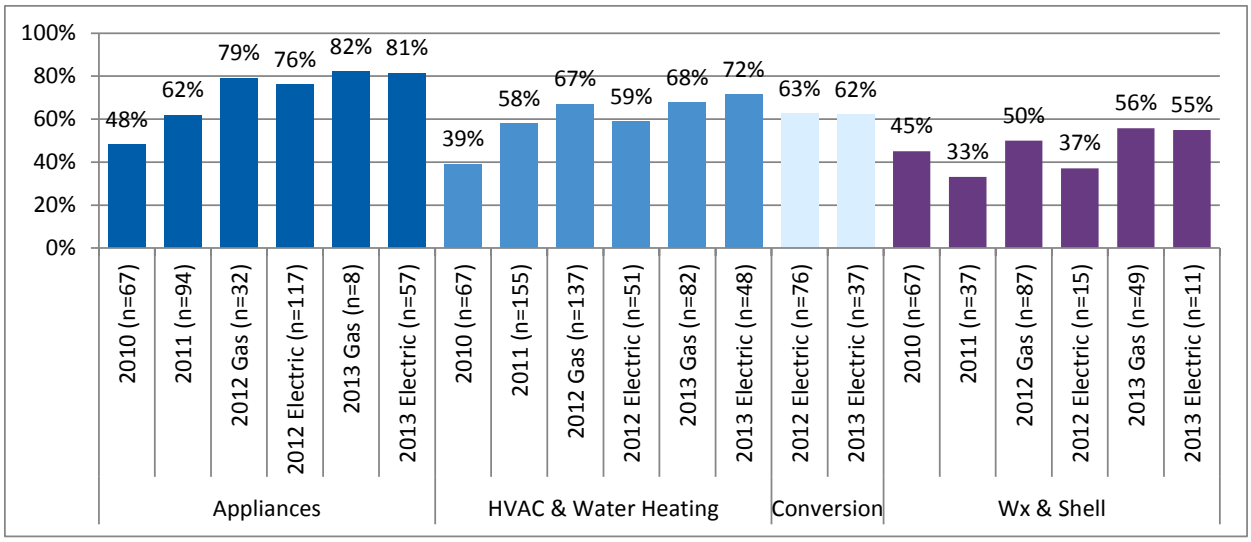


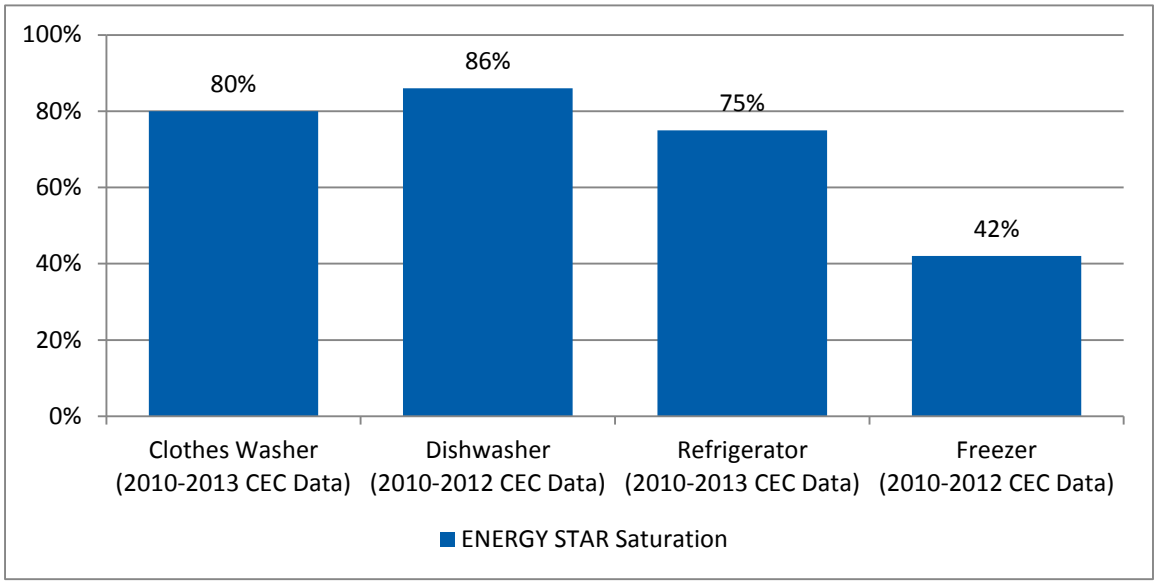
Figure 22. Observed Participating Customer Freeridership (Washington & Idaho)



A review of freeridership scores over the past four evaluation efforts indicates a clear upward trend in self-report freeridership—particularly among appliance and HVAC measures. This finding suggests the market for these equipment types may be transformed, and incentives from Avista are less of a factor in customer decision-making. This supposition is supported by a review of available secondary data. As indicated in Figure 23, which shows assumed appliance saturation in Washington and Idaho provided by the NWPCC Regional Technical Forum[13], there is little opportunity for customers to purchase and install non-ENERGY STAR certified equipment. The NWPCC Regional Technical Forum estimates are derived from the California Energy Commission (CEC) Appliance Database.

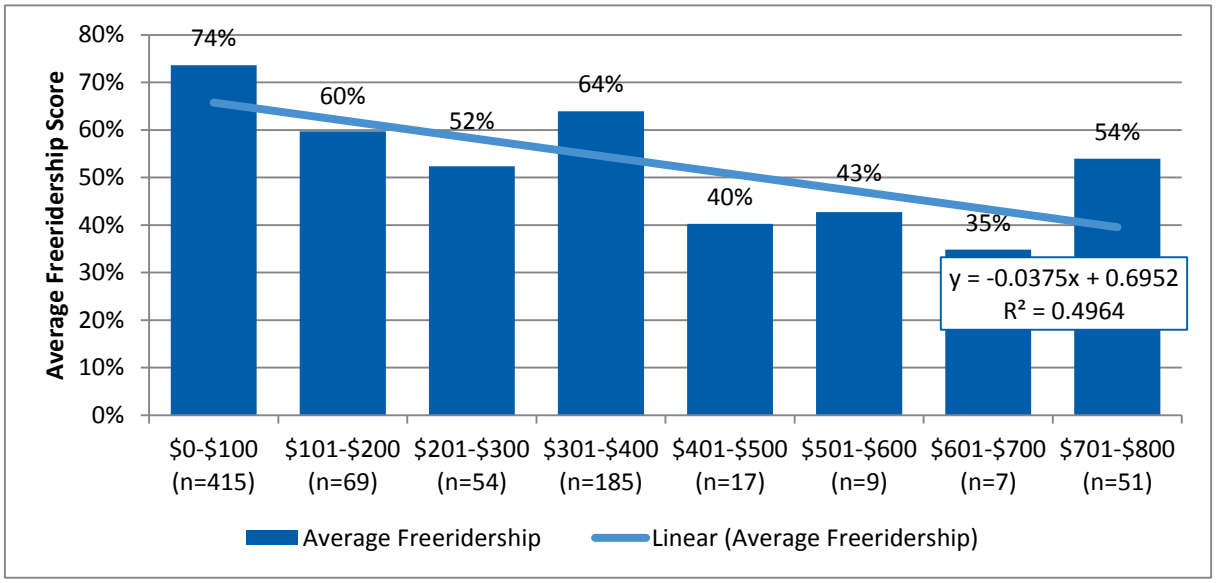
[13] 2014 NWPCC Regional Technical Forum Unit Energy Savings (UES) Measures and Supporting Documentation http://rtf.nwcouncil.org/measures/Default.asp

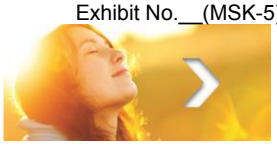
Figure 23. ENERGY STAR Appliance Saturation



Further, indicated in Figure 24 which shows average freeridership scores across all measures by incentive amount (in $100 bins), customers receiving smaller incentive payments are most likely to be freeriders. As all Avista rebates for appliances were less than $50, it follows that freeridership is highest in these measures.

Figure 24. Observed Participating Customer Freeridership by Incentive Amount





Avista has already responded to high levels of observed freeridership in the appliance measure category by discontinuing these measure offerings (Table 2).

Spillover

Spillover refers to additional savings generated by program participants due to their program participation, but not captured by program records. Spillover also includes savings from actions non-participating customers take because of program messaging or market effects. These savings are also not captured in program tracking.

Energy-efficiency programs' spillover effects can be considered an additional impact that gets credited to program results. In contrast, freeriders' impacts reduce the net savings attributable to a program.

In this evaluation, Cadmus measured spillover achieved through the installation of measures without utility rebates through surveys with participant end-users and general population customer surveys (representing nonparticipating customers). We found these savings to be the easiest to quantify through self-report surveys, an approach in-line with evaluation best-practice.

In these surveys, we asked customers whether they had installed any other energy-efficient equipment or had services performed in their homes for which they did not receive an incentive from Avista or another organization. Next we cross-checked respondents against PY2012 - PY2013 Avista and third-party implementer databases to confirm that the customers had not received a utility incentive for the reported measure. From this subset, Cadmus removed participants who did not indicate rebates or information from Avista was "somewhat" or "very important" to their decision(s) to purchase additional measures and general population customers who did not indicate rebates or information from Avista was "very important" to their decision(s) to purchase additional measures. Cadmus did not consider appliances when calculating spillover savings due to saturation in the market of high-efficiency models (Figure 23).

Table 23 summarizes the measures considered in PY2012 and PY2013 spillover estimates.

Table 23. Technologies Considered in Spillover Analysis and Number of Completed Surveys

2012		
Equipment Types	**Participant (n=648)**	**General Population (n=1,051)**
Air Conditioner	4	15
Air Sealing	3	
Clothes Dryer	2	
Clothes Washer	2	
Gas Furnace	2	2
Heat Pump	2	6
Insulated Doors		4
Insulation	3	3
Programmable Thermostat	1	
Weather Stripping		4
Windows	4	2
Total	**23**	**36**

Survey respondents per measure	***28.2***	***29.2***
2013		
Equipment Types	**Participant (n=357)**	**General Population (n=1,109)**
Air Conditioner		4
Air Sealing	2	
Clothes Dryer	1	
Clothes Washer	1	
Electric baseboard / Wall heater		1
Electric Furnace		1
Electric Water Heater		8
Gas Furnace		3
Gas Water Heater		5
Insulated Doors		3
Insulation	2	6
Lighting	1	
Refrigerator	1	
Weather Stripping		6
Windows	4	4
Wood/Pellet stove		1
Total	**12**	**42**
Survey respondents per measure	***29.8***	***27.6***

As indicated in Table 23, the number of spillover measures reported by respondents is consistent across the various surveys fielded, with one measure reportedly being installed for 27.6 to 29.8 survey respondents.

As a final step, Cadmus estimated energy savings from these additional measures installed, and matched those savings to evaluated gross savings calculated for the sample of survey respondents. This led to spillover ratios at the program levels. The spillover results for the PY2012 and PY2013 are provided in the Avista 2012-2013 Washington Electric Impact Evaluation Report; and Avista 2012-2013 Idaho Electric Impact Evaluation Report.

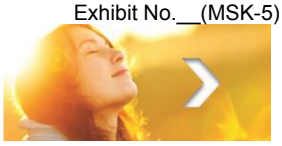
Residential Conclusions and Recommendations

This section describes the evaluation's conclusions and recommendations for the residential programs.

Program Participation

Conclusion: Avista's implementation of new and continued support for existing third-party implemented programs such as Simple Steps, Smart Savings and Residential Behavior effectively captures energy savings in the residential market segments.

- ***Recommendation:*** Continue exploring new measures, program designs, and delivery mechanisms that leverage the national expertise of experienced third-party implementation



firms. Possible programs may include additional partnership with ENERGY STAR in the form of the Home Performance with ENERGY STAR program.

Conclusion: Avista's continued investment in pilot programs provides a low-risk way test the effectiveness of new measure offerings, delivery channels, and implementation partners.

- ***Recommendation:*** Continue testing new program designs and measure offerings through the use of pilots—even if secondary sources of funding or local partners are not available.

Conclusion: While still early, evaluation findings indicate the Residential Behavior program is an effective way to capture savings in the residential market and Opower is a strong partner for program implementation.

- ***Recommendation:*** If determined to be cost-effective, consider expanding the Residential Behavior program (for example, lowering the energy consumption threshold for participation) and implementing measures to track the methods these customers use to save energy. Given that Avista has already included all cost-effective customers in their target population for this program, future opportunities for expansion may be limited.

Program Design

Conclusion: Inconsistencies continue to exist in measure and program naming and organization across program planning, tracking and reporting activities which result in less transparency in program operations and limit effective program evaluation.

- ***Recommendation:*** As part of the transition to the new data tracking system, consider aligning program and measure names with offerings articulated in annual business plans and other planning materials.

Conclusion: Reduction in Avista natural gas rebates and elimination of appliance rebates give customers fewer ways to participate in Avista energy-efficiency rebate programs.

- ***Recommendation:*** Consider ways to encourage repeat participation (such as marketing targeted at previous participants and online profiles that reduce application paperwork).

Conclusion: Considering self-report customer freeridership scores and market baseline data from the RTF is an effective way to assess the appropriateness of measure offerings.

- ***Recommendation:*** Continue use of customer freeridership and market assessments as a way to assess the appropriateness of measure offerings.

Conclusion: Many ongoing changes in Avista's program design and measure offerings are driven by the need to continue to meet cost-effectiveness requirements. Avista's examination of measure and program-level cost-effectiveness will determine the character of its portfolio in future program years.

- ***Recommendation:*** Develop a transparent process for assessing measure or program cost-effectiveness and communicating results internally. Consider ways to ensure high-quality cost-effectiveness analysis that aligns with industry best practices, such as obtaining an objective third-party review of current cost-effectiveness screening processes.

Program Implementation

Conclusion: Avista prioritization of customer satisfaction has been very successful and overall participant experience is very positive across all rebate programs.

- ***Recommendation:*** Continue Avista's commitment to customer satisfaction, but monitor:
  - Increased staffing costs; and
  - Impacts of the 90-day participation window on freeridership.

Marketing and Outreach

Conclusion: Avista implements a strong general awareness campaign around energy-efficiency, but some room exists in market segmentation and targeting specific customer groups.

- ***Recommendation:*** Utilize survey results from this evaluation and other data collection activities to understand which audiences are more likely to participate in Avista programs.

Nonresidential Process Report

Introduction

This nonresidential process evaluation focuses on three Avista programs offered to Idaho and Washington residential natural gas and electric customers during PY2012 and PY2013.[14] In this evaluation, Cadmus sought to address the following researchable questions:

- What barriers exist to increased customer participation, and how effectively do the programs address those barriers?
- How satisfied were customers with the programs?
- What changes to design and delivery would improve program performance?

In assessing these topics, Cadmus relied on three main data-collection efforts:

- Review of program tracking data, documents, and invoice materials;
- Interviews with Avista and implementation staff; and
- Telephone surveys with participating and nonparticipating customers.

Program Overview

Avista's nonresidential programs encourage commercial and industrial customers to install energy-efficient equipment in their facilities. To accomplish this goal, Avista offers incentives directly to customers who install qualifying equipment. This report provides findings and recommendations based on a process evaluation of the three nonresidential energy-efficiency programs: Prescriptive; Site-Specific; and EnergySmart Grocer.

Avista implements the Prescriptive and Site-Specific Programs. Avista account managers assist customers and determine project eligibility for the Site-Specific Programs, while program engineers are responsible for measuring and verifying project savings and costs. Trade allies also submit project information and rebate applications on behalf of customers.

A third-party vendor, PECI, implements the EnergySmart Grocer Program. EnergySmart Grocer is a turnkey program available across the Northwestern United States.

The following sections provide descriptions of each program.

[14] Similar to the residential portfolio, Avista's non-residential programs operate on calendar years, with program years running from January through December.

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Prescriptive Program

The Prescriptive program incents a variety of highly efficient electric and natural gas technologies, including:

- PC network controls;
- Clothes washers;
- Food service equipment;
- Lighting;
- Motors;
- Variable frequency drives (VFDs);
- Windows and insulation;
- Heating, ventilation, and air-conditioning (HVAC) equipment; and
- Standby Generator Block Heaters.

Site-Specific Program

The Site-Specific Program offers incentives for energy-efficiency measures not included in the Prescriptive Programs. All commercial, industrial, and water pumping customers with electric or retail natural gas service from Avista are eligible for the Site-Specific Program. Site-specific measures consist of electric and gas-saving technologies including:

- Appliances;
- HVAC equipment;
- Industrial processes;
- Custom lighting,
- Motors, and
- Building shell improvements.

For a measure to be eligible under the Site-Specific Program, it must have demonstrable kWh or therm savings.

The Site-Specific Program is responsible for a large portion of Avista's overall energy-efficiency portfolio savings. This program generally offers an incentive for any energy-saving measure that has a payback of more than one year and under eight years for lighting, and more than one year and under 13 years for other measures. The incentive typically covers up to 50% of the incremental cost of the efficiency investment.

Key drivers to delivering on program objectives include: direct incentives to customers, marketing efforts, account executives relationships with large customers, and ongoing work with trade allies. The Avista website is also used to communicate program requirements and incentives, and to provide

application materials. The *Every Little Bit* and *Efficiency Matters* marketing and outreach campaign (described in the Residential Process Report above) also focuses on commercial customers and is designed to increase awareness of energy efficiency among commercial and industrial customers.

EnergySmart Grocer Program

The EnergySmart Grocer Program is a regional program that offers prescriptive rebates for a variety of energy-saving food-sales and refrigeration equipment for nonresidential electric and gas customers, with an emphasis on grocery stores. Eligible equipment incentives include:

- Compressors;
- Controls;
- Motors;
- Night covers for refrigerated cases;
- Case lighting;
- Strip curtains for refrigerated spaces;
- Insulation for suction lines; and
- Hot water tanks.

This program helps customers with refrigeration loads to upgrade equipment, streamline operations, and save energy. Customers receive a complete energy analysis of their facility's refrigeration and lighting, as well as a detailed report showing ways to reduce energy use. The customized report outlines potential energy savings, incentive amounts, retrofit costs, and simple paybacks, and is offered at no cost to the customer.

EnergySmart Grocer Program offers 77 prescriptive measures. The average program incentive covers 45% of the customer incremental cost of the efficiency investment—although in some cases the program incentive covers up to 100% of the measure cost. Similar to the Site-Specific Program, key drivers to delivering on the objectives of the program include: direct incentives to customers, marketing efforts, account executives relationships with large customers, and ongoing work with trade allies. Avista website is also used to communicate program requirements and incentives, and to provide application materials

Evaluation Methodology and Information Sources

Cadmus' approach to this non-residential portfolio-wide process evaluation relied on four main reviews and data-collection efforts. These activities and the program years they focused on are provided in Table 24. We applied activities to all three non-residential programs.

Table 24. Data Collection Activities Applied to Each Program

Program Group	PY2012	PY2013
Program Materials Review	✓	✓
Staff Interviews	✓	✓

Participating Customer surveys		✓
Nonparticipating Customer Surveys		✓
Realization Rate and Database Review	✓	

Materials Review

This process evaluation analyzes primary and secondary program data. Cadmus conducted the following primary data-collection activities:

- Program staff interviews;
- Program participant[15] surveys;
- Nonparticipant customer[16] surveys;
- Database review; and
- Interviews with lighting contractors.

Secondary data included the following program and marketing materials:

- Avista's PY2012 and PY2013 DSM Business Plans;
- An internal Avista program implementation manual;
- Avista marketing collateral;
- Everylittlebit.com website; and
- Avistautilities.com website.

Information from Avista's reports for internal and external stakeholders, documents of public record, and information about best practices also informed this evaluation.

Program Staff and Market Actor Interviews

Interviews with program staff provided first-hand insights into program design and delivery processes, and helped evaluation staff interpret the information collected. We conducted interviews with Avista's Washington and Idaho program staff in two rounds, one in January 2013 and another in December and January 2014.

