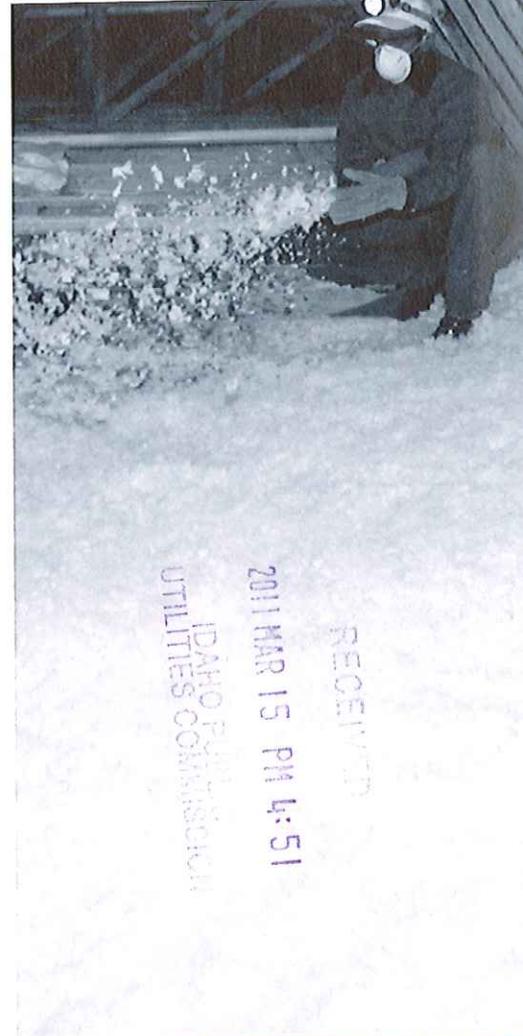


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Supplement 2:  
Evaluation

# Demand-Side Management 2010 Annual Report

March 15, 2011





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## EVALUATION SUMMARY

Program evaluation is an essential component of Idaho Power's demand-side management (DSM) operational activities. The company relies on evaluation by third-party contractors, internal analyses, and regional studies to ensure the ongoing cost effectiveness of programs through validation of energy savings and demand reduction, and the efficient management of its programs. Idaho Power considers research studies, cost-effectiveness analyses, surveys, market-potential assessments, impact evaluations, process evaluations, and market-effects evaluations important tools to improve DSM activities by testing program assumptions and results. The results of Idaho Power's evaluation efforts are used to enhance programs or initiate program changes.

Idaho Power uses industry-standard protocols for its internal and external evaluation efforts. The resources for these protocols and standards include the *National Action Plan for Energy Efficiency—Model Energy Efficiency Program Impact Evaluation Guide*, the *California Evaluation Framework*, the *International Performance Measurement and Verification Protocol, Database for Energy Efficiency Resources (DEER)*, and the Regional Technical Forum's (RTF) evaluation protocols. Idaho Power participates in the Northwest Research Group, the Pacific Northwest Demand Response Project, and RTF meetings and joins with several regional entities to evaluate energy efficiency technologies and advancements.

Internal studies and analyses are managed by Idaho Power's Research and Analysis Team within the Customer Relations and Energy Efficiency department. Evaluations are specifically coordinated by the company's energy efficiency evaluator, while surveys are performed in consultation with the customer research coordinator. Third-party studies and evaluations are generally awarded through a competitive bidding process and managed by Idaho Power's Procurement department.

On January 25, 2010, Idaho Power joined with the Idaho Public Utilities Commission (IPUC) staff and other Idaho investor-owned utilities to sign a memorandum of understanding (MOU) in IPUC Case No. IPC-E-09-09. The MOU reflects how Idaho Power intends to manage, plan, evaluate, and report its DSM activities. The MOU includes specific requirements for timing and reporting of evaluation of Idaho Power's energy efficiency and demand response programs. Within the MOU, the IPUC staff has agreed to provide reasonable and necessary leeway for the implementation of the guidelines described in this MOU for the *Demand-Side Management 2010 Annual Report*.

In 2010, Idaho Power implemented a comprehensive evaluation plan for its energy efficiency and demand response programs. Global Energy Partners, LLC, was chosen to perform process evaluations of the Heating and Cooling Efficiency (H&CE) Program, Energy House Calls, Home Improvement Program, and the Energy Efficiency Education Initiative. The Cadmus Group, Inc., was retained to provide process evaluations for the Building Efficiency, Easy Upgrades, Custom Efficiency, Commercial Energy Efficiency Initiative, and Irrigation Efficiency Rewards programs.

A list of all evaluations completed in 2010, copies of each evaluation report, and a table showing the schedule for future evaluations are provided in *Supplement 2: Evaluation*. Although the evaluation plan is expected to be used for scheduling evaluations, the timing of specific program evaluations will be

based on considerations regarding program needs, evaluation timing, and other relevant regional studies. When necessary, resources are reallocated to programs with the most urgent needs for research, as was the case in the selection of the four residential programs for the Global Energy Partners, LLC.

Idaho Power contracted with Market Strategies International to perform a market research study in 2010. The primary objective of this study was to profile residential customers across the service area to better understand their housing and end-use characteristics, including demographics, fuel source, home heating and cooling, appliance, and consumer electronics saturation. Actual monthly customer kilowatt hour (kWh) usage information was linked to the survey data to analyze predictors of kWh usage. A total of 5,407 residential customers were randomly selected and mailed surveys. Idaho Power received 1,923 responses representing a 35 percent response rate. The survey results were received by the company in February 2011 in the form of a final report. The Customer Research and Analysis team are in the process of analyzing these data to enhance existing programs and determine the efficacy of future programs.

As part of its evaluation efforts, Idaho Power is actively participating in several local and regional studies to identify and promote emerging technologies that may further enhance opportunities for new program deployment. Included in *Supplement 2: Evaluation* are copies of all evaluations, research studies, and customer surveys that Idaho Power either performed, or was a participant, in 2010.



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## ENERGY EFFICIENCY ADVISORY GROUP MINUTES

The following pages include minutes from EEAG meetings held on February 18, 2010, May 26, 2010, and October 26, 2010.

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## Energy Efficiency Advisory Group

February 18, 2010

### Agenda

- 9:30 Welcome, Review October/December minutes
- 9:35 NEEA Contract
- 9:40 2009 Year in Review / 2010 Forecast—Celeste Becia, Todd Schultz
- 10:45 Break
- 11:00 2009 Financial & Savings Report (Est.)  
Idaho Prudency MOU—Pete Pengilly
- 11:30 Oregon Update—Mike Youngblood
- 12:00 Lunch
- 1:00 Stimulus Projects Update—Celeste Becia
- City of Boise  
Idaho Office of Energy Resources  
Oregon Department of Energy  
Idaho Power Smart Grid grant
- 2:00 Students for Energy Efficiency—Todd Schultz  
CAP Agency Energy Efficiency Education—Celeste Becia
- 2:45 Adjourn

**Energy Efficiency Advisory Group (EEAG)  
Minutes dated February 18<sup>th</sup> 2010**

**Present:**

Catherine Chertudi–City of Boise, Public Works Dept.	Celeste Becia*–Idaho Power
Ken Robinette–South Central Comm. Action Partnership	Lynn Young–AARP
Lynn Anderson–Idaho Public Utilities Commission	Ken Eklund–Office of Energy Resources
Nancy Hirsh–Northwest Energy Coalition	Sid Erwin–Idaho Irrigation Pumpers Association
Mike Youngblood–Idaho Power	Linnea Wittekind-Oregon Public Utilities Commission
Tom Eckman–Northwest Power & Conservation Council	

**Not Present:**

Don Sturtevant–Simplot  
Jim Coles-Design West Architects

**Guests and Presenters\*:**

Pete Pengilly*–Idaho Power	Denise Humphreys-Idaho Power
Mike Darrington–Idaho Power	Theresa Drake–Idaho Power
Shelley Martin–Idaho Power	Andrea Simmons–Idaho Power
Ric Gale–Idaho Power	Dennis Merrick-Idaho Power
Billie McWinn-Idaho Power	Ryan Hartnett-Idaho Power
Cheryl Paoli-Idaho Power	Patty Best-Idaho Power
Quentin Nesbit-Idaho Power	Becky Arte-Howell-Idaho Power
Rochelle Jensen-Idaho Power	Kathy Yi-Idaho Power
Todd Schultz*-Idaho Power	Randy Thorn-Idaho Power
Ann Wadsworth-Idaho Power	Mindi Shodeen-Idaho Power

**Recording Secretary:**

Shawn Lovewell-Idaho Power with Mike Darrington-Idaho Power

**Meeting Convened at 9:34 am.**

9:34-Celeste welcomed the group. Guests were introduced to the group and the minutes from October 2009 as well as the teleconference minutes from December 2009 were reviewed.

**9:40 NEEA Contract Update-Celeste Becia**

Celeste thanked the group for the important feedback given during the teleconference in December. Since that time, Idaho Power has further clarified with NEEA the 17.5 million dollar contract over the next five years. Included in the proposed contract is language that provides check-in points and if needed, the potential for an off ramp between Idaho Power and NEEA. Idaho Power is currently preparing a joint application with NEEA for the Idaho Public Utilities Commission's approval to fund the contract thru the rider. The expectation is that this will be finalized by the middle of 2010. One member asked if the rider fund would need to be increased in order to meet this contractual obligation with NEEA. Celeste reminded everyone that regardless of what happens with the NEEA contract that it will not interfere with Idaho Power providing incentives for current DSM programs.

**9:45 2009 Year in Review/2010 Forecast—Celeste Becia & Todd Schultz** \*(please refer to the presentation slides along with the minutes)

Some of the information in the first few slides are estimates. Pete's team is finishing up the 2009 DSM Annual Report which will be finalized on March 15<sup>th</sup> so some of the final numbers might be different.

**Ductless Heat Pump Pilot**-This pilot was reviewed by EEAG about a year and a half ago and is still a pilot. Evaluations are still underway and the final results needed to determine permanent program status are not yet available. One of the members asked if there was a way to incorporate this into a low income program. Celeste informed the group that this is not an income qualified program. Idaho Power decided for 2010 to keep it as it was in 2009 for evaluation results. Idaho Power would not be opposed at looking at other ways to offer this program in the future. It was asked what the costs of the installed units are. Shelley Martin informed the group that it was approximately \$3500 to \$4000.

**Heating & Cooling Efficiency**-In 2009 some changes were made to the Heating and Cooling Efficiency Program. The tune-up incentives for air conditioners and heat pumps were removed because they were not cost effective. One member asked if the contractors who go thru Idaho Power's training class receive a certificate that they can use. Celeste informed the group that only contractors who go thru the class can participate in the program. Idaho Power also has quality assurance for this program, but not a certification process. Through extensive dealings with the local contractors, Idaho Power learned that in the service area, contractors typically size heat pumps for cooling load and not heating load which decreases effectiveness in the winter. Idaho Power is working to convey the message to the contractors differently starting with the sizing language written by Bob Davis, one of the trainers.

**A/C Cool Credit**- Through a partnership with the Idaho Food Bank, Idaho Power provided \$12,600 thru the end of January 2010 in Boise and \$560 in Oregon. This promotion continues through the end of February. In 2010, the goal for this program is to reach 40,000 customers.

**Energy Efficient Lighting**- It was determined that there is still potential for savings for the next 24 months in the service territory. The 2010 RTF did reduce the savings per bulb by about 1/3. One member asked if Idaho Power was going to launch socket saturation. Pete said that Idaho Power is hoping to have an End Use Survey done this year. One member asked how the bulbs are counted in savings if they were not purchased as part of a promotion. Celeste explained that if bulbs are not part of an Idaho Power promotion, the company does not count those savings, but that they could be part of NEEA's overall savings. Celeste also pointed out that Idaho Power partners with specific stores for bulb promotions.

**See Ya Later Refrigerator**- This program has a high customer satisfaction level. Idaho Power is looking into the idea of going to second hand stores and collecting working units to make sure they do not end up back in the residential market. The stores would receive the incentive. Another option that is being explored is the Charitable Giving Option. Southern Cal-Edison has a similar program. Jaco would send a list of customers that would like to donate their incentive to a third party charity. The charity would have to issue the official tax receipt. Celeste asked the group for feedback. One member who actually has participated in the program said she loves the idea and that if that option would have been available, she would have donated. One member, who also likes the idea, suggested that the charity be energy related, for instance, Project Share.

**Rebate Advantage**-In 2009 one-third of the dealerships closed down. The target for 2009 was 70 homes which was not reached. Idaho Power was spurred into action to come up with some creative marketing strategies. Customers were reached thru a company newsletter and dealerships were visited every quarter. Prior to 2009 it was more "point of purchase" marketing. One member stated that Bonneville is looking at making manufactured homes significantly more energy efficient.

**Energy House Calls**-Last year a survey was sent to potential qualifying customers to find out why they were not taking advantage of this free service. The responses were varied. Some customers were not aware that Idaho Power had this program, while others had a lack of understanding of how the program worked and how these changes could impact their energy bills. One member asked why our targets for this year are substantially lower given the actual number of homes serviced in 2009. Celeste explained that the program's performance assumes participation decrease and it is a difficult program to forecast. During budgeting, participation was lower

and then a surge of projects came in during the fall. These are just “targets” and if those numbers are exceeded then that is fine. Ryan also explained that ECOS helps to determine market saturation and to set these targets.

**Home Products**-This program has been around for about one and a half years and that 2009 was the first full year. Idaho Power is in the middle of contract negotiations to outsource the application entry process. The Office of Energy Resources has received stimulus money for funding an appliance program (*Handout passed around*) Customers can apply for both incentives. One member explained that OER is finalizing the contract with the rebate handler and the vendor has not been announced. One member stated the confusion that might be experienced by the customers with the two different incentives. It was explained that the customer will be able to reserve the rebate in advance and then there will be a set amount of time in order to use the voucher. It will be set up like a debit/gift card.

**ENERGY STAR® Homes**-This program exceeded expectations last year. Hubble Homes, a production builder, signed on last year. They build 1500-2000 sq ft sized homes. These homes are less expensive homes. In 2010 Idaho Power is partnering with NEEA and St. Jude’s Hospital to build a “Net Zero” energy home. Labor and materials for this project are donated and raffle tickets are being sold for \$100. The home is in the process of being built and will be raffled off at the end of June.

**Home Improvement**-This program currently offers only attic insulation, but cost-effectiveness analysis is being done to add other measures. The 2010 target is 1200 homes, but based on current customer participation rates it is likely that number will be much higher. One member asked what other measures are being looked at. Celeste mentioned that high efficiency windows and duct sealing are possible options.

**Weatherization Solutions for Eligible Customers**-The difference between this program and Weatherization Assistance for Qualified Customers (WAQC) is income qualifications.

**Residential Education**-Items that do not fit into a specific program fall under this umbrella. Lynn Anderson’s suggestions were put to use in the new Spanish translation of the book 30 Simple Things You Can Do To Save Energy. Celeste shared with the group that Idaho Power is partnering with Avista and Rocky Mountain Power to supply Idaho libraries with Kill-A-Watt meters for individuals to check out.

**Building Efficiency**-This program is for new construction and major remodels for industrial and commercial customers. Idaho Power also works closely with the Integrated Design Lab (IDL). They have a builder simulation group that meets once a month. One member asked why the year’s targets are cautious. Todd explained that there is a deliberate process for setting targets. They are evaluated midyear to see what is going on. The economy impacts these numbers too. Celeste also pointed out that as long as Idaho Power knows that it’s a target and not a limit, then the numbers are not the main focus as much as the actual energy savings. One of the other members pointed out that some of the targets are set with regard to the Integrated Resource Plan (IRP) for the purpose of planning load.

**Easy Upgrades**-This program is for smaller projects, lots of lighting projects are completed under this program. Modifications were made to some of the measures and the program is being looked at to see if process improvements can be made to streamline the application process.

**Irrigation Peak Rewards**-The application process on this program has been changed. One of the members asked what percentage of customers are participating in this program. Quentin Nesbitt answered that around 20% have participated in either of the irrigation programs. The newest option for the Irrigation program is the dispatch option where Idaho Power communicates via cell phone technology to turn off systems. One member asked if customers can opt out in the middle of the season due to crop growth or other issues. Quentin explained that there are some that choose to opt out, usually due to unforeseen circumstances, most often it has to do with management issues rather than crop issues. There is a penalty assessed to the customer if they completely opt out of the program after June 1<sup>st</sup>. Each customer is allowed 5 opportunities to opt out of a load control event for each service location. One member expressed his satisfaction with the program and expects it grow in years to come.

**Flex Peak Program**-This program will be offered in Oregon in 2010. This program was on a fast track and was approved in 2009. A company called ENERNOC is administering and promoting the program. In this program the customer determines the commitment reduction amount. Idaho Power is very pleased with the relationship ENERNOC has with customers. They conducted a post event survey to gauge customer satisfaction and all of the customers that participated in 2009 will be participating again in 2010.

**Commercial Education Initiative**-There were some group discussion on lighting changes due to the 2007 Energy Independence Act and one member suggested that Idaho Power have a spec sheet to advise customers on current and upcoming changes. Customers will need to be educated about the new changes coming in 2012 as well.

**11:30—Break**

**11:40 2009 Financial & Savings Report (Est.) Idaho Prudency MOU-Pete Pengilly**

Pete wanted to discuss the Memorandum of Understanding (MOU) that has been signed with the IPUC. The MOU sets forth guidelines for enhanced reporting and evaluation of Idaho Power's energy efficiency programs. The actual document will be included in the Demand-Side Management 2009 Annual Report posted on the Idaho Power website. The DSM Annual report is growing and will probably have some supplemental documents. One member asked if Idaho Power does bill analysis as part of the impact evaluation. Pete explained that it is done where appropriate, as it depends on the program and the level of impacts on a customer's bill. A Request for Proposal (RFP) will soon be issued for process evaluations. Pete explained that the Energy Efficiency Annual Savings slide numbers may not correspond with Celeste's numbers as they are preliminary. The Appendix 1 slide was shown to the group. In May the Oregon rider balance went into deficit spending. One member asked if there was a strategy to come out of the deficit. Pete explained that Idaho Power is exploring several different options. One member asked if this deficit is going to continue. Pete said that when the 10 year forecast is done funding, rates and expenses are escalated at 3% so as it moves forward that deficit balance won't change much.. NEEA is also included in that forecast. One member asked for clarification on what the rates are as of right now. Pete explained the Idaho and Oregon rates- 4.75% for Idaho and 1.5% for Oregon with caps. The Appendix 2 slide was shown to the group. One member asked how much of A/C and Peak Rewards is a onetime capital expense. It was explained that those two programs have a high up front capital cost, but are expected to decrease over time. There was discussion regarding the usage of diesel generators during a demand response event and what impact that would have on cost effectiveness. Quentin commented that there are no customers to date that have a diesel generator, as far as Idaho Power is aware, it has not been an issue.

**12:15 Lunch**

**12:36 Meeting Reconvened**

**12:38 Oregon Update-Mike Youngblood**

The Oregon rate case settlement was explained. Other filings in Oregon include the APCU (annual power cost updated) which was filed in October and should result in about an 8.2% increase in base rates effective in June. Another filing going on shortly is the expansion of FlexPeak Management in Oregon using. The DSM Annual Report will also be filed in Oregon as well.

**1:12 Stimulus Projects Update-Celeste Becia**

**City of Boise Audit**-The funding for this project will give Idaho Power the opportunity to test an audit program to see if there is an opportunity for a program. It will also provide the ability to test gas heated homes as opposed to just electrically heated homes. The goal is to have a wide variety of homes take part in the audit. Paperwork is still being processed so the funding has yet to be released. Idaho Power can start charging time towards the program since approval has been given. A process workflow has been developed. An auditor RFP has been developed. Several of the ENERGY STAR<sup>®</sup> homes auditors have expressed interest in becoming involved.

Any auditor that applies has to be able to comply with the project requirements. One member asked if there was a certification stamp that the auditors will be required to have. Celeste said that a RESNET or Building

Performance certification is required. Another member mentioned that the OER is conducting RESNET certification in the spring. Celeste explained that the audit will include blower door testing, documentation of energy end uses and building envelope characteristics, and a visual inspection of the crawl space and attic. The low cost energy-saving measures may include limited sealing of air leaks, installation of CFLs, minor insulating of water pipes, installation of low flow shower heads and faucet aerators. It will also include customer education on a variety of items.

**Idaho Office of Energy Resources-** Slide was presented to the group. A handout showing the State Energy Efficient Appliance Rebate Program was given to the members.

**Oregon Department of Energy-**Slide was presented to the group.

**Idaho Power Smart Grid Grant-**The U.S Department of Energy (DOE) solicited energy utilities and companies to respond to a stimulus funding opportunity regarding Smart Grid Technologies. Idaho Power responded in August of 2009. Idaho Power was chosen to receive the grant of \$47 Million, since a plan for enhancement was already in existence as well as being so far along in our AMI Meter project. Idaho Power is in the negotiation stage for funds to be rewarded. As far as Idaho Power is aware, at the moment, it looks like the funding might be taxable. The DOE is working with the IRS to get a ruling to make the funds non-taxable. This ruling should come sometime in March. The Customer Systems slide was shown to the group. Because of Smart Grid, Idaho Power will need to update the Customer Information System (CIS). Obtaining the grant money will allow that to happen. This update will also enable critical peak pricing. There is some other software that is being looked at for a customer relations management (CRM) system. This software would help Idaho Power understand customer information in a more detailed way. The final software piece that is being looked at is the "engine" that drives this, called Meter Data Mart. This will allow customer data to be analyzed in a central spot. One member asked if this grant money would offset any of the AMI costs. Mike Youngblood explained that the \$47 million that Idaho Power set aside for this was for the expenses already incurred with the AMI installation project. The matching grant funds will help in implementing the back office systems that would have been delayed by 3 to 4 years. This grant will allow Idaho Power to do this sooner and with no costs to customers. There was some group discussion regarding electricity reliability and expressions of appreciation of how reliable Idaho Power is in keeping the lights on. Celeste brought up the incident in Sun Valley this past Christmas. One member stated that this should be an opportunity for Idaho Power to educate customers on what to do in case of a long term outage.

#### **2:00 Students for Energy Efficiency—Todd Schultz**

Todd passed around the kits that are used at the schools. He explained that this is a 2 year pilot program that is not rider funded and only available in the Idaho service territory. He also gave some background on this. Idaho Power sold some SO2 credits and went to the IPUC for guidance on what to do with the 19 million dollars. Most of that money went to the Power Cost Adjustment (PCA) for 2008 and some of the money was used to fund this pilot program. High school and 6<sup>th</sup> grade students are the focus of this pilot. It was explained to the group how the students used the kits that were given to them. After the students had performed their energy audits they presented their findings before the board about what they had learned through this process. The feedback from teachers, parents as well as the board has been overwhelmingly positive. Todd showed the group one of the slide presentations that was put together by one of the school teams. One of the members was very encouraged by this project and asked if there was any follow up being done with the schools on any projects that would help based on student recommendations. Todd explained that yes, follow up is being done. One member asked if Idaho Power needed more funding for this program. Todd responded the two year program was funded with \$500,000. The funding level appears to be sufficient for the two year program.

#### **CAP Agency Energy Efficiency Education-Celeste Becia**

The CAP agencies received \$25,000 each to provide Energy Efficiency Kits specifically for electrically heated homes. These kits were distributed to the agencies at the end of 2009.

Celeste informed the group that a copy of the 2009 DSM Annual Report would be coming to everyone in about 6 weeks. The next EEAG meeting will be held in May.

**2:30 Meeting Adjourned**

Energy Efficiency Advisory Group  
May 26, 2010  
Boise Plaza, 1111 W Jefferson Street  
Middle Fork Room

- 9:30 Welcome, Review February minutes
- 9:40 Program Topics—Celeste Becia  
New Residential Measures  
Boise City Audit  
Multi-Family program design
- 10:30 Review Online Energy Tool—Celeste
- 11:00 Break
- 11:10 Financial Update—Pete Pengilly  
Funding DSM—Ric Gale
- 12:00 Lunch—New Lead-Based Paint Regulations, Ken Robinette
- 12:45 Demand Response Preview—Pete, Celeste, Todd Schultz
- 1:50 Street Lighting—Todd
- 2:40 Adjourn
- 3:00-4:00 (Optional) Tour of Net Zero Energy St. Jude's Home

**Energy Efficiency Advisory Group (EEAG)  
Minutes dated May 26<sup>th</sup>, 2010**

**Present:**

Catherine Chertudi–City of Boise, Public Works Dept.	Don Sturtevant–Simplot
Ken Robinette–South Central Comm. Action Partnership	Celeste Becia*–Idaho Power
Linnea Wittekind–Oregon Public Utilities Commission	Sue Siefert–Office of Energy Resources
Nancy Hirsh–Northwest Energy Coalition	Sid Erwin–Idaho Irrigation Pumpers Association
Mike Youngblood–Idaho Power	Kent Hanway–CSHQA
Tom Eckman–Northwest Power & Conservation Council	

**Not Present:**

Lynn Young–AARP  
Lynn Anderson–Idaho Public Utilities Commission

**Guests and Presenters\*:**

Pete Pengilly*–Idaho Power	Mindi Shodeen–Idaho Power
Kathy Yi–Idaho Power	Gary Grayson–Idaho Public Utilities Commission
Greg Said–Idaho Power	Andrea Simonsen–Idaho Power
Ric Gale*–Idaho Power	Dave Thornton–Idaho Power
Cheryl Paoli–Idaho Power	Brit Ide–Idaho Power
Theresa Drake–Idaho Power	Ken Miller–Snake River Alliance
Todd Schultz*–Idaho Power	Ron Whitney–Northwest Energy Coalition
Tim Tatum–Idaho Power	Jim Ashworth–Idaho Power

**Recording Secretary:**

Shawn Lovewell–Idaho Power

**Meeting Convened at 9:40 am**

Celeste welcomed the group. Guests were introduced to the group and the minutes from February 2010 were reviewed.

**9:47am New Residential Measures–Celeste Becia**

Celeste introduced two new residential measures that are being added to the Home Products program. These will include showerheads and freezers. The freezer incentive will be paid via customer application process, while the showerhead incentive is a manufacturer buy down and will be reflected at the point of purchase, similar to lighting. There was a question in regard to the average incremental cost of the showerheads. It was stated that the cost of \$24 seemed high. It was stated that this cost came from the Regional Technical Forum's (RTF) information. One member stated that this cost might include the administration cost or delivery cost and but that he would check on this.

**Boise City Audit** Celeste informed the group that the Department of Energy has released funds for this program. Idaho Power is partnering with the City of Boise to perform audits on 600-700 homes. Idaho Power will not be providing auditor training. Auditors are required to have either RESNET or BPI certification. One member asked

when these audits will be completed. Celeste informed the group that the project should be completed by the spring of 2012. The plan is to have the audits completed in a six month time frame which would allow a year of data to be collected and to track any customer improvements made from the audit results. One member asked about the two different certifications. Celeste explained that RESNET certification is required by the Office of Energy Resources (OER). It is a network that is more widely distributed through the country. Building Performance Institute (BPI) is available in a very limited number of states. Federal legislation on a proposed Energy Star Home® Program that would provide incentives of up to \$8000 for home energy improvements was explained in detail to the group. If passed, this program may or may not impact the activities of the Boise City Audit program.

**Multi-Family program design** Celeste explained to the group that Idaho Power is looking at exploring options for adding a Multi-Family program and would like feedback from the group on what measures could be explored. Celeste gave examples of what is currently being considered. Idaho Power has been approached by companies to do large scale retrofits in multifamily units. These projects did not qualify for the commercial program. Celeste gave examples of other utilities that have this type of offering. Celeste asked the group for feedback on what aspects of the Multi-Family design should be considered by Idaho Power.

One member stated that the definition of Multi-Family needs to be addressed. There was much discussion surrounding what should and shouldn't be considered. It was advised that Ductless Heat Pumps might not be cost effective due to the low occupancy rates and also how frequently tenants move in and out of these units. Laundry areas might be an area for upgrading due to the high usage and abuse that they receive. Refrigerator Recycling could be considered, the whole complex could be changed out at the same time. One member suggested solar hot water heaters. Another member suggested site lighting or security lighting. One member suggested that in an Assisted Living complex, because of the intensity of usage of heating, the ductless heat pump might be applicable. The advantage of having individual controls for each room would be more efficient than what is typically available in these facilities. Celeste thanked the group for all of their feedback.

#### **10:45 Review Online Energy Tool—Celeste Becia**

Celeste provided a demonstration of the Idaho Power account manager with her personal information. This is a tool on the website that allows residential and commercial customers to view their bill as well as their energy usage. Customers that have had the AMI meters installed, have access to hourly meter data. One member asked how much of the meter data was used to create the "pie charts" on the website. Celeste wasn't sure, but said that might be something to check in to. One member stated that they like the "benchmarking" piece on the website and thought that it was a great function.

#### **11:25 Break**

#### **11:30 Financial Update-Pete Pengilly**

Pete informed the group that the DSM Annual Report was filed. Hard copies are available as well as it being available online.

The financial information presented is un-audited. It is a snapshot in time. Pete presented the slides to the group. Celeste pointed out to the group that the ENERGY STAR® program experienced a huge bump which may be due to the \$8000 tax credit for first time homebuyers. During the SW Idaho Parade of Homes this year 21 of the 37 homes that participated were ENERGY STAR. One member asked if Idaho Power is thinking about LED

incentives and products and if a ramping up of these products is starting or is the company waiting until CFL's are no longer incentivized. Pete stated that Idaho Power is working with the Regional Technical Forum (RTF). One member stated that the company needs to make sure that LED's are tested before they get pushed toward customers. Appendix 1 slide was explained. One of the members stated that the Oregon Rider increase will be effective June 1<sup>st</sup>. Pete explained that the Oregon Rider has always had a surplus and that last fall the balance in the account became contra. One of the members asked if there were any projections as to what the rider balance would be by the end of 2010. Pete explained that it is hard to forecast that due to the fact that there are so many variables. Barring any changes in Idaho Rider funding, the balance is projected to have a \$19,000,000 deficit by the end of the year.

### **11:53 Funding DSM-Ric Gale**

Ric announced his new position to the group, Senior Vice President of Corporate Responsibility. The message that Ric wanted to convey to the members of EEAG is that Idaho Power is committed to energy efficiency. The company will not cut back in energy efficiency or demand response. Idaho Power is also aware that the Idaho Rider deficit needs to be addressed and numerous options are being explored. One member asked if the contributions to NEEA will increase every year. Theresa explained that the contract with NEEA is a 5 year contract for a fixed amount during that time. Idaho Power will be billed quarterly based on expenditures. Ric also explained that deciding to go forward with the NEEA contract was a tough decision, but that it will not affect paying out incentives for Energy Efficiency.