Cadmus also conducted interviews with participating and nonparticipating lighting contractors in the Avista service territory. These interviews were conducted in late 2013 as part of an ongoing Panel Study Cadmus is conducting for Avista. The interviews included several questions designed to provide feedback on Avista's programs from the perspective of participant and nonparticipant market actors. Cadmus defined participating contractors as those with over 10% of their customers receiving Avista incentives. Cadmus reached out to contractors on a list of 275 contacts provided by Avista, and offered

[15] Customers who received a program rebate in 2012 or 2013.
[16] Eligible nonresidential customers that did not participate in the programs during 2012 or 2013

an incentive for participating in the study. Of the 275 contacts, 167 were ineligible for the study either because they were not commercial lighting contractors or because they operated outside of Avista's service territory. Cadmus completed interviews with 20 of the remaining 108 contacts.

Table 25 provides a summary of interview data collection.

Table 25. PY2012 - 2013 Program Staff and Market Actor Interviews

Interviewee Role In Program Delivery	Completed Interviews	
	PY2012	PY2013
Avista Program Implementation Staff	3*	5
Avista Policy, Planning and Analysis Staff	1*	2
Avista Marketing Staff		1*
Lighting Contractors		9 *(participant)* 11 *(nonparticipant)*

* Multiple non-Cadmus staff participated in interview.

Participant Surveys

Telephone surveys constituted a large part of PY2013 evaluation data collection activities. We conducted all surveys with the assistance of several subcontracted market research firms, selected for their experience with the commercial market segment. To minimize the burden on customers, ensure a more satisfactory experience, and ensure high response rates, Cadmus designed the survey to take approximately 15 minutes to complete.

The primary research objectives for participant surveys were to:

- Determine participant satisfaction with key program components and delivery;
- Understand participant decision-making influences;
- Identify:
    - Information sources and channels' effectiveness for outreach;
    - Participants' perceptions of market barriers;
    - Participant freeridership and spillover;
    - Potential areas for program improvements and future offerings; and
- Compiling profile information about Avista's C&I target markets.

The process evaluation team used a single survey instrument for participants in all three programs, maximizing survey efficiency by combining process- and impact-related questions into a single survey.

Cadmus designed participant survey samples to represent the programs proportionately according to reported kWh savings. We adjusted survey targets to account for the number of survey respondents available for a given program.

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Table 26. Participant Survey Summary Details

Program Group	Survey Completes
Washington	
Prescriptive	79
Site Specific	41
Energy Smart Grocer	14
Idaho	
Prescriptive	33
Site Specific	23
Energy Smart Grocer	11
Total	**201**

Surveys were not conducted with PY2012 program participants because after conducting a large number of surveys with nonresidential customers in 2010 and 2011, Cadmus and Avista elected not to conduct surveys in 2012 to avoid survey fatigue in this population.

Nonparticipant Surveys

The primary research objectives for nonparticipant surveys were to:

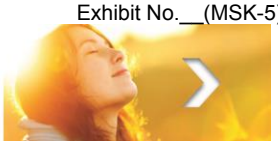
- Determine program awareness levels and information sources;
- Understand decision-making influences regarding energy-using equipment;
- Identify:
  - Information sources and channels' effectiveness for outreach;
  - Participation barriers or reasons customers aware of programs did not participate;
  - Nonparticipant spillover;
  - Potential areas for program improvements and future offerings; and
- Compiling profile information about Avista's C&I target markets.

2011-2012 Database and Realization Rate Review

As part of the PY2012 process evaluation, Cadmus reviewed Avista's PY2012 nonresidential project database and project-level realization rates identified in Cadmus' PY2011 and PY2012 impact evaluation. The materials reviewed and our associated research questions are listed in Table 27.

Table 27. Database and Realization Rate Review Activities

Review Activity	Materials Reviewed	Research Questions
Database Review	PY2012 SalesLogix Database Extract	Are data being tracked accurately and consistently?
		Are contracts issued in accordance with Avista policy?



		Do incentives comply with tariff rules for Washington and Idaho?
Realization Rate Review	PY2011 - PY2012 Impact Evaluation Sample	Why do some projects have a very low or very high realization rate?
		Are there opportunities for Avista to improve the process of calculating reported savings to improve the realization rates?

Database Review

Avista's tariff Schedules 90 and 190 govern how Avista can spend funds from the Energy Efficiency Rider Adjustment paid by Washington and Idaho ratepayers.[17] To assess compliance with these Tariff Schedules, we examined two main indicators:

1. Project incentive amount: electric and natural gas project incentives should not exceed 50% of the incremental cost of the project (p. 3 of Schedule 90; p. 2 of Schedule 190).
2. Project simple payback:
   a. For lighting measures, the simple payback period must be a minimum of one year and should not exceed eight years. (p. 2 of Schedule 90); and
   b. For non-lighting electric and natural gas measures, the simple payback period must be a minimum of one year and should not exceed 13 years. (p. 2 of Schedule 90; p. 2 of Schedule 190).

The tariff rules make exceptions for the following programs or projects (p. 3 of Schedule 90; p. 2 of Schedule 190):

- DSM programs delivered by community action agencies contracted by Avista to serve limited income or vulnerable customer segments, including agency administrative fees and health and human safety measures;
- Low-cost electric/natural gas efficiency measures with demonstrable energy savings (e.g., compact fluorescent lamps); and
- Programs or services supporting or enhancing local, regional, or national electric/natural gas efficiency market transformation efforts. (In 2012, Avista considered new construction fuel conversions in multifamily building projects and T12 to T8 commercial lighting conversion projects as market transformation efforts.)

[17] Schedule 90: Electric Energy Efficiency Programs, Washington. Available at: http://www.avistautilities.com/services/energypricing/wa/elect/Documents/WA_090.pdf; Schedule 190: Natural Gas Energy Efficiency Programs, Washington. Available at: http://www.avistautilities.com/services/energypricing/wa/gas/Documents/WA_190.pdf; and Schedule 90: Electric Energy Efficiency Programs, Idaho. Available at: http://www.avistautilities.com/services/energypricing/id/elect/Documents/ID_090.pdf

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Status of Evaluation Recommendations

Avista retained Cadmus to perform annual process and impact evaluations of Avista's non-residential program portfolio beginning in PY2010. These evaluation activities, findings, conclusions, and recommendations are articulated in the following reports: Avista 2010 Multi-Sector Process Evaluation Report; and Avista 2011 Multi-Sector Process Evaluation Report.[18]

In this evaluation effort, Cadmus reviewed the recommendations offered in these documents and assessed to what degree Avista had adopted these recommendations (by the end of PY2013). As indicated in Table 28, Avista has made significant progress toward addressing these recommendations.

Table 28. Status of PY2010 and PY2011 Nonresidential Process Recommendations

Status	PY2010 Evaluation	PY2011 Evaluation
Complete	6	8
In Progress	4	11
Limited Activity	3	1

A complete summary of recommendations and activity for addressing these recommendations is provided in Appendix B: Status of PY2010 and PY2011 Nonresidential Evaluation Recommendations.

Program Participation

Savings and Incentives

Table 29 provides the number of incentive-based measures and reported savings. The PY2012 and PY2013 Avista Impact Evaluation Reports explore the reported savings in detail.

Table 29. PY2012 - PY2013 Program Populations and Reported Savings[1]

Measure Type	PY 2012 Measures	PY 2013 Measures	PY 2012 - PY 2013 Reported Savings	
			MWh	Therms
Prescriptive	3,363	1,813	56,884	212,525
Site Specific	332	328	39,050	504,571
Energy Smart Grocer	338	329	10,858	0
Total	**4,317**	**2,470**	**106,792**	**717,096**

[18] *Avista 2010 Multi-Sector Process Evaluation Report*. Cadmus. 2011.
Avista 2011 Multi-Sector Process Evaluation Report. Cadmus. 2012.

Program Design, Management, and Implementation

This section discusses the Cadmus' observations regarding design and management of Avista's nonresidential programs. These observations focused on program definition and organization, logic, and implementation approach.

Overview

Overall, we found Avista's the non-residential program designs work well and are generally well-documented, primarily in the PY2012 and PY2013 DSM Business Plans. Further, we found that Avista has taken actions to improve internal communications and review processes.

Program Logic

Camus developed the logic model provided to articulate the logic behind the nonresidential program. The nonresidential program's logic has not changed substantially since the previous process evaluation.

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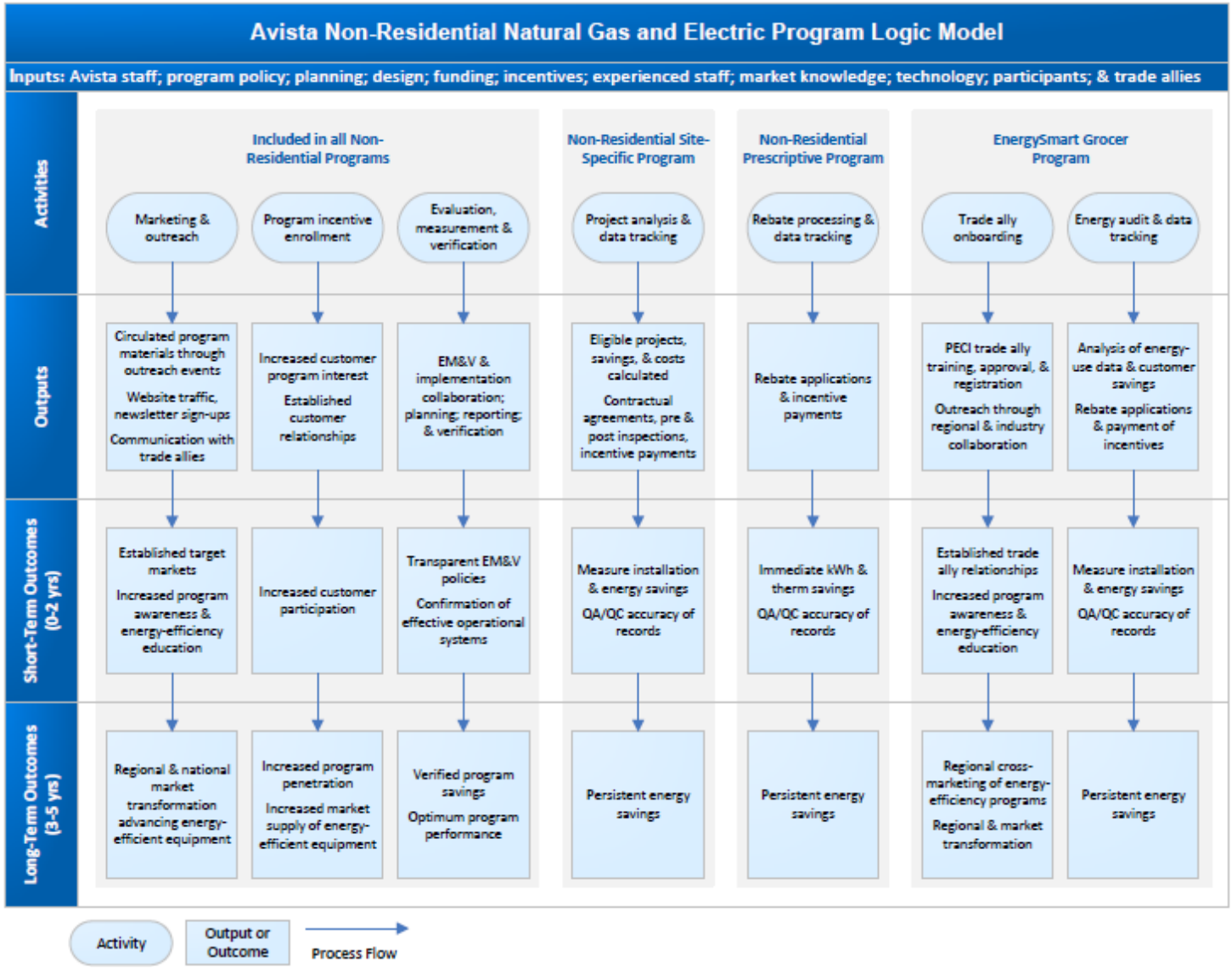
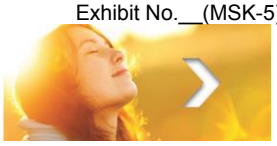
Figure 25. Avista Nonresidential Program Logic Model





Internal Communication

Avista's management and implementation of DSM programs has had some persistent organizational challenges. While not limited to any specific part of Avista's DSM staff, many of the issues noted here and in previous studies have primarily affected the nonresidential program internal review processes. Several external documents and processes have addressed these problems, including:

- 2008 Ecotope Impact Evaluation – cited potential for improved quality control
- 2009-2010 Moss Adams Process Evaluation Report – expressed need for central management role and QA/QC checks in the nonresidential program
- 2010-2011 Cadmus Process Evaluation Report – recommended QA/QC checks at certain threshold
- August 2013 Cadmus Memo (see Appendix C) – review of 2012 program data noted some lack of documentation, possible issue with application of tariff rules regarding payback periods and incentive payment caps, and large variations between project-level realization rates
- December 2013–January 2014 Cadmus interviews with Avista – noted internal disagreement regarding whether the Top Sheet process was working
- March 2014 Idaho Public Utilities Commission staff comments on Avista Corporation's Application for a Finding that it Prudently Incurred its 2010-2012 Electric and Natural Gas Energy Efficiency Expenditures – noted program implementation issues including a "lack of formal follow-through on program management issues," "insufficient controls around engineering assumptions and the basis for site-specific incentive payments, [and] incorrect interpretation of Schedule 90 regarding implementation of prescriptive projects"
- April 2014 Idaho Public Utilities Commission Order Number 33009 on Avista Corporation's Application for a Finding that it Prudently Incurred its 2010-2012 Electric and Natural Gas Energy Efficiency Expenditures – approved expenditures as prudent with the exception of incentives for two projects for which recovery was deferred due to incomplete documentation, reiterated need for a central decision maker

These documents focused on a variety of issues, but all documents agreed that there were concerns with Avista's internal QA/QC process, especially for large nonresidential projects. These efforts agreed that the definition of roles and responsibilities for Avista's DSM staff were not sufficiently clear. Further, several documents noted that Avista's DSM staff was split into two completely separate teams: the implementation team and the PPA team reported to separate directors. This separation may have fueled internal communication problems.

Avista has taken significant steps internally to address these issues:

- 2009 Avista Internal Audit Department review of DSM processes
- 2013 Avista retained Milepost Consulting for review of DSM team's roles and responsibilities
- 2013 Avista's implementation of Top Sheets – instituted peer review QA/QC system; associated internal follow-up was completed to verify Top Sheet standard processes

- July 2013 Avista Internal Audit Department memo – noted that previously identified issues need further attention
- April 2014 Internal Audit Department memo – found that 70 out of 75 Top Sheets were present and on-site verification is happening for 100% of site-specific projects completed to date in 2014, but noted there is no policy on how many prescriptive projects should get on-site verification

As of April 2014, Avista has begun a restructuring process to improve internal communication and delivery of DSM programs. Both the implementation team and the PPA team now report to the same Senior Director.

Effectiveness of Implementers

As noted in the Residential Process Report, using third-party implementers presents advantages and disadvantages. Generally, utilities maintain direct implementation of programs requiring strong relationships with unique customers (e.g., large commercial and industrial customers). Programs benefitting from a uniform approach involve national accounts, or require certain market expertise available from a third-party firm. Research conducted for this—and previous—Avista evaluation efforts leads us to conclude that Avista has succeeded in identifying which program (EnergySmart Grocer) is most suitable for third-party partnering.

The PY2011 evaluation report provides the results of detail interviews conducted with implementation staff at PECI staff. As few changes have been made to this program since the interviews took place in spring 2012, and the program has been the subject of other recent regional Cadmus evaluations,[19] we did not conduct additional evaluation in this area.

Data Tracking, Verification, and Quality Assurance

Cadmus reviewed the PY2012 program tracking database for data accuracy and completeness, and issued a memo in August 2013 describing in detail the methods, findings, and conclusions (Appendix C: 2012 Nonresidential Process Evaluation Memorandum). In summary, we found some documentation was lacking and that there were issues with the application of tariff rules regarding project costs and energy savings specific to prescriptive projects.

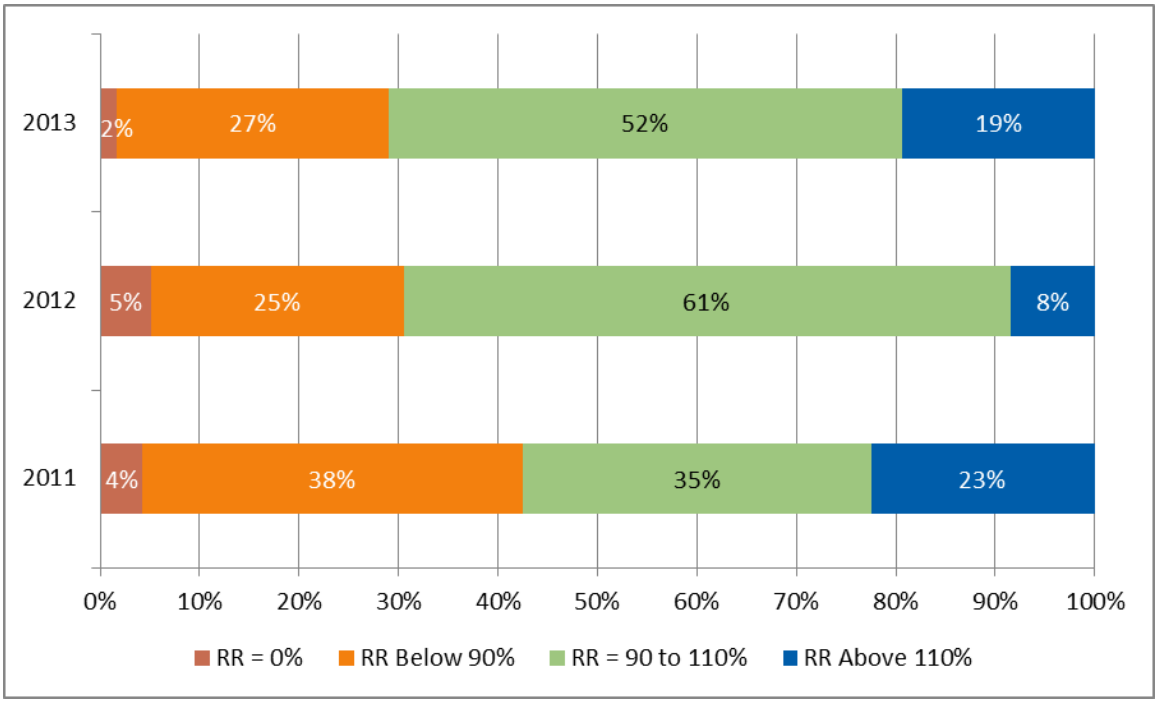
We also examined the accuracy of Avista's claimed savings, measured by realization rates, and found that accuracy improved significantly from 2011 to 2012. Three of the four main reasons for savings adjustments in 2012 were largely outside Avista's control. However, based on the review of 2012 data,

[19] Cadmus recently completed an impact assessment and a market potential assessment of the EnergySmart Grocer program in 2013. The results of this work are documented in reports available here:
http://www.bpa.gov/energy/n/reports/evaluation/commercial/pdf/Cadmus_ESG_Impact_Evaluation_Report_Final.pdf
http://www.bpa.gov/energy/n/reports/evaluation/commercial/pdf/BPA_Grocery_Opp_Assessment_05JUN13.pdf

we concluded that Avista could still improve the reliability of claimed savings estimates by avoiding calculation errors in reported savings.

Cadmus reviewed achieved realization rates in each year, as summarized in Figure 26. This review showed that the accuracy of claimed savings declined slightly in 2013, with 52% of electric project realization rates falling within the 90% to 110% range. This range reflects a high degree of accuracy, with realization rate adjustments of 10% or less. It is expected that some portion of projects will fall outside of this range due to factors beyond Avista's control. Though the proportion of projects with realization rates that fall below 90% is greater than that above 110%, the magnitude of those projects has been steadily decreasing over the years, falling from 42% in 2011 to 29% in 2013.

Figure 26. Summary of Avista Nonresidential Project Electric Realization Rates



In July 2013, Avista instituted a new process for site-specific project reviews. A major feature of the new review process was the addition of Top Sheets to track and verify applications' completeness and correctness. Cadmus did not perform a review of the information contained within Top Sheets as part of this process evaluation, but rather gathered information about the Top Sheet process through interviews with staff.

Participant Characteristics, Experience and Satisfaction

To assess customer satisfaction with Avista's nonresidential programs, Cadmus included questions around these topics in participant customer surveys. Overall, as in past evaluations, Cadmus observed

very high customer satisfaction across the programs and program elements. The sections below provide additional detail.

Participant Characteristics

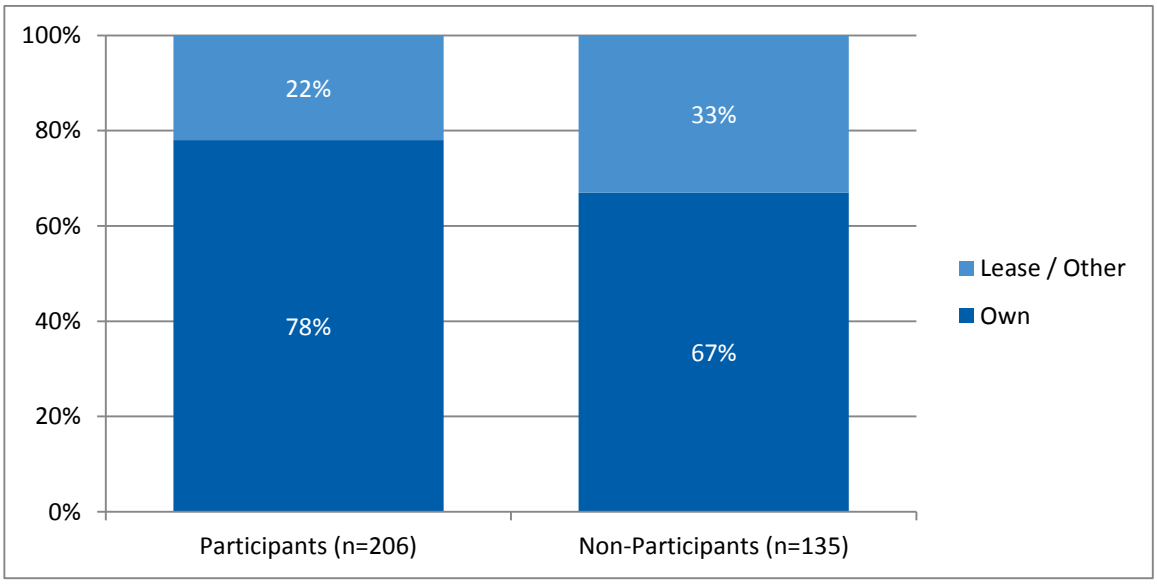
Cadmus surveyed a total of 210 participating and 140 nonparticipating nonresidential customers. These respondents represented a variety of business sectors, as shown in Table 30.

Table 30. Participant and Nonparticipant Survey Respondents' Industries, By State

Industry Breakdown	Idaho		Washington	
	Participants	Nonparticipants	Participants	Nonparticipants
Retail / personal services	22%	27%	16%	20%
Office / professional services	6%	17%	7%	20%
Manufacturing	7%	13%	11%	3%
Auto repair or service station	14%	6%	11%	17%
Warehouse / distribution center	10%	6%	9%	6%
Religious	6%	4%	4%	1%
Government building	1%	9%	1%	3%
Medical	6%	3%	6%	4%
Education (K-12)	7%	0%	1%	0%
Restaurant	4%	1%	9%	4%
Hospitality	0%	3%	1%	3%
Dormitory / multifamily housing	1%	0%	4%	3%
Education (college / university)	-	-	3%	1%
Agricultural	-	-	0%	3%
Other	14%	11%	16%	10%

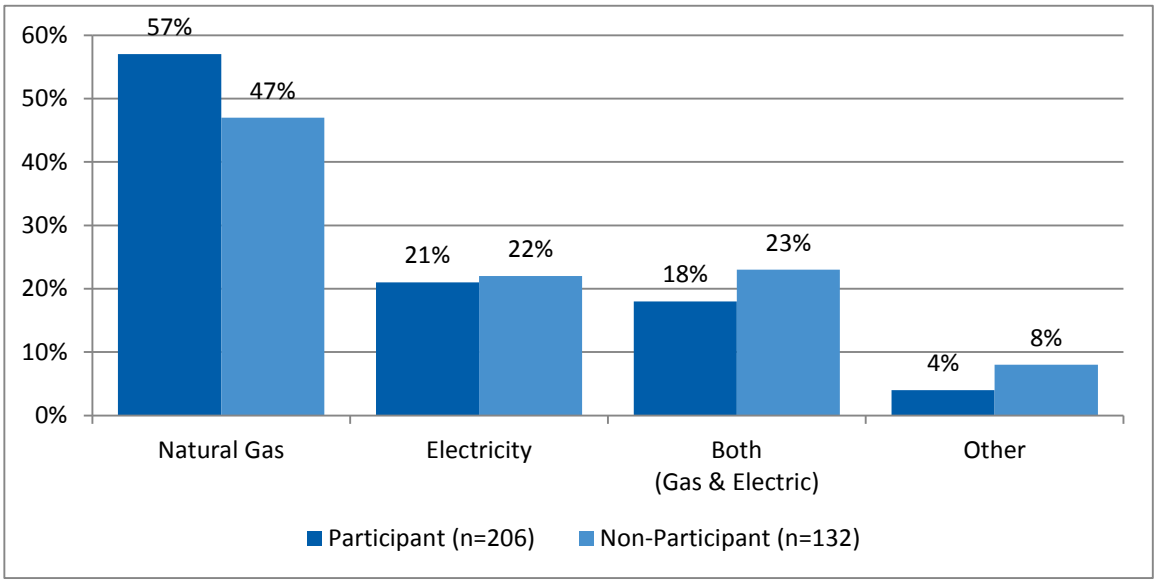
Program participant respondents were more likely than nonparticipant respondents to own their facilities. Indicated in Figure 27, 78% of participants owned their facilities, compared with 67% of nonparticipants.

Figure 27. Facility Ownership Status, Participants vs. Nonparticipants



Most survey respondents, both participants and nonparticipants, used gas heating. Figure 28 shows fuel use for space heating by customer type.

Figure 28. Fuel Use for Space Heating, Participants vs. Nonparticipants

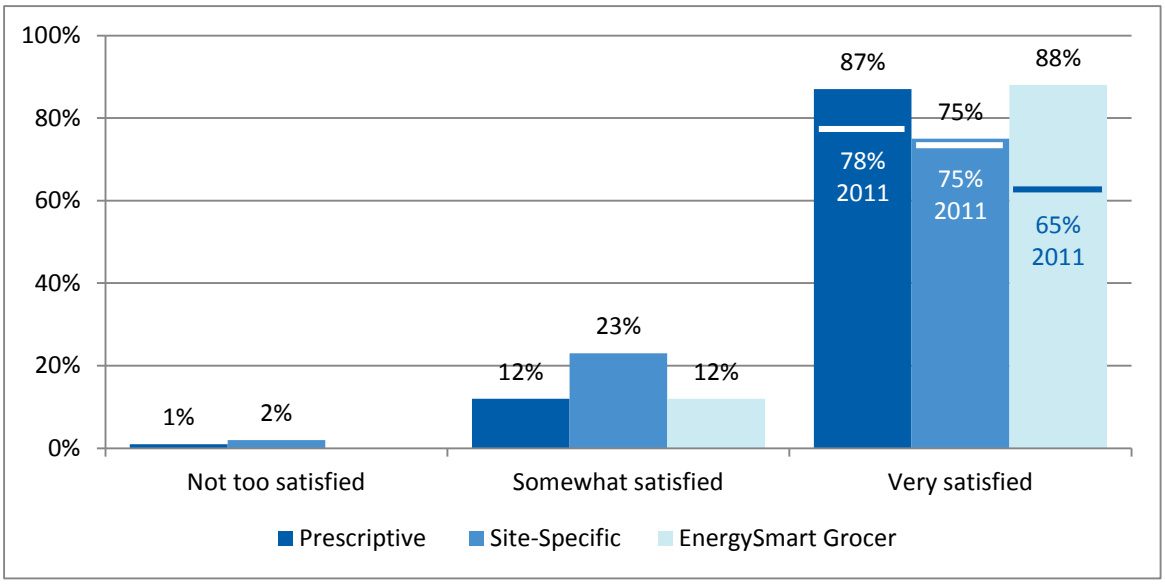


Participant Satisfaction

Overall, participants reported high satisfaction with the programs: 84% of all respondents said they were “very satisfied” in the program overall. Figure 29 shows respondents’ satisfaction ratings by program. In contrast to the 2011 survey, when EnergySmart Grocer participants were less satisfied than

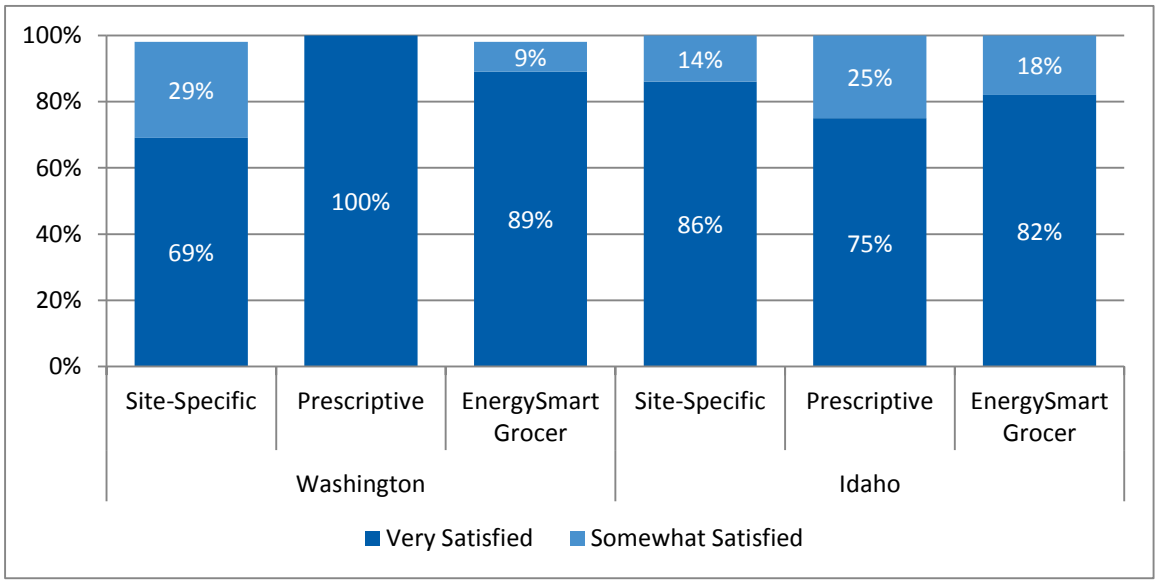
other participants, EnergySmart Grocer participants reported the highest satisfaction levels in the PY2013 survey.

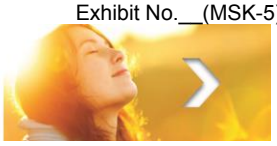
Figure 29. Overall Participant Satisfaction



Satisfaction levels were generally similar across programs, as Figure 30 shows. However, the Washington Site-Specific Program received slightly lower ratings than the other programs.

Figure 30. Participant Satisfaction, by Program



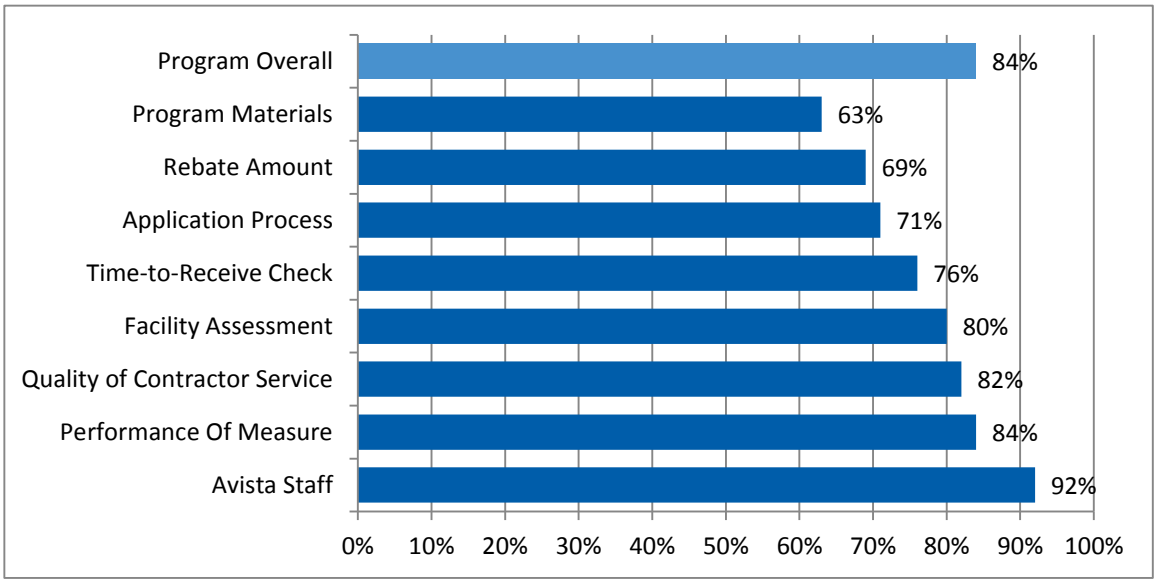


When asked how Avista could improve the program participation experience, Washington Site-Specific participants suggested increased responsiveness and improved program information. Responses included:

- "It would be nice if they could have recommend known heating and lighting and steered us to the best installers."
- "Contact me the first time I call."
- "Find a way to do this sooner for better information."
- "Just shorten the timeframe on the initial inquiry."
- "Improve the responsiveness of the technical team."
- "Send me information that I need to finish the rebate process."

Participants also reported generally high satisfaction with individual program elements. As Figure 31 shows, at least 63% of survey respondents indicated they were "very satisfied" with each program element. Avista staff received the highest satisfaction ratings, with 92% of respondents "very satisfied." Program materials were the element that received the lowest satisfaction rating, with 63% of respondents "very satisfied." Participant satisfaction with the facility audit improved markedly since the 2011 survey, rising from approximate 50% "very satisfied" in 2011 to 80% "very satisfied" in 2012-2013.

Figure 31. Percent of All Participants "Very Satisfied" with Program Elements

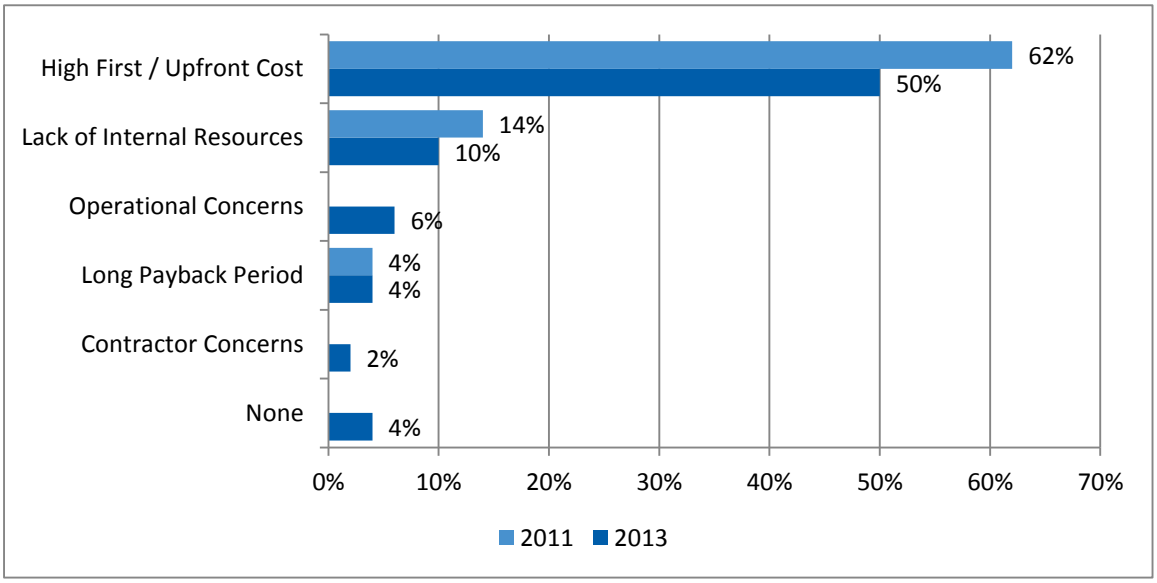


Program Barriers

Participants reported facing several barriers to installing energy-efficient equipment. The most common barriers cited are shown in Figure 32. The high up-front cost of energy-efficient equipment was the most commonly cited obstacle; 50% of participants said it was a challenge. Next, 6% of participants reported operational concerns, such as the inconvenience of having to work around customers and employees

during business hours, and a new oven that made the surrounding space too hot. Long return on investment, lack of technical knowledge, and lack of staff time were obstacles according to 4% of respondents. An additional 4% said there were no obstacles at all. A small group of participants (five participants, or 2%) had difficulty finding competent and trustworthy contractors and vendors. One said, "The vendors twist information for their own benefit. If they have different lights, they say [energy-efficient lights are] not going to fit in there, so they install what they want to install."

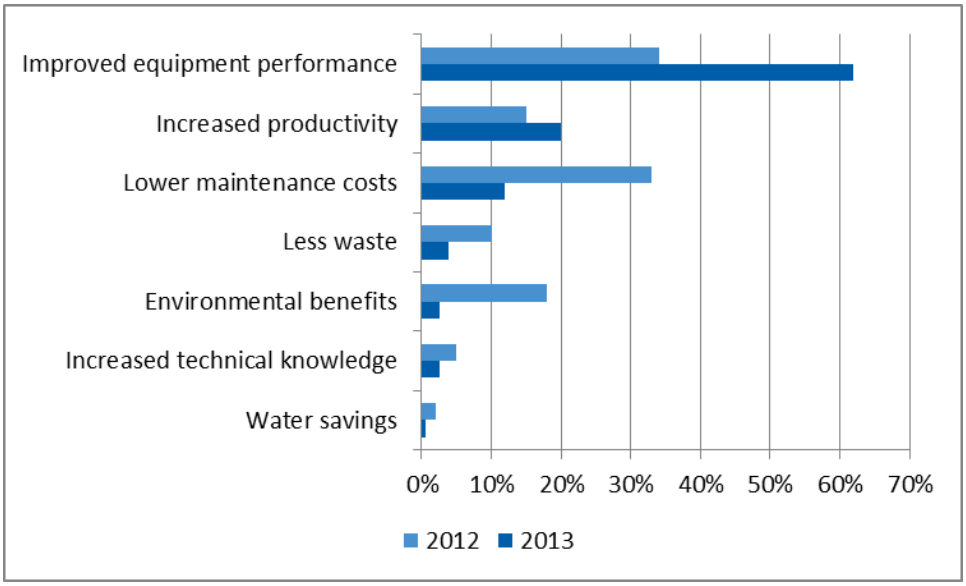
Figure 32. Obstacles to Installing Energy-Efficient Equipment



Program Benefits

Two-thirds (67%) of participants said the energy-efficient measures they took resulted in benefits beyond energy savings. As Figure 33 shows, the most common non-energy benefit participants cited was better equipment performance, such as improved comfort, better lighting quality, and less noise. Additionally, 20% of respondents said the project increased productivity (including increased sales, for retail facilities), while 12% cited lower maintenance costs. Other benefits that respondents mentioned were less waste, environmental benefits, increased technical knowledge, and water savings.