**12:05 Lunch** During lunch, Ken Robinette passed around a handout to all the members on lead based paint regulations

### **1:00 Meeting Reconvened**

#### **1:00 Demand Response Preview—Pete Pengilly, Celeste Becia, Todd Schultz**

The Summer Peak slide was shown to the group. During the presentation one member stated that they would like to see a resource stack on the slides. One member asked if the slow increase is due to a larger service territory or a slow rise in summer temperatures. Pete stated that it's because of customer growth and a/c penetrations. Celeste pointed out that Demand Response programs have helped lower that peak, and in 2009 there was a significant amount of demand response to help with that. Pete stated that almost all newer homes have central air conditioning compared to the older vintage homes, those homes typically did not have central a/c. One member asked how the A/C Cool Credit program is dispatched. Celeste explained that the customer does have the ability to opt out, they have to call and can opt out up to 3 times. One member asked how many people call to skip an event. Celeste explained that not many people take advantage of that, but what usually happens is that a customer will call and want to completely opt out of the program, and then customer service will ask them if they would just like to opt out of a scheduled event and that usually is satisfactory in keeping the customer in the program.

Todd presented the Flex Peak Management slide to the group, and explained that this is Idaho Power's newest Demand Response program for commercial and industrial customers. Todd also informed the group that Idaho Power was the recipient of the Peak Load Management Award. Customers that were enrolled in this program last summer have re-enrolled for 2010. The program will be available to Oregon customers in the summer of 2010. The Irrigation Peak Reward program slide was shown to the group. The program season has been changed. One member asked why the dates were changed on this program. Todd explained that the June 1<sup>st</sup> start date was just too early and that the later start date fits Idaho Power's load profile better. One member asked if most of the growth in this program is due to the new dispatch option vs. the timer option. Todd said that yes, it is. Celeste explained that each of these programs has different criteria for dispatch. The company has to be cognizant of customer comfort, so the way these programs are managed has changed. Idaho Power has noticed peaking hours occasionally fall outside of the Monday-Friday norm. Cycling events now include Saturdays for the Irrigation

peak load program. One of the members asked if there are different rates based on peak hours and if there is communication about these different rates. Mike Youngblood explained that commercial customers have time of use rates, but irrigation customers do not and these differences are communicated with customers.

Celeste presented the A/C Cool Credit slide to the group and passed around some of the latest marketing materials. Celeste explained to the group some of the paging issues that are currently being experienced by customers in the Twin Falls and Pocatello area. Both of the paging providers that Idaho Power currently used have stopped serving the Twin Falls area and are limited in Pocatello. Idaho Power is exploring options on how to handle the bill credits for this summer. Celeste asked the group for feedback and suggestions on how to proceed with this issue. One member is in support of maintaining the bill credit for the customers. Another member stated that he thought it would be a “customer relations nightmare” to try and explain why the bill credit was being taken away. Idaho Power would end up spending more money on administrative costs than the \$30,000 or so to maintain the incentive to the customers. Then it becomes a customer satisfaction issue which could affect future participation in the program by customers not already signed up. One member asked if there was an option of switching the AMI installation schedule. Celeste explained that there are many consequences in modifying that schedule that it isn’t possible. It is more of a budgeting issue and for that team to change the schedule would end up costing more than the \$30,000 dollars for continuing the customer incentives. Celeste thanked the group for the feedback.

#### **1:42 Street Lighting—Todd Schultz**

Todd explained to the group that this is an area that is seeing more interest within our service territory by customers and vendors which impacts multiple departments within the company. One member asked how many fixtures Idaho Power has across the service territory. There are approximately 30,000. Todd wanted to stress that details are still being worked through and new tariffs will not be proposed until mid 2011. Todd asked the group for comments and feedback. One member wanted to know if this proposal is intended to switch out existing lighting with high efficiency lighting. Idaho Power is getting requests from different cities looking at switching out inefficient lighting with more energy efficient lights. There was much discussion among the group surrounding the different types of outside lighting systems. One member mentioned that there is testing being done on street and area lighting and the Department of Energy will be putting out those results within a few months.

Celeste thanked the group for all of their feedback and said that the next EEAG meeting will most likely happen in October. She also explained that for any who would like to, there was an optional tour of the Net Zero Energy St. Jude’s Home

#### **2:00 Meeting Adjourned**

#### **3:00-4:00 (Optional) Tour of Net Zero Energy St. Jude’s Home**

Energy Efficiency Advisory Group

October 26, 2010

1221 W. Idaho St

Conference Room 6 East

- 9:30 Welcome, Review May minutes
- 9:40 2010 Demand Response Review—Pete
- 10:15 2011 Proposed Commercial Activities—Todd
- 11:00 Break
- 11:15 Regulatory Update—Mike Youngblood
- 12:00 Lunch—Integrated Design Lab Update, Kevin Van Den Wymelenberg
- 1:00 2011 Proposed Residential Activities—Celeste
- 2:15 Break
- 2:25 2011 IRP Load Forecast—Brad Snow, Barr Smith

**Energy Efficiency Advisory Group (EEAG)  
Minutes dated October 26<sup>th</sup>, 2010**

**Present:**

Catherine Chertudi–City of Boise, Public Works Dept.	Kent Hanaway–CSHQA
Sue Siefert–Office of Energy Resources	Lynn Young–AARP
Lynn Anderson–Idaho Public Utilities Commission	Ken Eklund–Office of Energy Resources
Nancy Hirsh–Northwest Energy Coalition	Celeste Becia*–Idaho Power
Mike Youngblood–Idaho Power	
Tom Eckman–Northwest Power & Conservation Council	

**Not Present:**

Don Sturtevant–Simplot  
Ken Robinette–South Central Comm. Action Partnership  
Sid Erwin–Idaho Irrigation Pumpers Association  
Linnea Wittekind–Oregon Public Utilities Commission

**Guests and Presenters\*:**

Pete Pengilly–Idaho Power*	Sheree Willhite–Idaho Power
Mike Darrington–Idaho Power	Theresa Drake–Idaho Power
Shelley Martin–Idaho Power	Quentin Nesbitt–Idaho Power
Warren Kline–Idaho Power	Shelley Martin–Idaho Power
Todd Schultz–Idaho Power*	Dennis Merrick–Idaho Power
Chris Pollow–Idaho Power	Ric Gale–Idaho Power
Billie McWinn–Idaho Power	Ben Otto–Idaho Conservation League
Ron Whitney–Northwest Energy Coalition	Bev Barker–Idaho Public Utilities Commission
Liz Woodruff–Snake River Alliance	Lisa Young–Snake River Alliance
Ken Miller–Snake River Alliance	

**Recording Secretary:**

Shawn Lovewell (Idaho Power) with Kathy Yi (Idaho Power)

**Meeting Convened at 9:38 am**

Todd started the meeting by discussing a few safety issues since the meeting was held in Conference Room 6 East. Guest and participants were introduced. The minutes from the May 26<sup>th</sup> meeting were reviewed.

**9:40 am 2010 Demand Response Review-Pete Pengilly**

Pete presented information pertaining to the summer peak demand reduction achieved by Peak Rewards, Flex Peak Management, and A/C Cool Credit. One member asked a question on the first slide (Peak History at Idaho Power) what the difference in cooling degree days were between 2009 and 2010. Pete explained that there could be many reasons, economic downturn, cooler milder summer, no string of hot days. Demand Response strategy was explained in slide 4 and 5 where Pete said that DR events are pre planned but not set in stone. Most of them are planned the day before. For example on slide 5 July 26<sup>th</sup> was forecasted to be a hot day, but temps dropped so all programs cancelled except Flex Peak. Pete was explaining the Relative Load Duration Curve slide and one

member asked if the new IRP forecast will change and what are the reasons for not having as much Demand Response. Pete responded that the load duration curves are based on the 2011 IRP data and represent sort of a worst case scenario, a 1 in 20 probability of occurring. These curves demonstrate the level of Demand Response that our system is able to utilize with a 60 hour program under extreme conditions. One member asked what the aggregate cost of each program is. Quentin said that 850 is average not including incentives, can't remember cost for each program. It depends if you are looking at actual vs. forecast over a 20 year period. Another member asked how much flexibility there is in the Demand Response programs in order to have multiple stages for ramping up and down. Pete responded that Flex Peak and A/C Cool Credit are smaller and those are left in one block. Irrigation is staged. Idaho Power needs to be cognizant of customer issues and satisfaction.

Pete mentioned that none of Idaho Power's demand response is cycled after the eight o'clock hour. Idaho Power is meeting with the irrigators to re-asses operating hours. Options need to be looked at for managing the later peaks. One member asked if late peak is an echo of the A/C Cool Credit program turning off in the afternoon. Pete responded that some of that could be air conditioners coming back on as well as irrigators. A lot of the bigger loads are manual turn off/on. Idaho Power thinks demand response is valuable, but also very expensive. One member asked if demand response prices have been compared with other demand response programs in the west. Quentin responded that Idaho Power and Pacificor are very similar and in a lot of cases Idaho Power is lower in price than other utilities.

#### **10:23 am 2001 Proposed Commercial Activities-Todd Schultz**

Currently the Commercial programs are going thru an evaluation from Cadmus. Idaho Power is looking at all feedback to aid in the decision making process for the upcoming year. Todd gave an overview of potential considerations for various programs.

**Holiday Lighting**-Idaho Power is looking at *discontinuing* this program. Interest in this program has declined. Idaho Power feels this market is transforming, as LED lights are readily available in the market place. Pete stated that the cost of buying LED's is coming down.

**Irrigation Efficiency**- Nancy Hirsh asked what pipe cutting and pressing was, in reference to the slide that was presented. Quentin Nesbit explained that it is to fix the cracks or breaks that are leaking from normal wear of a wheel or hand line.

**Custom Efficiency**-A new lighting calculator will be required for participants in the Easy Upgrade and Custom Efficiency programs. The consistency will help customers determine which program they qualify for. Idaho Power is hoping to expand the industrial training that is coordinated with NEEA, and presented in Idaho.

**Building Efficiency**-The new measure slide was explained. One member asked how the reduced exterior lighting will work and how will it tie into building or design standards. Sheree explained that Idaho Power will pay on reduced wattage if exceeds code. One member asked if Idaho Power has analysis on what the savings are for the new measures. Sheree stated that that is being worked on. These may change or could be removed if they are determined to not be cost effective. This same member stated that he would be glad to talk with Idaho Power about these measures as the analysis process is taking place. The Measure for Removal bullet point was explained and Sheree pointed out that these can always go thru the Custom Efficiency Program. Idaho Power is trying to keep the Building Efficiency Program as prescriptive as possible.

**Easy Upgrades**-Todd asked the group for input on establishing a minimum dollar amount for incentives. One member suggested if the incentive was below the minimum adding it as a credit on the account. Todd explained that could be more expensive to administer. One member expressed that having a minimum could prevent participation in the future if they were rejected early on in the process. Another member asked if there was a minimum threshold amount. Todd stated that \$50-\$100 has been discussed. Other utilities have some minimum requirements on their programs. One member asked if Idaho Power will have contractor training program that requires electrical contractors to go thru the training in order to participate. He has had some feedback regarding some subpar work that has been done which affected the incentive. Todd said that hasn't been decided on yet. Todd asked for feedback from the group in regards to NEMA premium motors (measure for removal). At what

point should incentives stop. One member suggested talking to distributors about inventory levels. One member suggested continuing the incentive on the motor removal. Another member suggested keeping it at least 6 months if not a whole year. One member said that 6 months seems about right, but that a year might be too long. One member asked if the reason office equipment and occupancy sensors are being dropped due to non use by customers. Todd explained that it is a cost effectiveness issue as well as lack of participation.

#### **11:05 Break**

#### **11:19 Regulatory- Mike Youngblood**

Mike presented his slides to the group. On the Miscellaneous Filings slide he explained that in regards to the REC Management plan, Idaho Power has made the decision to sell those RECs with the proceeds going back to the customers through the PCA. During the Oregon Filing Slide there was discussion among the group regarding the Fixed Cost Adjustment pilot extension and whether or not that would be filed a year before the pilot ends. Mike answered that Idaho Power would file toward the end of the pilot period to make it permanent. One member asked what Idaho Powers business plan was with regards to Demand Side Resources recovery. Mike responded that the DSR moves the Demand Response programs incentive payment from the Rider fund to the PCA. The same member asked if the intent is to drive more of the programs in that direction. Mike responded that it helps the company recover the costs incurred to provide the incentive payments for those programs and doesn't continue to put upward pressure on the need to request an increase in the Energy Efficiency Rider.

#### **12:00 Lunch with a presentation by Kevin Van Den Wymelenberg-Integrated Design Lab Update.**

#### **1:00 Meeting Reconvened**

#### **1:03 2011 Proposed Residential Activities-Celeste Becia**

There are approximately 50,000 Idaho Power customers who have participated in some sort of residential Energy Efficiency program. Idaho Power is looking at adding new measures to existing programs and also more customer education opportunities.

**Home Improvement-** This program only has attic insulation thus far, but Idaho Power is looking at adding new measures. (Slide two, Programs and Measures) One member asked if the attic insulation measure would still be part of this program. Celeste responded that what is on the slide are additional measures and yes, the attic insulation piece would still be included. Celeste explained that in traditional duct sealing programs, a pre and post test are done. Bruce Manclark has said that testing doesn't need to be done on every home, just to ascribe certain types of criteria. By reducing the number of the ducts tested, both the time spent in the customers' homes and technical expertise can be reduced, making it more cost effective for everyone. Other measures being added to the Home Improvement program in 2011 include window, air infiltration, and floor and wall insulation. If added, these measures would only be available for electrically-heated homes.

**H&CE Program-** Celeste introduced Todd Greenwell, the new program manager for the Heating & Cooling Efficiency program. Todd gave a brief history of his background. The Ductless Heat Pump measure is still in a pilot program. The air source heat pump incentive will be increased to possibly \$1000 but the Ductless Heat Pump incentive will be reduced to about \$750. Idaho Power is looking at adding the ductless heat pump to the list of measures for the Weatherization Solutions Program.

**ENERGY STAR<sup>®</sup> Homes-**The Idaho building codes are changing on January 1<sup>st</sup>. There will now be only about a 15% differential between code and **ENERGY STAR**. Some of the larger builders are building 100% **ENERGY STAR** Homes. This past summer the Multiple Listing Service website added a check box for 100% **ENERGY STAR** Homes. The incentive that Idaho Power provides has basically covered the rater inspection costs. Celeste asked the group for feedback on how the new code specifications are affecting other utilities. One member stated that finding more to do on these homes will be the challenge. Celeste asked if the Regional Technical Forum is looking at this. One member explained that a discussion with NEEA needs to happen. One member stated that he would love to see **ENERGY STAR** standard across the board for all homes. Education is the key. Celeste asked what is builders' primary motivation is to build **ENERGY STAR**. One member stated that it is a marketing tool,

helps the builders to sell their homes. One member stated that a lot of money can be spent and not get as much savings. There might be a point where large amounts of money can no longer be spent for such a small amount of savings. One member wants to make sure that the stage is being set for the next round of changes that will come. Utilities need to keep leading the market. A member stated that the commercial building sector will be having the same issues soon.

**Home Energy Reports**-This as a popular tool with other utilities to inform customers about their energy use and utility efficiency programs. An example of a third-party, personalized Energy Use Letter was shown to the group. It seems that the biggest motivator for saving energy is "neighborly competition."

Idaho Power is working thru some federal stimulus funds and upgrading some of the customer service tools. Idaho Power has had about 70,000 customers sign up for "My Account" or the Account Manager online since the redesign of the website. Idaho Power is also making the "Energy Detective" available for use thru the libraries. People can check it out to see what kind of energy their appliances use. The company has been pleased at how the Account Manager has been utilized thus far and given the demands on IT with many other projects, is not yet ready to expand into third-party home energy reports. Theresa commented on how the company is handling communications with customers and their confusion with tiered rates. A direct letter will be sent out along with a possible message on the website. One member stated how she liked the proactive customer tools and that she found this presentation very enlightening and looks forward to see how this plays out over time.

## **2:13 Break**

### **2:25 2011 IRP Load Forecast-Brad Snow, Barr Smith**

Brad introduced himself and explained that this presentation was given to the IRPAC group. He said that he would be giving the forecast operations and economics portion of this presentation. He gave the group and explanation of regression modeling. During the explanation of the Conservation Curves and Cruses slide one member asked if this slide presumes that the progress of the codes and standards stays the same. Brad stated that the other wild card would be the Demand Side Management (DSM) acquisition. The EIA database has been downloaded and it correlates well. The IRP Price Assumption impact slide shows the output of the model that was just discussed. The data is useful to Pete Pengilly's group. One member asked if the blue line on the graph represents the load that is being forecasted for 2011 Integrated Resource Plan (IRP) Brad answered that is. Households are a big driver for Idaho. Yearly changes historically have been radical. Idaho's population growth is about 50% greater than in other areas.

Barr Smith presented the results of sales and load forecasts. The Key Driver slide was explained; one member asked why a carbon expectation wasn't being included in this forecast. Brad answered that there isn't much carbon in the assumptions. The Residential Load Forecast slide was explained. The drivers are; number of households in service area and natural gas prices, median heating degree day and cooling degree day. One member asked if the driver listed is household units or actual households. Brad stated that it is actual households due to the fact that there is such a gray area with vacancies. One member asked if it was occupied households. Brad answered that yes it is because there isn't a metric to know whether or not it is vacant. The Irrigation Load slide was explained. One member asked if the forecast takes in to consideration precipitation and heating degree days or is it more standardized. Barr stated that sometimes they will trend the summer degree days but that it is usually done in the urban areas not rural areas. These are weighted degree days. Brad explained the Plug-in Hybrid Vehicle slide. There are a lot of unknowns in this area. The 1.4kW per vehicle is a low number. As it progresses this number will increase. One member asked how detailed the statistical end use information is, can the level of use be seen. Brad stated that it is folded into equations, heating, cooling and other is how it is broken down.

## **3:15 Meeting Adjourned**

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## NEEA MARKET EFFECTS EVALUATIONS

Table 1. 2010 NEEA Market Effects Evaluations

Report Title	Program or Sector	Analysis Performed by	Study Manager	Study/Evaluation Type
2009–2010 Residential Lighting Market Research Study	Residential	KEMA	NEEA	Market Effects
Climate and Energy Intensity Reduction: The Northwest Food Processors Challenge	Industrial	NEEA	NEEA	Market Effects
Consumer Electronics Quarterly Update	Residential	NEEA	NEEA	Market Effects
Evaluation of Codes and Standards Program, Market Progress Evaluation	Commercial/Industrial	The Cadmus Group	NEEA	Market Effects
Existing Building Renewal: Deep Energy Renovation	Commercial	NEEA	NEEA	Market Effects
Management Systems and Managing Energy	Commercial/Industrial	NEEA	NEEA	Market Effects
The Market for Energy Efficient Electronics: Pre-Program Findings on Consumer Perceptions and Retail Shelf Stocking Practices	Residential	Opinion Dynamics Corp.	NEEA	Market Effects
Northwest Ductless Heat Pump Pilot Project	Residential	Research Into Action, Inc.	NEEA	Market Effects
Northwest ENERGY STAR® Homes	Residential	ECO Northwest	NEEA	Market Effects
Northwest ENERGY STAR Homes Energy Analysis: 2006–2007	Residential	KEMA	NEEA	Market Effects
Report of Findings from Communications Development Research	Residential	NEEA	NEEA	Market Effects

For NEEA reports, see the CD included at the back of this supplement.

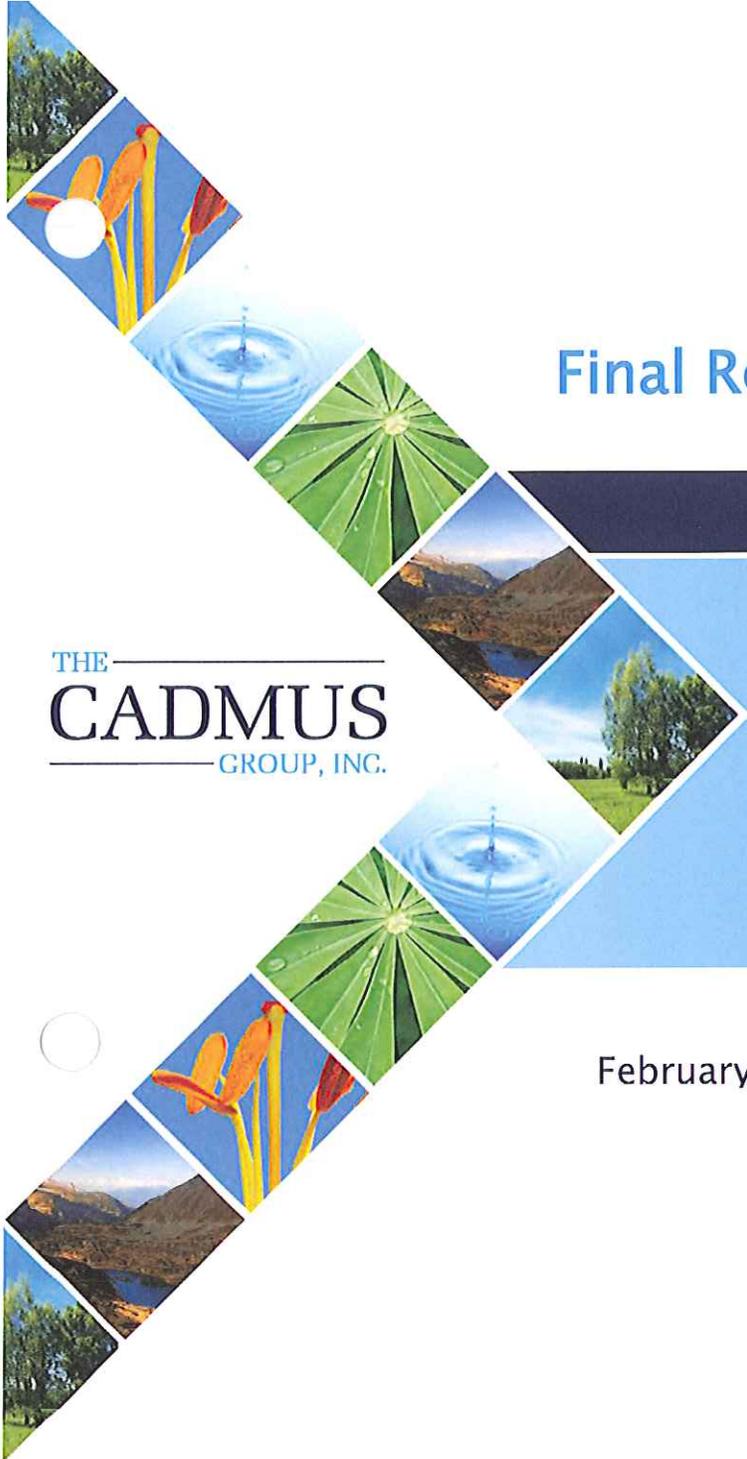
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## RESEARCH

Table 2. 2010 Research

<b>Report Title</b>	<b>Program or Sector</b>	<b>Analysis Performed by</b>	<b>Study Manager</b>	<b>Study/Evaluation Type</b>
Idaho Power Company Market Characterization Study	Commercial/Industrial	The Cadmus Group	Idaho Power	Process
Idaho Power Company Commercial Program Measure Review	Commercial/Industrial	The Cadmus Group	Idaho Power	Process
Flex Peak Management Preliminary Program Report	Commercial/Industrial	Idaho Power	Idaho Power	Process

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Final Report

THE  
**CADMUS**  
GROUP, INC.

# Market Characterization Study

February 4, 2011

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## Introduction

The primary objective of a market characterization study is to identify the key markets for energy-efficiency programs over the long term and to determine the potential impact of near-term code changes on these markets. Idaho Power Company (IPC) recently completed a conservation potential assessment, which contains a substantial amount of market characterization data. Cadmus used the results from this conservation potential assessment to conduct a market characterization study for IPC in order to identify the best opportunities for future cost-effective energy savings. This analysis serves to bridge the gap between the quantitative results of the potentials assessment and the real world needs of program design, allowing IPC to continually integrate the study results into its planning.

A simple and effective way of assessing opportunities for future cost-effective savings is to conduct a gap analysis. A gap analysis compares the future achievable energy savings and costs potential with a forecast of savings and costs based on current program design. A gap exists if the achievable potential savings is greater than the forecast of current program savings. Cadmus has developed DSM Planner, an Excel-based model, for this purpose and is providing it to IPC for this market characterization study and for future planning needs. To conduct the gap analysis, we incorporated the information from the potential study, completed by Nexant in 2009,<sup>1</sup> and 2009 IPC program savings data into DSM Planner.

In this report, Cadmus focuses primarily on analyzing the gap in energy savings for three IPC programs: Easy Upgrades, Building Efficiency, and Custom Efficiency. DSM Planner also reports utility costs and costs per MWh saved so IPC can see estimates of the necessary budget for meeting potential targets. Since the Nexant potential study did not incorporate the effects of codes and standards changes, Cadmus performed an additional analysis to include these effects in the gap analysis. An overview of DSM Planner is presented, followed by the results of the gap analysis.

## DSM Planner Overview

The Cadmus DSM Planner is an Excel-based planning model used to assess different demand side management (DSM) acquisition strategies and corresponding impacts on utility conservation targets and budgets. The model translates the cost-effective potential (from the 2009 Nexant potential study) at the measure level into reasonably achievable program savings goals and associated budgets across the planning horizon (the number of years over which the potential will be acquired). The achievable potential in the Nexant study represents the forecasted savings that can realistically be achieved through efficiency programs. To identify opportunities for IPC to further increase program savings, Cadmus created a business as usual (BAU) forecast in which 2009 program offerings were frozen and savings were assumed to grow at one percent

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<sup>1</sup> Demand Side Management Potential Study – Volumes I and II, submitted by Nexant, August 14, 2009. DSM Dynamic Model produced by Nexant and provided by Idaho Power. The underlying assumptions and technical potential from the Nexant study were used as provided in the report appendices and were not revised by Cadmus. Due to the limited scope of this analysis, a thorough review of the underlying assumptions used in the Nexant potential study was not conducted. Cadmus included alternate scenarios in DSM Planner that allow users to modify parameters used to calculate economic and achievable potential and compare the results with the corresponding potentials in the Nexant study.

annually. This growth rate was not intended to match IPC's IRP assumptions, rather, to provide a conservative growth rate assuming that IPC will achieve energy savings at a comparable percent of load to BAU<sup>2</sup> throughout the planning horizon.<sup>3</sup>

As described above, the DSM Planner model incorporates the results from the potential assessment and the utility BAU forecast to estimate the gap in savings. The savings gap is the difference between the achievable potential savings and the projected BAU savings in a given year. A large positive gap indicates the key markets and best opportunities for future cost-effective program savings. A negative gap would indicate a surplus of programmatic savings relative to the achievable potential.

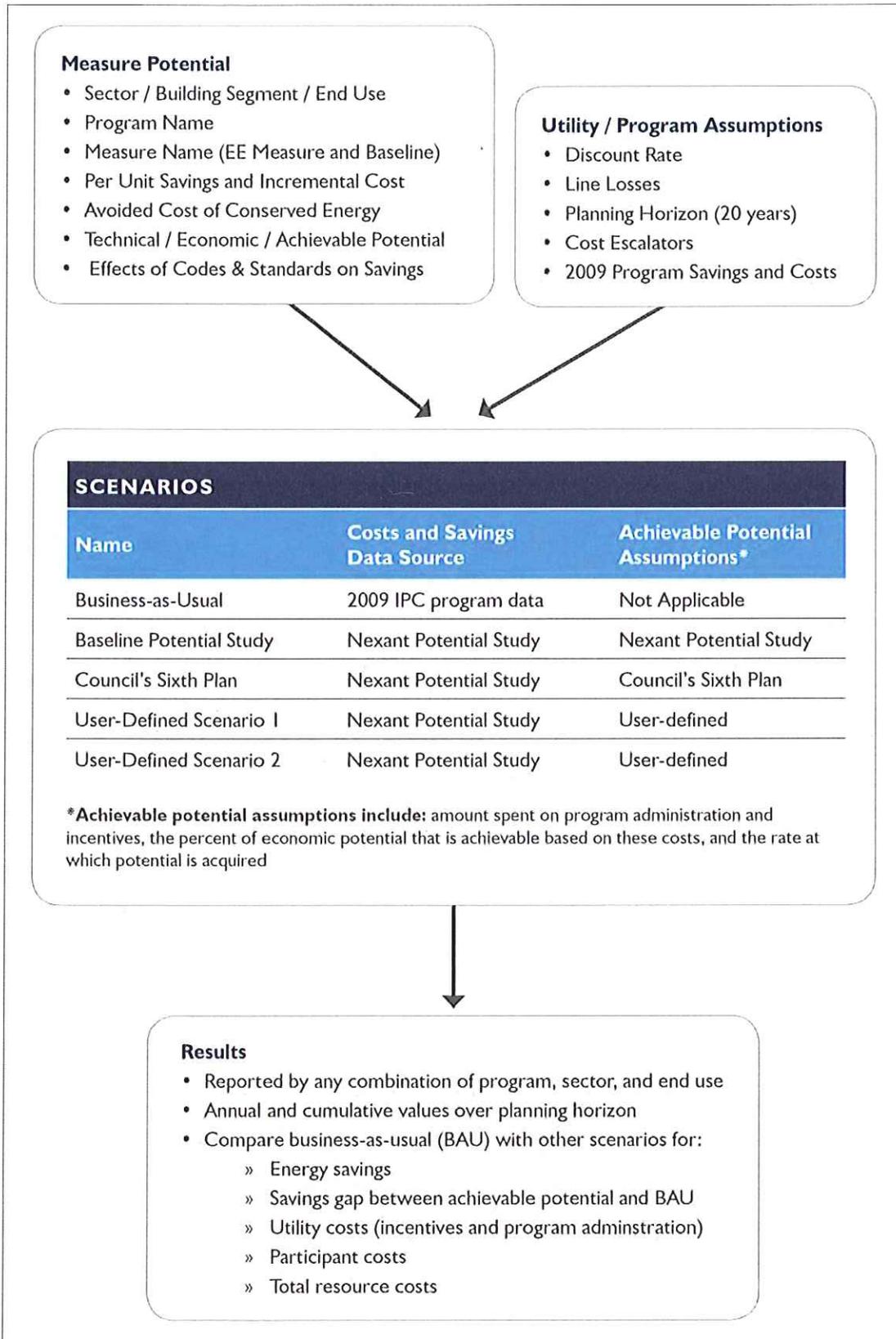
The flowchart in Figure 1 lists the measure potential data incorporated into the model, utility and program assumptions, characteristics of each scenario option, and the types of results provided for comparing scenarios.