Figure 33. Non-Energy Benefits of Participation



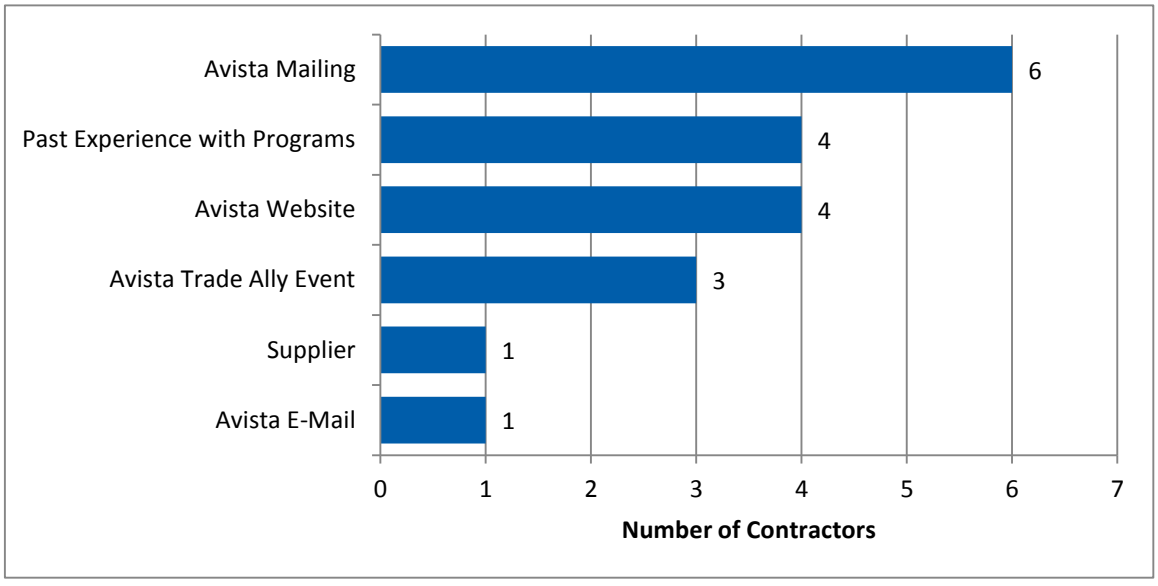
Market Feedback

Cadmus interviewed 20 commercial lighting contractors to obtain feedback on how Avista's programs affected the overall market for energy-efficient lighting. Significant findings from these interviews are provided below.

Contractor Awareness

The most common way the lighting contractors said they had heard about Avista's energy-efficiency programs was through an Avista mailing. Figure 34 shows the sources of awareness the trade allies reported.

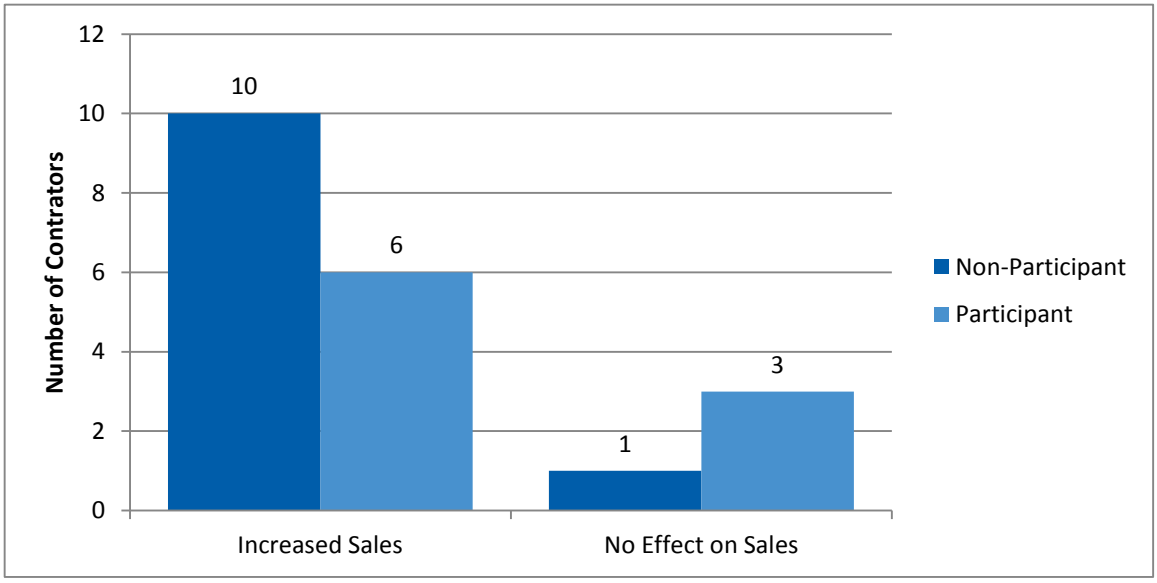
Figure 34. How Lighting Contractors Heard About the Programs



Program Impact on Sales

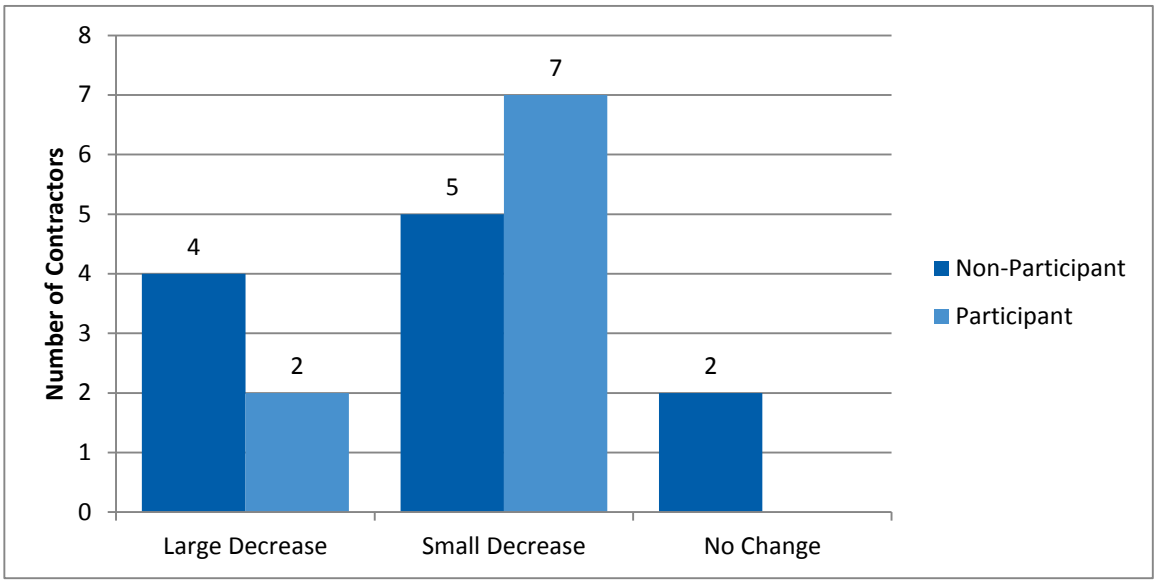
Cadmus asked the lighting contractors what impact Avista's rebate programs had on their business. As Figure 35 shows, 16 of the 20 contractors said their sales had increased, while four said they had seen no effect. (None of the contractors said their sales had decreased due to the programs.) Two contractors said they had noticed large increases in previous years, but that sales had dropped in 2013. One said, "[the programs] increased sales when the T12-to-T8 rebate existed, but now it has no effect on sales."

Figure 35. Avista Programs' Impact on Lighting Contractors' Sales



Nearly all contractors said energy-efficient sales would decrease if Avista's rebates were eliminated, as shown in Figure 36.

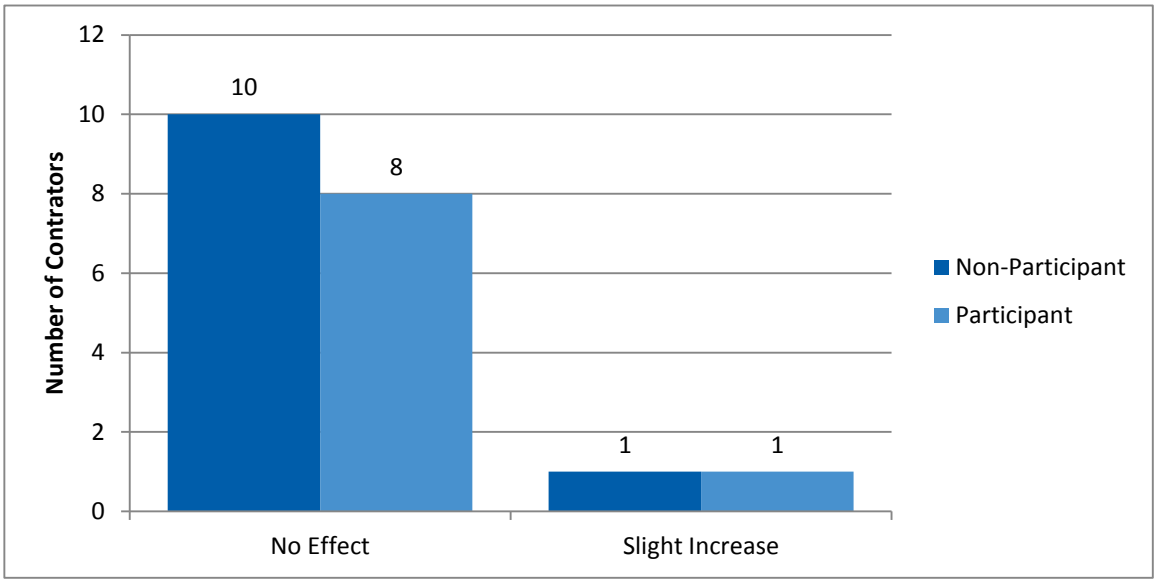
Figure 36. Hypothetical Effect of Avista Rebate Elimination on Contractors' Sales



Market Transformation

Most contractors reported Avista's programs do not affect their stocking practices, as shown in Figure 37.

Figure 37. Avista Programs' Effect on Contractor Stocking Practices



CADMUS

Marketing and Outreach

Program Marketing Approach

Marketing Objectives and Strategies

Avista's marketing approach for 2013 was to increase awareness and participation in Avista's energy efficiency programs for commercial and industrial customers using customer endorsements, and showcasing additional value through non-energy benefits.

Planning and Processes

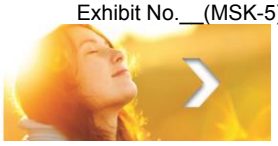
Avista staff plan, design, and execute nonresidential program marketing initiatives. As indicated in the PY2012 and PY2013 DSM plans, an internal collaborative process exists to develop general energy-efficiency marketing and promotions. This process incorporates feedback from the Energy Solutions, Services Development and Marketing, and Programs, Planning, and Analysis teams. The EnergySmart Grocer Program includes supplemental marketing as part of its program design and implementation plan.

Avista's marketing staff use the Avista Design System Guidelines to ensure that energy-efficiency marketing and outreach materials deliver a consistent look, feel, and message. This document includes guidelines for usages of items such as logos, color palettes, and fonts. It also includes an overview of applications, with examples of properly branded materials and collateral. All PY2012 and PY2013 general energy-efficiency marketing materials appear to be aligned with the guidelines. The *Efficiency Matters* campaign and Online Energy Advisor tool present slightly varied creative assets, although generally appear to follow the brand guidelines (i.e., fonts, logos, etc.).

Outreach Channels

Avista conducts residential energy-efficiency marketing through a variety of channels. In addition to the general energy-efficiency marketing tactics outlined below, Avista also conducts broad-based awareness efforts through its *Efficiency Matters* campaign, as described in the following section. Besides the *Efficiency Matters* campaign (which is implemented in partnership with KREM 2, a CBS affiliates), there are no mass media or cross-cutting promotional efforts, to avoid potential customer confusion across state lines. Notable outreach tactics used in PY2012 and PY2013 include:

- Paid media: print advertisements in local and regional magazines and newspapers;
- Earned media: local public relations as available;
- Direct mail and bill inserts: general and (targeted) program-specific;
- Newsletters and e-mail blasts: general outreach;
- Website (avistautilities.com): case studies added in 2013; and
- Vendor outreach meetings: general overview about programs, application process, project qualifications, and customer eligibility.



Print Advertising

The programs used print advertising to highlight customer success stories with call to learn more information at two specialized webpages:

- avistautilities.com/bizrebates
- avistautilities.com/casestudies

Figure 38: Example Case Study Print Advertisement

The ads appeared in select local and regional print publications, as shown in Table 31, targeted to reach key business decision makers. The ads ran from May through December 2013, and delivered over 1,041,000 gross impressions.

Table 31. Print Advertisement Publications

Business Journals	Trade Publications	Magazines

- Spokane Journal of Business - North Idaho Business Journal - Coeur d' Alene Press - Spokesman Review - The Wall Street Journal (zoned)	- HVAC/R Insider - The News (HVAC) - Today's Facility Manager	- Alaska Airlines - Horizon Airlines

Materials and Messaging

Cadmus reviewed *Efficiency Matters* campaign outreach materials and Avista's energy efficiency web pages, and conducted a high-level review of the Online Energy Advisor materials as a point of reference. The evaluation team found that there are varied creative assets and look and feel across channels and platforms. While the general energy efficiency promotional materials present a look and feel consistent with the brand guidelines, the Efficiency Matters campaign and Online Energy Advisor platforms leverage additional assets. For example, the Efficiency Matters landing page (www.everylittlebit.com) also includes assets from the Online Energy Advisor personas (with the "shield" creative) and creative developed by a 3rd party implementer.

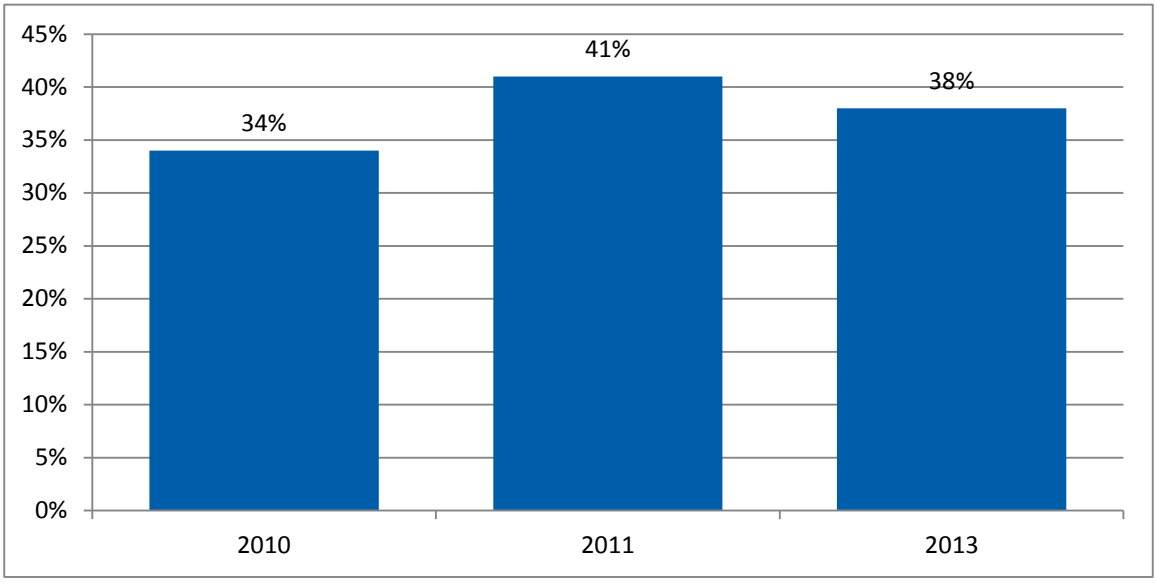
Marketing Execution and Measurement

Avista tracks metrics for its individual campaigns and ties results back to awareness and website traffic. In PY2013, Avista staff reported tracking *Efficiency Matters* campaign metrics (participants and traffic), estimated impressions through paid media, and response to direct mail.

Customer Awareness

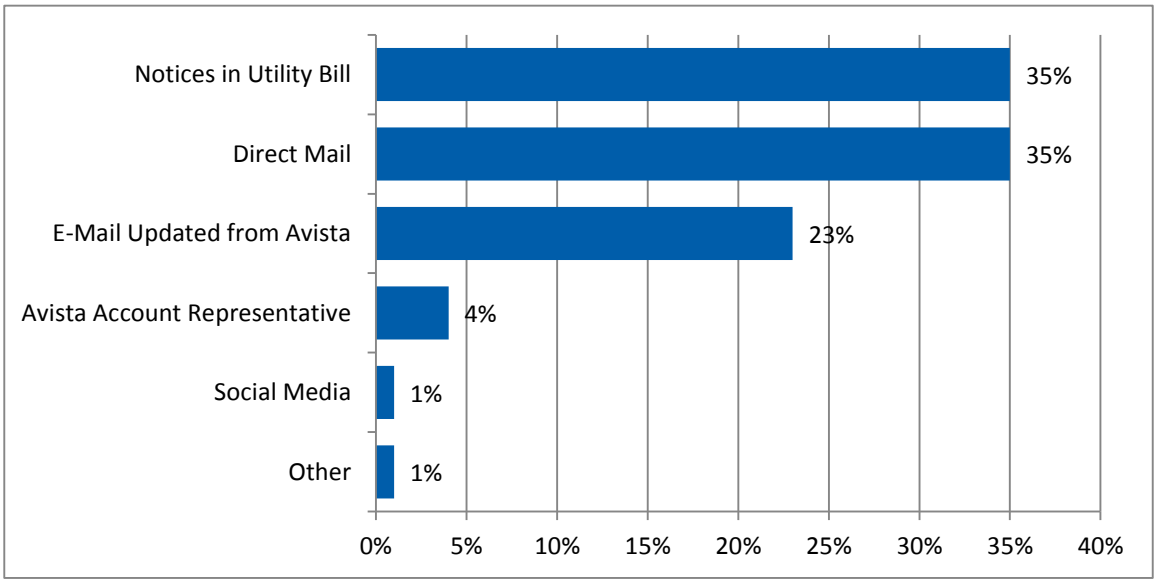
Most of the customers surveyed had not heard of Avista's nonresidential programs; 38% of nonparticipants recalled having heard about the programs. As Figure 39 shows, nonparticipants' awareness has remained relatively stable since 2010.

Figure 39: Nonparticipant Program Awareness



As shown in Figure 40, nonparticipants who were not previously aware of Avista's nonresidential programs overwhelmingly say they want to hear about them through the mail – bill inserts or direct mail. Nearly a quarter reported wanting to hear about the programs through e-mail.

Figure 40. How Nonparticipants Want to Hear about the Programs

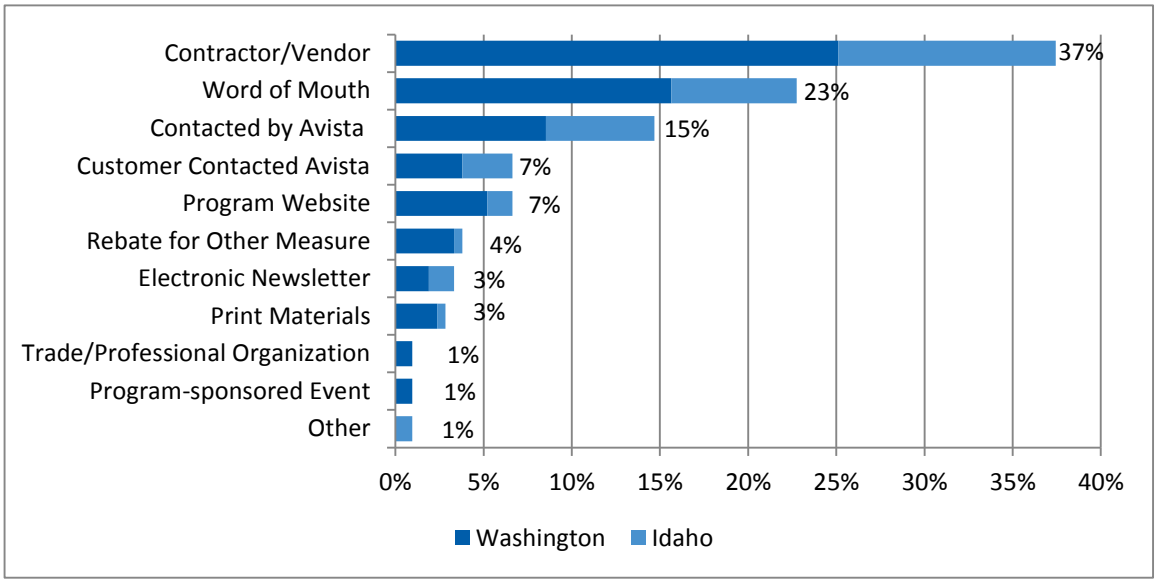


Sources of Participant Awareness

In both Washington and Idaho, most participating customers reported hearing about the program from a contractor or vendor, as shown in Figure 41. Contact from Avista and word-of-mouth were also commonly reported sources of awareness in both states.

Among Avista's marketing efforts, the program website was the most commonly cited source of awareness, with 7%. Three percent each said they learned about the program from printed materials (such as flyers or brochures) and the electronic newsletter. No participants reported they heard about the program through magazine or newspaper advertisements.

Figure 41. How Respondents Heard About the Program (Participants - Idaho)[20]



Nonresidential Program Freeridership and Spillover

Freeridership

Freeridership, the percentage of savings that are likely to have occurred in the program's absence, traditionally refers to participants who would have undertaken an action promoted by a program had the incentive or other program activities not been available. Full freeriders would have undertaken exactly the same action at the same time (i.e., the program had no effect on the degree or timing of their actions). Partial freeriders would have taken some action, but would not have undertaken the action to the level promoted by the program, or would not have taken the action at the time they did.

Table 32 shows overall nonresidential freeridership results for 2013, including gas and electric projects and participants in both Washington and Idaho. These results are based on 2013 participant survey response data and weighted by project savings.

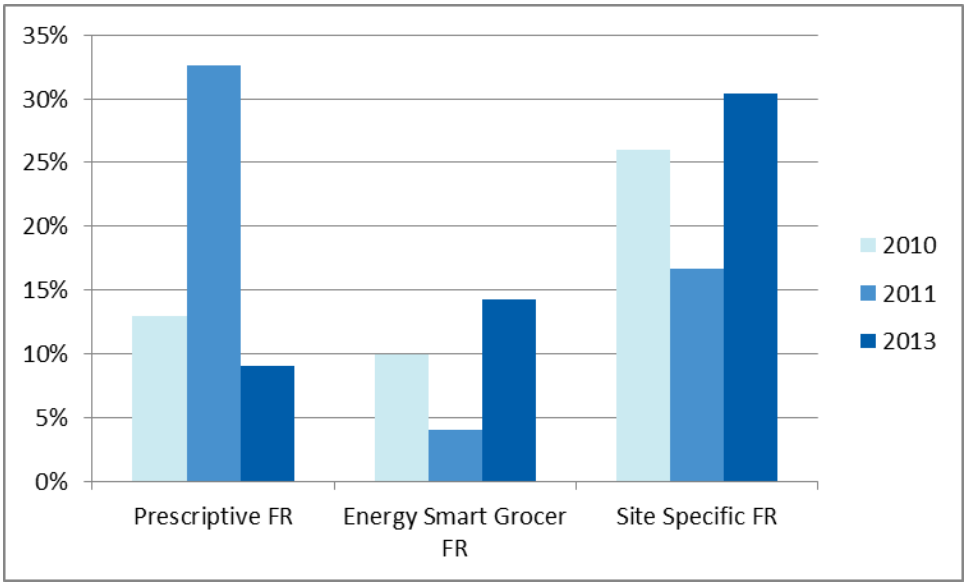
Table 32. Nonresidential Freeridership Estimates PY2013

Program Category	n	PY2013 Freeridership Estimate
Prescriptive	119	9.1%
Energy Smart Grocer	26	14.3%
Site-Specific	65	30.4%
Total	**210**	**19.5%**

[20] Percentages may add up to more than 100% because respondents were permitted to give multiple answers.

The PY2013 prescriptive program showed a low level of freeridership, while the site-specific program showed slightly over 30% freeridership. As shown in Figure 42, these results differ from 2011 freeridership results, but are fairly similar to the results found in 2010.

Figure 42. 2010, 2011, and 2013 Nonresidential Program Freeridership



Because nonresidential projects can be very large, and freeridership results are weighted by savings, the highest saving projects in the sample can have a strong influence on year-to-year results. To further examine the difference between the 2013 and 2011 analysis, Cadmus identified the top three savers in each program category and their freeridership scores.

- **Prescriptive showed a decrease in freeridership:** A key driver of the decrease is that in the 2011 analysis, the three respondents with the highest gross energy savings accounted for 34% of the survey sample's total gross savings. The top energy saver was estimated as a 75% freerider, and represented 19% of the total survey sample savings, while the second and third highest energy savers were estimated as 0% freeriders. In 2013, the three participants who achieved the greatest savings accounted for 38% of the total gross savings for the survey sample and all three respondents were estimated to have 0% freeridership. As such, the high level of savings achieved by these three 2013 participants, relative to the rest of the 2013 survey sample, resulted in these participants' freeridership scores greatly reducing the overall freeridership estimate reported in 2013 compared to what was observed through the 2011 evaluation efforts.
- **Energy Smart Grocer showed an increase in freeridership:** A key driver of increase is that in the 2012 analysis, the three respondents with the highest gross energy savings accounted for 72% of the survey sample's total gross savings and all three respondents were estimated to have 0% freeridership. As such, the high level of savings achieved by these three participants, relative to

the rest of the survey sample, resulted in these participants' freeridership scores greatly reducing the overall freeridership estimate reported in 2011. In 2013, the three participants who achieved the greatest savings only accounted for 64% of the total gross savings for the survey sample and the top energy saver was estimated as a 0% freerider. The second largest energy saver, representing 16% of 2013 survey sample savings, was estimated as a 75% freerider and the third highest energy saver as a 0% freerider. As such, the high level of savings achieved by these three 2013 participants, relative to the rest of the survey sample, resulted in these participants' freeridership scores greatly increasing the overall freeridership estimate reported in 2013 compared to what was observed through the 2011 evaluation efforts.

- **Site-specific showed an increase in freeridership:** A key driver of the increase is that in the 2011 analysis, the three respondents with the highest gross energy savings accounted for 35% of the survey sample's total gross savings, and first and second highest energy savers were estimated as 0% freeriders, and represented 28% of the total survey sample savings, while the third highest energy saver (7% of total survey sample savings) was estimated as a 100% freerider. In 2013, the three participants who achieved the greatest savings accounted for 41% of the total gross savings for the survey sample. The top energy saver, representing 21% of the survey sample savings, was estimated as a 0% freerider. The second highest energy saver was estimated as a 50% freerider and the third largest saver as a 100% freerider. As such, the high level of savings achieved by these three participants, relative to the rest of the survey sample, resulted in these participants' freeridership scores increasing the overall freeridership estimate reported in 2013 compared to what was observed through the 2011 evaluation efforts.

These year to year variations accurately reflect the activity of participants within each program year, but they can reduce clarity when observing year-to-year trends. For example, since the site-specific program did not change substantially between 2011 and 2013, the large change in freeridership may reflect differences between individual customers, rather than changes in the market or in the program's implementation. Therefore, Cadmus also calculated combined freeridership values that reflect the aggregated survey data from 2011 and 2013. These values may portray a more reasonable estimate of the programs' overall level of freeridership that could be expected in future years if programs do not change substantially.

Table 33. Nonresidential Freeridership Estimates: Combined PY2011 and PY2013

Program Category	n	Combined Freeridership Estimate
Prescriptive	189	16.2%
Energy Smart Grocer	43	12.7%
Site-Specific	128	24.3%
Total	**360**	**19.5%**

Spillover

Participant spillover refers to additional savings generated by program participants due to their program participation, but not captured by program records. Spillover occurs when participants choose to purchase energy-efficient measures or adopt energy-efficient practices due to a program, but choose not to participate (or are otherwise unable to participate) in an incentive program. These customers' savings are not automatically credited to the utility program. Energy-efficiency programs' spillover effects can be considered an additional impact that gets credited to program results. In contrast, freeriders' impacts reduce the net savings attributable to a program.

In this evaluation, Cadmus measured spillover achieved through the installation of measures without utility rebates through surveys with participant end-users. We have found these savings to be the easiest to quantify through self-report surveys.

As shown in Table 34, Cadmus found a small amount of participant spillover for PY2013, equivalent to 0.05% of total program gross savings. The reported measures included in the spillover savings included LEDs (350 total units) and energy-efficient light fixtures (10 total units).

Table 34. Nonresidential Spillover Estimates for PY2013

Program Category	Spillover BTU Savings	Program Sample BTU Savings	Spillover % Estimate
Prescriptive	204,728	7,812,790,682	0.00%
Energy Smart Grocer	0	2,885,093,921	0.00%
Site-Specific	14,148,104	19,838,919,241	0.07%
Total	**14,352,833**	**30,536,803,843**	**0.05%**

Nonresidential Conclusions and Recommendations

This section describes the evaluation's conclusions and recommendations for the nonresidential programs.

Program Management and Implementation

Conclusion: Several parties over several years, internal and external to Avista, have observed the need for greater data quality assurance, in both documentation and input tracking. Quantitative inputs to the savings and rebate calculations have repercussions for tariff compliance,[21] incentive payments, and savings realization rates.

- ***Recommendation:*** Avista should continue efforts to improve program processes. Cadmus understands that a reorganization of the DSM group has occurred concurrent to the delivery of this report. This change may be an opportunity for fresh perspectives, clarified responsibilities,

[21] As noted in Idaho Public Utilities Commission Order Number 33009 on Avista Corporation's Application for a Finding that it Prudently Incurred its 2010-2012 Electric and Natural Gas Energy Efficiency Expenditures.

and improved coordination within and between teams. We believe unifying the organizational structure under central leadership is a step in the right direction and may help alleviate some previously documented issues with internal communications.

In addition to the reorganization, Cadmus recommends that Avista develop standardized processes within the DSM group, including clear delineation of roles and precise description and assignment of all processes and responsibilities for both residential and nonresidential programs. All affected parties should be included in formalizing and standardizing the DSM group's processes, roles, and responsibilities. Further, all parties must formally agree to clearly delineated responsibilities under the new organizational structure. While these activities need to be prescriptive and precise, we caution that the resulting structure should still allow some flexibility: increased clarity, transparency, and accountability should serve to enhance program delivery and customer satisfaction.

Customer Feedback

Conclusion: Customers were highly satisfied with the program overall and with individual components. Customer satisfaction has increased since 2011, which had in turn increased from 2010.

- **Recommendation:** Continue to prioritize and monitor program satisfaction.

Conclusion: Customers appeared to be slightly less satisfied with the Washington Site-Specific program than with other programs. The largest source of lower satisfaction was the participants' reactions to program materials. Many customers said they received no program materials, and many participants learned about the program from their trade allies.

- ***Recommendation:*** Consider taking action to strengthen the use of program materials. Consider providing trade allies with printed program information flyers or brochures to give to customers. Maintaining up-to-date information for trade allies is critical when they are the key party delivering the program's message and participation details.

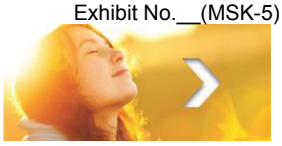
Market Feedback

Conclusion: According to commercial lighting contractor feedback, the nonresidential programs are successful in driving incremental energy-efficient equipment sales, and the market has not yet transformed to make energy efficiency standard practice.

- ***Recommendation:*** Continue to monitor market transformation indicators to measure programs' market impact over time.

Marketing and Outreach

Conclusion: The characteristics of Cadmus' survey respondents indicate that the office / professional services and local government sectors may be underserved by the programs relative to their incidence in the nonparticipant population. Further research is necessary to determine whether this is true.



- ***Recommendation:*** Identify underserved industries, and seek opportunities to target outreach to specific underserved industries:
  - Investigate overall customer industry distribution
  - Compare to participant industry distribution
  - Develop targeted outreach strategies for any underserved sectors

Quality Assurance and Verification

Conclusion: Avista monitored its site-specific project review process and instituted refinements during the evaluation period in response to feedback from users. While this has led to improvements, including notably improved reliability of reported savings in 2012, quality assurance problems may persist.

- ***Recommendation:*** Continue to monitor the effectiveness of the site-specific project review process and refine as needed. Cadmus recommends implementing the following to ensure continued improvement:
  - All large prescriptive or site-specific projects reporting savings over a threshold of 300,000 kWh or 10,000 therms should undergo a complete QA/QC review prior to incentive payment in addition to the standard Top Sheet review process. Typically, a QA/QC process reviews engineering calculations, verifies inputs, checks payback period and incentive payments for reasonableness, and ensures compliance with program requirements and tariff rules. In order to align with the above recommendation regarding program management and implementation, Cadmus recommends that Avista determine and document the specific requirements and steps in the QA/QC process through a collaborative process that will ensure accountability and balance needs for efficiency and customer satisfaction.
  - Conduct an external third-party review of Top Sheets, including reviewing a random sample of completed Top Sheets for completeness and accuracy. These were not reviewed as part of the current process evaluation, but should be included in the next process evaluation. Review should not only verify the presence of the Top Sheets, but also the quality and accuracy of the information provided.

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Appendix A: Status of PY2010 and PY2011 Residential Evaluation Recommendations

Table 35. Implementation of PY2010 Residential Evaluation Recommendations

Recommendations Offered in PY2010 Residential Evaluation Report	Activity
Program Participation	
Research market saturation and participation to track achievement of potential.	Complete
Using the Avista Electric Conservation Potential Assessment Study completed in August 2011, along with available data sources such as ENERGY STAR and additional primary research, Avista should track the residential portfolio's progress toward capturing projected realistic achievable potential. This effort will inform program planning and design decisions to allow for the long-term success of the residential portfolio.	
Discontinue rebate for ENERGY STAR dishwashers.	Complete
ENERGY STAR data shows that 78 percent of dishwashers sold nationally are ENERGY STAR models. Therefore, this measure is likely to suffer from high freeridership, and the Avista rebate is unlikely to affect market transformation.	
Emphasize ease of participation in marketing.	In Progress
In order to address the nonparticipant perception that program participation may be difficult, Avista should emphasize the ease of participating in residential marketing	
Program Design	
Simplify and document program organization structure.	In Progress
Cadmus recommends grouping programs in logical clusters, in order to reduce complexity of documentation and tracking. While streamlining program organization, Avista should also document institutional knowledge of programs to avoid loss of continuity.	
Assess viability of redesigning some programs to include contractor rebates.	In Progress
Avista should consider the suggestion from HVAC trade allies to provide rebates direct to contractors. Other utilities have seen success with this model, which reduces the administrative burden on customers, allows for batch processing of rebates by Avista, and ensures close communication with trade allies. Anti-fraud provisions (such as requiring customer information and signature on rebate forms, or conducting site visits to verify installation) must be included in any such program adaptation.	
Data Tracking	
Consider enhancing uniformity of program tracking by standardizing data formats.	Complete
Wherever possible, Avista should develop tracking methods that support consistent analysis across programs. For example, a standardized format for customer address data across separate databases would ease database combination or integration.	
Track follow-through on audit recommendations.	In Progress
In planning for future Audit program implementation, Avista should consider additional tracking of customer follow-through on recommendations, both through other Avista rebate programs, and independently without rebates.	
Marketing and Outreach	
Continue pursuing diverse marketing and outreach strategies.	Complete
Avista should maintain its multi-faceted approach to reaching a broad range of customers, while targeting difficult-to-reach customers where appropriate.	
Continue enhancing social media marketing.	Complete

Recommendations Offered in PY2010 Residential Evaluation Report	Activity
Since Avista reported that younger customers can be more difficult to reach, the marketing team should continue to enhance its social media marketing efforts.	
Ensure contractors have adequate information to disseminate.	Limited Activity
Since trade allies were one of the commonly reported ways that participants learned about the program, Avista must focus on providing trade allies with adequate and accurate information. This can be achieved by distributing updated materials regularly, holding trainings for contractors, or formalizing the trade ally network to ensure frequent communication. For example, Avista should consider providing printable online information sheets that trade allies can print and disseminate to their customers.	
Participant Experience and Satisfaction	
Continue emphasizing good customer service and offering customer-friendly programs.	Complete
These areas should be maintained as priorities in future program planning and implementation.	
Effectiveness of Implementers	
Consider expanding offerings of Simple Steps program.	Complete
Avista should consider the benefits of adding measures to the Simple Steps program. Additional measure offerings may increase potential participation and savings.	
Require [CLEAResult] to ensure evaluators have access to retailers.	Limited Activity
Upstream program evaluation often requires access to retail locations, for shelf-stocking studies and in-store intercepts, for example. In order to ensure future evaluability of the Simple Steps program, [CLEAResult] should require participating retailers to grant such access to evaluators when necessary.	
Trade Ally Participation and Satisfaction	
Enhance and formalize trade ally network.	In Progress
Avista should offer additional training and informational materials to contractors who serve the HVAC program, to ensure high-quality program information reaches customers, and to encourage program promotion through contractors.	
Residential Portfolio	
Consider various opportunities for expansion.	Complete
Avista should regularly assess the viability of expanded program and measure offerings. Avista may consider various possible expansions including: *- Adding showerheads to Simple Steps* *- Additional cost-effective measures in HVAC program* *- Behavioral programs, energy education programs*	

Table 36. Implementation of PY2010 Residential Evaluation Recommendations

Recommendations Offered in PY2011 Residential Evaluation Report	Activity
Program Participation	
Renew emphasis on customer outreach and mass marketing, including refreshing campaign messaging and using trade allies.	Complete
Consider using lessons learned from the Home Energy Audit Pilot Program to design and implement a full-scale program that employs audits or a similar whole-house approach.	Limited Activity
Program Design	
Consider additional program requirements to ensure measure savings remain in line with expectations.	Limited Activity

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Recommendations Offered in PY2011 Residential Evaluation Report	Activity
For example, Avista should revisit program eligibility for multiple measures, where savings are interactive (particularly for HVAC equipment), and consider adjusting savings to reflect interactive effects, or incenting specific packages of complementary measures. Avista may also consider not offering heat pump incentives when natural gas is available.	
Explore possible benefits of outsourcing simple rebate processing for ENERGY STAR appliances and hot water heaters in order to allow program managers to focus on long-term program considerations**.**	In Progress
Market Characteristics	
Ensure future program effectiveness by continuing to update program offerings and design to reflect changes in market conditions	Complete
Data Tracking	
Ensure consistency in data tracked across multiple databases including: the multi-program database; the JACO database; the Home Energy Audit database; and Avista's central customer information database.	In Progress
If Avista continues the Home Energy Audit Program, audit tracking should be enhanced to include: integration into the central participant rebate database; and more robust tracking of data collected through the audit, and of follow-through installations.	In Progress
Marketing and Outreach	
Avista should maintain its multifaceted approach to reaching a broad range of customers, while targeting difficult-to-reach customers, where appropriate. Possible website enhancements include:	In Progress
- Exploring relationships between the corporate website and EveryLittleBit.com. Explore the Entrance-, Exit- and In- Page analytics to achieve a deeper understanding of the paths people take within the website. *- Adding a content-sharing toolbar to the EveryLittleBit.com website to promote referrals. This toolbar would allow users to share content via email, RSS feeds, or social media platforms.*	
Participant Experience and Satisfaction	
Continue to prioritize customer satisfaction, and take advantage of high satisfaction by targeting past participants for future participation.	Complete
Residential Program Freeridership	
Continue conducting research to inform decision making about future program improvements/continuation.	Complete
Effectiveness of Implementers	
Explore possible benefits of third-party program implementation.	In Progress
Avista's newly launched online rebate application system may alleviate staff burden associated with rebate processing. However, that transferring responsibility for rebate processing to a third-party contractor could convey further benefits. Specifically, this option should be explored for the ENERGY STAR Appliance Rebate Program and water heaters, as the application reviews for these measures do not require a high level of expertise.	
Trade Ally Participation and Satisfaction	
Avista should investigate the possibility of a more formal relationship with trade allies.	In Progress
This would allow increased program marketing through trade ally channels, while ensuring accountability and professionalism. Disseminating simple program information sheets to contractors and retailers would be a low-cost, first step toward developing relationships with key trade allies. More involvement might include, for example, hosting trade-ally training events.	