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<sup>2</sup> Cadmus calculated that IPC is currently achieving savings around 1.5 percent of load in the commercial and industrial sectors.

<sup>3</sup> The savings in year 20 drop to 1.2 percent of load using this growth rate, not including impacts of pending codes and standards.

**Figure 1. DSM Planner Model Overview**



The DSM Planner model overview flowchart (also embedded as a user guide in the DSM Planner model) provides detail on the mechanics of the model, as customized for IPC's market characterization study. Measure data and assumptions (embedded in the model) feed into the scenarios. Users can choose from five possible scenarios included in DSM Planner. These are based on the BAU forecast, baseline from the Nexant potential study, outcomes of the Northwest Planning and Conservation Council's Sixth Plan (Council's Sixth Plan),<sup>4</sup> or user-defined options.

The two primary scenarios options are the BAU forecast and the baseline potential data and assumptions from Nexant. For enhanced planning value and sensitivity analysis, the user can customize two user-defined scenarios to analyze different options for market penetration. This feature allows the user to create scenarios that modify some of the achievable potential assumptions made in the Nexant potential study, such as maximum achievable penetration, spending on administration and incentives, the relationship between these expenditures and market penetration, and the ramp rate of the achievable potential acquisition over the planning horizon. The model then compares these two additional market penetration scenarios created by the user with the BAU forecast and the baseline potential data and assumptions from Nexant.

Cadmus included a scenario option that applies the Council's Sixth Plan assumptions on market penetration to the cost-effective potential from the Nexant potential study. The Council's Sixth Plan is an aggressive scenario based on achieving 85 percent of the technical potential. For most IPC programs and end uses, the Council's potential savings are significantly higher than the baseline potential study savings and the BAU forecast, and the utility costs per MWh are approximately three times higher.<sup>5</sup> However, the technical potential in the Nexant study and the Council's Sixth Plan differ significantly; a more appropriate comparison between the two studies might be based on the potential as a percentage of sales.

As shown in the "Results" box in Figure 1, DSM Planner provides the following forecasts over the planning horizon:

- Annual MWh savings and gap compared to 2009 MWh savings
- Annual utility cost per MWh saved
- Annual dollar amounts of rebates/incentives
- Annual dollar amounts of marketing / advertising / program administration
- Annual participant and total resource cost
- First year levelized total resource cost (TRC) per kWh

In the IPC market characterization model, the gap analysis results are reported by any combination of sector, program, and end use. For example, we can look at the savings gap and costs for all commercial measures combined, for only Easy Upgrades measures, or for only Easy Upgrades lighting measures. Side-by-side comparisons of annual gap, savings, and costs (utility costs, participant costs, and total resource costs) associated with each permutation allow for risk

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<sup>4</sup> Sixth Northwest Conservation and Electric Power Plan:  
<http://www.nwcouncil.org/energy/powerplan/6/default.htm>.

<sup>5</sup> Cadmus assumed that to achieve 85 percent of the technical potential, the utility would need to pay incentives of 100 percent of the incremental measure cost.

assessment and assist in goal setting. The savings and cost assumptions were based on the Nexant potential study and have not been revised by Cadmus.

DSM Planner includes a feature that allows users to look at the impact of near-term code changes on IPC's forecasted annual gap and costs. We set up alternate economic and achievable potential estimates that start with the Nexant potential study estimates and reduce the potential for measures impacted by code and standard changes. The projected BAU savings was also reduced to account for measures impacted.

## Gap Analysis

Although DSM Planner has the ability to compare several different savings potential scenarios to the BAU scenario, for the IPC market characteristic study, Cadmus focused on the comparison of the achievable potential estimated by Nexant to the BAU scenario. This report provides details by program about potential gaps (or differences) between the forecasted savings from BAU and the achievable potential calculated in the Nexant study.

This analysis was conducted on three IPC programs. The Easy Upgrades program offers prescriptive incentives for lighting, HVAC, building shell, motor, plug-load, and refrigeration measures installed in existing commercial facilities. The Building Efficiency program offers prescriptive incentives for lighting, HVAC, building shell, and building control measures installed during new construction projects. Finally, the Custom Efficiency program pays industrial customers incentives proportional to the energy savings realized by each project. Table 1 shows a comparison of the gap between the 2009 and 20-year cumulative BAU savings and the achievable potential for the three programs.

**Table 1. Total Gap by Program**

Program	Sector	MWh Gap*	
		2009	2009-2028
Easy Upgrades	Commercial	-14,800	215,300
Building Efficiency	Commercial	-5,800	-105,300
Custom Efficiency	Industrial	-700	317,600

\* The MWh Gap reflects the difference between the potential study savings and the BAU savings. Data from Nexant's DSM Potential Study and Cadmus' DSM Planner.

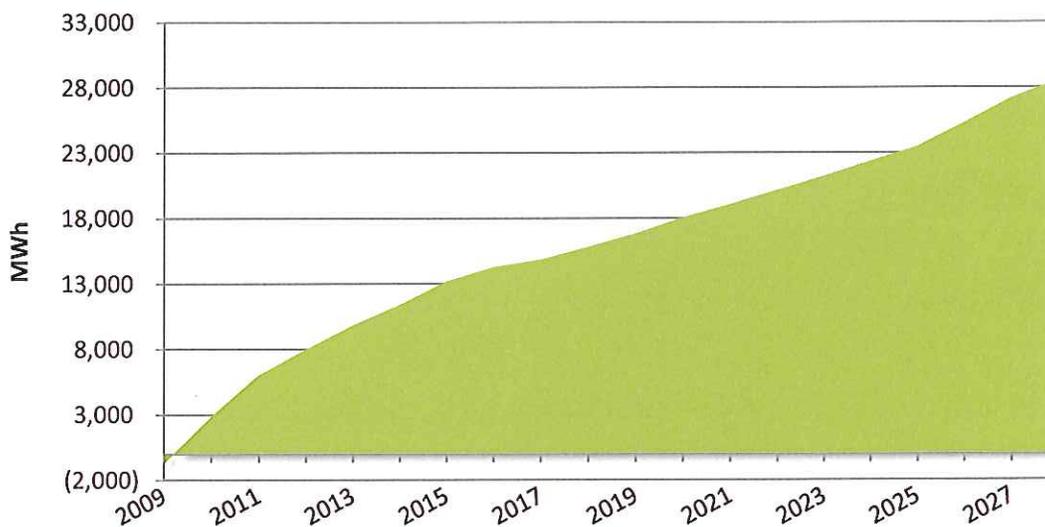
## Industrial Custom Efficiency Program

IPC's Custom Efficiency program for the industrial sector has larger potential for energy savings than the two commercial programs (Easy Upgrades and Building Efficiency), and also has the largest gap.<sup>6</sup> The gap analysis in Figure 2 shows that IPC is currently meeting the forecasted achievable potential savings for the Custom Efficiency program. The costs per MWh are similar to what was forecast in the potential study. However, based on the conservative assumption that

<sup>6</sup> The Nexant study included four potential scenarios for industrial savings based on varying levels of incentives offered. Cadmus input the "moderate" scenario into DSM Planner for conducting the gap analysis because it is most similar to how the program is currently structured. The moderate scenario is based on offering incentives covering 50 percent of the incremental measure cost.

current programmatic savings grow at one percent per annum, there will be a gap in savings between the achievable potential and baseline. This is because the achievable potential increases at faster than a one-percent rate (as demonstrated in the Nexant study). This gap will grow larger every year, as shown in Figure 2.

**Figure 2. Custom Efficiency Gap Analysis**



Data from Nexant's DSM Potential Study and Cadmus' DSM Planner.

The industrial potential study and IPC Custom Efficiency program tracking database provides data at the end-use and building segment level. Since data on specific measures were not available, the gap analysis was conducted by end use or building segment rather than at the measure level.<sup>7</sup>

This absence of measure-specific data for the industrial sector results in two key limitations for this analysis. First, it is not clear whether comprehensive energy management measures are included in the Custom Efficiency program achievable potential. About one-third of the industrial sector savings in the Sixth Power Plan can be attributed to these measures,<sup>8</sup> suggesting that such measures could be a significant source of savings for IPC. The second limitation is the inability to determine the effect of changes to codes and standards on industrial sector potential. Therefore, we have not modeled any codes and standards impacts for Custom Efficiency.

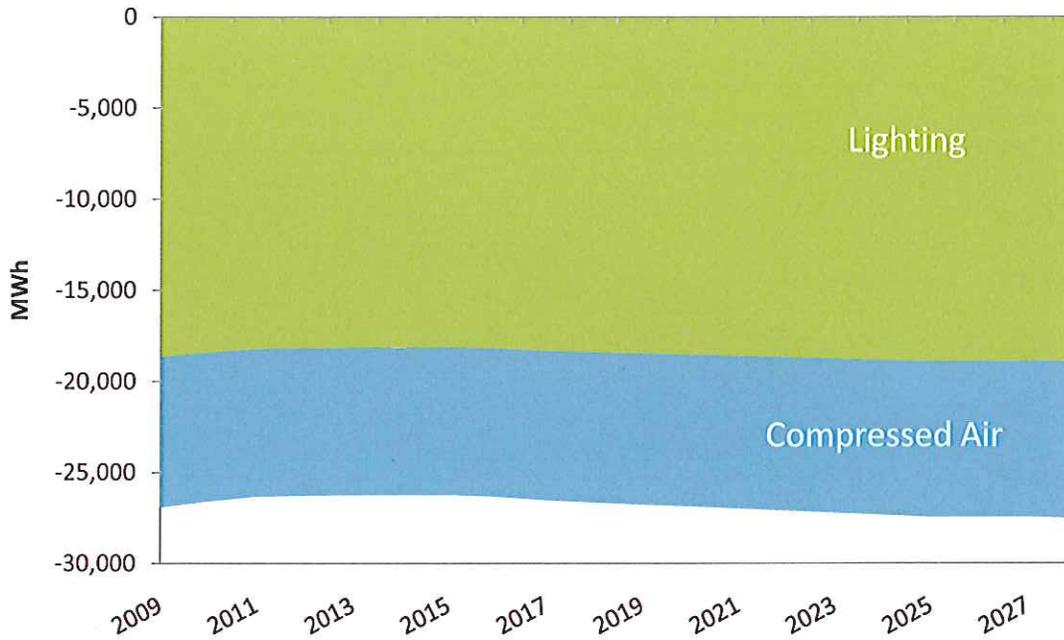
Nonetheless, we completed a gap analysis at the end use and building segment level that provides insight. Of the industrial end uses, the current lighting measure savings far exceed forecasted savings potential and should continue to do so for the foreseeable future. Savings from compressed air measures also exceed forecasted potential. This is reflected by the negative gap shown in Figure 3. In addition, the costs per MWh for compressed air measures are lower than forecasted in the potential study. However, refrigerator, motor, and HVAC measures'

<sup>7</sup> Measure-level data are not readily obtained without facility assessments.

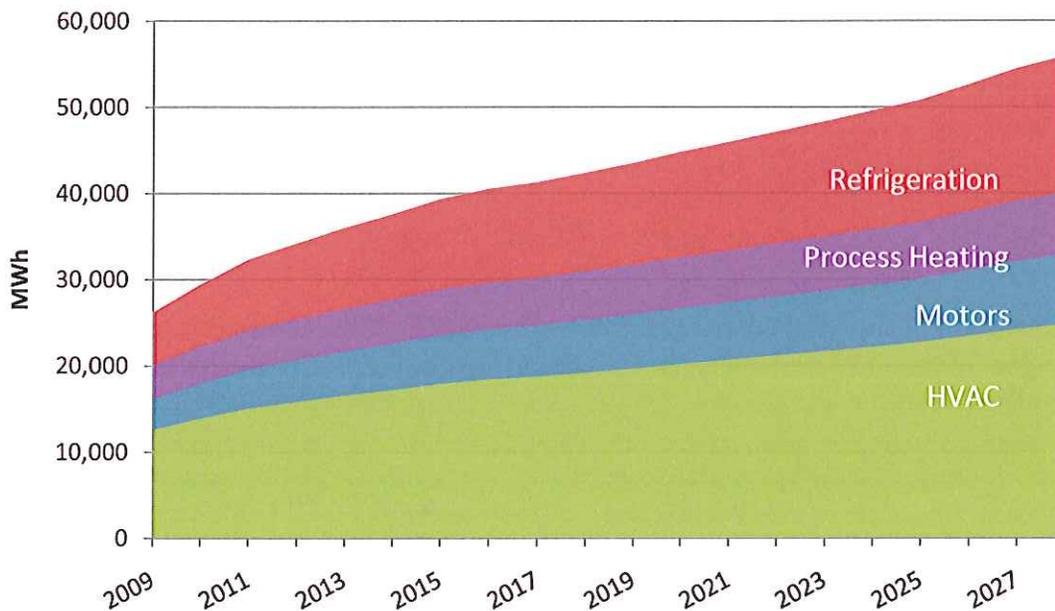
<sup>8</sup> Energy management measures in the Sixth Power Plan include plant energy management, energy project management, and integrated plant energy management.

savings are much lower than the achievable potential, with BAU costs per MWh somewhat higher than the potential assessment indicated. The gap depicted in Figure 4 demonstrates that focusing on measures for these end uses may yield significant additional energy savings for IPC in the industrial sector.

**Figure 3. Custom Efficiency - End Uses with Negative Gap**



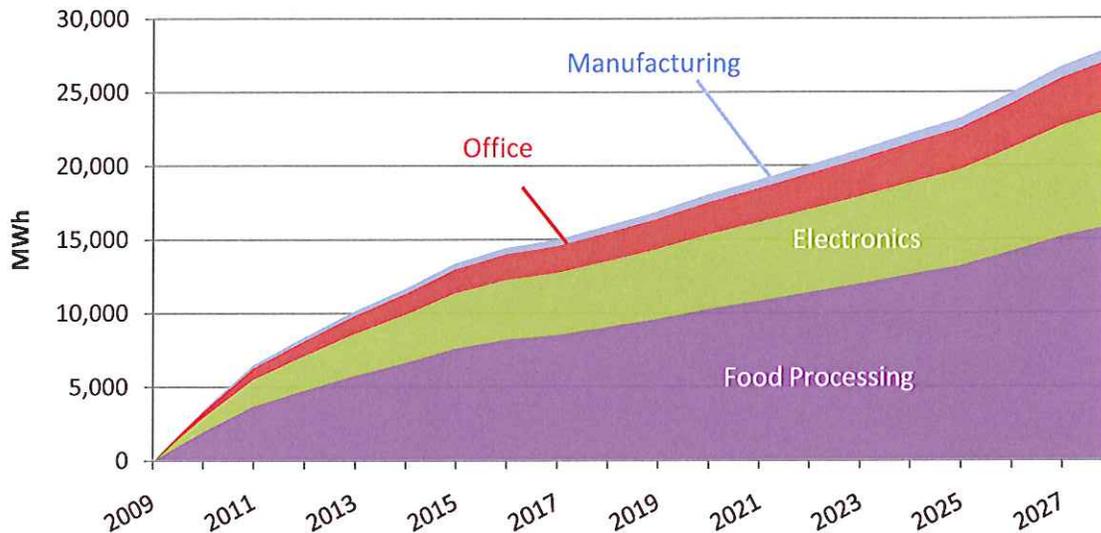
**Figure 4. Custom Efficiency – End Uses with Positive Gap**



Data from Nexant's DSM Potential Study and Cadmus' DSM Planner.

The largest gaps in savings are due to HVAC and refrigeration end uses. When the savings gap is divided into the top four largest opportunities by building segment, as shown in Figure 5, we see that food processing and electronics are the two most promising sectors for significant savings.

**Figure 5. Custom Efficiency Gap Analysis by Building Segment**



Data from Nexant's DSM Potential Study and Cadmus' DSM Planner.

As indicated earlier, we conducted the gap analysis based on the assumption that BAU savings will grow at one percent a year. Cadmus analyzed IPC Custom Efficiency program data by end use from 2006 through September 2010 to determine if there are noticeable trends in program savings growth or decline that would lead us to deviate from this one percent assumption in calculating the gap. Due to the extreme variability in annual savings in the industrial sector, we would continue with our initial assumption of one percent growth. This variability is due to the nature of the industrial program, where there are generally a small number of applications. One or two large installations can have a major effect on total savings for the year.

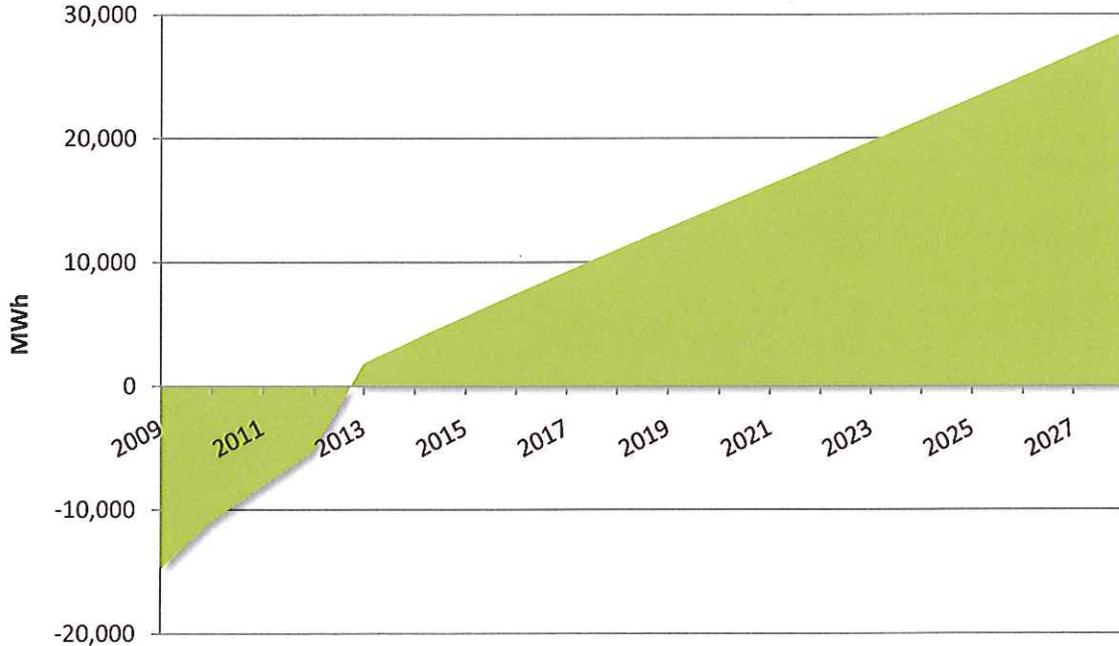
## Commercial Easy Upgrades Program

The two commercial programs included in the gap analysis are the Easy Upgrades and the Building Efficiency programs. Of the two programs, Easy Upgrades represents a majority of the current and future commercial energy savings. Cadmus analyzed the measure level data from the Nexant potential study and estimated the impact from updates to lighting and motor codes and standards. We then adjusted the estimated achievable potential in the DSM Planner model to reflect these impacts.

Figure 6 demonstrates current and future gaps and indicates significant growth potential. The current savings from the Easy Upgrades program are outpacing the forecasted achievable potential. However, there will be a gap between the achievable potential and the BAU savings by 2014 (the negative gap prior to 2013 indicates a surplus of savings relative to achievable

potential). The forecast suggests significant growth in the achievable potential over the next few years, suggesting that IPC might want to consider more aggressive promotion of the Easy Upgrades program in the future.

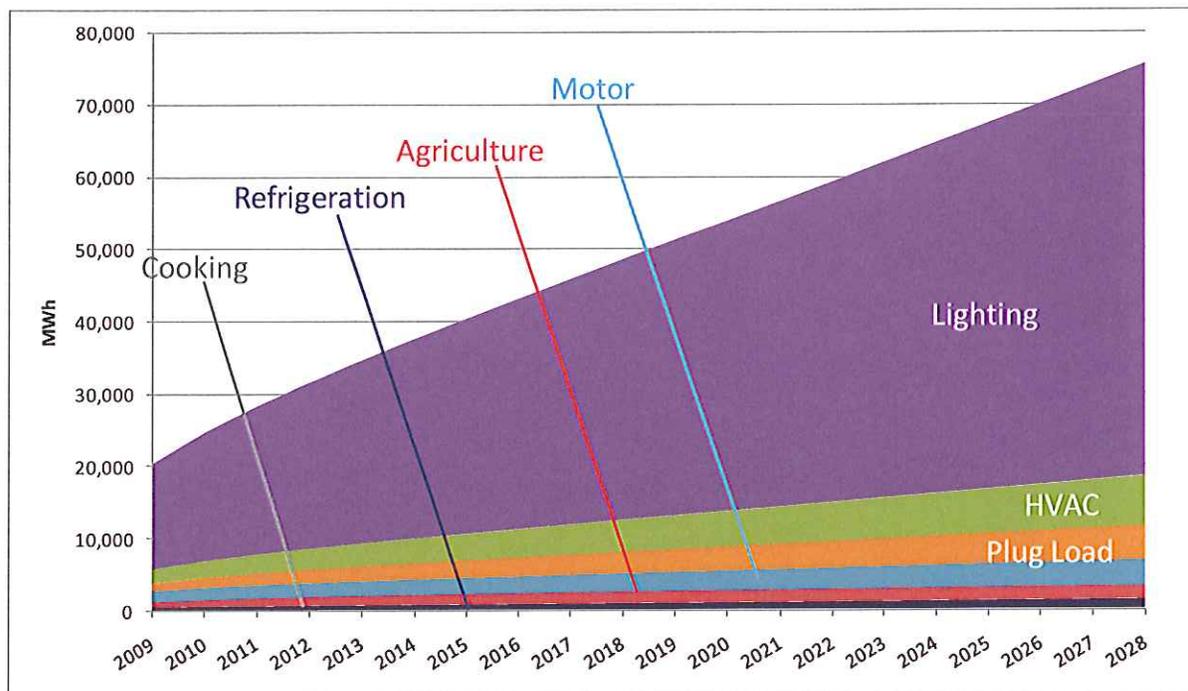
**Figure 6. Easy Upgrades Gap Analysis**



Data from Nexant's DSM Potential Study and Cadmus' DSM Planner.

The overall achievable potential identified in the Nexant study for Easy Upgrades is shown in Figure 7. This diagram shows the relative magnitude of achievable potential savings by end use. The largest savings potential is in lighting end use, while the smallest potential is represented by cooking measures (although too small to be seen on the scale in Figure 7). This achievable potential does not reflect any pending impacts of codes and standards.

Figure 7. Easy Upgrades Achievable Potential by End Use



Data from Nexant's DSM Potential Study.

Further details by end use follow over the next several pages. To summarize, the Easy Upgrades program is currently achieving energy savings greater than forecasted for lighting, HVAC, motor, and refrigeration measures. Of these four end uses, lighting is the only area where the analysis shows significant growth in potential over the next few years. For HVAC, motor, and refrigeration measures, the BAU savings continue to exceed the forecasted potential throughout the planning horizon. Program measures in the plug load end use are currently achieving savings less than what was forecasted in the potentials assessment.

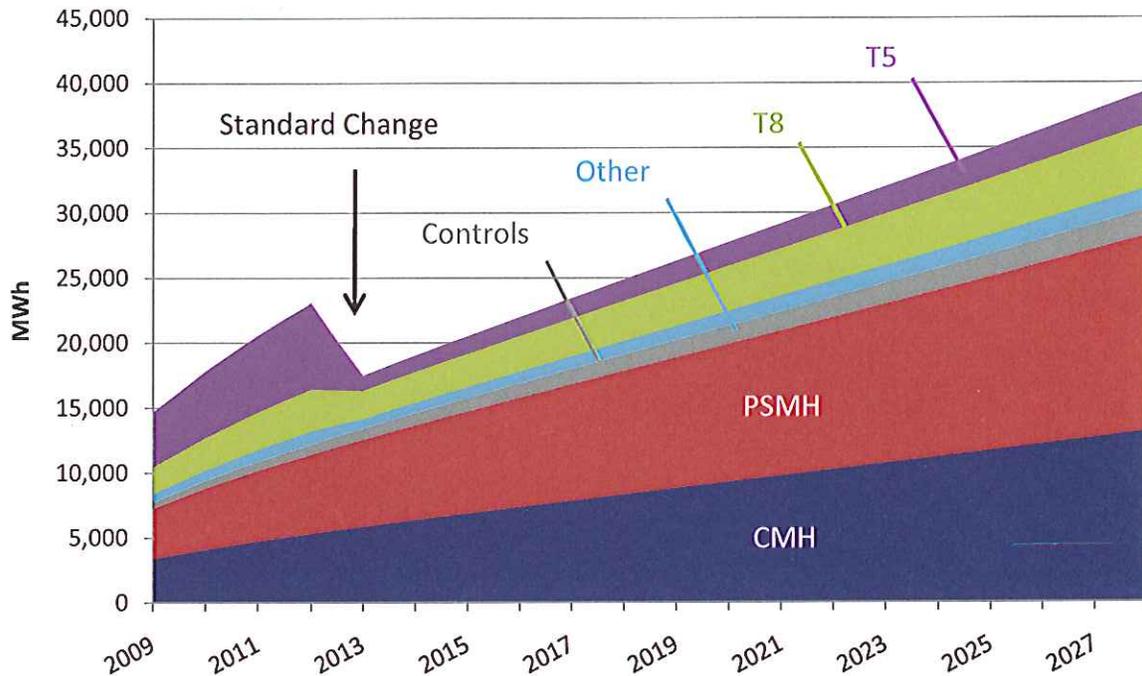
In addition, as IPC does not currently include agriculture or cooking measures in the Easy Upgrades program offerings, the gap for those uses reflects the entire potential. In the potential study report, Nexant suggested that IPC introduce agriculture measures as a new category. However, the magnitude of savings for the plug load, agriculture, and cooking end uses is small in comparison to lighting and HVAC. Thus, as an initial focus, IPC might consider continuing to offer and promote lighting and HVAC measures for Easy Upgrades.

## Lighting

Figure 8 illustrates the achievable potential for the lighting end use by measure and impact of an upcoming change in lighting standard. This pending DOE standard will effectively preclude savings from any measure with a T12 baseline starting in 2013. Our analysis found that about 60 percent of the BAU lighting savings will be captured by the new standard. However, as indicated by the arrow in Figure 8, a resulting drop of only about 30 percent of the potential will be captured by 2013. This indicates that although IPC is currently getting a majority of its lighting savings from measures impacted by the new standard, a majority of the future potential savings will be in measures not impacted by the standard. In order to make up for losses due to the new

standard, IPC might consider promoting rebates for pulse start metal halide and ceramic metal halide lighting.

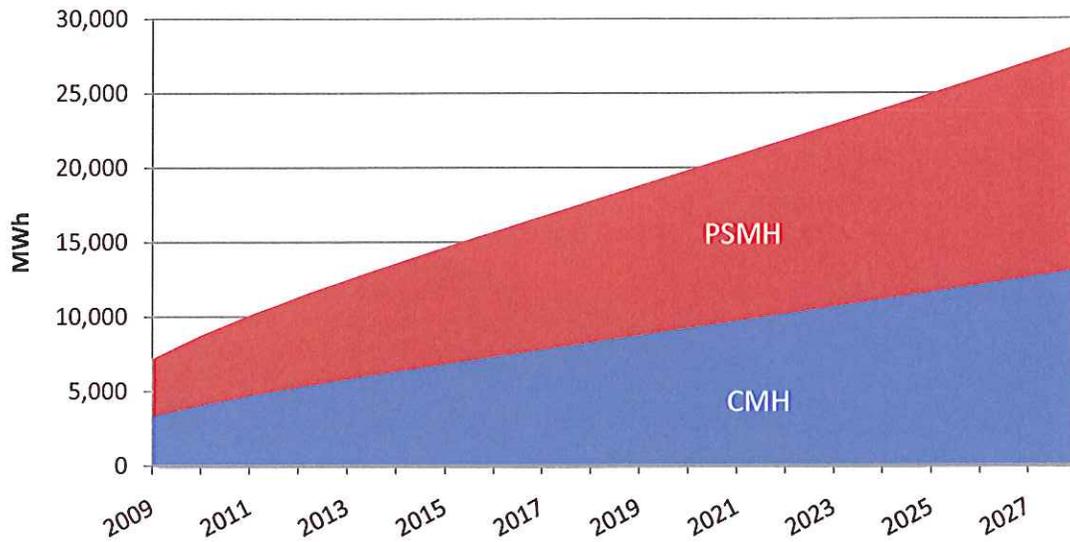
**Figure 8. Easy Upgrades Achievable Potential by Lighting Measure Type**



Data from Nexant's DSM Potential Study with Cadmus' predicted impact by codes and standards applied,

As indicated, the largest savings opportunity will result from metal halide lighting; therefore, Figure 9 provides a gap analysis diagram for these measures. Metal halide lighting rebates are currently offered through the program and an expansion of the program for this category of lighting would provide the most promising savings. In addition to metal halide lighting, Bonneville Power Authority and other utilities are including LED high bay lighting in their programs as an additional strategy for meeting their savings targets.

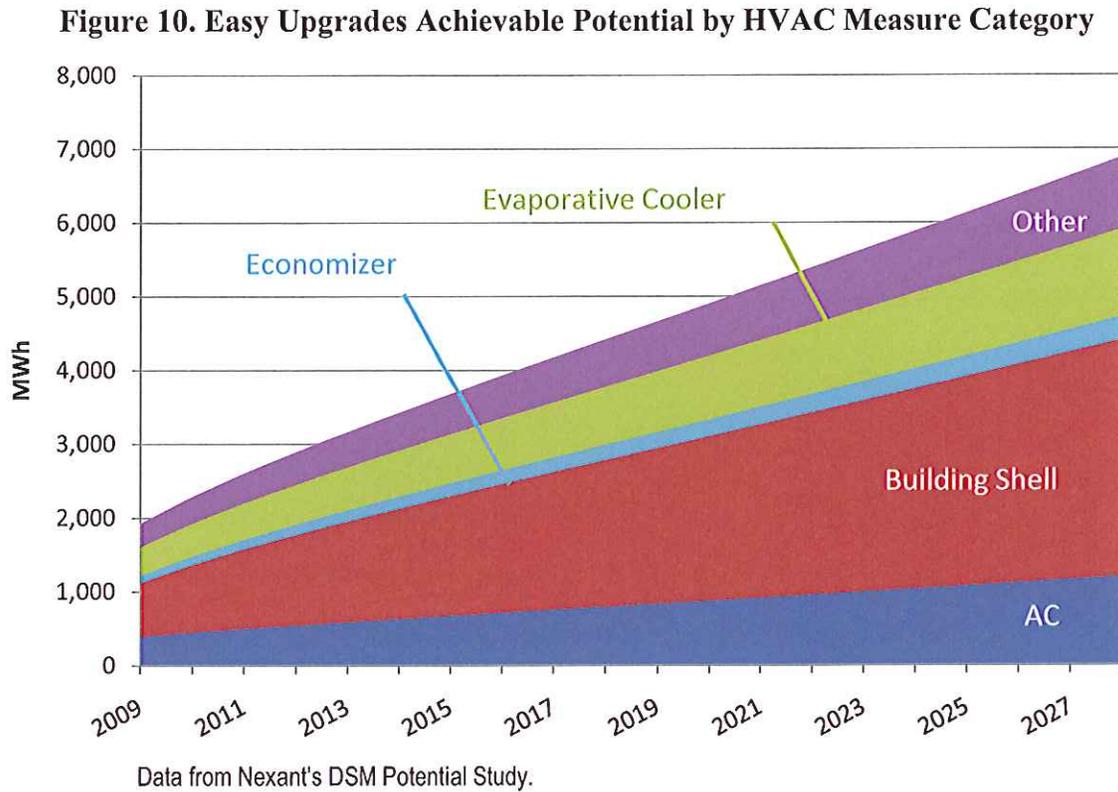
**Figure 9. Easy Upgrades Metal Halide Gap Analysis**



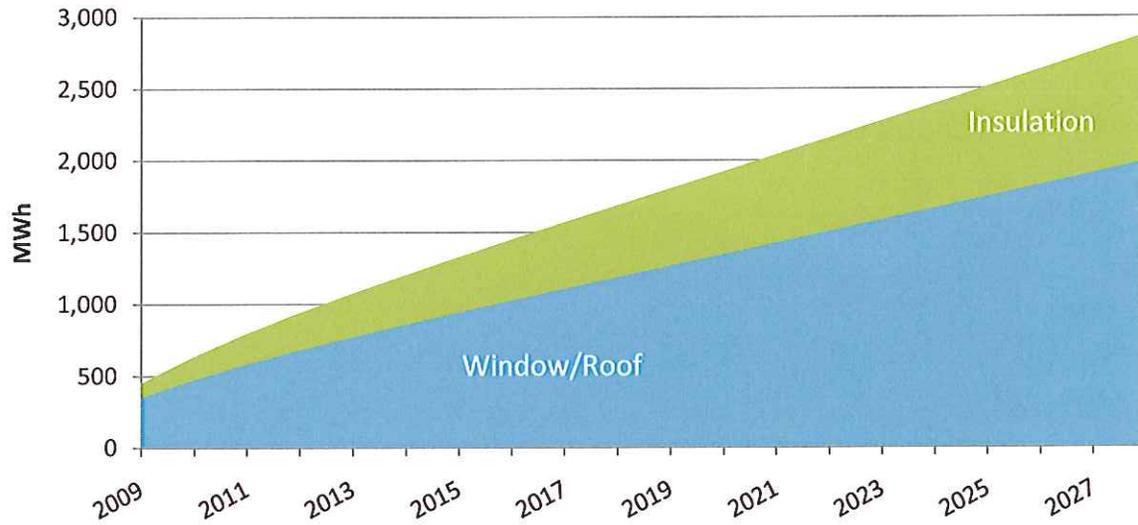
Data from Nexant's DSM Potential Study and Cadmus' DSM Planner.

**HVAC**

HVAC is the second largest end use category by potential savings (after lighting), and building shell measures represent the largest subcategory of HVAC measures. The achievable potential, as indicated in the Nexant study, is provided in Figure 10 by measure category. As a whole, the HVAC end use has a negative savings gap; however, the building shell measures have a positive gap and are discussed further on the following page.



The largest savings opportunity will result from building shell measures; therefore, Figure 11 provides a gap analysis diagram for these measures. Building shell measures include insulation and window-type measures (for example, shade screens), as well as passive measures that affect heating and cooling characteristics. Many building shell measures are already offered through the Easy Upgrades program; however, the gap analysis indicates additional savings could still be captured by the program. Figure 11 demonstrates that the most significant gap exists for window and roof improvements. Based on the results of the gap analysis, IPC might consider promoting rebates for these building shell measures.

**Figure 11. Easy Upgrades Building Shell Gap Analysis**

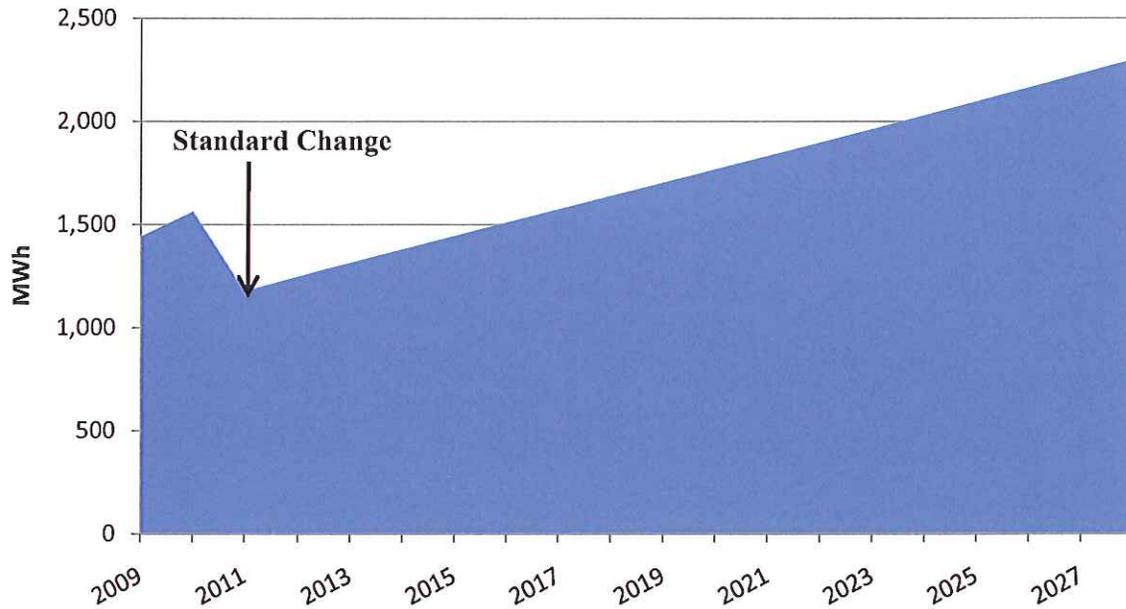
Data from Nexant's DSM Potential Study and Cadmus' DSM Planner.

## Motors

Figure 12 illustrates the savings gap in motors. The dip in 2011 (marked as 'Standard Change') reflects the impact of the Energy Independence and Security Act of 2007,<sup>9</sup> which requires general-purpose motors in the 1-hp to 200-hp category to meet or exceed NEMA premium efficiency levels. Motors greater than 200-hp are not impacted by the new standard, and thus potential remains for these larger motors.<sup>10</sup> The forecasted achievable potential is reduced by about 30 percent beginning in 2011 due to this update, but this standard has virtually no impact on the BAU savings, as most of the current savings are from variable speed drives and not from 1-hp to 200-hp motors.

<sup>9</sup> [http://www1.eere.energy.gov/buildings/appliance\\_standards/commercial/pdfs/electricmotors\\_eisa\\_compliance\\_faqs.pdf](http://www1.eere.energy.gov/buildings/appliance_standards/commercial/pdfs/electricmotors_eisa_compliance_faqs.pdf)

<sup>10</sup> NEMA Design B, general purpose electric motors with a power rating between 200-hp and 500-hp must meet efficiency levels specified in NEMA MG-1 (2006) Table 12-11. This table is available at: <http://www.marathonelectric.com/docs/MG1EffCharts.pdf>.

**Figure 12. Easy Upgrades NEMA Motors Gap (exclusive of other motor measures)**

Data from Nexant's DSM Potential Study and Cadmus' DSM Planner.

Currently, incentives for motors up to 200-hp are offered through Easy Upgrades. IPC might want to consider adding incentives for larger motor sizes<sup>11</sup> to capture some of this potential if cost-effective; however, note that the DOE has observed that as horsepower increases, motor losses—and thus savings per horsepower—decrease.<sup>12</sup>

The Consortium for Energy Efficiency maintains a list of motors that exceed the NEMA premium efficiency requirements.<sup>13</sup> Cadmus recommends further research into the costs and savings associated with the motors on this list as a means to capture additional motor savings in the 1-hp to 200-hp motor size category.

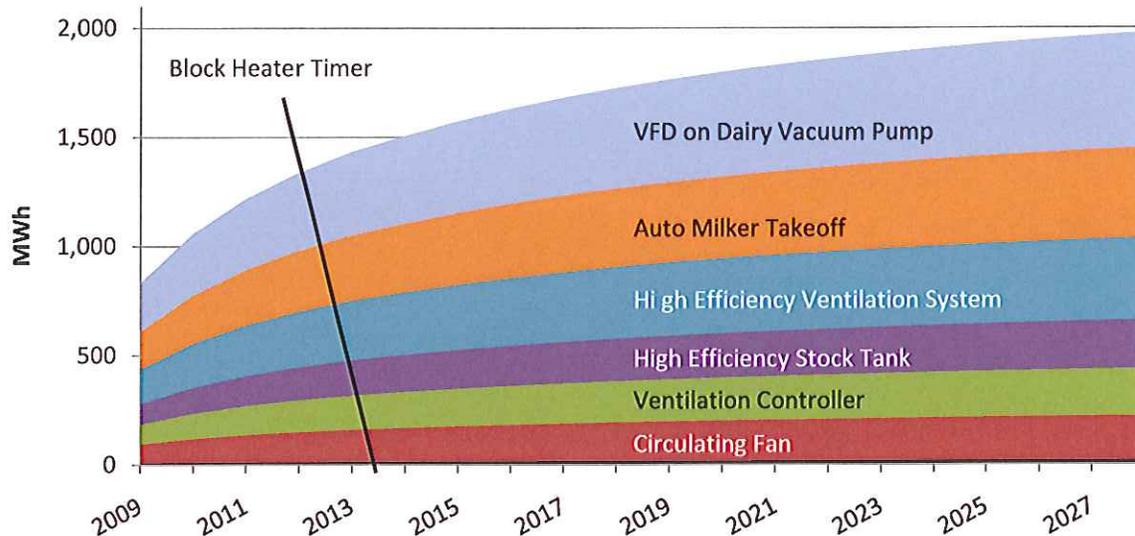
### Agriculture and Cooking

Agriculture measures are not currently offered under the Easy Upgrades program. Therefore, the savings gap is equal to the achievable potential. Figure 13 shows the potential (and thus savings gap) for the agriculture measures. In the potential study report, Nexant recommends that IPC introduce agriculture measures as a new category. Based on results of this gap analysis, Cadmus agrees that IPC should investigate this prospective offering.

<sup>11</sup> In the potential study, Nexant also recommends expanding the current motor offerings to achieve additional savings.

<sup>12</sup> [http://www1.eere.energy.gov/buildings/appliance\\_standards/commercial/pdfs/electric\\_motors\\_commercial\\_framework\\_document.pdf](http://www1.eere.energy.gov/buildings/appliance_standards/commercial/pdfs/electric_motors_commercial_framework_document.pdf).

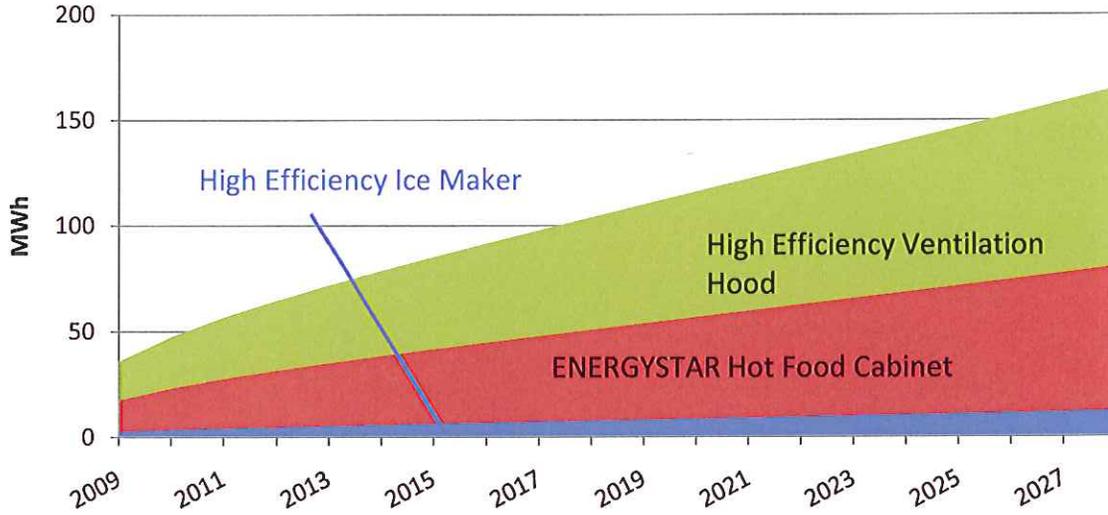
<sup>13</sup> [http://www.cee1.org/ind/motrs/CEE\\_MotorsListApril2010.xls](http://www.cee1.org/ind/motrs/CEE_MotorsListApril2010.xls).

**Figure 13. Easy Upgrades Achievable Potential by Agriculture Measure Type**

Data from Nexant's DSM Potential Study.

Like agriculture measures, cooking measures are not currently a part of the program offering, and therefore, the achievable potential represents the savings gap and is shown in Figure 14. The potential for this category is relatively small, with most of the opportunity coming from the ventilation hood and hot food cabinet measures. These measures represent relatively few savings and require significant effort to achieve. Indeed, according to the program specialist, IPC has experienced difficulty convincing restaurant owners to participate in efficiency programs. Cadmus' experience working with other utilities has shown this is a common barrier. Cadmus recommends cooking measures be given a relatively low priority compared to other measures listed above.

**Figure 14. Easy Upgrades Cooking Achievable Potential**

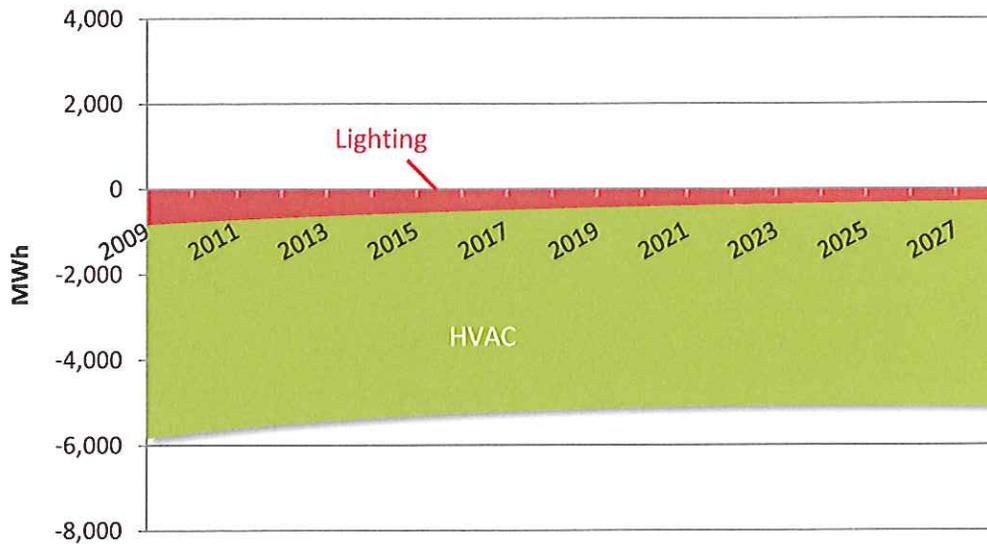


Data from Nexant's DSM Potential Study.

### Commercial Building Efficiency Program

The Building Efficiency program savings currently exceed the savings from the potentials assessment, and are illustrated by a negative gap in Figure 15. The difference is especially pronounced in the HVAC sector, primarily due to large savings from variable speed drives and energy management control systems. The 2009 savings for the Building Efficiency program were more than double the savings forecasted in the potentials assessment. Our analysis in DSM Planner indicates that if IPC continues its current success with the program, Building Efficiency savings will continue to exceed the potential study forecasts for this program. In addition, current programmatic costs per MWh are only about one half of the costs estimated in the potential study. It is important to note that new building growth assumptions used in the potentials assessment may no longer be valid, given the state of the economy when that work was being completed (in 2009).

Figure 15. Building Efficiency Gap Analysis

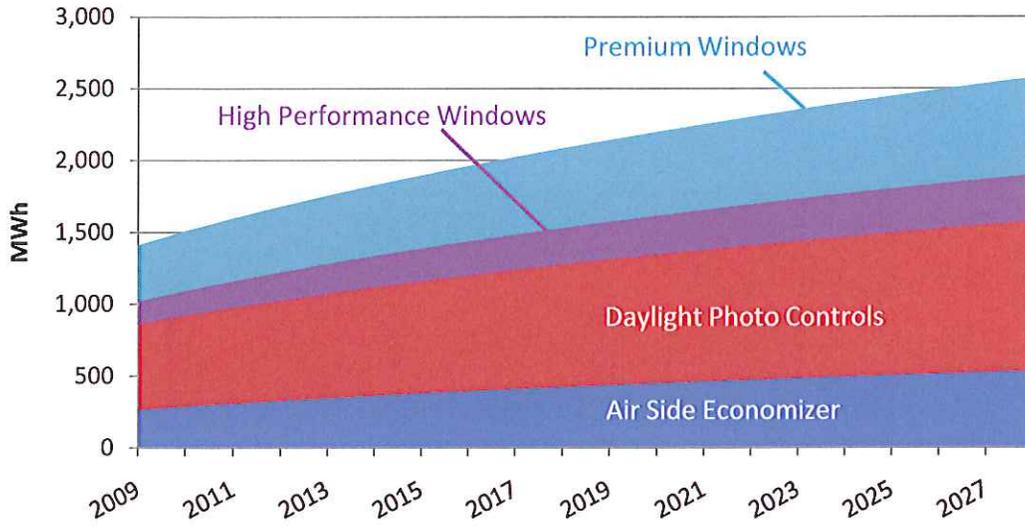


Data from Nexant's DSM Potential Study and Cadmus' DSM Planner.

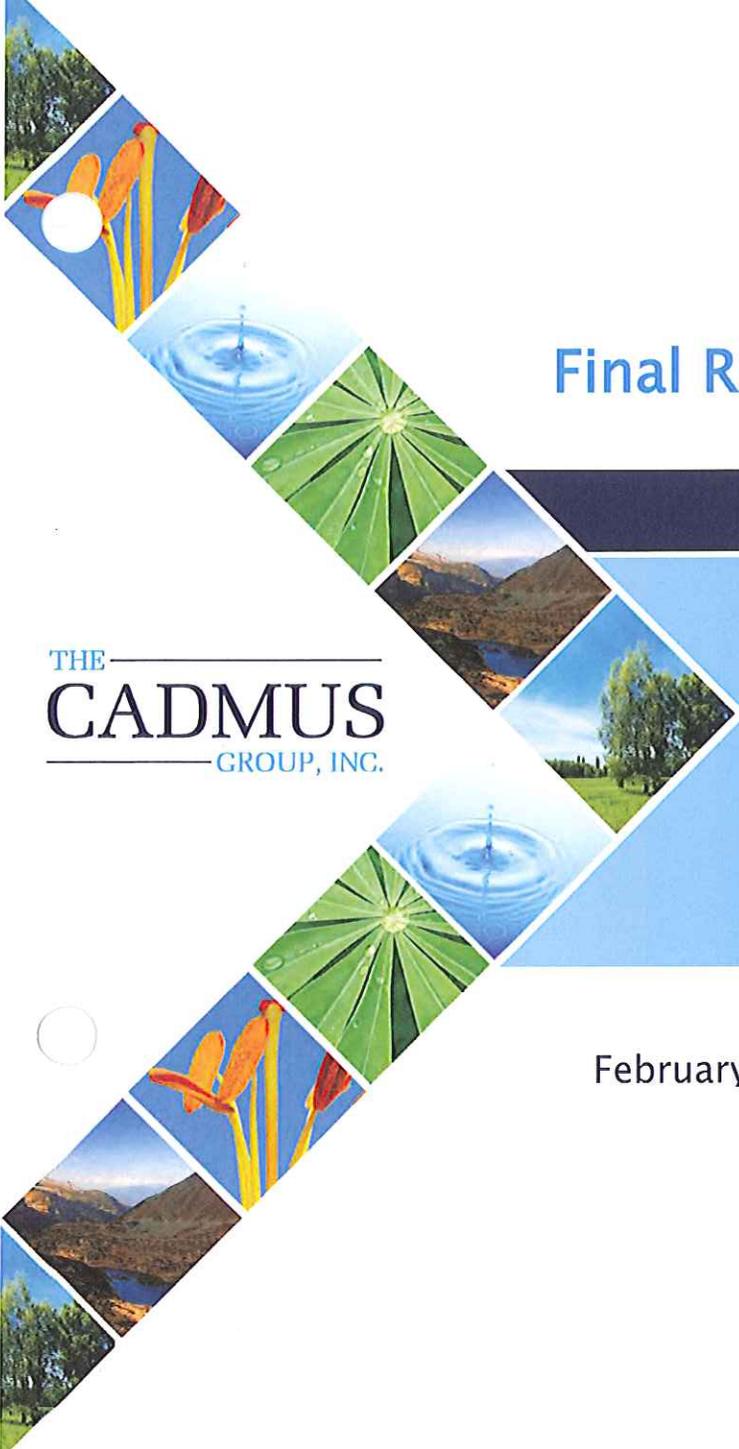
However, investigation of this large negative gap may be warranted for future planning. For example, due diligence may include refining savings estimates from projects where both lighting and HVAC measures were implemented. As those measures will result in some interactive effects (lower heat output from energy-efficient lighting reduces cooling loads), the savings may be less than the sum of the savings from the individual measures. Therefore, in the future, if interactive effects are not currently accounted for in IPC's programmatic savings estimates, then Cadmus recommends using a whole-facility approach to ensure the most accurate energy savings.

Of the HVAC and lighting measures demonstrating a positive gap between the achievable potential and the BAU baseline, the four largest are daylight photo controls, premium windows, high performance windows, and air side economizers, shown in Figure 16. These four measures are currently offered through the program and may be prime candidates for extra marketing promotions.

**Figure 16. Building Efficiency Gap Analysis for Selected Measures**



Data from Nexant's DSM Potential Study and Cadmus' DSM Planner.



## Final Report

THE  
**CADMUS**  
GROUP, INC.

# Commercial Program Measure Review

February 4, 2011

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## Introduction

In 2010, Idaho Power Company (IPC) commissioned The Cadmus Group Inc. (Cadmus) to conduct a process evaluation of its commercial, industrial, and irrigation (CI&I) energy-efficiency programs. The primary goals of the process evaluation are to inform IPC about how well individual programs are operating, and to help IPC better plan, integrate, implement, and evaluate its entire portfolio of CI&I energy-efficiency programs.

IPC requested, as a task under the CI&I process evaluation Statement of Work (SOW) conducted in 2010, that Cadmus review the reasonableness of IPC's program savings assumptions for those measures with cost-effectiveness uncertainties. For the Easy Upgrades program, Cadmus reviewed the 10 measures with total resource cost (TRC) benefit-to-cost ratios less than 1. We reviewed all 11 of the Irrigation Efficiency Rewards measures, for which savings were calculated using IPC's engineering modeling assumptions. In addition, Cadmus estimated savings and proposed algorithms for the four new measures offered in the Building Efficiency program.

## Easy Upgrades and Irrigation Efficiency Rewards

Cadmus reviewed the measures in these programs by estimating the savings using simplified engineering calculations, then comparing these estimates to savings values from the following sources:

- Northwest Regional Technical Forum (RTF),
- Northwest Power and Conservation Council's (Council's) Sixth Power Plan (6th Plan),
- Database for Energy Efficient Resources (DEER),<sup>1</sup>
- ENERGY STAR<sup>®</sup>, and
- Other regional potential studies conducted by Cadmus.

In addition, Cadmus estimated material and labor costs using various resources, including the RTF, DEER, ENERGY STAR, RSMeans 2009 construction costs, and other online sources. We compared measure lives to our internal measure database and found them to be reasonable.

## Building Efficiency Analysis

We only reviewed new measures under consideration for the Building Efficiency program in 2011 for this analysis; namely:

- Exterior Reduced Lighting Density,
- High-Efficiency Chillers,
- Wall Insulation (new construction multifamily housing), and
- Roof Insulation (new construction multifamily housing).

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<sup>1</sup> DEER is a California Energy Commission and California Public Utilities Commission (CPUC) sponsored database designed to provide well-documented estimates of energy and peak demand savings values, measure costs, and effective useful life (EUL) within one data source.

Measure assumptions data provided by IPC for the four Building Efficiency measures were limited; therefore, Cadmus developed algorithms to estimate the savings. These savings algorithms, resulting in a per unit savings estimate, are based on engineering assumptions used in other studies conducted by Cadmus and on our professional judgment.

## Program-Specific Analysis

### Easy Upgrades

For the Easy Upgrade program, Cadmus conducted a thorough review of the following measures with a TRC benefit-to-cost ratio less than 1.

- Efficient Metal Halide (MH) Lighting: 30-70 W efficient MH fixture.
- Efficient Metal Halide (MH) Lighting: 70-150 W efficient MH fixture.
- Efficient Metal Halide (MH) Lighting: 150-250 W efficient MH fixture.
- CFLs or LEDs: Screw-in lamp (25 W or less).
- Window Shading: Adding window shade film.
- Office Equipment: Flat panel LCD display.
- Office Equipment: Occupancy sensor control.
- Laundry Machines: High-efficiency, coin-op washer.
- Compressors/Condensers: Air-cooled multiplex system.
- Compressors/Condensers: Evaporative-cooled multiplex.

We reviewed IPC measure assumptions, as presented in IPC's Demand-side Management 2009 Annual Report Supplement 1: Cost-Effectiveness (DSM 2009 Supplement). These assumptions included commercial lighting operating hours, lighting equipment wattages, and savings and costs sources.

### Findings

Generally, Cadmus found IPC's savings estimates to be reasonable, with the exception of the air- and evaporative-cooled compressor measures, where we found the savings to be significantly higher based on DEER data and the 6th Plan. IPC costs, however, were generally less consistent with other comparable sources. These differences may stem from the underlying assumptions of incremental cost versus full cost, estimated labor costs, and program application costs.

### Conclusions and Recommendations

Table 1 details the assumed IPC cost and savings listed in the DSM 2009 Supplement and Cadmus' estimated values for comparison with summary recommendations. Detailed information is provided in Table 7 and Table 8 of the Appendix.

Cadmus recommends a further review of the savings for the air- and evaporative-cooled compressor measures. Such large savings differences suggest that data reviewed may not be

comparable. Given the limited information available, Cadmus is unable to provide a clear explanation of the differences. Further details are provided in Table 7 of the Appendix.

In addition, IPC should review cost assumptions, as these may have a significant impact on the measure cost-effectiveness. In most cases, Cadmus' cost estimates are less than the IPC estimate; if these costs were found appropriate for the IPC territory, the measures could be considered cost-effective. Conversely, Cadmus' estimated cost for laundry machines is higher than IPC's cost, and Cadmus' savings estimates are lower than IPC's; thus, it is unlikely this measure will become cost effective. Detailed information is provided in Table 8 of the Appendix.

Table 1. Summary Review of Easy Upgrades Measures

Measure	IPC Annual Gross Energy Savings (kWh/yr)	Cadmus Estimated Savings (kWh/yr)	IPC Gross Incremental Participant Cost	Cadmus Estimated Incremental Cost	Recommendations
Efficient Metal Halide (MH) Lighting: 30-70 W efficient MH fixture	151	142	\$ 159.00	\$ 96.14	Re-evaluate project cost assumptions
Efficient Metal Halide (MH) Lighting: 70-150 W efficient MH fixture	193	242	\$ 400.00	\$ 136.88	Re-evaluate project cost assumptions
Efficient Metal Halide (MH) Lighting: 150-250 W efficient MH fixture	228	292	\$ 550.00	\$ 167.35	Re-evaluate project cost assumptions
CFLs or LEDs: Screw-in lamp (25 W or less)	200	193	\$ 168.00	\$ 15.04	Break out LED and CFL into separate measures
Window Shading: Adding window shade film	2	2	\$ 3.00	\$ 2.64	Measure typically not cost-effective in northern climates
Office Equipment: Flat panel LCD display	234	166	\$ 150.00	\$ 78.00	Measure typically incremental to the baseline
Office Equipment: Occupancy sensor control	143	100	\$ 117.25	\$ 78.00	Replace measure with smart strips as a cheaper alternative
Laundry Machines: High-efficiency, coin-op washer	272	215	\$ 175.00	\$ 258.00	Measure savings is highly dependent on end use fuel share saturation
Compressors/Condensers: Air-cooled multiplex system	883	2510	\$ 2,138.00	\$ 3,120.42	Higher savings and costs found based on DEER
Compressors/Condensers: Evaporative-cooled multiplex	1195	3235	\$ 1,885.00	\$ 2,905.13	Higher savings and costs found based on DEER

## Irrigation Efficiency Rewards

For the Irrigation Efficiency Rewards program, Cadmus conducted a thorough review of the following measures:

- Nozzle Replacement - Flow Control.
- Nozzle Replacement.
- Brass Impact Sprinklers.
- Levelers.
- Rotating or Low-Pressure Pivot Sprinklers.
- Regulator Replacement.
- Gasket Replacement.
- Hub Replacement.
- New Goose Necks.
- Pipe Repair.
- Pivot Boot Gasket Replacement.