Appendix B: Status of PY2010 and PY2011 Nonresidential Evaluation Recommendations

Table 37. Implementation of PY2010 Nonresidential Evaluation Recommendations

PY 2010 Recommendation	Activity
Program Documentation	
Developing a program manual, with implementation plans, operational procedures, marketing strategies, and verification protocols aggregated into a single program handbook, could help to establish a link between EM&V policies found in the high level planning documents and the program's operational management.	Complete
Customer Feedback	
Address customers' perceived lack of information about program offerings.	In Progress
• *Enhance outreach and communication efforts for participants, nonparticipants, and partial participants.* • *Develop additional printed program materials to educate customers about program opportunities.* • *Consider regularly scheduled online Webinars to assist customers with questions about program incentives, eligibility, and application processing.*	
Trade Ally Participation and Satisfaction	
Provide regular trade ally communications through targeted outreach efforts, such as a Website, monthly e-mails, or a newsletter.	Complete
A Website dedicated for trade allies could enable registration, thereby providing a method for compiling (and updating) trade ally profiles and contact information.	
Consider providing additional promotional materials that would highlight various program technologies available to customers. This would not require that Avista endorse any one contractor.	Complete
Explore ways to leverage strong working relationships forged between customers and contractors within the community by sponsoring additional program working sessions, luncheons, or Webinars that provide guidance for trade ally outreach efforts.	Complete
Application Processing and Data Tracking	
Offer site-specific application forms online.	Limited Activity
Although it would be ideal to enable submission of forms online, simply making the forms downloadable and mail-in would provide a good first step. In addition, consider including guidelines for completing site-specific forms.	
Gather additional feedback from customers and trade allies about how site-specific form enrollment and processing could be streamlined.	In Progress
Gathering more detail about program and project measures in the participant database would enable a better understanding of the kinds of projects done in the past (by different types of customers and end-uses).	In Progress
Additional information could be used to market specific types of projects to other customers who have the same end-use equipment.	
Marketing and Outreach	
Ensure allocation in future marketing budgets dedicated for nonresidential program marketing and outreach efforts.	Complete
Develop additional marketing materials targeted specifically for trade ally outreach to customers.	Complete
These materials would enable Avista staff to leverage existing trade ally relationships in the community. Make them available at a trade ally website for printing.	
Conduct marketing surveys, and targeted marketing research that would gather additional	Limited Activity

PY 2010 Recommendation	Activity
information about customer facilities and technology end-uses.	
Conduct targeted marketing research of largest 100 customers with hourly demand data.	Limited Activity
Use such data to analyze demand patterns, identify opportunities, and provide account executives with needed intelligence to market energy efficiency measures.	
Quality Assurance and Verification	
Consider developing a verification protocol to document pre- and post-inspection procedures for prescriptive programs, and ensure data tracking for project installation. In addition, protocols should highlight any differences in verification procedures used for prescriptive and site-specific programs.	In Progress

Table 38. Implementation of PY2011 Nonresidential Evaluation Recommendations

PY2011 Recommendation	Activity
Program Management and Implementation	
Consider a method for prioritizing management tasks, thus enabling allocation of more time for planning and development of program documentation.	In Progress
Revisit the staffing needs for delivering the current programs.	In Progress
Revisit the option of using third-party implementers for some programs.	Limited Activity
Consider round tables with the program implementation, management, and policy team to facilitate additional communication regarding planning and evaluation.	Complete
Consider designating a central leadership role for the Site-Specific Program to oversee future planning and vision, and ensure that it continues to deliver cost-effective energy savings to the C&I portfolio.	In Progress
Further investigate contractor issues to ensure high satisfaction levels of EnergySmart Grocer program participants	Complete
Customer Feedback	
Continue to leverage contractors to reinforce the program's messages, particularly in communicating program offerings to small-to-medium customers.	Complete
Further explorations could determine if contractors offer better market coverage, are more likely to connect with customers when purchases are being contemplated, provide a more compelling value proposition, or offer other lessons Avista could apply, both with contractors and across other communications channels.	
Strategies should be developed to penetrate leased C&I spaces, targeting building owners, managers, and brokers of leased space. Examples could include:	In Progress
• *Tailored messages, delivered through presentations or workshops in conjunction with the Building Owners and Managers Association and commercial real estate associations.* • *Designated point-of-contact and web information for building managers and brokers.* • *Incentive and financing solutions, such as on-bill financing, green lease arrangements, and bonus incentives targeting retrofits when new tenants move in.*	
Cadmus recommends Avista evaluate alternative strategies for reaching small-to-medium businesses cost-effectively via contractors, direct install, or more Prescriptive, "self-serve" options via the Avista website. Such strategies could include:	In Progress
• *Promote newsletter sign-ups and exploration of program information on the website.* • *In program information, cross-reference sources or the availability of answer lines.* • *Evaluate measures installed by small customers in the Site-Specific Program for inclusion in a Prescriptive program.*	

PY2011 Recommendation	Activity
Where customers expressed lower satisfaction levels, program elements should be investigated. Such investigations might include:	In Progress
• *Review audit program communications and supporting collateral to improve customers' understanding of the depth of audits, and recommendations. Consider providing information about economic advantages to energy efficiency such as improved benefits to costs ratios, and simple payback.* • *Determine/track cycle times for customer follow-up after audits and for rebate applications; if reasonable times are exceeded, consider implementing follow-up communications to keep customers informed and ensure internal follow-up, if needed.* • *Confirm issues identified in the EnergySmart Grocer program have been resolved.*	
Trade Ally Feedback	
Explore more formalized ways to aid trade allies in promoting nonresidential programs to customers. Avista should continue efforts to expand outreach to trade allies, through sponsored events and workshops, breakfast meetings, focus groups, and other targeted communications.	Complete
Given trade allies' requests for a dedicated Avista contact, more one-on-one communication, and additional materials to inform customers about the programs, more timely feedback could be achieved through online resources. These resources may also help to reinforce the program's messages, offering resources through multiple channels by providing the following services:	Complete
• *Offering a dedicated website, containing guidance through webinars and video presentations.* • *Online registration for events or information requests.* • *An online help desk or phone hotline, which would direct customers to answers for frequently asked questions, or would reserve more complicated questions for program staff.* • *Other, additional promotional materials, posted online, such as handouts regarding costs and benefits of energy-efficiency equipment.*	
Special Report: Lighting	
Take a more proactive role in communicating with customers:	Complete
• *Upcoming changes in lighting product availability* • *Avista's program availability to offer them help* • *When the T-12 program will end* • *Communications should also offer help in identifying T-12 lamps (descriptions or illustrations of size), and inform customers about the lighting quality of alternatives.*	
To motivate contractors and accelerate customer action, Avista may consider creating a lighting contractor partnership program, with incentives paid to contractors (or rebates paid directly to contractors) for encouraging customers to update lighting fixtures while incentives remain available.	Complete
Avista should consider a new program, targeting replacements of T-12s in inventory, to help customers upgrade to more efficient new fixtures and lamps, and to move toward realization of energy savings in their facilities.	In Progress
Marketing and Outreach	
To ensure the recognition and longevity of focused outreach efforts, Cadmus recommends Avista continue expanded annual market campaigns to enable more focused targeted marketing for the nonresidential programs. In addition, nonresidential programs may benefit from these additional suggestions:	Complete
• *Develop a detailed marketing plan enabling annual tracking and assessment of activities. The marketing plan would identify target audiences, clarify marketing objectives, and identify evaluation metrics.* • *Continue efforts to enhance the business website through promotions and featured business*	

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PY2011 Recommendation	Activity
information tools (such as Efficiency Avenue), testimonials, general program brochures; and encourage easier access for trade allies through featured guidelines and tips.	
Application Processing and Data Tracking	
Drawing upon the review of application forms and databases, interviews with staff, and survey results, Cadmus recommends the following:	In Progress
• *Track missing data fields in Sales Logix, and include these in extract databases.* • *Document QA procedures or checklists to reduce missing or inconsistent data entry.* • *In addition to checking for missing data, Avista staff may benefit from developing a checklist for staff entering participant data into databases, ensuring all data are collected consistently.*	
Work toward integrating customer information tracking databases, thus enhancing efficiency and reducing error.	In Progress
Consider incorporating changes to forms to account for new data collected through calculators.	In Progress
QA and Verification	
Cadmus recommends Avista continue strengthening feedback loops for performance review of large projects. To achieve greater consistency, Avista should consider documenting pre- and post-inspection protocols, which could include the following, recommended, industry best practices for C&I programs:	In Progress
• *Establish inspection frequency, based on a program's relationship with vendors, number of vendors, types of measures, project volume, variability, and size of projects.* • *Obtain a random sample of vendor and measure types.* • *Clearly define pre- and post-inspection policies and procedures.* • *Require random, on-site inspections of 10% to 20% of projects in lower-incentive prescriptive programs.* • *Require pre-project inspections for all large projects with highly uncertain baseline conditions.*	

Appendix C: 2012 Nonresidential Process Evaluation Memorandum

This section provides the text from the nonresidential process evaluation memo drafted by Cadmus and sent to Avista on August 2, 2013.

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MEMORANDUM

To: Lori Hermanson, Avista

From: Danielle Kolp and Hope Lobkowicz, Cadmus

Subject: 2012 Process Evaluation Memorandum

Date: August 2, 2013

Cadmus' 2012 process evaluation activities for the Avista nonresidential portfolio included the following:

- A *Best Practice Comparative Review* (memo delivered in February 2013);
- In-person interviews with program stakeholders; and
- Database and realization rate review.

Because Cadmus is not developing a formal process evaluation report for Avista until 2014, this memo presents the findings of the staff interviews and database and realization rate review conducted for the 2012 program year. Our objective is to provide key personnel at Avista with findings now to assist them in improving program processes in real-time.

Key Findings

Interview Findings: Large Project Review Challenges and Changes

In August 2011, Avista instated a new internal system to independently review site-specific projects with incentives greater than $50,000. This review stemmed from a recommendation in the 2010 Moss Adams process report, pursuant to the 2010 Washington Utilities and Transportation Commission (UTC) rate case settlement terms. The objective of the independent review was to examine project evaluation reports prior to entering into contract with the customer, to ensure that:

- All supporting documentation was in place,
- Savings calculations were reasonable and well supported, and
- The project complied with tariff rules.

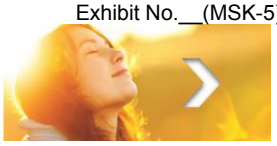
Avista staff who participated in the review process experienced multiple challenges, which are discussed in more detail below. By the end of 2012, staff concluded that the review process was not functioning efficiently, nor did it align with the intention of the Moss Adams report recommendation. Avista suspended the review process on January 1, 2013. In 2013, Avista intends to implement a new approach for reviewing site-specific projects, with the goal of balancing customer service and expediency with a sound review. In June 2013, Avista demand-side management (DSM) staff were finalizing this new approach.

Review Process Challenges Identified by Avista

Cadmus interviewed five Avista DSM staff who were involved in the review process. During the interviews, we discussed several core areas of concern with the process and determined that the intended protocol was not being followed. The process dictated that the Planning, Policy, and Analysis (PPA) team independently review the energy savings and proposed incentive levels of all site-specific projects with incentives greater than $50,000, to ensure these impacts were calculated reasonably. In 2012, only one-third of projects that met the criterion were sent to PPA for review.

When Cadmus asked staff about the challenges with this review process, the following four main issues surfaced:

3. ***Different focused attention across teams.*** One staff person reported that the key personnel within the DSM department involved in the review had different focused attention, which in some cases translated to varying objectives for reviewing and approving projects. This is a problem across many organizations and is, by no means, limited to Avista. While implementation teams are most concerned with customer satisfaction and speedy and efficient delivery, planning and evaluation teams are most concerned with compliance. At Avista, the Implementation team was focused heavily on the customer relationship, while PPA was focused on ensuring compliance with the tariff, minimizing the risk of uncertainty associated with claimed savings, and navigating relationships with regulatory bodies and stakeholders. This is not to say that neither team was unconcerned with the other's objectives. While staff agreed that their roles support the comprehensive functions and *all* overarching goals of Avista's DSM programs, specific daily priorities added to misunderstandings about the value of the review and, in some cases, differing opinions on how and when to resolve issues.
4. ***Transparency.*** Some staff who were heavily involved in Avista's site-specific projects reported not understanding the purpose, actions, or outcomes of the review. Without program-stakeholder buy-in at all levels of the process, successful implementation was challenging. One particular concern was a lack of information regarding how long the review would take to complete for each project; this made it difficult to communicate accurate information to customers on the status of their projects and the expected timeline.
5. ***Time lag and time commitment.*** A common obstacle cited by all staff interviewed by Cadmus was that the review process took too long to complete for each project. Often, the issues identified during the review required further discussion to understand the assumptions behind



the savings estimation, new data or information requests from the customer, or new analysis, which caused delays. Another challenge was the volume of the projects and limited staff resources. Having only one engineer dedicated to reviewing the large projects was problematic and often caused bottlenecks.

6. ***Linking review with concrete actions.*** The review process lacked a formal follow through procedure for problems uncovered during the review. This caused frustration as, at times, findings and recommendations were not implemented. Interviews and documentation of the review process indicated that the extent to which the issues were resolved varied. For enhanced delivery of DSM services, there needs to be an agreement regarding the best path forward for calculating savings.

Issues Identified Through the Large Project Review

One of the major findings of the review was the overall reliance on customer-supplied data and the need for a reliable and replicable approach to source that data. Avista staff were in agreement that increasing the clarity and transparency about where engineering assumptions and inputs were coming from was a needed improvement and a successful outcome of the review process.

Cadmus reviewed the communication logs for 22 projects that underwent the internal review. In addition to the above issue of reliance on customer-supplied data or assumptions (which was inaccurate in some cases), the following issues were documented for these projects:

- Interactive effects were accounted for incorrectly;
- Projects had missing documentation, such as invoices; and
- Engineering errors resulted in incorrect claimed savings and incentive amounts (the significance of these errors varied in size).

Planned Process Improvements

In 2013, Avista staff worked together to design a new system to address the challenges cited and issues discovered with the 2012 review process. The staff is currently implementing a two-step review process for all site-specific projects that entails a technical review by the engineering team and an administrative review by program staff.

- ***Technical Review:*** Ensures that savings and incentive calculations in a project's *Evaluation Report* are well-supported, and calculated according to tariff terms and Dual Fuel Incentive Calculator policy. The new system includes a checklist with questions that guide the review, along with instructions and policy guidelines. The Technical Review will be completed before the evaluation report is sent to the customer, which contains estimated energy savings and the corresponding incentive level.
- ***Administrative Review:*** Ensures that minimum requirements are met before a contract is issued with a customer and before an incentive is paid.

In the new process, PPA conducts random spot-checks to QA/QC projects, and ensures that the review process is smooth and effective. A main distinction between the 2012 and 2013 process is that this random spot-check is intended to happen after the project has entered contract, or, in some cases, after the incentive has been paid. According to implementation staff, this will help overcome bottleneck challenges.

Both checklists (the Technical Review and Administrative Review) will be formalized documents known as Top Sheets, which will be attached to project documentation through the life of the project. Avista intends to synchronize the Top Sheet information with Tracker, the engineering database, and with SalesLogix, the customer information system that houses nonresidential rebate and incentive information. In June 2013, the Implementation team began using Top Sheets for all projects.

2011-2012 Database and Realization Rate Review

As part of the 2012 process evaluation, Cadmus reviewed Avista's 2012 nonresidential project database and the 2011 and 2012 realization rates for the nonresidential portfolio. The documents that were part of each effort and our associated research questions are listed in Table 39.

Table 39. Database and Realization Rate Review Activities

Review Activity	Documents Reviewed	Research Questions
Database Review	2012 SalesLogix Database Extract	Are data being tracked accurately and consistently?
		Are contracts issued in accordance with Avista policy?
		Do incentives comply with tariff rules for Washington and Idaho?
Realization Rate Review	2011 and 2012 Impact Evaluation Sample	Why do some projects have a very low or very high realization rate?
		Are there opportunities for Avista to improve the process of calculating reported savings to improve the realization rates?

Database Review

Tariff Schedules 90 and 190 govern how Avista can spend funds from the Energy Efficiency Rider Adjustment paid by Washington and Idaho ratepayers.[22] To assess compliance with these Tariff Schedules, we examined two main indicators:

1. Project incentive amount: electric and natural gas project incentives should not exceed 50% of the incremental cost of the project (p. 3 of Schedule 90; p. 2 of Schedule 190).
2. Project simple payback.
   a. For lighting measures, the simple payback period must be a minimum of one year and should not exceed eight years. (p. 2 of Schedule 90).
   b. For non-lighting electric and natural gas measures, the simple payback period must be a minimum of one year and should not exceed 13 years. (p. 2 of Schedule 90; p. 2 of Schedule 190).

The tariff rules make exceptions for the following programs or projects (p. 3 of Schedule 90; p. 2 of Schedule 190):

- DSM programs delivered by community action agencies contracted by Avista to serve limited income or vulnerable customer segments, including agency administrative fees and health and human safety measures;
- Low-cost electric/natural gas efficiency measures with demonstrable energy savings (e.g., compact fluorescent lamps); and
- Programs or services supporting or enhancing local, regional, or national electric/natural gas efficiency market transformation efforts. (In 2012, Avista considered new construction fuel conversions in multifamily building projects and T12 to T8 commercial lighting conversion projects as market transformation efforts.)

Applicability of Tariff to Prescriptive Projects

At the time of this memo, Avista's tariff was undergoing revisions and a new tariff was filed on June 26, 2013.

Avista uses the tariff provisions to: 1) design prescriptive measure offerings and incentive amounts and 2) evaluate the eligibility of site-specific projects on a project-by-project basis to ensure compliance before approving them. Cadmus does not believe the tariff language was clear enough on the topic of

[22] Schedule 90: Electric Energy Efficiency Programs, Washington. Available at: http://www.avistautilities.com/services/energypricing/wa/elect/Documents/WA_090.pdf; Schedule 190: Natural Gas Energy Efficiency Programs, Washington. Available at: http://www.avistautilities.com/services/energypricing/wa/gas/Documents/WA_190.pdf; and Schedule 90: Electric Energy Efficiency Programs, Idaho. Available at: http://www.avistautilities.com/services/energypricing/id/elect/Documents/ID_090.pdf

compliance to conclude whether individual *prescriptive* projects should be subject to the simple payback period and incentive cap restrictions at the time of rebate application approval. Internally, Avista staff also expressed disagreement on this matter.

For purposes of this review, Cadmus evaluated both prescriptive and site-specific projects against the provisions of the tariff described above, to allow Avista to review the findings and incorporate them into their planning. It should be clear that by presenting the prescriptive findings below, Cadmus is simply suggesting that better clarity is needed and not necessarily that these projects were out of compliance.

Avista's proposed tariff clarifies that moving forward, site-specific projects are subject to the incentive cap and simple payback periods at the time of project approval, while these parameters will be used in the planning process for prescriptive measure offerings and incentive amounts.

Simple Payback Findings

The majority of projects were in compliance with simple payback rules. Cadmus found that all site-specific projects met the 13-year and eight-year payback periods, with the exception of some legacy projects that were initiated before the new tariff rules took effect on January 1, 2011.

Less than 10% of prescriptive projects exceeded tariff simple payback periods. Table 40 summarizes our findings.

Table 40. 2012 Projects Exceeding Simple Payback Periods

Measure Type	Projects Exceeding Tariff Payback Period		Savings Impact		Cost Impact (incentive payments)	
	Frequency	%	Amount	%	Amount	%
Site-Specific Projects	0	0	n/a	n/a	n/a	n/a
Prescriptive Lighting (includes market transformation and T12 projects)*	281	9%	4,438,942 kWh	13%	$855,535	10%
Prescriptive Non-Lighting (excludes multifamily)	39	6%	113,398 kWh	2%	$72,131	7%
			7,810 therms	7%		
Total	**320**	**8%**	**4,552,340 kWh**	**12%**	**$927,666**	**10%**
			7,810 therms	**7%**		

* Avista's database extract does not denote which projects involved T12-T8 lighting conversions.

Upon reviewing a sample of 10 prescriptive lighting projects that exceeded the eight-year simple payback period, Avista found that five projects involved a T12 to T8 conversion and three projects contained database errors that inflated the simple payback period. In these cases, what should have been entered as months were assumed to be years, and multiplied by 12.