As with Easy Upgrades, Cadmus reviewed IPC measure assumptions as presented in the DSM 2009 Supplement. Limited data on assumptions for these measures were provided.

### Findings

Cadmus compared IPC's irrigation program measures to the most recent RTF data and found the savings and costs to be inconsistent. IPC's energy savings and incremental participant costs do appear to be consistent with the 2005 RTF estimates. However, the RTF updated its irrigation hardware data in January 2010 based on available studies conducted primarily in Idaho.

### Conclusions and Recommendations

Table 2 provides a summary of the assumed program costs and savings with Cadmus' estimates (using updated RTF data) for comparison. Detailed information is provided in Table 9 and Table 10 of the appendix.

Our measure review for the Irrigation Efficiency Rewards program found a wide range of differences between IPC's gross energy savings and cost estimates and those in the RTF's updated January 2010 report. The more recent RTF data are thought to be more accurate; thus, IPC would likely minimize risk by adopting these savings prior to an impact evaluation. As such, Cadmus recommends updating the irrigation measure savings estimates with the most current RTF data, accounting for any territory-specific differences in assumptions (e.g., pumping lift, hours of operation).

Note that based on these updated estimates, some measures may no longer be cost-effective. For example, the savings estimate for levelers decreased by a factor of 10. Given this significant decrease and the low resulting savings, IPC may consider removing levelers from the program offerings (unless offered solely in conjunction with a higher savings measure).

**Table 2. Summary Review of Irrigation Measures**

Measure	IPC Annual Gross Energy Savings (kWh/yr)	Cadmus Estimated Savings (kWh/yr)	IPC Gross Incremental Participant Cost	Cadmus Estimated Incremental Cost
Nozzle Replacement - Flow Control	20	29	\$ 2.50	\$ 5.57
Nozzle Replacement	20	39	\$ 0.55	\$ 2.12
Brass Impact Sprinklers	40	29	\$ 9.00	\$ 12.33
Levelers	20	2	\$ 5.92	\$ 3.25
Rotating or Low-P Pivot Sprinklers	40	22	\$ 12.58	\$ 18.33
Regulator Replacement	40	38	\$ 6.80	\$ 6.13
Gasket Replacement	30	23	\$ 1.52	\$ 3.92
Hub Replacement	40	66	\$ 45.00	\$ 50.00
New Goose Necks	20	7	\$ 6.00	\$ 4.17
Pipe Repair	60	46	\$ 8.00	\$ 18.00
Pivot Boot Gasket Replacement	850	1274	\$ 225.00	\$ 250.00

## Building Efficiency Measure Review and Analysis

The Building Efficiency program identified four new measures that will be added during the 2011 program year. IPC was not able to provide savings assumptions for the new measures under consideration; therefore Cadmus conducted a limited analysis to provide an estimate of savings using broad assumptions about IPC building characteristics. The new Building Efficiency measures are:

- Exterior Reduced Lighting Density,
- High Efficiency Chillers,
- Wall Insulation (new construction multifamily housing), and
- Roof Insulation (new construction multifamily housing).

In addition, although not within the scope of this analysis, Cadmus noticed that the IPC claimed savings for high-efficiency exit signs appear unreasonably high. IPC should review the assumptions for this measure.

### Methodology

The analysis for each of the four measures incorporated the estimated savings potential per installed unit, the proposed savings algorithm, and measure assumptions. As part of the analysis, we determined all baseline equipment requirements using the 2009 International Energy Code Council (IECC) with reference to ASHRAE 90.1-2007. This Idaho commercial code became effective on January 1, 2011.

### Findings

Table 3 provides saving estimates for the four measures, as represented in kWh per installed unit. The subsections below provide further details about the assumptions used to determine these estimates.

**Table 3. Building Efficiency Program Estimated Annual Energy Savings for New Measures**

Measure Type	Annual Savings kWh/Unit	Unit
Exterior Reduced Lighting Density	0.12	Sq ft (exterior lighting area)
High Efficiency Chillers	123	Cooling ton
Wall Insulation (multifamily housing only) - electric cooling	0.006	Sq ft (installed insulation)
Wall Insulation (multifamily housing only) - electric heating	0.29	Sq ft (installed insulation)
Roof Insulation (multifamily housing only) - electric cooling	0.024	Sq ft (installed insulation)
Roof Insulation (multifamily housing only) - electric heating	0.21	Sq ft (installed insulation)

## Conclusions and Recommendations

IPC should compare the savings estimates and accompanying algorithms with internal calculations. As Cadmus had limited data about IPC prototypical buildings, we made various assumptions to determine savings for these measures. As such, we provided the savings estimates and accompanying algorithms for guidance only, and the assumptions we used should be reviewed by IPC engineering staff to ensure appropriateness. Cadmus' assumptions for each measure are described in greater detail below.

## Exterior Reduced Lighting Density

Cadmus calculated an estimated weighted average lighting power density (LPD) baseline value of 0.20 watts per square foot. The baseline LPD varies based on the exterior lighting application (as specified in IECC 2009/ ASHRAE 90.1-2007 requirements), as shown in Table 4. The weighting used is based on Cadmus' experience, and should be reviewed for its relevancy to IPC's territory. IPC requires a minimum 15 percent reduction in LPD for the measure to qualify. On average, this results in a 0.03 W/sq ft savings.

**Table 4. Summary of IECC 2009 Lighting Power Densities for Building Exteriors\***

Main Application Area	IECC 2009 Lighting Power Densities (W/sq ft)	Estimated Weight
Uncovered Parking Areas	0.15	35%
Building Grounds	0.20	35%
Canopies and Overhangs	1.25	1%
Outdoor Sales	0.50	1%
Building Façades	0.20	28%
<b>Prototypical Exterior LPD</b>	<b>0.20</b>	<b>100%</b>

\* Refer to IECC 2009, Table 505.6.2 for complete application details.

The exterior lighting hours of use also impact the energy savings. Based on the Council's 6th Plan, we used 4,000 hours as the default value, resulting in energy savings of 0.12 kWh/sq ft of exterior lighting area.

The proposed savings algorithm for program tracking is presented below:

- $LPD_{base}$  = Baseline Exterior Lighting Power Density - 2009 IECC-Table 505.6.2; default 0.20 W/sq ft  
 $LPD_{ec}$  = Energy-Efficiency Exterior Lighting Power Density; default 0.18 W/sq ft (15 percent improvement)  
 $HOU$  = Hours of use; exterior lighting operating hours, 4,000 hrs default  
 $SQFT_{Ext\ Lighting\ Area}$  = Exterior lighting area in square feet  
 1,000 = Watt to kW conversion factor

## High-Efficiency Chillers

IPC is adding a measure for high-efficiency chillers, based on a minimum integrated part-load value (IPLV). Compliance with 2009 IECC (ANSI/ASHRAE/IESNA 90.1-2007) can be achieved by either meeting the requirements of Path A or Path B, as shown in Table 5. IPC's proposed rebate and efficiency requirements are based on projects following Path A. Cadmus recommends that IPC include Path B efficiency requirements, as Path B was established for water-cooled chillers intended for applications where significant operation time is expected at part load. In northern climates such as Idaho, more operating hours are part load rather than full load. Cadmus estimated Path B eligibility requirements<sup>2</sup> based on the ratio of IPC Path A eligibility requirements and code Path A requirements.

**Table 5. 2009 IECC Chiller Efficiency Requirements\***

2009 IECC Effective January 1, 2011		Path A		Path B		Unit
Equipment Type	Size (tons)	Full Load	IPLV	Full Load	IPLV	
Air-Cooled Chiller w/ Condenser	< 150	9.562	12.500	-	-	EER
	> = 150	9.562	12.750	-	-	EER
Water-Cooled Chiller Reciprocating and Screw	< 75	0.780	0.630	0.800	0.600	kW/ton
	> = 75 to < 150	0.775	0.615	0.790	0.586	kW/ton
	> = 150 to < 300	0.680	0.580	0.718	0.540	kW/ton
	> = 300	0.620	0.540	0.639	0.490	kW/ton
Water-Cooled Chiller Centrifugal	< 150	0.634	0.596	0.639	0.450	kW/ton
	> = 150 to < 300	0.634	0.596	0.639	0.450	kW/ton
	> = 300 to < 600	0.576	0.549	0.600	0.400	kW/ton
	> = 600	0.570	0.539	0.539	0.400	kW/ton

\* Both full load and IPLV levels must be met to fulfill the requirements of Path A or Path B.

For the savings analysis, we weighted all chiller types and capacity sizes to estimate the overall prototypical savings, as shown in Table 6. These weightings should be reviewed by IPC, taking into consideration knowledge of existing stock or programmatic activity. To complete the analysis, IPC provided data for a prototypical chiller with 1,500 effective cooling full load hours (EFLH). To estimate these savings, Cadmus developed a two-part algorithm for air-cooled and water-cooled chillers, where the overall savings estimate reflects a weighted average of the two

<sup>2</sup> Cadmus did not verify available comparable products on the market and recommends verifying the appropriate Path B requirements for IPC.

types. Again, IPC should modify this weighting based on existing stock or programmatic activity. The weighted annual savings were estimated to be 123 kWh/ton.

**Table 6. Chiller Annual Savings by Equipment Type, Size, and Eligible Path**

Equipment Type	Size (Tons)	Eligibility: Path A*	Eligibility: Path B**	Units	Path A: kWh Savings Per Ton	Path B: kWh Savings Per Ton	Estimated Weight
Air-Cooled Chiller w/ Condenser	< 150	14.00	N/A	IPLV: EER	154.3	N/A	5%
	> = 150	14.00	N/A	IPLV: EER	126.1	N/A	5%
Water-Cooled Chiller Reciprocating and Screw	< 75	0.52	0.50	IPLV: kW/ton	165.0	150.0	5%
	> = 75 to < 150	0.52	0.50	IPLV: kW/ton	142.5	129.0	15%
	> = 150 to < 300	0.49	0.46	IPLV: kW/ton	135.0	120.0	20%
	> = 300	0.49	0.44	IPLV: kW/ton	75.0	75.0	10%
Water-Cooled Chiller Centrifugal	< 150	0.52	0.39	IPLV: kW/ton	114.0	90.0	5%
	> = 150 to < 300	0.52	0.39	IPLV: kW/ton	114.0	90.0	5%
	> = 300 to < 600	0.45	0.33	IPLV: kW/ton	148.5	105.0	20%
	> = 600	0.45	0.33	IPLV: kW/ton	133.5	105.0	10%
<b>Weighted Annual kWh Savings</b>	<b>122.7 kWh/ton</b>				<b>50%</b>	<b>50%</b>	<b>Estimated path-weight</b>

\* From IPC.

\*\* Cadmus estimated based on code requirements and Path A eligibility.

The proposed savings algorithms for program tracking are presented below:

### Air-Cooled Chiller

- 
- Tons = Rated cooling tons per installed chiller  
 12 = Air-cooled EER conversion;  $EER = 12 / (kW/ton)$   
 $IPLV_{EERbase}$  = Integrated part-load energy-efficiency ratio of the baseline equipment  
 = (BTUh/W)  
 $IPLV_{EERcc}$  = Integrated part-load energy-efficiency ratio of the energy-efficient equipment  
 (BTUh/W)  
 EFLH = 1,500 hours default; IPC prototypical chiller effective cooling full load hours

### Water-Cooled Chiller

- Tons = Rated cooling tons per installed chiller  
 $IPLV_{EERbase}$  = Integrated part-load value efficiency of the baseline chiller (kW/ton)  
 $IPLV_{EERcc}$  = Integrated part-load value efficiency of the energy-efficient chiller  
 (kW/ton)  
 EFLH = 1,500 hours default; IPC prototypical chiller effective cooling full load  
 hours

## Wall and Roof Insulation

Wall and roof insulation measure rebates will be offered for multifamily new construction buildings. IPC's requirement for wall and roof insulation is that the builders install additional insulation (higher R-value) above code; at least an additional R-5 or R-10 for wall or roof measures, respectively. Cadmus estimated the cooling and heating savings for both measures.

The savings for these measures can vary significantly depending on building characteristics (e.g., number of floors, aspect ratio, and construction material). Ideally, the savings would be based on building simulations (using software such as Energy-10 or eQUEST) applied to IPC-specific prototypical buildings.

Cadmus calculated the cooling savings using default multifamily prototypical models found in eQUEST, along with the Pocatello weather file. The resulting cooling savings are practically negligible (0.006 kWh/sq ft wall insulation installed and 0.024 kWh/sq ft roof insulation installed). This is due in part to high R-value requirements required by code and the relatively low cooling load hours for northern climates. We inferred the heating savings from our 2007 assessment of PacifiCorp's territory (under the name of Quantec), updated to incorporate the wall insulation requirements of the 2009 IECC. We developed Energy-10 models for multifamily homes in Idaho for that study. The heating savings resulted in 0.29 kWh/sq ft of wall insulation installed and 0.21 kWh/sq ft of roof insulation installed.

Cadmus also reviewed the savings estimated by the RTF for low-rise new construction multifamily buildings. However, the RTF currently only estimates savings for a comprehensive suite of measures including shell upgrades, increased roof and wall insulation, reduced infiltration, and duct insulation. IPC may want to consider this type of packaged measure as a program offering for low-rise multifamily buildings for consistency with the RTF.

The proposed savings algorithms for program tracking are presented below:

#### Wall Insulation

*Electric Heating Savings:*

*Electric Cooling Savings:*

*Total Electric Savings:*

$\text{InsulationSQFT}_{\text{Installed}} =$  Installed wall insulation in square feet

$\text{SF}_{\text{Heating kWh/sqft}} = 0.29 \text{ kWh}$

$\text{SF}_{\text{Cooling kWh/sqft}} = 0.006 \text{ kWh}$

#### Roof Insulation

*Electric Heating Savings:*

*Electric Cooling Savings:*

*Total Electric Savings:*

$\text{InsulationSQFT}_{\text{Installed}} =$  Installed roof insulation in square feet

$\text{SF}_{\text{Heating kWh/sqft}} = 0.21 \text{ kWh}$

$\text{SF}_{\text{Cooling kWh/sqft}} = 0.024 \text{ kWh}$

## Appendix

Table 7. Detailed Review of Savings Assumptions for Easy Upgrades Program

Measure	Annual Gross Energy Savings (kWh/yr)	Estimated kWh	Energy Comments
Efficient Metal Halide (MH) Lighting 30-70 W efficient MH fixture	151	142	<ol style="list-style-type: none"> <li>1) The baseline description does not match the baseline kW used to estimate the savings.</li> <li>2) Lumen comparison from MH to MV implies that baseline kW may be greater than estimated.</li> <li>3) IPC actual 2009 savings adjusted based on customer reported hours of operation. 3,500 hours is consistent with the RTF commercial default values. Other sources range from 3,600 to 3,900 hours.</li> <li>4) Distribution of lamp wattages not known and assumed a straight average.</li> </ol>
Efficient MH Lighting 70-150 W efficient MH fixture	193	242	<ol style="list-style-type: none"> <li>1) The baseline description does not match the baseline kW used to estimate the savings.</li> <li>2) Lumen comparison from MH to MV implies that baseline kW may be greater than estimated.</li> <li>3) IPC actual 2009 savings adjusted based on customer reported hours of operation. 3,500 hours is consistent with the RTF commercial default values. Other sources range from 3,600 to 3,900 hours.</li> <li>4) Distribution of lamp wattages not known and assumed a straight average.</li> </ol>
Efficient MH Lighting 150-250 W efficient MH fixture	228	292	<ol style="list-style-type: none"> <li>1) The baseline description does not match the baseline kW used to estimate the savings.</li> <li>2) Lumen comparison from MH to MV implies that baseline kW may be greater than estimated.</li> <li>3) IPC actual 2009 savings were adjusted based on customer reported hours of operation. 3,500 hours is consistent with the RTF commercial default values. Other sources range from 3,600 to 3,900 hours.</li> <li>4) Distribution of lamp wattages not known and assumed a straight average.</li> </ol>
CFLs or LEDs screw-in lamp (25 W or less)	200	193	<ol style="list-style-type: none"> <li>1) The baseline description does not match the baseline kW used to estimate the savings.</li> <li>2) Less than 25 watts can be various CFL sizes, IPC assumed 18 watts as a common replacement for a 75 incan. Distribution of lamp wattages can be informed by the program. Typical comparable CFL wattage for a 75 watt incan ranges from 18 to 25 watts according to ENERGY STAR; 18 watt CFL is on the low end of the equivalent comparison.</li> <li>3) Measure assumes LED replacements included in this savings analysis. Recommend breaking out into two measures.</li> <li>4) IPC actual 2009 savings were adjusted based on customer reported hours of operation. 3,500 hours is consistent with the RTF commercial default values. Other sources range from 3,600 to 3,900 hours.</li> </ol>
Window Shading adding window shade film	2	2	<ol style="list-style-type: none"> <li>1) Reasonable when comparing with other studies such as PSE, PC, SRP, and MEMD.</li> <li>2) Difficult to estimate savings without more building data.</li> </ol>
Office Equipment flat panel LCD display	234	166	<ol style="list-style-type: none"> <li>1) The high IPC monitor savings suggest that the savings are based on a baseline that excludes power management and the measure includes power management. According to ENERGY STAR, 90 percent of the savings comes from power management. ENERGY STAR savings range from 42 to 426 kWh depending if power management is included.</li> </ol>
Office Equipment occupancy	143	100	<ol style="list-style-type: none"> <li>1) Comparable savings with Smart-strips, based on RTF estimates.</li> </ol>

Measure	Annual Gross Energy Savings (kWh/yr)	Estimated kWh	Energy Comments
sensor control			<p>2) Occupancy sensors may have more savings (but limited data to verify) than smart-strips, but costs more, thereby make this technology less cost-effective.</p> <p>3) Recommend including Smart-strips as an alternative option.</p>
Laundry Machines high-efficiency, coin-op washer	272	215	<p>1) Depending on the saturation of electric and gas water heat and electric and gas dryers, the lowest savings (gas water heat and gas dryer) would save 215 kWh. Based on the RTF 1.3v. range from 215 to 1,026 kWh (depending on saturation).</p> <p>2) The IPC savings estimate seems reasonable and is in-line with RTF and ENERGY STAR data, when generally coin-operation laundry machines typically use gas WH and gas dryers.</p>
Compressors/Condensers air-cooled multiplex system	883	2,510	<p>1) DEER 2005 savings is much more than IPC (source PECI) on a per ton basis.</p> <p>2) Such large differences in savings suggest that DEER and PECI data are not comparable or different technologies. DEER measure is: Replace single-compressor system with subcooled multiplex (air-cooled). Multiplex system, air-cooled, subcooler on both LT &amp; MT circuits, floating head. The baseline is: Single-compressor system, air-cooled condensers of vintage-dependent size/eff.</p> <p>3) 6th Plan measure does not distinguish between air-cooled and evap-cooled systems. It is difficult to compare directly since the 6th Plan data is based on a sq. ft. basis and not on a per ton basis. The 6th plan assumes 615 kWh per 1,000 sq. ft. of grocery. DEER savings would be comparable to a 5,000 sq. ft. grocery store according to the 6th Plan.</p>
Compressors/Condensers evaporative-cooled multiplex	1,195	3,235	<p>1) DEER 2005 savings is much more than IPC (source PECI) on a per ton basis.</p> <p>2) Such large differences in savings suggest that DEER and PECI data are not comparable or different technologies. DEER measure is: Replace single-compressor system with subcooled multiplex (evap-cooled). Multiplex system, evap-cooled, subcooler on both LT &amp; MT circuits, floating head. The baseline is: Single-compressor system, air-cooled condensers of vintage-dependent size/eff.</p> <p>3) 6th Plan measure does not distinguish between air-cooled and evap-cooled systems. It is difficult to compare directly since the 6th Plan data is based on a sq. ft. basis and not on a per ton basis. The 6th plan assumes 615 kWh per 1,000 sqft of grocery. DEER savings would be comparable to a 5,000 sq. ft. grocery store according to the 6th Plan.</p>

Table 8. Detailed Review of Cost Assumptions for Easy Upgrades Program

Measure	Gross Incremental Participant Cost	Estimated Incremental Cost	Cost Comments
Efficient Metal Halide (MH) Lighting 30-70 W efficient MH fixture	\$159.00	\$96.14	<ol style="list-style-type: none"> <li>1) 2005 DEER reference assumes this is a full cost measure + labor</li> <li>2) 2008 DEER total cost measure + labor: (119+18 = \$137).</li> <li>3) If this measure was incremental to the baseline, it would pass the TRC.</li> <li>4) IPC cost data seem high for this measure. Recommend checking if the labor is driving the high costs; labor maybe inclusive of other indirect costs.</li> <li>5) Incremental cost includes incan (150 watts) as a baseline as per DEER 2005 reference.</li> </ol>
Efficient MH Lighting 70-150 W efficient MH fixture	\$400.00	\$136.88	<ol style="list-style-type: none"> <li>1) 2005 DEER reference assumes this is a full cost measure + labor</li> <li>2) 2008 DEER total cost measure + labor: (132+45 = \$177).</li> <li>3) If this measure was incremental to the baseline, it would pass the TRC.</li> <li>4) IPC cost data seem high for this measure. Recommend checking if the labor is driving the high costs; labor maybe inclusive of other indirect costs.</li> </ol>
Efficient MH Lighting 150-250 W efficient MH fixture	\$550.00	\$167.35	<ol style="list-style-type: none"> <li>1) 2005 DEER reference assumes this is a full cost measure + labor</li> <li>2) 2008 DEER total cost measure + labor: (145+72 = \$217).</li> <li>3) If this measure was incremental to the baseline, it would pass the TRC.</li> <li>4) IPC cost data seem high for this measure. Recommend checking if the labor is driving the high costs; labor maybe inclusive of other indirect costs.</li> </ol>
CFLs or LEDs screw-in lamp (25 W or less)	\$168.00	\$15.04	<ol style="list-style-type: none"> <li>1) IPC measure costs may include CFL and LED costs. Recommend separating measure types and re-test TRC.</li> <li>2) IPC cost data seem high for this measure. Recommend checking if the labor is driving the high costs; labor maybe inclusive of other indirect costs.</li> </ol>
Window Shading adding window shade film	\$3.00	\$2.64	<ol style="list-style-type: none"> <li>1) Cost range from \$1.50 per sq. ft. to \$6 per sq. ft. depending on thin film type. Median price is from 3 to 4.5.</li> <li>2) Costs are in-line with other sources, costs are reasonable.</li> </ol>
Office Equipment flat panel LCD display	\$150.00	\$78.00	<ol style="list-style-type: none"> <li>1) Based on ENERGY STAR costs being lower than IPC data; ES based on average of available products found in EPA research, 2009.</li> <li>2) If it is assumed this is a full cost measure, the IPC estimate costs are reasonable. However, this type of measure is typically considered to be incremental to the baseline.</li> </ol>
Office Equipment occupancy sensor control	\$117.25	\$78.00	<ol style="list-style-type: none"> <li>1) Typical price is around \$90 to \$120 for a typical occ sensor power strip. Assume zero labor costs.</li> <li>2) IPC costs are little high but may include labor costs.</li> <li>3) Recommend including Smart-strips are an alternative option. Typical cost for a Smart-strip is around \$20 to \$30.</li> </ol>
Laundry Machines high-efficiency, coin-op washer	\$175.00	\$258.00	<ol style="list-style-type: none"> <li>1) ENERGY STAR, DEER 2008, and RTF data assumptions concluded that incremental was \$258, \$347, and \$370 respectively; all are higher than IPC data.</li> <li>2) Unlikely that this measure will become cost effective; is dependent on fuel saturations.</li> </ol>
Compressors/Condensers air-cooled multiplex system	\$2,138.00	\$3,120.42	<ol style="list-style-type: none"> <li>1) DEER 2005 cost is much more than IPC (source PECI) on a per ton basis.</li> <li>2) Such large differences in savings suggest that DEER and PECI data are not comparable or different technologies. DEER measure is: Replace single-compressor system with subcooled multiplex (air-cooled). Multiplex</li> </ol>

Measure	Gross Incremental Participant Cost	Estimated Incremental Cost	Cost Comments
Compressors/Condensers evaporative-cooled multiplex	\$1,885.00	\$2,905.13	<p>system, air-cooled, subcooler on both LT &amp; MT circuits, floating head. The baseline is: Single-compressor system, air-cooled condensers of vintage-dependent size/eff.</p> <p>1) DEER 2005 cost is much more than IPC (source PECI) on a per ton basis.</p> <p>2) Such large differences in savings suggest that DEER and PECI data are not comparable or different technologies. DEER measure is: Replace single-compressor system with subcooled multiplex (air-cooled). Multiplex system, air-cooled, subcooler on both LT &amp; MT circuits, floating head. The baseline is: Single-compressor system, air-cooled condensers of vintage-dependent size/eff.</p>

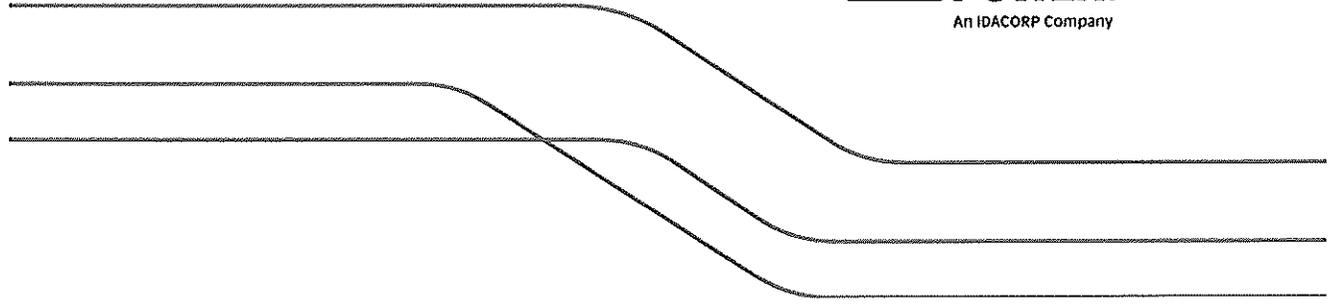
Table 9. Detailed Review of Savings Assumptions for Irrigation Efficiency Rewards Program

Measure	Annual Gross Energy Savings (kWh/yr)	Estimated kWh	Energy Comments
Nozzle Replacement - Flow Control	20	29	1) PTR data used for IPC analysis. Savings calculated from Idaho Power engineering estimates and research. Freeridership of 75 percent included in calculations. 2) PTR reviewed by BPA and found reasonable savings. 3) RTF revised savings on 1/5/2010 (27 and 30 kWh for eastern and western Idaho, respectively). Not including freeridership. 4) Recommend update to newer RTF data.
Nozzle Replacement	20	39	1) PTR data used for IPC analysis. Savings calculated from Idaho Power engineering estimates and research. Freeridership of 75 percent included in calculations. 2) RTF revised savings on 1/5/2010 (37 and 40 kWh for eastern and western Idaho, respectively). Not including freeridership. 3) Recommend update to newer RTF data.
Brass Impact Sprinklers	40	29	1) PTR data used for IPC analysis. Savings calculated from Idaho Power engineering estimates and research. Freeridership of 75 percent included in calculations. 2) PTR reviewed by BPA and found reasonable savings. 3) RTF revised savings on 1/5/2010 (27 and 30 kWh for eastern and western Idaho, respectively). Not including freeridership. 4) Recommend update to newer RTF data.
Levelers	20	2	1) PTR data used for IPC analysis. Savings calculated from Idaho Power engineering estimates and research. Freeridership of 75 percent included in calculations. 2) RTF revised savings on 1/5/2010 (2 kWh for eastern and western Idaho). Not including freeridership. 3) Recommend update to newer RTF data.
Rotating or Low-Pressure Pivot Sprinklers	40	22	1) PTR data used for IPC analysis. Savings calculated from Idaho Power engineering estimates and research. Freeridership of 75 percent included in calculations. 2) PTR reviewed by BPA and found reasonable savings. 3) RTF revised savings on 1/5/2010 (22 kWh for eastern and western Idaho). Not including freeridership. 4) Recommend update to newer RTF data.
Regulator Replacement	40	38	1) PTR data used for IPC analysis. Savings calculated from Idaho Power engineering estimates and research. Freeridership of 75 percent included in calculations. 2) PTR reviewed by BPA and found reasonable savings. 3) RTF revised savings on 1/5/2010 (38 kWh for eastern and western Idaho). Not including freeridership. 4) Recommend update to newer RTF data.
Gasket Replacement	30	23	1) PTR data used for IPC analysis. Savings calculated from Idaho Power engineering estimates and research. Freeridership of 75 percent included in calculations. 2) RTF revised savings on 1/5/2010 (22 and 24 kWh for eastern and western Idaho, respectively). Not including

Measure	Annual Gross Energy Savings (kWh/yr)	Estimated kWh	Energy Comments
Hub Replacement	40	66	freeridership. 3) Recommend update to newer RTF data. 1) PTR data used for IPC analysis. Savings calculated from Idaho Power engineering estimates and research. Freeridership of 75 percent included in calculations. 2) RTF revised savings on 1/5/2010 (63 and 69 kWh for eastern and western Idaho, respectively). Not including freeridership. 3) Recommend update to newer RTF data.
New Goose Necks	20	7	1) PTR data used for IPC analysis. Savings calculated from Idaho Power engineering estimates and research. Freeridership of 75 percent included in calculations. 2) PTR reviewed by BPA and found reasonable savings. 3) RTF revised savings on 1/5/2010 (7 kWh for eastern and western Idaho). Not including freeridership. 4) Recommend update to newer RTF data.
Pipe Repair	60	46	1) PTR data used for IPC analysis. Savings calculated from Idaho Power engineering estimates and research. Freeridership of 75 percent included in calculations. 2) RTF revised savings on 1/5/2010 (44 and 48 kWh for eastern and western Idaho, respectively). Not including freeridership. 3) Recommend update to newer RTF data.
Pivot Boot Gasket Replacement	850	1,274	1) PTR data used for IPC analysis. Savings calculated from Idaho Power engineering estimates and research. Freeridership of 75 percent included in calculations. 2) RTF revised savings on 1/5/2010 (1,268 and 1,282 kWh for eastern and western Idaho, respectively). Not including freeridership. 3) Recommend update to newer RTF data.

Table 10. Detailed Review of Cost Assumptions for Irrigation Efficiency Rewards Program

Measure	Gross Incremental Participant Cost	Estimated Incremental Cost	Cost Comments
Nozzle Replacement - Flow Control	\$2.50	\$5.57	IPC costs reference internal research and local prices. RTF found higher prices but may be regional and not local.
Nozzle Replacement	\$0.55	\$2.12	IPC costs reference internal research and local prices. RTF found higher prices but may be regional and not local.
Brass Impact Sprinklers	\$9.00	\$12.33	IPC costs reference internal research and local prices. RTF found higher prices but may be regional and not local.
Levelers	\$5.92	\$3.25	IPC costs reference internal research and local prices. RTF found prices lower.
Rotating or Low-P Pivot Sprinklers	\$12.58	\$18.33	IPC costs reference internal research and local prices. RTF found higher prices but may be regional and not local.
Regulator Replacement	\$6.80	\$6.13	IPC costs reference internal research and local prices. RTF found similar prices. Reasonable.
Gasket Replacement	\$1.52	\$3.92	IPC costs reference internal research and local prices. RTF found higher prices but may be regional and not local.
Hub Replacement	\$45.00	\$50.00	IPC costs reference internal research and local prices. RTF found similar prices. Reasonable.
New Goose Necks	\$6.00	\$4.17	IPC costs reference internal research and local prices. RTF found prices lower.
Pipe Repair	\$8.00	\$18.00	IPC costs reference internal research and local prices. RTF found higher prices but may be regional and not local.
Pivot Boot Gasket Replacement	\$225.00	\$250.00	IPC costs reference internal research and local prices. RTF found similar prices. Reasonable.



**FlexPeak Management  
2009 Preliminary Report**

**February 24, 2010**

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## Program Summary

FlexPeak Management is a voluntary demand response program targeting Idaho Power's industrial and large commercial customers that are capable of reducing their electrical energy loads for short periods during summer peak days. The program became available to the company's Idaho customers in May 2009. The program objective is to reduce the demand on Idaho Power's system during peak times through customers' voluntary electrical use reduction. The program is active June 1 to August 31, between the hours of 2:00 p.m. to 8:00 p.m. on non-holiday weekdays. Customers receive notification of a demand reduction event two hours prior to the start of the event, and events will last anywhere between two to four hours, with a maximum of 60 hours per season.

In November 2008, Idaho Power selected EnerNOC, Inc. through a competitive Request for Proposal (RFP) process, to implement the program. Idaho Power entered into a five-year agreement with EnerNOC in February 2009, pending the Idaho Public Utilities Commission (IPUC) approval. In May 2009, the IPUC approved the contract in Order No. 30805 and requested that Idaho Power submit a preliminary report.

EnerNOC is responsible for developing and implementing all marketing plans, securing all participants, installing and maintaining all equipment behind Idaho Power's meter used to reduce demand, tracking participation, and reporting results to Idaho Power. Idaho Power initiates demand response events by notifying EnerNOC, who then supplies the requested load reduction to the Idaho Power system.

EnerNOC meets with prospective customers to identify their potential to reduce electrical energy load during active program hours without negative impact to their business operations. Customers enroll in the program by entering into a contract with EnerNOC. EnerNOC then installs energy monitoring equipment at the customer site, simulates a demand response event to ensure customer satisfaction and performance, and officially enrolls the facility in the program.

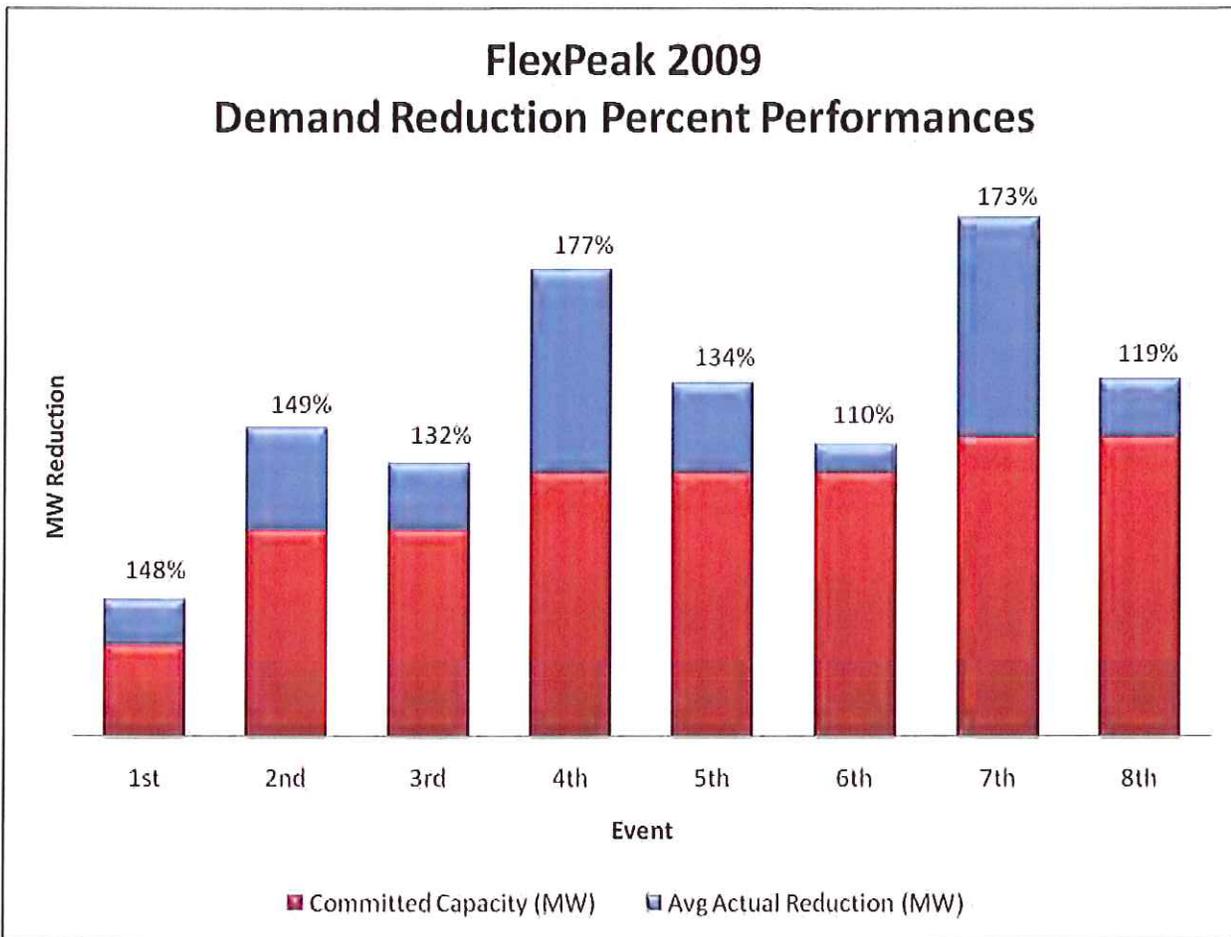
Contractually, EnerNOC has agreed to a target annual demand reduction amount for the five year contract length. Each week, EnerNOC commits a demand reduction level in megawatts (MWs) to Idaho Power that EnerNOC is obligated to meet in a demand reduction event. When Idaho Power anticipates the need for capacity, it schedules the date and time of the event and notifies EnerNOC.

Idaho Power has access to an EnerNOC web site that shows near real-time energy usage data of the aggregated load, and can continually monitor the success of the demand reduction event. Customers can also continuously monitor their demand reduction performance using their individual near real-time energy usage data available to them through the EnerNOC web site.

## 2009 Demand Reduction Event Results

During 2009, the first customers enrolled in the program in May and EnerNOC committed their initial reduction amount of 0.30 MW to Idaho Power by the second week of June. The target reduction for the season was 2 MW. By the end of the season, EnerNOC had enrolled 22 participants across 33 facility sites and had committed to a maximum weekly reduction of 15.2 MW. In July, participants achieved an actual reduction of 17.1 MW, surpassing the program target reduction by more than eight times.

Idaho Power initiated eight demand response events in July. In each case EnerNOC exceeded the committed MW reduction by the percentages shown in the table below.



## Marketing and Public Relations

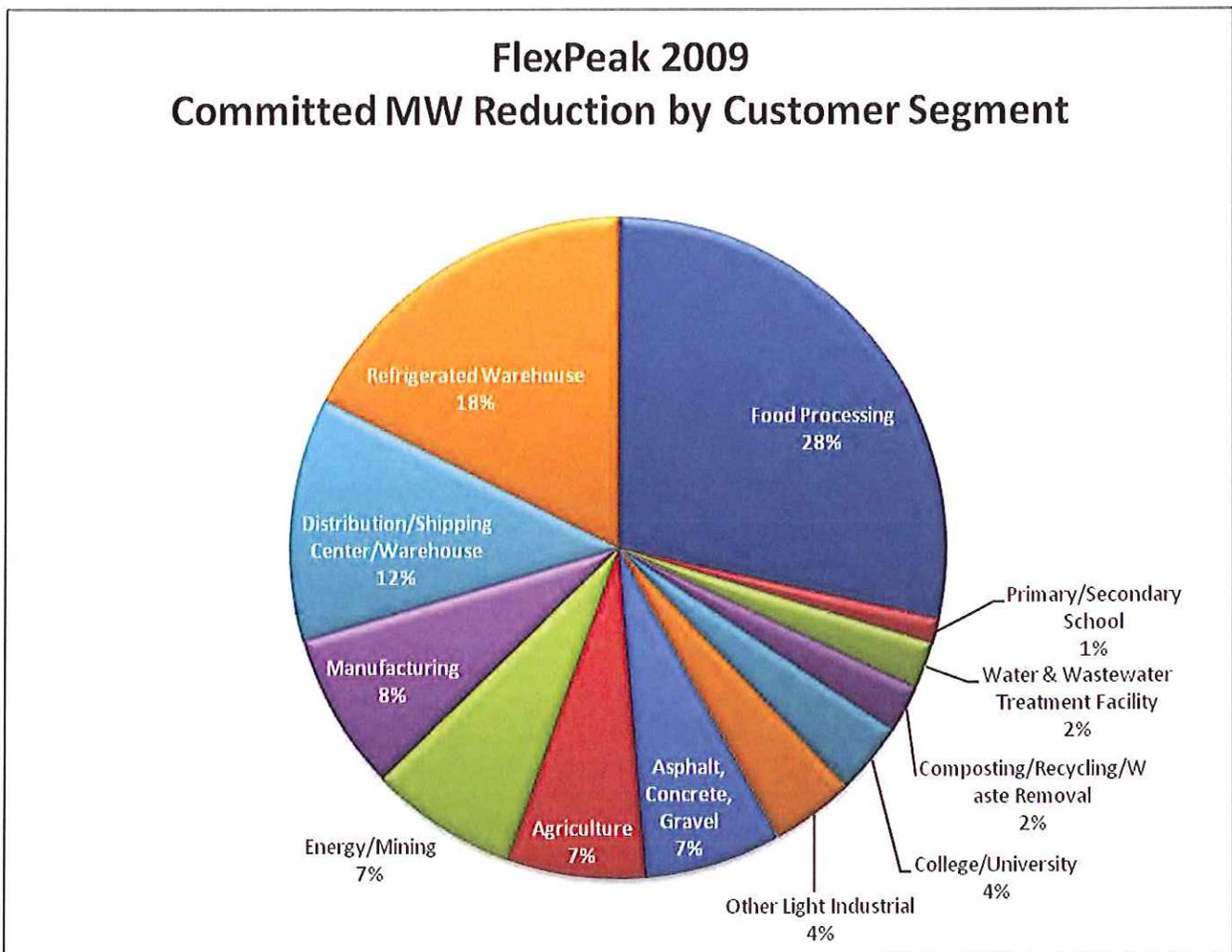
EnerNOC was responsible for the development of all marketing collateral. Idaho Power worked with EnerNOC to co-brand marketing materials, and reviewed and edited materials such as a “Frequently Asked Questions” Sheet and press releases. Idaho Power continues to work with EnerNOC on the development of a Utility Case Study, which will discuss the program development and rapid ramp-up process.

## Customer Recruitment

EnerNOC began the recruitment process by engaging customers with a demand of 500 kW and above. Idaho Power Customer Representatives contacted most of these customers prior to contact from EnerNOC in order to inform them of the program. EnerNOC employees reached out to customers first by phone, and then set up on-site meetings to determine a customer's potential for demand reduction. Idaho Power Customer Representatives often attended the on-site meetings.

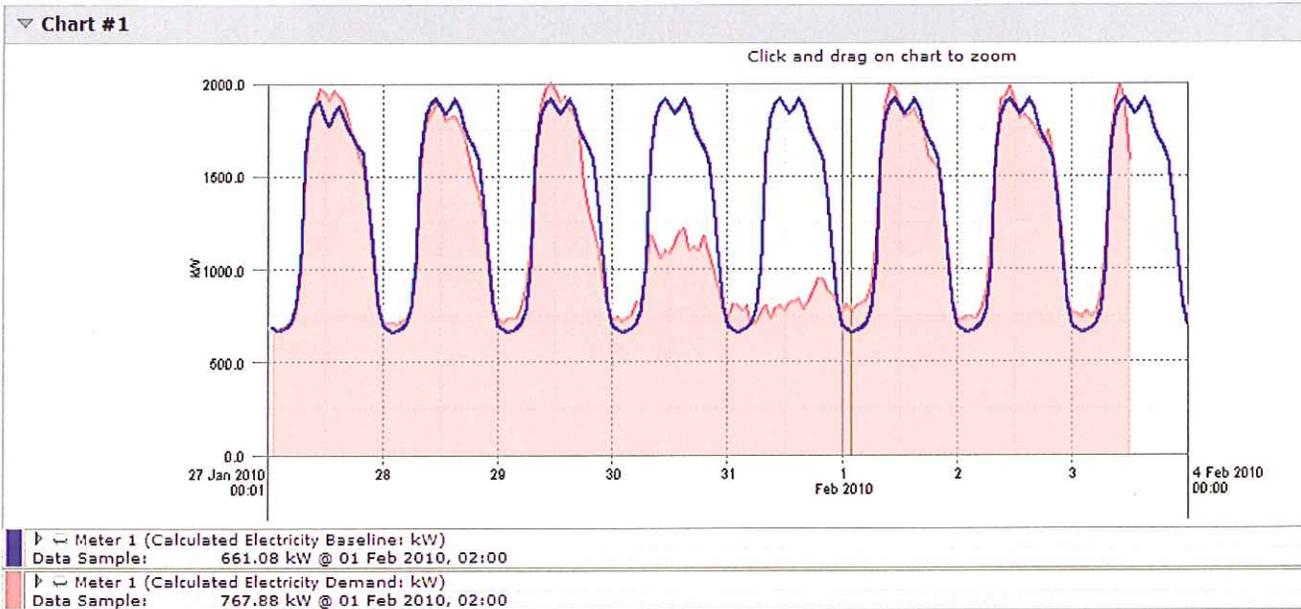
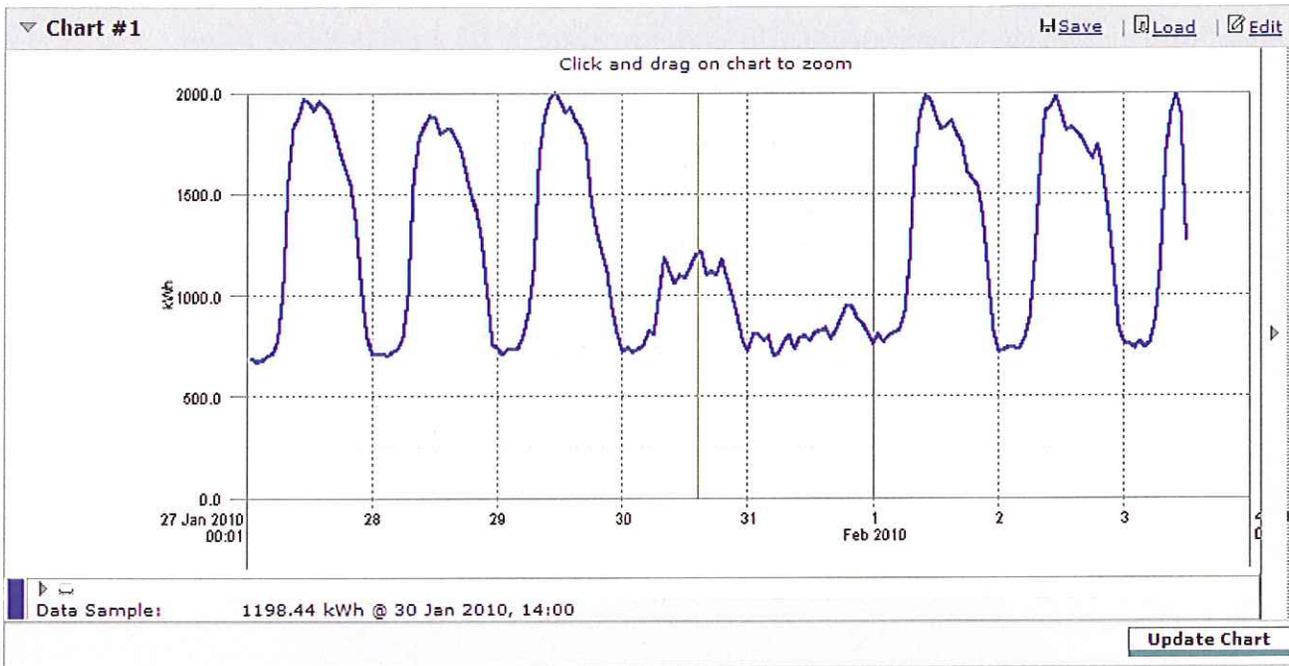
EnerNOC worked with each participant to develop a demand reduction plan that could be implemented at the site without negatively impacting the participant's business. Customers then were invited to sign a contract with EnerNOC to enroll in the program.

A breakdown of MW reduction committed by customer segment for 2009 is shown below.



## Metering

Once customers enrolled in the program by signing a contract with EnerNOC, EnerNOC submitted requests to Idaho Power to enable the customers' electric meters to transmit KYZ-pulse outputs. Some customer's meters were already enabled for pulse outputs. For each customer not receiving pulse outputs, Idaho Power metering technicians enabled the meters to transmit these outputs, and EnerNOC reimbursed Idaho Power for the associated costs. EnerNOC then installed monitoring equipment to obtain and transmit the pulse output to their servers. By using EnerNOC's proprietary software, PowerTrak, customers could then monitor their near real-time energy use on a continual basis. Below are examples of information participants can access at all times through the EnerNOC web site using their unique login and password. In these examples the reduction in energy use occurs on a Saturday and Sunday.



## Event Initiation

Idaho Power’s Power Supply group monitored system demand forecasts and evaluated up to date conditions in order to determine when demand reduction events would be initiated to reduce an expected peak on the system. Idaho Power sent e-mails to EnerNOC to initiate each event, and EnerNOC in turn, notified customers two hours prior to the event. In 2009, all of the demand reduction was achieved manually by the participants at their sites, with EnerNOC retaining no automatic control of the reduction processes.

Idaho Power initiated a test event on July 7, 2009 in order to test the dispatch process and monitoring capabilities. To the participants, this event was treated as a normal demand reduction event. The next seven events in July were initiated in response to system demand needs.

## Event Monitoring

EnerNOC submitted weekly reduction commitments to Idaho Power by the Friday proceeding the event week. During each event, participants had access to near real-time electric use data, which displayed their baselines and reduction commitments through EnerNOC’s web site. Below is an example of what a customer might see during a demand reduction event.

PowerTrak<sup>®</sup>

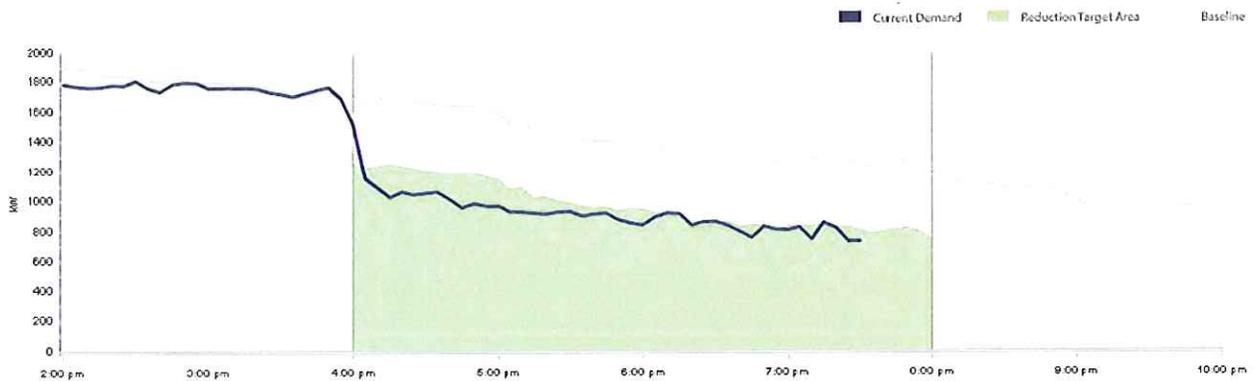
Help

ENERNOC

Customer Name

Idaho Power FlexPeak Management Program Tue Jul 21 2009 4:00:58:00 PM MDT

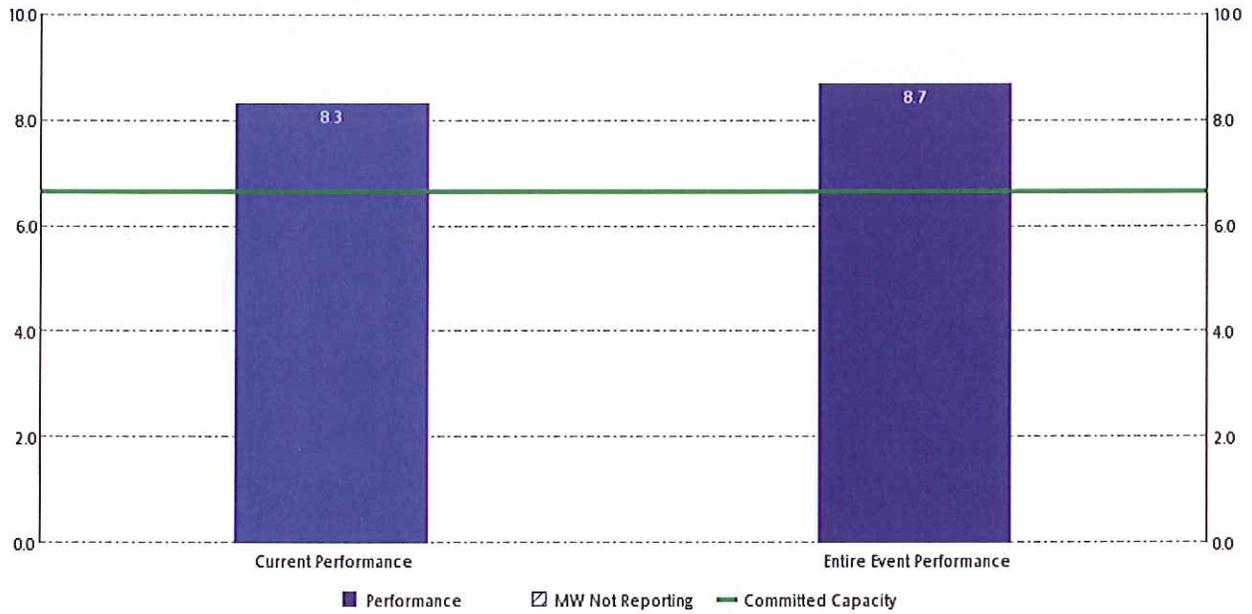
Performing as Expected  
Delivering 519 of 450 kW (115%) as of 7:30 pm



Energy Reduction Plan

During each event Idaho Power had access to aggregate performance as shown below. The graph displays the current near real-time event performance, as well as the average performance throughout the event.

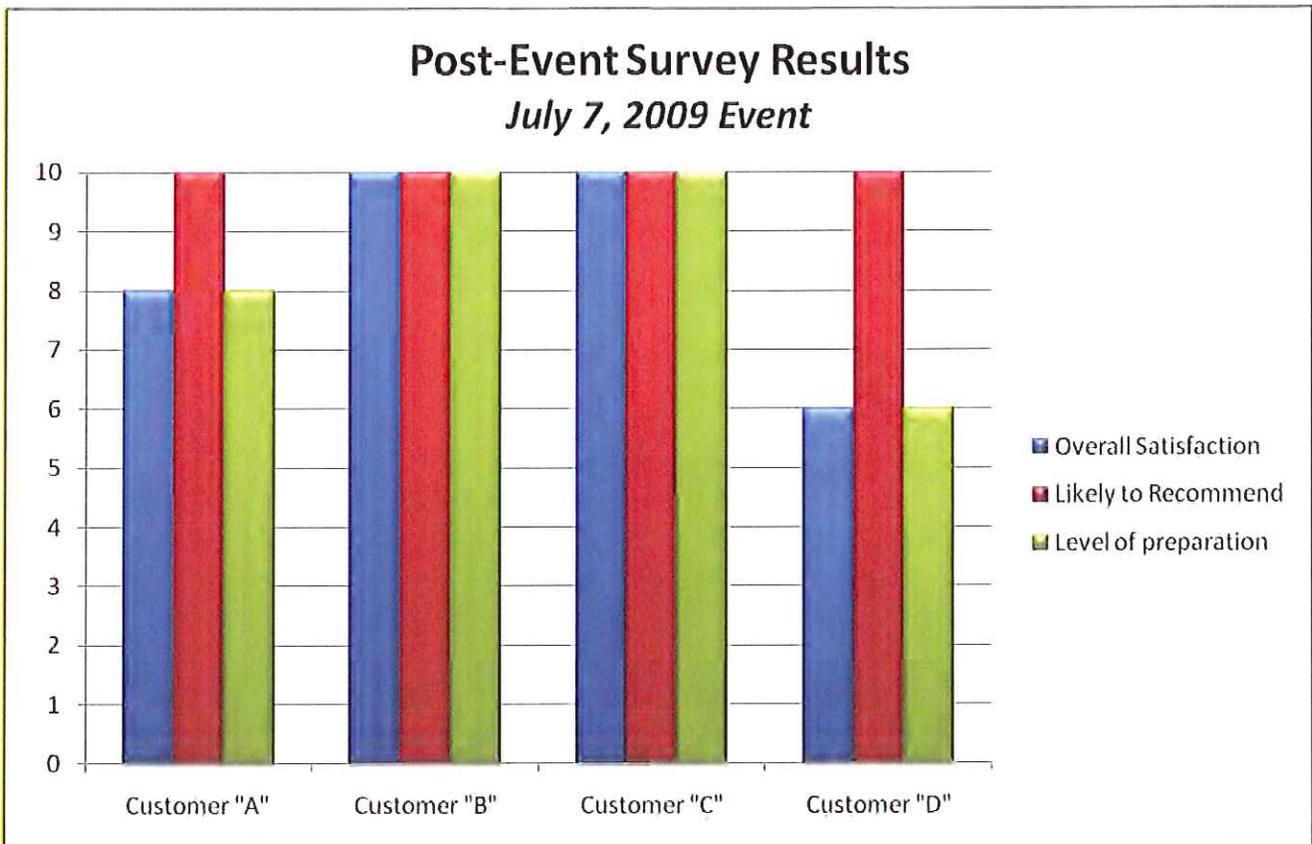
Event Performance (MW)



<b>Committed Capacity:</b>	<b>6.6 MW</b>	
<b>Current Performance:</b>	8.3 MW	124.9%
<b>Entire Event Performance:</b>	8.7 MW	130.6%
<b>MW Not Reporting:</b>	0.0 MW	0.0%

## Customer Satisfaction

EnerNOC conducted a post-event customer satisfaction survey after the July 7<sup>th</sup> test event, and while only a few customers were enrolled in the program at that time, results were positive. Six customers were enrolled across 10 sites for this event. Of the 19 contacts made, 4 responded to the survey, for a response rate of 21%. On a scale of 1 to 10, 10 being the most prepared, the average level of preparedness was 8.5. On a scale of 1 to 10, 10 being the most satisfied, the average level of overall satisfaction was 8.5. On a scale of 1 to 10, 10 being the most likely to recommend, all four customers were at a 10. Results are shown below.



Three of the four customers said the level of difficulty in the reduction plan was about what they expected, and the fourth said it was easier than expected. One general comment was submitted, requesting more advanced notice.

EnerNOC plans to conduct a 2009 post-season survey within the first quarter of 2010. Results of the survey will be made available to Idaho Power.

All 22 customers who enrolled and participated in the 2009 season are enrolled to participate in 2010.

## Payment Reconciliation

EnerNOC invoiced Idaho Power on a monthly basis. Invoices consist of both a capacity payment component, based on the amount of reduction available during active program times, and an energy payment component, based on measured reductions during each event. In June and August, there were no demand reduction events, so charges were based on a simple capacity payment calculation using EnerNOC weekly reduction commitments. During the month of July, in which eight demand reduction events were called, billed amounts had an energy component and a capacity component which were both based on actual participant reductions.

The overall demand reduction was determined by totaling the demand reduction of each participating facility. The demand reduction of each participating facility was determined by subtracting their actual use from a calculated baseline. The baseline in a demand reduction program is used to measure response and establish appropriate compensation for program participants. It estimates what would have happened on an event day, absent the demand reduction event, which then allows Idaho Power to determine how much load was reduced as a result of the program. Specifically, a baseline is calculated by selecting the three highest load days of the preceding ten non-event business days. A “day-of-adjustment” is then applied to the baseline to shift or scale the baseline based on electricity usage in the hours prior to an event so that electricity usage predicted by the baseline most closely matches actual electricity usage on the day of an event (absent any demand reduction program response). These adjustments are used to account for the impact that temperature has on a participant’s expected load. Without this adjustment, the baseline could underestimate expected electricity usage on the event day.

EnerNOC provided customer baseline and reduction data to Idaho Power with the July invoice, and Idaho Power worked in parallel, using the actual five minute interval data received from EnerNOC to determine baselines and reductions independently. Where there were discrepancies, the two companies worked together to determine the cause and correct any mistakes. Discrepancies were due to a misinterpretation of the day-of-adjustment calculation and a misunderstanding as to whether or not past event days would be included in the baseline. At the end of the reconciliation process, both companies agreed upon the individual reductions and composite reductions for each event.