The sample size for this manual review was not large enough to extrapolate findings to the full population. However, based on the review findings, it is probable that a large proportion of the projects

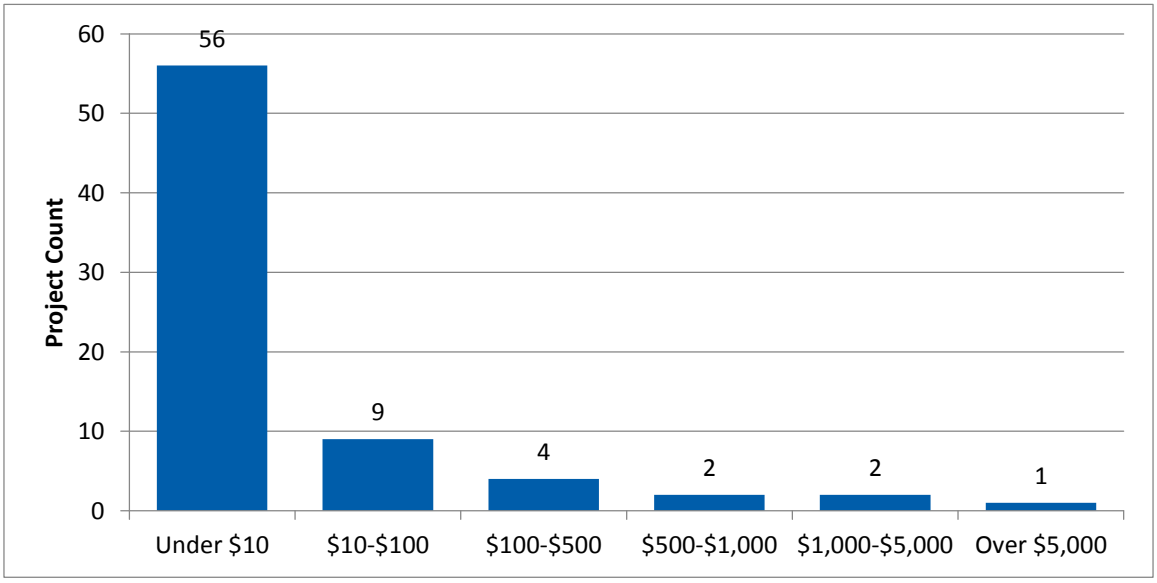
included in Table 40 involved T12 to T8 conversions and/or experienced database errors, thus significantly lowering the impact on energy savings and incentive costs.

Project Incentive Findings

Site Specific

The vast majority of site-specific projects had incentive costs that were compliant with the tariff rule not to exceed 50% of the incremental project cost. Initially, Cadmus found 74 site-specific projects (19%) that exceeded this cap. Upon reviewing these projects, however, we found that nearly half experienced a rounding error from Avista's Dual Fuel Incentive Calculator that put them over the 50% limit by just $0.25 (see Figure 43). Avista staff reviewed the remaining projects to understand why they exceeded the incentive cap, and found that the majority were incorrectly entered in SalesLogix. Avista reported that these projects had been calculated and processed as prescriptive projects, but incorrectly entered into the database as site-specific.

Figure 43. Range of Incentive Amounts Exceeding 50% of Incremental Costs, 2012 Site-Specific Projects



Prescriptive

Significantly more prescriptive projects (74%) exceeded the 50% cap. As noted above, this finding was expected because Avista's program design and delivery strategy did not consider prescriptive payments as being subject to the tariff rules, and the lighting market transformation effort exceeded 50% by design. Table 41 outlines the incentive payment and energy savings impacts from projects that exceeded the 50% incentive cap.

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Table 41. 2012 Prescriptive Projects Exceeding 50% Incentive Cap

Measure Type	Projects Exceeding 50% cap		Savings Impact		Cost Impact (incentive payments)*	
	Frequency	%	Amount	%	Amount	%
Prescriptive Lighting (includes market transformation and T12 projects)**	2,574	80%	26,747,965 kWh	81%	$2,290,031	28%
Prescriptive Non-Lighting (excludes multifamily)	349	50%	3,220,704 kWh	58%	$475,437	45%
			16,684 therms	14%		
Total Prescriptive	**2,923**	**74%**	**29,968,669 kWh**	**77%**	**$2,765,468**	**30%**
			16,684 therms	**14%**		

* Cost impact represents the aggregate amount exceeding 50% of the incremental cost.

** Avista's database extract does not denote which projects involved T12-T8 lighting conversions.

Again, Avista manually reviewed 10 lighting projects that were over the 50% cap, and found that eight were T12 to T8 conversion projects, considered market transformation. Based on these findings, it is probable that a large proportion of the lighting projects listed in Table 3 involved T12 to T8 conversions, which would greatly reduce the cost impacts and energy saving impacts of from lighting projects over the 50% cap.

Data Entry and Data Tracking

In addition to assessing policy conformance, Cadmus reviewed the 2012 database for data accuracy and completeness. We found that:

- 8 projects were recorded as paid before construction was completed (most of these were entry errors)
- 12% of all projects were missing Construction Complete dates
- 44 projects (1% of all projects) were missing incremental cost data
- 18% of site-specific projects were missing contract date fields in SalesLogix
- 44% of site-specific projects were missing post-verification dates (and it is Avista's policy to conduct post-installation inspections of all site-specific projects)

Avista reviewed 20 prescriptive lighting projects to determine whether they were market-transformation projects (as noted above). They also uncovered several data errors with these specific projects. In all 20 projects, at least one of the following issues was found:

- Simple payback periods were entered in the database in years instead of months,
- Simple payback periods were entered incorrectly (SalesLogix data fields were not consistent with calculations),
- Prescriptive projects were entered as site-specific projects,

- Information from invoices regarding quantity and type of light fixtures was not transferred to prescriptive incentive forms and SalesLogix correctly,
- Ineligible measures were rebated, and
- Incentives were calculated incorrectly.

Realization Rate Review

Cadmus' impact evaluation methodology consisted of validating the reported savings for a sample of projects by conducting independent metering, simulation, or regression analysis and by visiting the project sites to verify that equipment was installed and operating as intended. The result of our project-level measurement and verification tasks is a verified, or *ex post,* savings value for each project in the sample. The ratio of verified savings to reported savings is the project's *realization rate*. A realization rate of 100% indicates that no adjustments were made to the reported savings value.

In 2011, Cadmus' nonresidential impact evaluation sample consisted of 179 electric and gas projects.[23] Of those , the majority (n=112) required a saving adjustment by more than 10%. That is, 63% of projects had realization rates of either 110% or greater, or 90% or lower. Specifically, just 35% of electric projects and 42% of gas project realization rates ranged between 90% and 110%. This changed in 2012, when the majority of projects (64 of 101)[24] experienced realization rates between 90% and 110% (see Figures 4 and 5 below).

Cadmus analyzed how frequently the evaluation resulted in an upward or downward adjustment of reported savings, by how much, and the reasons behind the discrepancy between reported and evaluated savings. The purpose of this review is to provide Avista with information to assist in improving the reliability of the reported savings in the future, thereby improving realization rates for the nonresidential portfolio.

Direction, Frequency, and Magnitude of Verified Savings Adjustments

Cadmus determined that when savings needed to be adjusted by more than 10%, they were more likely to decrease than increase. In other words, most reported savings for projects in this group were being overestimated, and the verification process resulted in a downward adjustment. This was true for all 2011 projects, and for all 2012 electric projects. In 2012, gas projects required more upward adjustments.

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[23] This number reflects projects with gas savings and electric savings. We actually evaluated 157 unique projects, some of which achieved dual-fuel savings. For the purpose of the realization rate review, we treated gas savings separately from electric savings.

[24] The full 2012 impact evaluation sample contained 109 projects. We excluded eight projects from our analysis that still had measurement and verification activities occurring at the time of writing this report.

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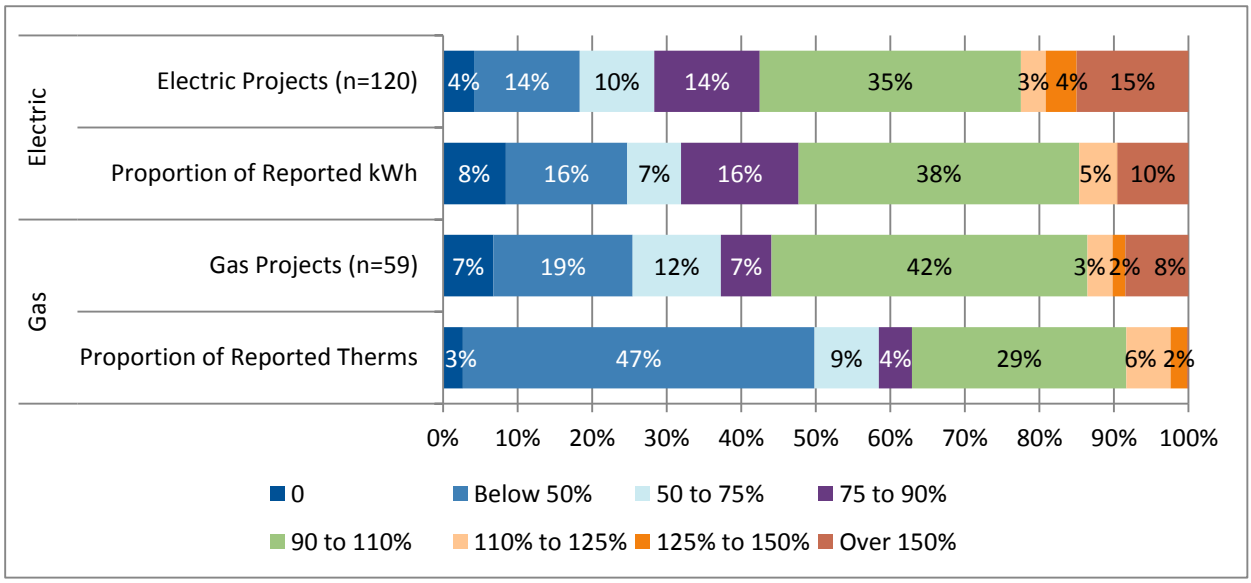
2011 Projects

Figure 44 illustrates the distribution of realization rates in increments for 2011 projects. In 2011, 51 electric projects had a realization rate below 90% (42%), while 27 electric projects had a realization rate above 110% (23%). Gas projects exhibited a similar pattern, with 26 projects having a realization rate below 90% (44%) and eight having a realization rate above 110% (14%).

Figure 44. Distribution of 2011 Realization Rates by Increments for Electric and Gas Projects*



*Note: Percentages may not match above text exactly due to rounding

For electric projects, the relative proportion of reported kWh savings in each increment was relatively consistent with the number of projects in that increment. However, for gas projects, the relative proportion of reported therm savings in each increment did not accurately represent the corresponding number of projects. For example, while just 19% of gas projects experienced a realization rate of below 50% (but more than 0%), these projects represented 47% of reported savings.

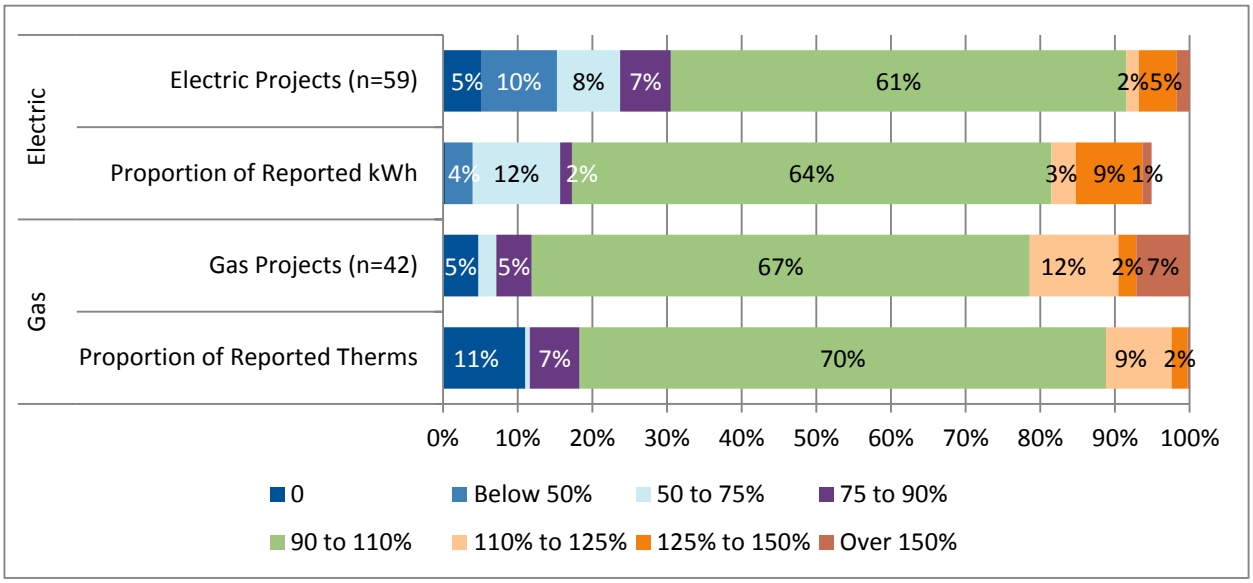
Dividing the projects by increments revealed that a large portion of the projects with realization rates below 90% were in fact below 50%, and most of the projects with realization rates over 110% were actually over 150%. This indicates that not only was the range of realization rates large, but a significant portion of reported savings values were *substantially* different from verified savings, requiring an adjustment of 50% or greater.

2012 Projects

In 2012, realization rates improved. Rates were less variable, and projects required smaller reported savings adjustments than those in 2011. For example, 61% of electric projects and 67% of gas projects had a realization rate between 90% and 110%, leaving only approximately one-third of projects that required an adjustment over 10% (see Figure 45).

Of the 2012 electric projects that required an adjustment over 10%, most required a downward adjustment (18 projects; 31%). This is consistent with 2011 results. Of those 2012 gas projects that required an adjustment over 10%, the direction was upward (eight projects; 19%).

Figure 45. Distribution of 2012 Realization Rates by Increments for Electric and Gas Projects



*Note: Percentages may not match above text exactly due to rounding

Cataloging Projects with High and Low Realization Rates

To understand more about the projects that had severe adjustment factors (very high or very low realization rates), we conducted a desk review of the project files and engineering analyses for a sample of projects from 2011 and 2012. Specifically, this sample entailed projects with electric savings that had been adjusted by over 25% in either direction (a realization rate below 75% or above 125%).

The original sample size was 75 projects; 57 from 2011 and just 18 from 2012. Upon reviewing the 2011 project files, we found that seven projects did not have sufficient reported savings documentation to accurately conclude the reason for the savings adjustment. Therefore, the final 2011 sample size was 50, leading to an overall sample size of 68.

Based on our review, Cadmus concluded that there were nine main reasons for the savings adjustments; these are outlined in Table 42.

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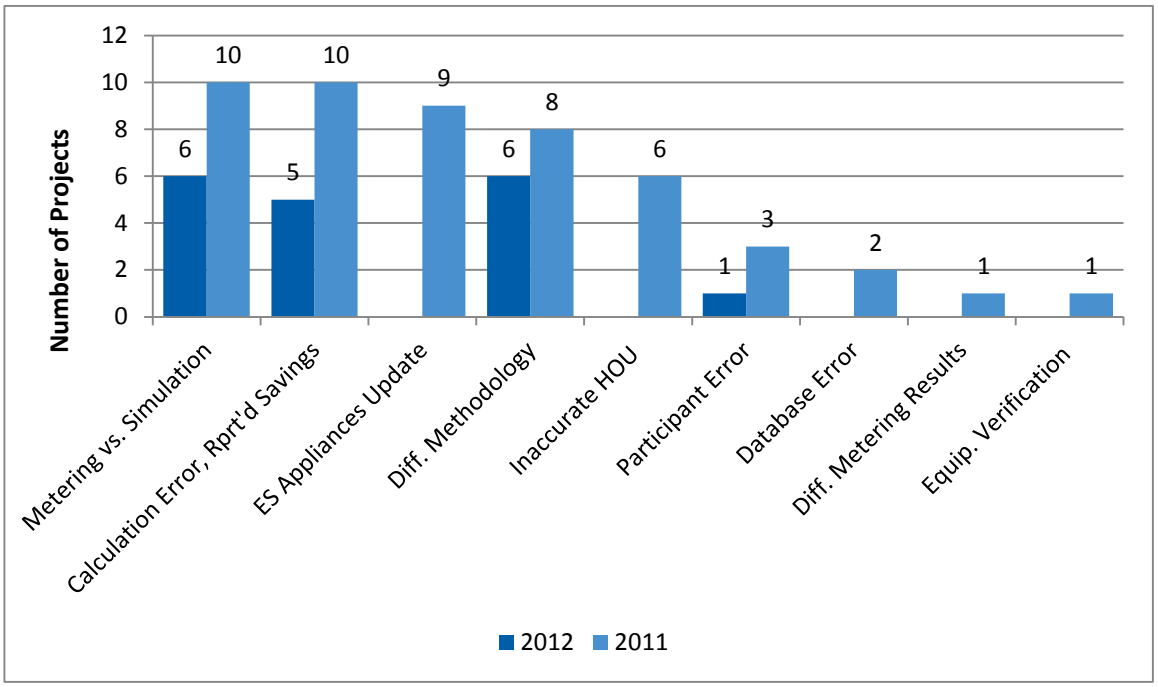
Table 42. Reason Categories for Variable Realization Rates

Reason for Savings Adjustment	Description
1. Participant Operator Error	Savings required adjustment due to customer actions, such as installing or operating equipment incorrectly
2. Calculation Error in Reported Savings	Reported savings calculations or assumptions were incorrect
3. ENERGY STAR® Appliances Deemed Savings Update	Cadmus used updated deemed savings values for ENERGY STAR clothes washers, dishwashers, freezers, and refrigerators to verify savings, requiring an adjustment from the reported values, which relied on older deemed savings estimates
4. Cadmus Metering Results vs. Avista Simulation or Analysis	Cadmus used metering results to inform verified savings, while Avista used other tools to generate reported savings estimates
5. Cadmus Metering Results vs. Avista Metering Results	Both Cadmus and Avista used metering results to inform savings values; however, the companies' parameters or timing differed
6. Database Error	Some values in the database extract were erroneous due to a database error, not a human error, and savings needed adjustment to reflect the accurate value
7. Cadmus Calculation Methodology vs. Avista Calculation Methodology	Cadmus and Avista used different methodologies to calculate savings (i.e., regression analysis versus simulation), creating different results
8. Inaccurate Lighting Hours-of-Use (HOU) Estimates	The reported savings for some lighting projects were based on incorrect HOU assumptions
9. Equipment Verification	The on-site equipment parameters (size and efficiency) differed from the assumptions used in the original savings estimate

In 2011, the most frequent reasons for savings adjustments of 25% or greater were due to metering results being over the original estimates formed using simulation or analysis (n=10) and calculation or assumption errors in the reported savings values (n=10). Other top reasons included ENERGY STAR deemed savings updates (n=9) and differences in Cadmus' and Avista's calculation methodology (n=8). In 2012, there were far fewer projects with adjustment factors of 25% or greater. The top reason categories in 2012 stayed relatively consistent with those in 2011, excluding the ENERGY STAR deemed savings updates.

Figure 46 illustrates the number of projects in each of the reason categories outlined in Table 42, across both years. Table 46 at the end of the memo, lists the specific projects included in the review and a description of each project's specific savings adjustment.

Figure 46. Number of Projects with Savings Adjustments of 25% or Greater by Category, 2011-2012



Impact on Gross Savings

While the majority of savings adjustments in 2011 resulted in decreased savings, certain reason categories experienced realization rates higher than 100%, on average. For example, three reason categories (Cadmus Metering Results vs. Avista Simulation or Analysis, ENERGY STAR Appliances Deemed Savings Update, and Equipment Verification) resulted in increased savings. In other words, the projects in these groups experienced realization rates higher than 100%, on average.

In 2012, just one reason category (Cadmus Metering Results vs. Avista Simulation or Analysis) resulted in increased savings. Projects in the other 2012 reason categories (Calculation Error in Reported Savings, Cadmus Calculation Methodology vs. Avista Calculation Methodology, and Participant Operator Error) resulted in decreased savings.

The aggregate kWh impact for each 2011 reason category is listed in Table 43. The aggregate kWh impact for each 2012 reason category is listed in Table 44.