## Cost-Effectiveness

In the initial cost-effectiveness analysis, Idaho Power estimated that the commercial demand response program would be cost-effective, both from the Utility Cost (UC) and Total Resource Cost (TRC) perspectives, beginning in year two (2010). Year one of the program was viewed as a ramp up year. It was projected that the TRC benefit-cost (b/c) ratio in year one would fall below 1.0, but that building the program foundation would contribute to a cost-effective program in ensuing years.

EnerNOC's initial goal was to achieve 2 MW of demand reduction, and the cost-effectiveness analysis indicated that under normal circumstances the program must reach 15 MW for the value in demand savings to be greater than program costs and for the program to be cost-effective.

However, after determining actual expenses and MW demand reductions achieved in 2009, the program was cost-effective in its first year. Lower expenses and higher demand reduction contributed to the program's cost-effectiveness in year one. Following are some of the reasons:

- Program administration costs were one-third of what was originally projected.
- Despite the late start, EnerNOC experienced a higher participation rate than what was originally expected. This resulted in higher demand reductions than were assumed in the original cost-effectiveness analysis.
- Most notably, the assumption in the cost-effectiveness analysis was that EnerNOC would achieve the exact MW demand reduction they committed to provide to Idaho Power. In actuality, EnerNOC achieved a much greater reduction than the committed MW reduction.

The actual TRC b/c ratio in 2009 was 1.60, and not the 0.51 originally predicted, as shown below.

<i>2009 FlexPeak Management Cost Effectiveness</i>		
	MW Reduction	TRC Ratio
Projected	2	0.51
Actual	11.1	1.60

The actual cost of the program in 2009 was \$528,681. In the remaining years of the contract, the program is expected to be cost-effective with a projected contract life b/c ratio of 1.11 from the TRC perspective.

## Conclusion

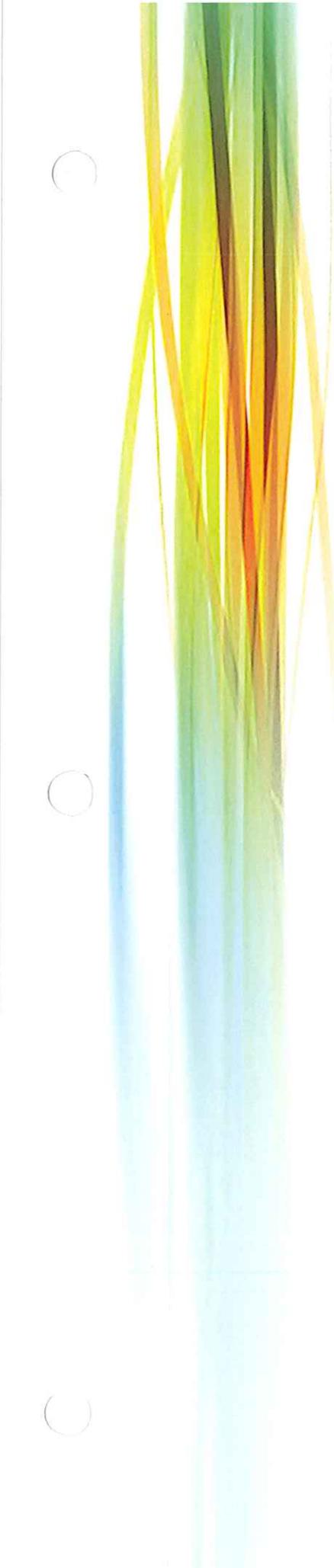
Given the speed with which FlexPeak Management was implemented and given demand reduction results that far exceeded expectations, Idaho Power considers 2009 to be an extremely successful year. Not only was the company able to offer customers a quality program with multiple benefits, but FlexPeak Management's contribution to Idaho Power's system peak reduction was more than eight times the original forecast capacity of the program. Going forward, Idaho Power will continue to evaluate the best use of the program in order to meet the program objectives. Results will be reported annually in the Demand Side Management Annual Report.

## EVALUATIONS

Table 3. 2010 Evaluations

Report Title	Program or Sector	Analysis Performed by	Study Manager	Study/Evaluation Type
Process Evaluation of Idaho Power Company's Residential Energy Efficiency Programs	Residential	Global Energy Partners	Idaho Power	Process
Heating and Cooling Efficiency Program Process Evaluation				
Energy House Calls Program Process Evaluation				
Home Improvement Program Process Evaluation				
Energy Efficiency Education Initiative				
Idaho Power Company Process Evaluation CI&I Summary Report	Commercial/Industrial	The Cadmus Group	Idaho Power	Process
Easy Upgrades Program Process Evaluation	Commercial	The Cadmus Group	Idaho Power	Process
Building Efficiency Program Process Evaluation	Commercial	The Cadmus Group	Idaho Power	Process
Custom Efficiency Program Process Evaluation	Commercial	The Cadmus Group	Idaho Power	Process
Commercial Energy Efficiency Education Initiative Process Evaluation	Commercial	The Cadmus Group	Idaho Power	Process
Irrigation Efficiency Rewards Program Process Evaluation	Agricultural	The Cadmus Group	Idaho Power	Process

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# **PROCESS EVALUATION OF IDAHO POWER COMPANY'S RESIDENTIAL ENERGY EFFICIENCY PROGRAMS**

Report Number 1340

February 3, 2011

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## INTRODUCTION

This report presents the process evaluation results for four of Idaho Power Company's (IPC) residential energy efficiency programs. This evaluation covers the following residential programs:

- Heating and Cooling Efficiency Program
- Energy House Calls
- Home Improvement Program
- Energy Efficiency Education Initiative

During the evaluation kick-off meeting IPC identified the following main objectives for the evaluation:

- Work with the IPC program specialists and the evaluation team to fully understand how the programs are designed and implemented and the challenges the program faces in meeting annual goals.
- Develop program logic models for each of the four programs.
- Review survey instruments and results and recommend changes, if appropriate.
- Identify and thoroughly research similar programs around the country and develop a list of best practices for each of the four programs.
- Make recommendations to improve the programs and increase penetration rates.
- Recommend an on-going approach to process evaluation.

The evaluation tasks are generally the same for each program and are discussed in each of the individual program chapters. Major evaluation tasks included:

- *Interview program managers.* Interviews were conducted with program managers in August 2010. Program managers helped gauge program progress and identify the challenges the program faces in meeting annual goals.
- *Review program data.* Existing program data were reviewed to understand how the program was designed, how it was presented to customers and market actors, and how services were delivered. It involved reviewing documents related to program design and implementation, including the program handbooks and marketing plans developed by IPC staff.
- *Develop logic model.* A logic model was developed for each program. The logic model links program activities and expected outcomes and therefore, is useful for identifying specific program assumptions that can later be tested using a survey or other primary data collection activities. A logic model can illuminate weaknesses in a program, which in turn can focus the evaluation on those areas or alert a program manager to flaws in theory that should be addressed. It also establishes a starting point for all future evaluation activities.
- *Review existing surveys.* As directed by IPC, no primary data collection was conducted as part of this evaluation. Rather, all existing IPC program surveys, survey designs, and mechanisms were reviewed to provide feedback to IPC on the merits of its surveys and areas for refinement.

- *Conduct best practices review.* Similar programs around the country were identified and researched to develop a list of best practices for each program. In turn, these were used to develop recommendations for program improvement.

The remainder of this report is organized as follows. Chapter 2 presents a discussion of evaluation issues and findings that relate to all four residential programs. Chapter 3 through Chapter 6 present detailed evaluation results for each of the residential programs covered in this evaluation. Chapter 7 discusses recommendations for a more comprehensive process evaluation plan moving forward.

## KEY FINDINGS

After carefully reviewing program materials and survey results, interviewing program managers, developing program logic models, and conducting research into best practices for comparable programs across the U.S., we conclude that the four residential programs at IPC are very successful. This chapter describes what is working well, what is missing, and what could be done to insure successful program performance in the future.

### 2.1 WHAT'S WORKING WELL

The programs are performing well and are reaching the savings goals. Highlights of this evaluation include the following:

- Overall, the programs have improved, or remained consistent, in 2009 compared to 2008 in terms of the number of participants, energy savings, and cost per kWh saved.
- The cost effectiveness analysis of the programs is thorough. As a result of this analysis, program specialists have made changes to the programs when necessary to ensure that the measures are appropriate and the program remains cost effective.
- The program specialists are knowledgeable, invested in the programs, and flexible. They react quickly to challenges the programs face, and attempt to continuously improve the programs to ensure that they meet or surpass goals. This evaluation did not identify any internal obstacles to program success. The staff is cohesive and works together to make the programs strong.
- The marketing plans for the programs are particularly strong. They are well designed and strategically focused. The plan itemizes several planned actions that will help keep participation in the programs growing.

### 2.2 WHAT'S MISSING

We only identified one key shortcoming of the programs. It is the lack of sufficient primary research with customers and market actors. Surveys of participants, partial participants (those who have had contact with the program, but exited the program without completing a project), and nonparticipants (those who when screened are found to qualify, but have not had contact with the program) are key tools for assessing how the program is operating in the field. IPC has conducted participant surveys for some of the programs. They are a good tool for understanding participant satisfaction, but provide little guidance on how the program can be improved. In addition to the satisfaction questions, IPC should explore specific program features and program operations.

Partial-participant and nonparticipant surveys are key to understanding barriers to program participation and provide essential guidance to overcoming those barriers. Unless nonparticipants as well as participants are sampled, there is an unrealistic perception of the market reaction to the program.

Data from market actors is also vital to program success. Market actors are often in the trenches of delivering the measures, and are a great resource for understanding the status of the market, changes in the market, and what is needed to influence the market. As with the participants, IPC has collected a limited amount of data in this area and the effort needs to be expanded.

Only through conducting a full assessment of the program from multiple points-of-view including participants, nonparticipants and market actors is it possible to gain an open and objective point-

of-view about the programs strengths and what areas need improvement. Getting this data in the hands of IPCs project specialists will ensure that the programs remain successful moving forward.

In Chapter 7, we provide specific recommendations for additional research. We list the information that would be useful to obtain from all the parties. We also recommend a data-collection approach that will keep costs within reason.

## **2.3 RECOMMENDATIONS**

We provide recommendations specific to the four programs in Chapters 3 through Chapter 6. In Chapter 7, we provide recommendations for future process evaluations. We present the key findings below.

### **2.3.1 Program-Specific Recommendations**

For each program, we highlight the highest priority actions below.

#### **Heating and Cooling Efficiency Program:**

- Interview the two high performing contractors to find out why they are successful. Ask them what IPC can do to improve the program.
- Interview approved contractors who have not submitted an application to find out what barriers are stopping them from participating in the program.

#### **Energy House Calls Program**

- Analyze the recently completed saturation survey to help determine the size of the eligible market. This will help IPC determine how large the remaining market for this program is. This addresses the main concern about the program at this time.
- Improve the recordkeeping on program participation. In the most recent survey of non participants, almost a quarter of the respondents said they had participated.

#### **Home Improvement Program**

- Offer an incentive for do-it-yourself installation at a lower incentive level than contractor installation. To ensure proper installation, verify 100% of these projects – at least initially. If results are favorable, verification can be reduced to a random sample of do-it-yourself projects.
- Consider adding attic ventilation as a measure, along with insulation, in order to reduce attic temperatures on hot summer days and reduce peak air conditioning demand.
- Raise the insulation cap to R-60. The federal government currently recommends installing attic insulation up to R-60 in all climate zones.

#### **Energy Efficiency Education Initiative**

- Augment the Outreach Tracking System with a database that tracks non-calendar program activities in a single location.. Include the name and type of activity, the cost of the activity and the number of customers reached by each activity (Develop a list of desired program outcomes and design activities that will directly impact those outcomes.
- Use the recently completed saturation survey to develop baselines for various behaviors (e.g., the saturation of high efficiency equipment).

### **2.3.2 Recommendations for Future Process Evaluations**

There is only one recommendation for future evaluations and it is to conduct additional survey research with participants, nonparticipants and market actors. The additional research would not only benefit the evaluation process itself, but it will provide ongoing feedback about the programs to the program specialists. It will also allow IPC to estimate free ridership, something that cannot be estimated currently. Finally, the survey research will be useful to other departments at IPC as well. Chapter 7 includes numerous specific recommendations. We provide only a few key activities below.

- Expand the existing surveys with participants to address a broader range of topics that goes beyond customer satisfaction. Ask specific questions about program delivery and implementation that IPC can use to improve the programs.
- Conduct a survey with nonparticipants/general population with a minimum sample size of 250. This survey can combine questions relevant to the Heating and Cooling Efficiency Program, the Home Improvement Program and the Energy Efficiency Education Initiative. It should address the following topics:
  - Program awareness
  - Knowledge of the benefits of the program measures
  - Free ridership
  - Barriers to program participation

## HEATING AND COOLING EFFICIENCY PROGRAM

### 3.1 PROGRAM DESCRIPTION

The Heating and Cooling Efficiency program provides incentives for the purchase and proper installation of qualified heating and cooling equipment. The program takes a Quality Installation (QI) approach that requires that the equipment is properly sized and installed to achieve the greatest energy savings. Customers must work with a participating contractor in order to receive the incentive. IPC provides training on the program and quality installation to the contractor community. Contractors who attend the training can become participating or "approved" contractors.

Homeowners with all-electric homes, or who use oil or propane for heating are eligible for an incentive ranging from \$200 to \$1,000 depending on the equipment. In the past there was also a federal incentive available that helped to further reduce the initial cost barrier of the equipment and installation, but that has expired. In the past, the program included additional measures; central A/C measures beyond code and commissioning or tune-ups for both A/C and heat pumps. At the end of 2008, the cost effectiveness of these measures was re-examined and they were discontinued due to low savings, free-ridership and high training and education expenses. The program has met its goals consistently in the past, but did not meet its goals in 2010, largely due to the economy.

The program specialist interview conducted at the beginning of this evaluation revealed that the biggest challenge for the program is that it is not simply an equipment-rebate program, but a quality installation program. QI is necessary, because it's the best method for verifying savings. The QI requirements are sometimes confusing to both customers and contractors. Customers think that if they buy a heat pump they should get an incentive. Contractors believe their business is to sell equipment and not necessarily QI. But contractors and customers are only eligible for incentives when the equipment has been properly sized and installed. It's been a long process to get buy-in on the quality installation process from the contractor community, but some contractors who were initially opposed to the program have now become the programs strongest proponents.

Based on the interview with the program specialist, several key research issues were identified that provided focus to the evaluation. Specifically, the program specialist was interested in identifying specific strategies that would:

- Boost participation rates during economic downturns
- Improve the relationship with participating contractors
- Increase program awareness and develop relationships with local HVAC wholesalers and OEM factory representatives
- Efficiently monitor and report program website activity

We kept these objectives in mind as we reviewed data at IPC and conducted best-practices assessment.

### 3.2 DATA REVIEW

To complete this task, the customer application, the air source heat pump worksheet, the variables contained in the program tracking database, a list of approved contractors and the number of projects they completed, the program handbook, the marketing plan, process flow chart, the IPC website, the 2009 potential study, and the brochure (flyer) were reviewed.

Overall the information provided was very thorough and complete. Major findings include the following:

- The marketing plan is an excellent resource with several great ideas for boosting program participation. These ideas include:
  - Utilize field staff to market the program to customers and HVAC contractors
  - Incorporate relevant market research into new marketing materials
  - Work with HVAC contractors to ensure understanding of program details
  - Motivate participating contractors to feel positive about the program and sell it to their customers
  - Keep customer call center representatives updated with current program information
- The database tracks all the necessary information for evaluation purposes, with the possible exception of customers' and contractors' email addresses. We reviewed the variables in the database, not the actual data in the database, but if all the fields are completed for each customer, this has the potential to be a great resource for IPC. IPC can analyze the database to develop a characterization of the participants, target market to nonparticipants with similar characteristics, and create a sample of participants for solicitation of feedback.
- More than a quarter (27%) of the approved contractors has not completed a project through the program.
- The same proportion (27%) has completed six or more projects through the program.
- Two contractors stand out as high performing. One contractor has completed 19 projects and one has completed 34 projects.
- The 2009 potential study shows significant growth opportunity for the Heating and Cooling Efficiency program.

### **3.2.1 Review of Available Survey Data**

In 2010, IPC conducted short surveys with participating customers. Sixty customers who installed a heat pump and five customers who installed an evaporative cooler completed the surveys. The survey results show the following:

- Most participants find the enrollment process easy.
- Overall, participants have a high level of satisfaction with the program.
- Most participants would recommend the program to a friend or relative.
- The majority of heat pump participants purchase an air source heat pump.
- Most heat pump participants said they heard about the program from their contractor.
- A quarter of heat pump participants heard about the program from a bill insert.
- The five participants heard about the evaporative cooler program exclusively from the retail store or the IPC website.
- Twenty-one percent of the heat pump respondents said the program had no effect on their purchasing decision.
- Two of the five evaporative cooler respondents said the program had no effect on their purchasing decision.

In 2009, 18 contractors completed a 14-question survey. Highlights from the survey include the following:

- Most of the contractors heard about the program in a letter from IPC.
- Overall, the contractors do not find the application forms and the worksheets easy to use.
- Twenty-eight percent of the contractors have not promoted the program.
- Advertising and the IPC website are helpful in promoting the program.
- Contractor satisfaction with the program is moderate; there is room for improvement in this area.

### 3.3 PROGRAM LOGIC MODEL

Figure 3-1 below represents the program logic model for the Heating and Cooling Efficiency Program. This logic model was based on Global's understanding of the program design. It was derived from the program handbook and the interview with the IPC program specialist.

#### 3.3.1 Activities

The program logic model revealed eight specific activities:

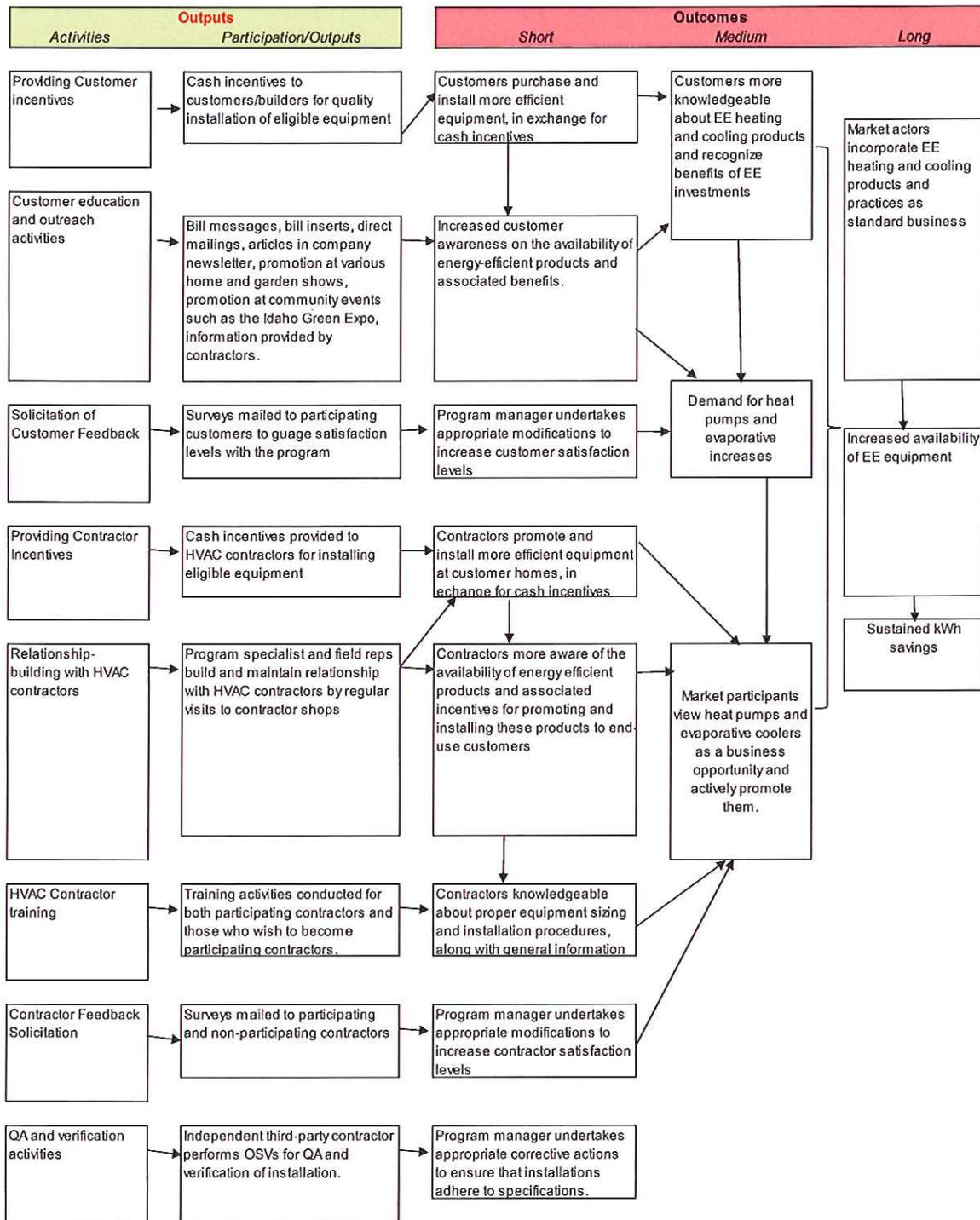
- *Providing Customer Incentives.* Incentives are paid to customers based on the type of equipment installed. This reduces the barriers of customer awareness and high initial cost.
- *Customer Education and Outreach.* The program uses a variety of marketing channels to educate customers and increase awareness including radio ads, bill stuffers, the company website, promotional events, customer newsletter articles and sponsorship of a Saturday morning home-fix-it show. The marketing message is that customers can get cash back, lower their electric bill and make their home more comfortable.
- *Solicitation of Customer Feedback.* In 2010, 65 participating homeowners/builders completed a short survey about the program.
- *Providing Contractor Incentives.* Cash incentives are paid to participating HVAC contractors for properly installing qualifying equipment. This reduces the barrier of contractor awareness and lack of time/interest in attending the required training.
- *Relationship Building with Contractors.* The program specialist and field representatives build and maintain relationships with HVAC contractors through regular visits to increase awareness, answer any questions the contractor has and gather feedback about the program. Participating contractors are also a very important marketing channel for the program.
- *HVAC Contractor Training.* Contractors are required to attend a training session in order to participate. The training focuses on the proper sizing and installation of heat pumps and the paperwork required for the incentives.
- *Contractor Feedback Solicitation.* In 2009, 18 of the 41 approved contractors completed a short survey about the program.
- *QA and Verification Activities.* Random onsite verification is conducted to verify that the submitted paperwork matches what is installed at the customer site.

#### 3.3.2 Outcomes

The eight activities lead to short-, medium- and long-term outcomes. As the logic model shows, some activities lead to more than one outcome. As a result of the activities performed, the following short term outcomes are expected:

- Increased customer awareness of the availability of energy-efficient products and associated benefits.

**Figure 3-1 Heating and Cooling Efficiency Program Logic Model**



- Contractors are more aware of the availability of energy efficient products and associated incentives for promoting and installing these products to end-use customers.
- Contractors promote and install more efficient equipment at customer homes.
- Customers purchase and install more efficient equipment.
- Based on feedback, the program specialist undertakes appropriate modifications to increase customer satisfaction levels and improve the program implementation.

These short-term outcomes, along with the ongoing activities, lead to the following medium-term outcomes:

- Customers become more knowledgeable about energy efficient equipment and recognize the benefits of investments in energy efficiency.
- Demand for heat pumps and evaporative coolers increase.
- Contractors view the installation of heat pumps and evaporative coolers as a business opportunity and actively promote the equipment.

Ultimately, the following long-term outcomes are realized:

- Contractors incorporate the equipment and the quality installation practices as standard business.
- More equipment is sold and it is readily available.
- The utility realizes sustained kWh savings.

The logic model shows that the program has a clear goal of increasing the number of installations of heat pumps and evaporative coolers. The activities are clear and appropriate for reaching this goal.

### **3.4 BEST PRACTICES REVIEW**

For the best practices review, we identified and reviewed several programs in the U.S. that are similar to IPCs Residential Heating and Cooling Program:

- Energy Star Homes Northwest Programs
- Eugene Water and Electric Board Centsible Heat™, CheckMe!® HVAC Maintenance & Comfort SEAL programs
- Energy Trust of Oregon Efficient New Homes
- Energy Trust of Oregon Home Energy Solutions
- MidAmerican Residential Equipment Program
- APS Residential Existing Home Heating, Ventilation & Air Condition Efficiency Program
- Public Service of New Mexico Electric Energy Efficiency Programs
- SMUD Air Conditioning and Heat Pump Program
- Connecticut Residential HVAC Program
- Heat Pump Working Group Analysis of Heat Pump Installations and Practices

This research revealed that IPC's Heating and Cooling Efficiency program is currently instituting several best practices:

- Making quality installation a requirement of the program, which improves the program's cost effectiveness
- Requiring that contractors are trained in order to be approved for the program
- Providing contractors with training on proper installation

- Directing a portion of the incentives to upstream market actors (e.g., HVAC contractors)
- Defining and identifying the key information needed to track and report program progress in the program database
- Keeping customer participation simple

The review also revealed several important findings that will be helpful in improving IPCs program design and implementation. We list the full set below and then we extract the key items in the recommendations that follow.

### **1. Contractors have a major influence on the success of the program.**

Evaluations of these programs show that consumers rely heavily on contractor recommendations. Program dollars spent on influencing contractor attitudes will effectively spill over to consumer behavior<sup>1</sup>. Efforts to improve outreach to contractors included the following:

- Periodic meetings to inform contractors about program elements and planned changes,
- Periodic mailings (hard copy and e-mail) containing newsletters with articles about the program,
- One-on-one visits to contractors with the highest energy efficiency sales volumes,
- Building awareness through presentations, booths and seminars at trade ally conferences and home shows,
- Selected advertising in trade journals,
- Contractor recognition through institution of an awards program,
- Contractor training, both energy efficiency training and sales training<sup>2</sup>.

### **2. Financing can help overcome cost barriers not fully addressed by the incentive.**

The cost of high efficiency products is the main barrier to market adoption. This is true at IPC and the other programs reviewed. Incentives for high cost measures such as heat pumps, do not typically cover the incremental cost of going from a standard efficiency to a high efficiency appliance. Offering financing can further reduce the cost barrier. Research with contractors has found that low-interest loans and rebates are considered valuable sales tools<sup>3</sup>.

### **3. Customer education is an important sales tool.**

Explaining the benefits of high efficiency equipment is difficult and often beyond the ability of a contractor. Online tools such as payback calculators can help contractors show customers the value of buying a better piece of equipment<sup>4</sup>.

### **4. Incentives are not the only reward option for contractors.**

There are ways other than incentives that reward contractors for their support of programs. Reward options include sales contests, cooperative advertising campaigns, improved software tools to help in the calculation and sales process, dinners or trips coupled with business or training meetings, and other non-cash incentives. One suggestion is to consider partnering with the equipment manufacturers to develop software tools that can be used by their dealers to size equipment while quickly calculating energy bill savings and payback for energy-efficiency equipment<sup>5</sup>.

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<sup>1</sup> Residential Air Conditioning Best Practices Report, Best Practices Benchmarking for Energy Efficiency Programs, [www.eebestpractices.com](http://www.eebestpractices.com), December 2004

<sup>2</sup> MidAmerican Energy Company Residential Equipment Program Process Evaluation Report, August 2005

<sup>3</sup> Ibid.

<sup>4</sup> MidAmerican Energy Company Residential Equipment Program Process Evaluation Report, August 2005

<sup>5</sup> Ibid.

## 5. Customers' main driver to purchase high efficiency equipment is lower utility bills.

Most customers participate in the equipment programs to lower utility bills. To help customers achieve these goals, programs offer an energy education component to encourage customers to make behavior changes that can increase bill savings. These actions most commonly include lowering the heating temperature or raising the A/C temperature, purchasing CFLs and using fans more often to supplement or partially offset the A/C.<sup>6</sup>

### 3.5 CONCLUSIONS AND RECOMMENDATIONS

IPC's Heating and Cooling Efficiency Program is successful. It is well designed and is meeting its goals. The program incorporates several best practices identified in our review, has an actionable marketing plan and satisfied participants who would recommend the program to others.

In order to maintain the history of program success, we have identified several enhancements to the program. The first area is the relationship with contractors, which could be improved. More than a quarter of approved contractors have not actively participated in the program, and the contractor survey showed a level of dissatisfaction with the program. In contrast, a few contractors are very high performing and much can be learned from them. The project specialist also believes that the program has a high learning curve for contractors, and although it has taken time, some contractors who were initially critical to the program have become supporters. We recommend the following actions for improving and expanding the contractor relationship:

- Interview the two high performing contractors to find out why they are successful. Ask them what IPC can do to improve the program. Discuss with them the problems other contractors have expressed and ask them if these are obstacles for them as well. They may describe their workaround or they may have suggestions for how to improve the worksheets and forms to make them easier to complete. This approach is consistent to a best practice we identified: establish key contractor accounts (analogous to key accounts for high-use customers) for the most successful contractors in the program. Finally, ask these contractors if they are willing to help promote the program to other contractors by attending training workshops or providing testimonials.
- Interview approved contractors who have not submitted an application to find out what barriers are stopping them from participating in the program.
- Increase the outreach to contractors. This could include a variety of mailing, such as the current letter, the brochure, newsletter articles, a summary report of participating customer surveys, interviews with the top performing contractors and their keys to success, etc. If IPC were to gather their email addresses, IPC might also reach out to them via email with similar materials and possibly success stories.
- Institute an awards program for contractors. The highest performing contractors can receive extra incentives, a dinner at a local restaurant, free publicity through the program advertising, etc. This kind of recognition and marketing has been proven in other programs.
- Put the application forms and worksheets on the IPC website so contractors can download them and/or complete and submit them online. Consider developing online tool to help contractors complete the forms. Work with the IT department to receive monthly reports on the number of page views and how often the forms and worksheets were downloaded. This will provide information to the IPC program manager about which materials are reaching the target and which are not.
- Expand outreach efforts upstream to include HVAC wholesalers and OEM factory representatives. Engage IPC field representatives to arrange meetings with these market actors to explain the program and its benefits. Partner with these market actors on

<sup>6</sup> APS Measurement, Evaluation & Research (Mer) Report Residential Existing Home Heating, Ventilation & Air Conditioning (Hvac) Efficiency Program Impact And Process Evaluation, Summit Blue Consulting, September 30, 2008

contests rewarding the contractor community for selling high efficiency equipment. Coordinate advertising campaigns on specific qualifying equipment that they offer.