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Table 43. 2011 Reported and Verified Savings Associated with Reason Categories for Projects with Savings Adjustments of 25% or Greater

Reason	Count	Reported Savings	Verified Savings	kWh Loss	Percent of Verified Savings	kWh Gain	Percent of Verified Savings	Net Impact (kWh)	Percent of Verified Savings*
Cadmus Metering Results vs. Avista Simulation or Analysis	10	1,563,768	3,189,989	-326,768	3%	1,952,989	16%	**1,626,221**	**13%**
Calculation Error in Reported Savings	10	1,377,230	547,131	-859,210	7%	29,111	0.2%	**-830,099**	**7%**
ENERGY STAR Appliances Deemed Savings Update	9	892	2,043	-55	0%	1,206	0%	**1,151**	**0%**
Cadmus Calculation Methodology vs. Avista Calculation Methodology	8	151,231	143,709	-57,262	0%	49,740	0.4%	**-7,522**	**0%**
Inaccurate Lighting HOU Estimates	6	394,977	128,449	-267,472	2%	944	0%	**-266,528**	**2%**
Participant Operator Error	3	788,713	0	-788,713	7%	-	0%	**-788,713**	**7%**
Database Error	2	186,832	111,571	-75,261	1%	-	0%	**-75,261**	**1%**
Cadmus Metering Results vs. Avista Metering Results	1	637,534	477,180	-160,354	1%	-	0%	**-160,354**	**1%**
Equipment Verification	1	869	1,111	-	0%	242	0%	**242**	**0%**
Total	**50**	**5,102,046**	**4,601,183**	**-2,535,095**	**21%**	**2,034,232**	**17%**	**-500,863**	**4%**

* This is the net difference as a percent of the total verified savings in the impact evaluation sample.

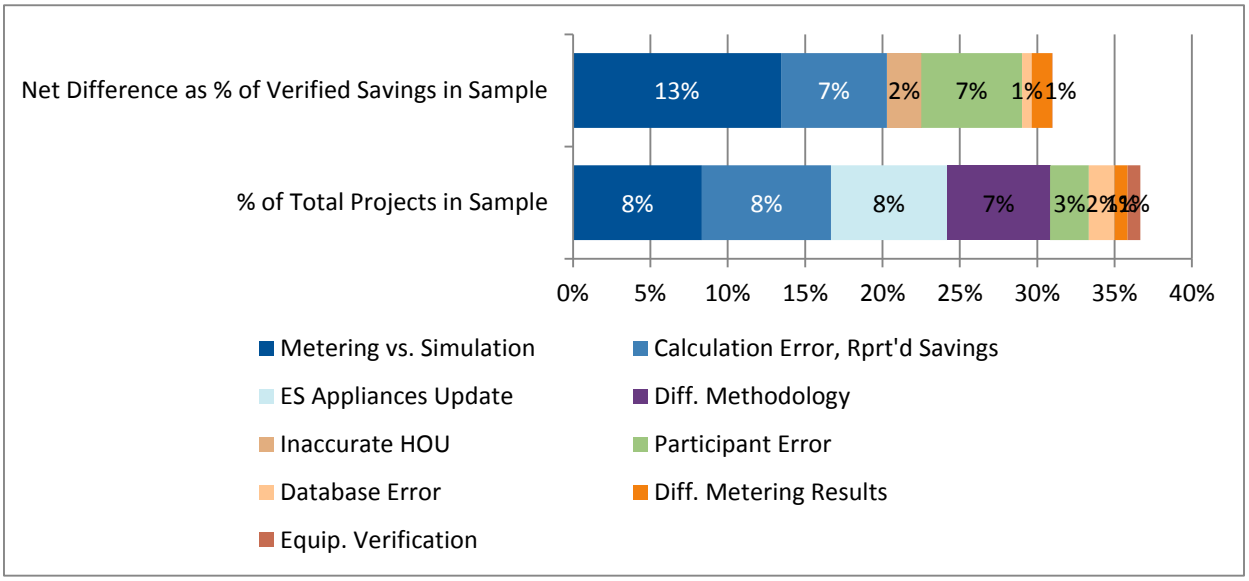
Table 44. 2012 Reported and Verified Savings Associated with Reason Categories for Projects with Savings Adjustments of 25% or Greater

Reason	Count	Reported Savings	Verified savings	kWh Loss	Percent of Verified Savings	kWh Gain	Percent of Verified Savings	Net Impact	Percent of Verified Savings*
Cadmus Metering Results vs. Avista Simulation or Analysis	6	1,544,211	1,768,173	-243,923	2%	499,241	4%	**255,318**	**2%**
Cadmus Calculation Methodology vs. Avista Calculation Methodology	6	1,491,355	968,424	-534,120	4%	24,777	0%	**-509,343**	**4%**
Calculation Error in Reported Savings	5	420,208	340,768	-173,092	1%	93,652	1%	**-79,440**	**1%**
Participant Operator Error	1	21,000	-	-21,000	0%	-	-	**-21,000**	**0%**
Total	**18**	**3,476,774**	**3,077,365**	**-972,135**	**8%**	**617,670**	**5%**	**-354,465**	**3%**

* This is the net difference as a percent of the total verified savings in the impact evaluation sample.

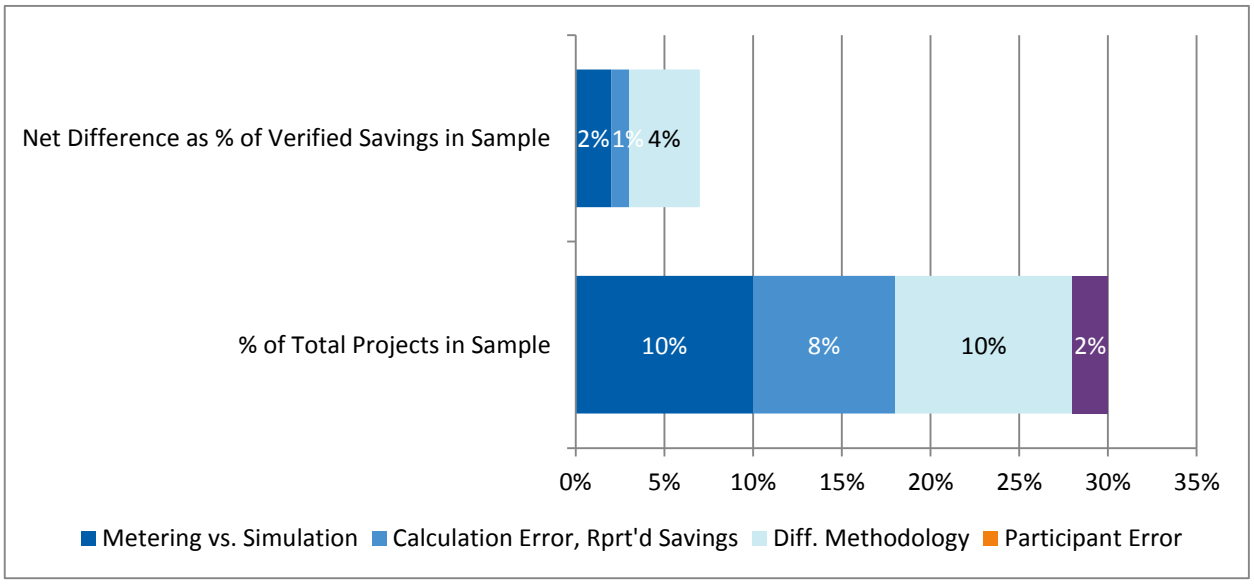
Figure 47 illustrates 2011 projects in each reason category as a percentage of the total sample compared to the percentage of each categories' net kWh impact. While the ENERGY STAR Appliances Deemed Savings Update category contained nine projects (representing about 8% of the total sample), the net difference in *ex ante* and *ex post* savings was actually minimal: a gain of 1,151 kWh (see Table 43), less than 0.07% of savings in the impact evaluation sample. The Cadmus Calculation Methodology vs. Avista Calculation Methodology category had similarly minimal savings despite containing a relatively large number of projects (eight). On the other hand, the Cadmus Metering Results vs. Avista Simulation or Analysis and Participant Operator Error categories represented 8% and 3% of projects, respectively, but the net differences in *ex ante* and *ex post* savings represented 13% and 7% of the total verified savings in the impact sample, respectively.

Figure 47. Relative Proportions of Projects and Savings Impacts by Reason Category, 2011



In 2012, the percentage of projects in each category was higher than the respective percentage of kWh savings in each category (see Figure 48). For example, the Cadmus Metering Results vs. Avista Simulation or Analysis and the Cadmus Calculation Methodology vs. Avista Calculation Methodology categories both represented 10% of all projects in the evaluation sample, but their net differences in *ex ante* and *ex post* savings were relatively small, representing only 2% and 4% of the total verified savings in the sample, respectively.

Figure 48. Relative Proportions of Projects and Savings Impacts by Reason Category, 2012



Conclusions and Recommendations

Based on the above findings, we offer the following conclusions and encourage Avista consider the recommendations listed below to improve their internal processes.

Large Project Review Process

Conclusion: Avista's 2011 Large Project Review process was not implemented successfully due to a series of communication issues and the absence of a mechanism to address concerns about project parameters and correct mistakes. In the first half of 2013, Avista has been designing a new process for all site-specific projects. While this process is underway, we have several recommendations may assist Avista with successful implementation and an effective process.

Recommendations:

- ***Effectively communicate the new project review process to all key team members.*** Many of the issues identified through Avista staff interviews regarding the prior review process centered on communication challenges. When implementing the new process, ensure that all stakeholders have a clear understanding of the review goals and correct protocol.
- ***Ensure there are clear protocols in place for addressing issues identified during the review and the spot-check.*** To ensure that Avista and its customers are benefiting from the time and resources dedicated to this process, consider implementing some check-points and policies to clarify how and when to alter project savings and incentive levels if issues arise during the review. This may include designating a senior-level point person to serve as the decision-maker for questions or disagreements regarding a project or its calculation methodology. Consider identifying methods to ensure that all issues are discussed and resolved before incentive amounts are communicated to the customer.

- ***Establish a goal for the number or percentage of projects that should undergo a random spot-check***. Avista's new process dictates that the PPA team will independently review a sample of projects, in addition to the peer review process. We suggest establishing a clear metric for the number or percentage of projects this sample will include, such as five projects or 10% of all projects.
- ***Establish a reasonable goal for how long the review process should take.*** A core challenge with the prior review process was the time lag. Keeping in mind that any process aimed at improving the quality and accuracy of incentive payments and claimed savings will add time to existing procedures, Avista should internally discuss the amount of delay that is reasonable. It may be beneficial to create objectives for how long various steps of the process should reasonably take. For example, Avista could establish one goal to complete the first Top Sheet review within a certain timeframe, then establish another goal to guide how long it should take to resolve any issues, if identified.
- ***Consider adopting a tiered approach to the review so that larger, high-risk projects receive more scrutiny before contracts are issued and incentives are paid.*** Under the planned approach, all site-specific projects will undergo peer review. Often, utilities employ a risk-mitigation approach to ensure that the largest and most expensive projects receive the most rigorous review before they are approved. Avista might explore adjusting their review process to focus the most time and resources on larger projects. An example of this type of approach is provided in Table 45.

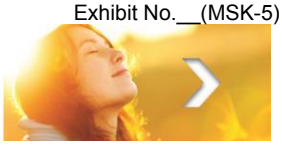
Table 45. Example of Tiered Approach to Large Project Review

Level of Review	Description
Peer Review	All projects
Second Engineering Review	Projects above $50,000
Third Engineering Review	Projects above $75,000
PPA Review	Projects above $100,000
Pre-Installation Visits	Projects above $100,000, plus others as needed
Random Audit (spot-check)	5 projects or 10% of all projects

- ***Consider structuring random spot-checks, or "audits," to occur at various times of the process.*** The current review structure plans to have some projects receive independent review after the project evaluation report is complete or after the project is paid, so that any mistakes can be corrected for future projects. However, it may be beneficial to stagger projects so that a random portion also receives independent audits before incentive information is communicated to the customer.

Database and Realization Rate Review

Conclusion: The accuracy of Avista's claimed savings, measured by realization rates, improved significantly from 2011 to 2012. Three of the four main reasons for large savings adjustments in 2012



are largely outside Avista's control. However, Avista can still improve the reliability of claimed savings estimates falling into the reason category of Calculation Error in Reported Savings.

- ***Recommendation:*** Continue to move forward implementing the new review process to identify and resolve savings calculation errors.

Conclusion: Most of the nonresidential projects were compliant with the 2012 tariff rules, but disagreement among DSM staff on tariff interpretation makes it difficult to draw conclusions about prescriptive projects. Avista has already begun updating the tariff to address this concern and create a more coherent policy. There are several improvements Avista can make to data tracking activities to clarify policy compliance on a project-by-project basis and improve data collection overall.

Recommendations:

- ***Clearly document legacy projects or market transformation projects in SalesLogix.*** Avista's tracking system specifies measure type, but lacks detailed information such as whether the project involved a T12 to T8 lighting conversion. This makes it challenging to understand which projects are considered market transformation. Further, legacy projects are not specified. To streamline internal tracking, auditing, and evaluation, consider adding a field to denote which projects are eligible for transition policy (legacy projects) and which projects are considered market transformation, as well as any other project characteristics that warrant exception to tariff rules under Avista's new policy.
- ***Continue to improve data entry in SalesLogix to reduce missing or incorrect fields and enhance the comprehensive dataset.***

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Memo Appendix A

Table 46 catalogues the projects requiring a savings adjustment of 25% or greater.

Table 46. Projects Included in Realization Rate Review Cataloging

Year	Project ID	State	Measure Description	Reported kWh	Verified kWh	Realization Rate	Project Category
2011	36888	WA	Industrial Process	59,728	105,220	176%	Diff. Methodology
2011	34681	ID	Shell	1,957	2,699	138%	Diff. Methodology
2011	34682	ID	Shell	983	198	20%	Diff. Methodology
2011	35372	ID	Shell	48,950	5,988	12%	Diff. Methodology
2011	36974	WA	Appliances	211	20	9%	Diff. Methodology
2011	33651	WA	HVAC Combined	4,015	6,660	166%	Diff. Methodology
2011	35820	WA	Appliances	32,760	19,436	59%	Diff. Methodology
2011	35838	ID	Prescriptive Lighting Interior	2,627	3,488	133%	Diff. Methodology
2011	36170	ID	Prescriptive LED Traffic Signals	53,784	27,973	52%	Calculation Error, Rprt'd Savings
2011	30481	WA	Industrial Process	283,902	117,823	42%	Calculation Error, Rprt'd Savings
2011	29129	WA	Industrial Process	571,750	283,747	50%	Calculation Error, Rprt'd Savings
2011	34262	ID	Shell	209	26	12%	Calculation Error, Rprt'd Savings
2011	36341	WA	Prescriptive Commercial Shell	2,411	10,682	443%	Calculation Error, Rprt'd Savings
2011	36628	WA	Prescriptive Commercial Shell	1,124	0	0%	Calculation Error, Rprt'd Savings
2011	36315	WA	Prescriptive Motors	438	274	63%	Calculation Error, Rprt'd Savings
2011	23335	WA	Industrial Process	308,652	0	0%	Calculation Error, Rprt'd Savings
2011	35540	ID	Prescriptive Lighting Exterior	20,417	41,257	202%	Calculation Error, Rprt'd Savings
2011	32654	WA	HVAC Combined	134,543	65,349	49%	Calculation Error, Rprt'd Savings
2011	37395	WA	HVAC Combined	32,570	16,285	50%	Database Error
2011	37396	WA	Lighting Interior	154,262	95,286	62%	Database Error
2011	37074	WA	Energy Star Clothes Washer	14	322	2301%	ES Appliances Update
2011	37075	WA	Energy Star Dishwasher	36	22	62%	ES Appliances Update
2011	37070	WA	Energy Star Clothes Washer	240	494	206%	ES Appliances Update

Year	Project ID	State	Measure Description	Reported kWh	Verified kWh	Realization Rate	Project Category
2011	37385	WA	Energy Star Clothes Washer	240	322	134%	ES Appliances Update
2011	36616	WA	Energy Star Dishwasher	36	22	62%	ES Appliances Update
2011	35371	Idaho	Energy Star Dishwasher	36	22	62%	ES Appliances Update
2011	35841	ID	Energy Star Dishwasher	36	22	62%	ES Appliances Update
2011	37089	WA	Energy Star Clothes Washer	14	322	2301%	ES Appliances Update
2011	37025	WA	Energy Star Clothes Washer	240	494	206%	ES Appliances Update
2011	36894	WA	Prescriptive Comm Clothes Washer	869	1,111	128%	Equip. Verification
2011	36140	ID	Industrial Process	637,534	477,180	75%	Diff. Metering Results
2011	33889	WA	HVAC Combined	230,543	58,277	25%	Metering vs. Simulation
2011	33510	WA	HVAC Cooling	188,879	34,377	18%	Metering vs. Simulation
2011	34653	WA	Motor Controls HVAC	25,550	73,193	286%	Metering vs. Simulation
2011	33334	WA	Motor Controls HVAC	81,760	234,219	286%	Metering vs. Simulation
2011	33424	ID	HVAC Combined	16,414	25,557	156%	Metering vs. Simulation
2011	33432	ID	HVAC Combined	10,644	32,997	310%	Metering vs. Simulation
2011	37477	ID	Motor Controls HVAC	168,630	483,076	286%	Metering vs. Simulation
2011	37471	ID	Motor Controls HVAC	296,380	849,042	286%	Metering vs. Simulation
2011	37478	ID	Motor Controls HVAC	419,020	1,200,370	286%	Metering vs. Simulation
2011	29646	WA	HVAC Cooling	125,948	198,881	158%	Metering vs. Simulation
2011	36137	WA	Lighting Interior	20,207	3,160	16%	Inaccurate HOU
2011	36470	WA	Prescriptive Lighting Interior	5,676	1,765	31%	Inaccurate HOU
2011	36559	WA	Prescriptive Lighting Interior	353,228	113,298	32%	Inaccurate HOU
2011	37187	ID	Prescriptive Lighting Interior	9,108	3,803	42%	Inaccurate HOU
2011	36016	WA	Lighting Interior	4,218	2,939	70%	Inaccurate HOU
2011	36017	WA	Prescriptive Lighting Interior	2,540	3,484	137%	Inaccurate HOU
2011	31378	ID	HVAC Heating	48,173	0	0%	Participant Error
2011	21278	ID	Compressed Air	648,560	0	0%	Participant Error
2011	35430	WA	Motor Controls HVAC	91,980	0	0%	Participant Error

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Year	Project ID	State	Measure Description	Reported kWh	Verified kWh	Realization Rate	Project Category
2012	37981	WA	SS Multifamily	692,700	448,232	65%	Diff. Methodology
2012	35602	WA	SS Multifamily	692,700	448,232	65%	Diff. Methodology
2012	33914	WA	HVAC Combined	59,549	24,472	41%	Diff. Methodology
2012	39533	WA	SS HVAC Heating	7,986	0	0%	Diff. Methodology
2012	38992	WA	PSC EnergySmart- Case Lighting	3,720	2,236	60%	Diff. Methodology
2012	38397	WA	PSC EnergySmart- Industrial Proc	34,700	45,252	130%	Diff. Methodology
2012	40766	WA	SS HVAC Combined	53,250	7,650	14%	Calculation Error, Rprt'd Savings
2012	34998	WA	SS Appliances	91,823	38,934	42%	Calculation Error, Rprt'd Savings
2012	39118	WA	SS Compressed Air	8,413	0	0%	Calculation Error, Rprt'd Savings
2012	35000	WA	Lighting Interior	165,141	258,793	157%	Calculation Error, Rprt'd Savings
2012	39794	WA	SS Shell	101,581	35,391	35%	Calculation Error, Rprt'd Savings
2012	35972	ID	SS Industrial Process	1,047,737	1,406,904	134%	Metering vs. Simulation
2012	39969	WA	SS Industrial Process	115,911	165,636	143%	Metering vs. Simulation
2012	38236	WA	SS Lighting Interior	177,934	103,425	58%	Metering vs. Simulation
2012	38276	WA	SS Lighting Interior	185,688	86,794	47%	Metering vs. Simulation
2012	39750	WA	PSC Lighting Interior	6,318	3,953	63%	Metering vs. Simulation
2012	39411	WA	PSC Lighting Interior	10,623	1,461	14%	Metering vs. Simulation
2012	32376	ID	PSC PC Network Controls	21,000	0	0%	Participant Error