- Consider partnering with the equipment manufacturers to develop software tools that can be used by contractors to size equipment while quickly calculating energy bill savings and payback for energy-efficiency equipment

In addition to the efforts with contractors, the data review and best practices analysis also identified several activities that could be undertaken to improve the Heating and Cooling Efficiency program. While these activities are not the highest priority, they have been used successfully by other programs and should be considered.

- Improve your understanding of the market.
  - Use the recently completed residential saturation survey to gain an understanding of the market for heat pumps and evaporative coolers<sup>7</sup>. Data from that survey will provide an indication of market size and develop a profile of customers who currently own a heat pump or an evaporative cooler. Compare these results to prior saturations surveys to analyze how the market has changed.
  - Ask contractors to complete a short questionnaire at the training that asks about their current sales practices and the proportion of their sales that are high efficiency units.
- Maximize the power of the web.
  - Create online tools for customers such as payback calculators that allow them to calculate the payback of heat pumps and evaporative coolers.
  - Show the difference in utility bills, energy savings, comfort of the home, etc.

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<sup>7</sup> The market characterization task will support this recommendation.

## ENERGY HOUSE CALLS

### 4.1 PROGRAM DESCRIPTION

The Energy House Calls program provides free duct sealing services and additional efficiency measures to customers living in manufactured or mobile homes with an electric furnace or heat pump. Any homeowner with an all-electric manufactured home qualifies automatically for the program. IPC works with three contractors on the program and each contractor covers a geographic area of IPC's service territory. Interested customers call the contractor to make an appointment to get their ducts tested. The appointment takes an hour and a half to two hours and the customer is required to be home for the appointment. During the visit the contractor conducts a duct-blaster and a blower-door test. The goal is to seal the ductwork and improve the test results by 50% or more. The contractor seals the leaks and conducts the test again to ensure that the 50% improvement goal has been reached. During the appointment the contractor also installs five compact fluorescent bulbs, replaces the air filter and checks the hot water temperature. He also places a sticker on the customer's furnace, and leaves behind a packet of customer education materials. IPC uses a third party vendor, ECOS Consulting, to administer the program. They process the contractor paperwork, invoice IPC and pay the contractor for the work performed.

The program specialist interview conducted at the beginning of this evaluation revealed that the biggest challenge for the program is reaching as much as of the eligible population as possible before IPC needs to sunset the program. The program goal is 600 homes a year, and IPC has consistently surpassed that goal. The eligible population is finite; therefore there will come a time when there are not enough homes to service in the market to make delivering the program cost effective.

### 4.2 DATA REVIEW

To complete this task, the customer application, the program handbook, the marketing plan, the process flow chart, the direct mail letter, the brochure, the backdraft test results letter, the thank you letter, the IPC website, and the 2009 potential study were reviewed. Major findings include the following:

The program is well-run, cost effective, and consistently surpasses its goals.

- The marketing plan is an excellent resource with several great ideas for engaging utility staff to reach the remaining pool of eligible customers:
  - Educate field staff on the program and provide them with materials to promote the program.
    - For Customer Service Reps
      - Update call center FAQs and on line material as program information changes
      - Include the program in the introduction to all new CSRs
      - Include the program in training and refreshers for addressing high bill and collection issues
      - Promote the program as a tool for addressing high bill and collection calls as appropriate

- For Customer Reps (CRs)
  - Update DSM spreadsheet with program changes, progress, etc., to share with RCRM's (Regional Customer Relations Manager) and CR's on a monthly basis
  - Provide talking points CRs can share with their customers
  - Encourage CRs to use the program with high bill complaints and energy audits
  - Ask CRs how they can help promote program, ask what additional materials would help them
- The redesign of the direct mail letter to a more conversational tone has worked well and helped to reduce the barrier that customers don't trust free services.
- The 2009 potential study showed declining participation and savings for this program. To date that decline has not happened. This indicates the need for better data about the market.

#### **4.2.1 Available Survey Data**

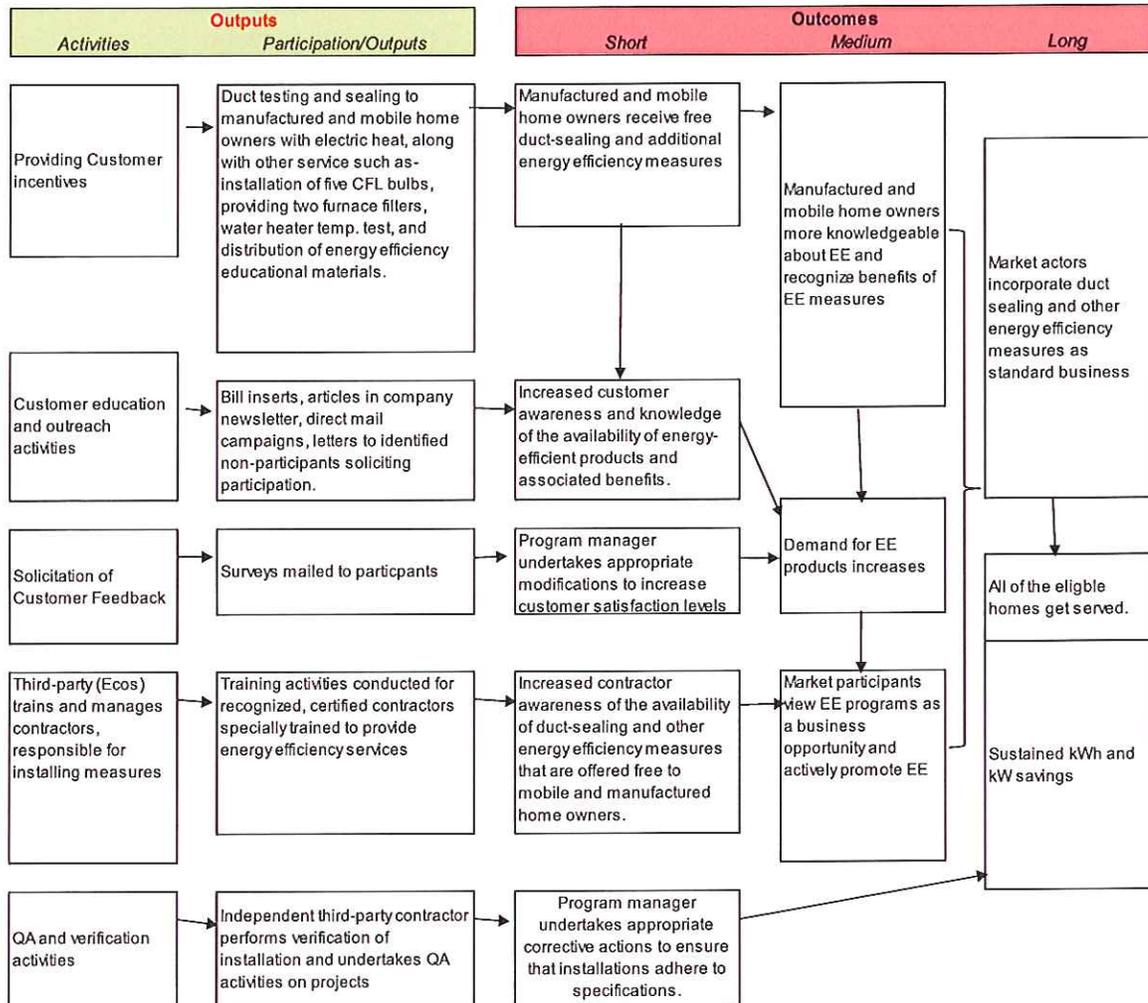
In 2008 IPC conducted a thirteen question survey with 243 participants. Also, a four-question survey with 266 nonparticipants who received a direct mail letter but did not participate was conducted in 2009. The survey results show the following:

- The majority of participants hear about the program from the direct mail letter.
- Word-of-mouth promotion resulted in 18% of the participants.
- Almost half of the participants could not recall the name of the contractor.
- Overall, most participants are satisfied with the contractor. A small group (5%) is dissatisfied.
- Eighty five percent of participants said they were somewhat or very satisfied with the program.
- Ten percent (10%) of participants said they were very dissatisfied with the program. Most participants (71%) would recommend the program to a friend or relative.
- Almost a third of participants would pay some amount for the services.
- Increased comfort is a major benefit of program participation.
- Twenty-three percent of the "nonparticipants" said they participated.
- Forty-one percent of non-participants would not have qualified for the program because they do not have electric heat.

#### **4.3 PROGRAM LOGIC MODEL**

Figure 4-1 below represents the program logic model for the Energy House Calls program. This logic model is based on Global's understanding of the program design. It was derived from the program handbook and the interview with the IPC program specialist.

**Figure 4-1 Energy House Calls Program Logic Model**



#### 4.3.1 Program Activities

The program logic model revealed five main activities.

- *Providing Customer Incentives.* Customers receive the duct sealing service free of charge. The program also includes the free, direct installation of CFL bulbs and furnace filters.
- *Customer Education and Outreach.* The main marketing channel for the program is a direct mail letter. This letter has been revised in recent years to make it less like an advertisement and more conversational in tone. IPC sends out a letter for each contractor, in batches of 2,000 – 3,000. The letter describes the program and includes the contractors' telephone number. Three to five percent (3-5%) of the customers who receive a letter become participants. IPC has also used bill stuffers and blurbs in the Customer Connections newsletter to market the program. IPC is concerned that their direct mail database does not include all eligible homes, so sending a bill stuffer will reach those eligible homes that are not in the current database. IPC has also created a new brochure that will be used exclusively by field representatives in the future.

The marketing message is "increase the comfort of your home". In the past, the marketing message also stressed saving money, but in some cases the monetary savings are not noticeable to customers due to rate structure, rate changes or short-term

weather-related usage. As a result IPC stresses increasing comfort as the main marketing message.

- *Solicitation of Customer Feedback.* In 2009, 243 participating homeowners completed a short survey about the program and 266 non-participants completed a four-question survey about the program.
- *A Third Party Trains and Manages Contractors.* Program delivery is under contract with Ecos Consulting, a company with experience managing and supplying duct-sealing service programs. Ecos Consulting coordinates the contractors, processes the contractor paperwork, invoices IPC and pays the contractor for the work performed.
- *QA and Verification Activities.* Third-party audits are conducted in five percent of the homes served.

#### **4.3.2 Outcomes**

The five activities lead to short-, medium- and long-term outcomes. As the logic model shows, some activities lead to more than one outcome. As a result of the activities performed, the following short term outcomes are expected:

- Customers receive free measures
- Increased customer awareness and knowledge of the availability of energy-efficient products and associated benefits
- Contractors are more aware of the availability of duct sealing and other energy efficient measures that are offered free to end-use customers
- Based on feedback, the program specialist undertakes appropriate modifications to increase customer satisfaction levels and improve the program implementation

These outcomes, along with the ongoing activities, lead to the following mid-term outcomes:

- Customers become more knowledgeable about energy efficiency and recognize the benefits of investments in energy efficiency
- Demand for energy efficiency measures increase
- Contractors view energy efficiency as a business opportunity and actively promote the measures

Ultimately, the following outcomes are realized:

- Contractors incorporate duct sealing and energy efficiency measures as standard business practices
- All eligible homes are served
- The utility realizes sustained kWh savings

The logic model shows that the program has a clear goal of updating the duct sealing in all eligible homes. Whether the market will be able to sustain the availability and affordability of duct sealing in the absence of the program is uncertain. Once the program ends, contractors may discontinue offering and promoting the service. At that time IPC may want to add duct sealing as an eligible measure to another existing program and/or include information about the benefits of duct sealing in the education program.

#### **4.4 BEST PRACTICES REVIEW**

For the best practices review, we identified the following programs and research reports that involve with duct sealing:

- 2004 ETO Manufactured Home Duct Sealing Pilot
- 2005-2006 ETO Home Energy Solutions Program

- 2006 – 2008 SCE Comprehensive Mobile Home Program
- 2007 American Synergy Corporation, & Cal-UCONS Comprehensive Hard-to-Reach Mobile Home Energy Savings Program
- 'Policies and Programs for Saving Energy through Enhanced Duct Systems'. Prepared for the U.S. Department of Energy, through the Midwest Research Institute, National Renewable Energy Laboratory Division, 2005
- 'Performance Tested Comfort Systems/ Climate Crafters'. Northwest Energy Efficiency Alliance, 2003.

This research exercise revealed that IPC's Energy House Calls program is currently instituting several best practices:

- Test the home at the beginning of the appointment. If the testing reveals that a home can be cost effectively retrofitted, begin work right away.
- Combined duct sealing with other measures such as CFL installation.
- Provide energy education to duct sealing participants.
- Keep customer participation simple.

The review also revealed several important findings that will help IPC improve program design and implementation. We list the full set below and then we extract the key items in the recommendations that follow.

#### **1. Word of mouth promotion should be encouraged.**

Word of mouth is the second most cited reason for how IPC participants became aware of the program. Other programs have found that a high percentage of participants also talked to their friends and neighbors about the benefits of the program<sup>8</sup>.

#### **2. Demand for the program needs to be created**

Homeowners are often not aware of the benefits of duct sealing. Contractors cite "absence of demand" by homeowners as the main reason duct sealing is not important to their business<sup>9</sup>. The first step in marketing should be making customers aware of the need for the service and the associated benefits.

#### **3. Utility staff can help increase participation**

CSRs who deal with high bill complaints and other utility staff are often used to promote duct sealing programs. Increasing personal contacts, both face-to-face and over the telephone, between utility staff and customers has been reported as a factor in increasing program participation.<sup>10,11</sup>

#### **4. The utility website can be an important tool**

Information on utility web sites can be an effective means of communication to customers. For some programs, customers are invited to schedule a duct inspection on the website.<sup>12</sup>

<sup>8</sup> 'Comprehensive Hard-to-Reach Mobile Home Energy Savings Program Evaluation, Measurement and Verification Report'. Prepared for American Synergy Corporation, & Cal-UCONS. March 20, 2007.

<sup>9</sup> 'Performance Tested Comfort Systems/ Climate Crafters'. Northwest Energy Efficiency Alliance; September 9, 2003.

<sup>10</sup> 'PY 2006-2008 Comprehensive Mobile Home Program Process Evaluation Final Report'. Prepared for Southern California Edison Company. October 2009.

<sup>11</sup> 'Comprehensive Hard-to-Reach Mobile Home Energy Savings Program Evaluation, Measurement and Verification Report'. Prepared for American Synergy Corporation, & Cal-UCONS. March 20, 2007.

<sup>12</sup> 'Policies and Programs for Saving Energy through Enhanced Duct Systems'. Prepared for the U.S. Department of Energy, through the Midwest Research Institute, National Renewable Energy Laboratory Division. April 2005.

## 5. Mobile home neighborhoods provide marketing opportunities

Mobile home parks present a unique opportunity for marketing. A cluster of eligible homes are easy to canvas collectively. Some utilities have organized potluck dinners that include a presentation about the program at mobile home parks, and have left leaflet door hangers for every home within the park<sup>13</sup>.

### 4.5 CONCLUSIONS AND RECOMMENDATIONS

IPC's Energy House Calls Program is successful and despite a declining base of eligible participants is surpassing its participation goals. The program is well-designed, has an invested project specialist, incorporates several best practices, has an actionable marketing plan, and the majority of participants recommend the program to others.

In order to maintain the history of program success and reach as much of the eligible population as possible, we have identified several enhancements to the program. The first area is the sizing of the market. The database of eligible customers was used to identify the sample for the non participant survey and 41% of respondents do not have electric heating and do not qualify for the program. IPC should develop a more accurate estimate of the eligible market for the program. We recommend analyzing the recently completed saturation survey to help determine the size of the eligible market. In addition, it is also important to keep good reliable records on program participation. Almost a quarter of the respondents to the nonparticipant survey said they had participated. Another reason for this discrepancy may be because the customers did not remember or realize they participated in the program.

In addition to the efforts to accurately size the market, the data review and best practices analysis also identified several activities that could be undertaken to improve the Energy House Calls program. While these activities are not the highest priority, they have been used successfully by other programs and IPC should consider them.

- Maximize the power of the IPC website.
  - Include information about the program including contact information for the contractors. Some other utilities offer the capability for customers to schedule a duct inspection on the website.
  - Provide a comments area where customers can easily provide feedback. Ten percent (10%) of customers in the participant survey were dissatisfied with the program. While a satisfaction rating of 85% good and also consistent with other successful programs, the fact that 10% of customers said they were very dissatisfied – the lowest category -warrants further investigation. More feedback from customers is necessary to understand the cause of their dissatisfaction and to lower that percentage.
- Involve utility staff in marketing.
  - Maximize CSRs contact with customers. Train them on the program and have them offer the program to qualifying customers who have a high bill complaint or during collection calls.
  - Work with customer representatives to get them more involved in promoting the program.
- Canvass mobile home parks.
  - Organize potluck presentations for the entire mobile home neighborhood.
  - Leave behind door hangers advertising the program.

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<sup>13</sup> 'Policies and Programs for Saving Energy through Enhanced Duct Systems'. Prepared for the U.S. Department of Energy, through the Midwest Research Institute, National Renewable Energy Laboratory Division. April 2005.

- Ask participants to recommend neighbors who might also benefit from the program.

## HOME IMPROVEMENT PROGRAM

### 5.1 PROGRAM DESCRIPTION

The Home Improvement program provides incentives to homeowners for installing attic insulation. Existing single family homes with electric heat or central air conditioning that have attic insulation of R-40 or lower are eligible for the program. A large majority of residential customers qualify for the program. They are required to improve the R-value by at least 10 points. The program currently caps insulation at R-50, but IPC is considering increasing it to R-60. The customers receive an incentive of 15 cents per square foot of insulation. There are some contractors in the area who only charge 15 cents per square foot, so if a customer works with those contractors the incentive pays for the entire cost of the measure. Some contractors, however, charge as much as 70 cents per square foot.

IPC works with insulation contractors to deliver the program. All insulation contractors are eligible to participate and there is not a list of preferred contractors. Customers contact the contractors directly. When the contractors finish the job, they leave behind a worksheet that tells what the R level was before and after the job and an invoice. The customer fills out the application and sends it in with the worksheet and invoice. Customers receive the incentive within four to six weeks. IPC uses a third party to process the paperwork and deliver the incentives.

The interview with the program specialist conducted at the beginning of the evaluation revealed that the program is affordable, straight-forward and easy for customers to understand. The main obstacle for the program is lack of awareness. Customers don't realize how affordable it is to install attic insulation with the incentives provided by the program.

The program specialist indicated that she would like the evaluation to identify the following:

- Strategies to increase customer awareness.
- The R-values cap for other programs.
- Additional measures that are combined with attic insulation in other energy efficiency programs.
- Strategies for engaging contractors, including providing training and incenting customers who install the insulation themselves ("do-it yourself contractors").

We kept these objectives in mind as we reviewed data at IPC and conducted best-practices assessment.

### 5.2 DATA REVIEW

To complete this task, the program handbook, marketing materials, the 2011 residential marketing plan, variables captured in the program tracking database(s), the IPC website, and the 2009 potential study were reviewed. Major findings include the following:

- The program is consistently surpassing its goals.
- Program participation is not correlated with high energy use.
- Four PRIZM<sup>14</sup> segments have been identified as those who are likely to participate.

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<sup>14</sup> Do we need to define PRIZM?

- The slogan used in the marketing materials: "What did the insulation say to the attic? I've got you covered," quickly captures the audience's attention and helps build program awareness.
- The program tracking database has useful information that can be analyzed to determine the size of the market, the average cost of the program per customer, and the average increase in R-value per customer.

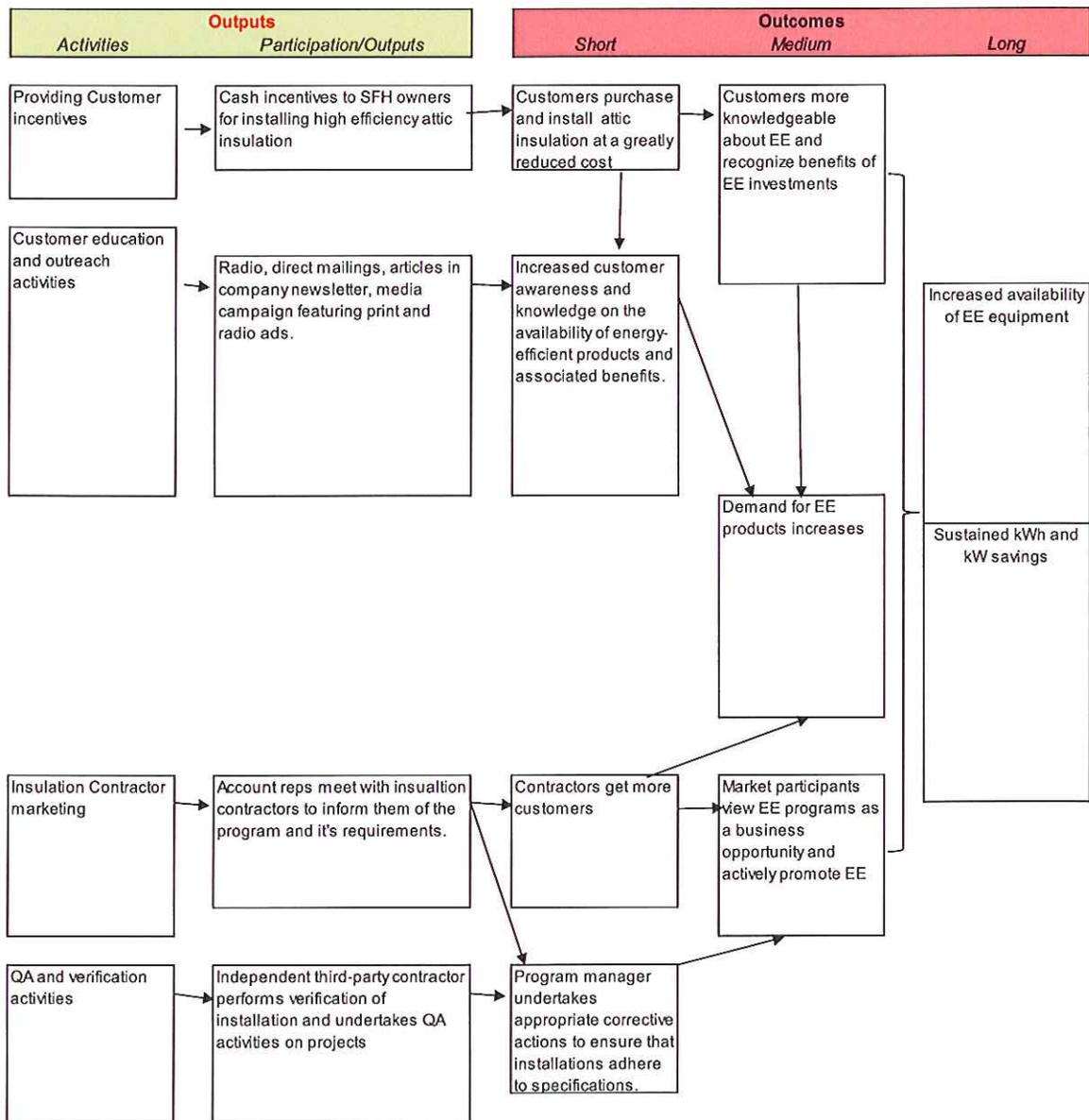
**5.2.1 Available Survey Data**

No primary data are available for the Home Improvement program.

**5.3 PROGRAM LOGIC MODEL**

Figure 5-1 below represents the program logic model for the Energy House Calls program. This logic model was based on Global's understanding of the program design. It was derived from the program handbook and the interview with the IPC program specialist.

**Figure 5-1 Home Improvement Program Logic Model**



### 5.3.1 Activities

The program logic model revealed four specific activities:

- *Providing Customer Incentives.* Customers receive \$.15 per square foot for attic insulation that increases the R-value by 10 points. The incentive is currently capped at R-50.
- *Customer Education and Outreach.* The program uses a variety of marketing channels including radio, direct mail, brochure distribution at events, articles in the Customer Connection newsletter, and word of mouth. Word of mouth is particularly effective for the low cost contractors. The main marketing message is "Make your home more comfortable."
- *Insulation Contractor Marketing.* IPC has had workshops with insulation contractors to explain the paperwork and how IPC would like to see it completed. Account representatives meet with the contractors to inform them about the program and the workshops.
- *QA and Verification Activities.* Third-party verification is conducted in a sample of approximately 10% of the homes served.

### 5.3.2 Outcomes

The four activities lead to short-, medium- and long-term outcomes. As the logic model shows, some activities lead to more than one outcome. As a result of the activities performed, the following short term outcomes are expected:

- Customers purchase and install attic insulation
- Increased customer awareness and knowledge of the availability of energy-efficient products and associated benefits
- Contractors get more customers and make more money

These outcomes, along with the ongoing activities, lead to the following mid-term outcomes:

- Customers become more knowledgeable about energy efficiency and recognize the benefits of investments in energy efficiency
- Demand for energy efficiency measures increases
- Contractors view energy efficiency as a business opportunity and actively promote the measures

Ultimately, the following outcomes are realized:

- Increased availability of energy efficiency products and services
- The utility realizes sustained kWh savings

The logic model shows that the program has a clear goal of increasing attic insulation in existing homes. The activities are clear and appropriate for reaching this goal.

## 5.4 BEST PRACTICES REVIEW

For the best practices review, we identified the following programs and research reports that dealt with attic insulation:

- 2005 Massachusetts Energy Star Homes
- 2008 CA Moderate Income Comprehensive Attic Insulation Program
- 2008 New Mexico Energy Efficiency Strategy: Policy Options;
- 2008 APS Residential New Construction Program
- 2008 MASSave Program

- Saving Energy at Home and on the Road - A survey of Americans' energy savings behaviors, intentions, motivations, and barriers; Yale project on Climate Change and George Mason University's Centre for Climate Change Communication.

This research exercise revealed that IPC's Home Improvement program is currently instituting some of the identified best practices:

- Do not limit eligibility based on income. The program can be cost effective for all income levels.
- Make insulation affordable. The main reason customers don't install attic insulation is they can't afford it.
- Keep customer participation simple.

The review also revealed several important findings that can help improve IPC's program design and implementation. We list the full set below and then we extract the key items in the recommendations that follow.

**1. Some level of contractor training should be offered.**

Studies have shown that a low skill level of insulation contractors commonly leads to badly blown attic insulation<sup>15</sup>. Insulation contractors can benefit from training in some specific areas such as proper care when installing blown-in insulation to make sure insulation does not enter the home through the access door. Training technicians on proper installation procedures and materials is likely to reduce complaints associated with attic insulation accidentally blowing into conditioned space<sup>16</sup>. Vendors and contractors may also need to be reminded that attic insulation needs to be uniform depth in order to achieve proper material density and R-value in treated homes<sup>17</sup>.

**2. Do-it-yourself installation should be eligible, but more verification is necessary for these projects.**

There are insulation programs that provide incentives for do-it-yourself installation. However, these programs require verification before the incentive is paid. Since program funds are limited, the higher cost of verification may mean the incentive for do-it-yourself installation needs to be less than the incentive for installation conducted by a contractor, or that the measure is not cost-effective.

**3. The web can be a useful tool to raise program awareness.**

Information on utility websites can be an effective means of communication to customers. The more actionable the information, the more useful it will be to customers. Some programs include energy savings calculators that show how much savings can be achieved by increasing the R-value. Others provide a list of insulation contractors and their contact information on the web.

**4. Adding duct sealing as a measure will likely mean involving more than one contractor and may require a pre/post testing methodology for determining savings.**

In looking for other measures to combine with attic insulation, duct sealing was identified. The best-practices review cautions against this measure because it is outside the scope of services provided by insulation contractors and it requires additional testing. Insulation contractors typically handle attic insulation along with other types of insulation jobs. Duct sealing, which entails completely different techniques and skills, is most often conducted by separate contractors.

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<sup>15</sup> APS Measurement, Evaluation and Research (MER) Report- Residential New Construction Program Impact and Process Evaluation; September 30, 2008

<sup>16</sup> Evaluation, Measurement and Verification Report for the Moderate Income Comprehensive Attic Insulation Program; prepared for the California Public Utilities Commission; June 2008

<sup>17</sup> MassSAVE Final Summary- QA and QC Impact Study Report; April, 2008

Nevertheless, some programs do include duct sealing. And in some of these programs calculate ex ante and ex post savings associated with duct sealing. In California, Pacific Gas and Electric's (PG&E's) Moderate Income Comprehensive Attic Insulation Program (MICAP) calculated load impacts for duct sealing based on field inspections of units, software verification of units and calibration of simulation models.

Another program reviewed uses engineering estimates of expected savings from duct sealing. The method for calculating energy savings is based on expected operating conditions of the mechanical system and house. This program modeled two different scenarios for duct sealing- (1) duct leakage in an unconditioned basement and (2) duct leakage in the attic.<sup>18</sup>

## 5.5 CONCLUSIONS AND RECOMMENDATIONS

IPC's Home Improvement Program is successful; it surpassed its participation goal, is cost effective, has a very low cost per kWh saved, and is very affordable for customers. Without primary data from customers and contractors, however, we are unable to evaluate other areas such as customer/contractor satisfaction, barriers to participation, free-ridership, and receptiveness to offering other measures in the program. Our first recommendation is to conduct surveys with participants and nonparticipants.

The data review and best practices review were able to address the specific research questions the program specialists outlined for the evaluation involving contractor training, do-it yourself installation, the addition of measures, and raising the R-value cap. Based on that research we recommend the following:

- Consider offering an incentive for do-it-yourself installation. To ensure proper installation, verify 100% of these projects – at least initially. If results are favorable, verification can be reduced to a random sample of do-it-yourself projects. This may result in the need to initially lower the incentive for installations without a contractor.
- Use the verification process and customer surveys to determine if there are any issues with contractor performance. If there is provide contractor training to address these issues.

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<sup>18</sup> UI and CL&P Program Savings Documentation for 2006 Program Year

## ENERGY EFFICIENCY EDUCATION INITIATIVE

### 6.1 PROGRAM DESCRIPTION

The Energy Efficiency Education Initiative is designed to educate customers to use energy wisely, make energy efficient behavior choices and purchase decisions, and increase participation in existing residential programs. The target market for the program is all residential customers. IPC has used several channels in an attempt to educate a large number of customers. These include mass marketing advertisements, content in the customer newsletter, a speaker's bureau, sponsorship at events, a library series, content on the IPC website and coordination with community organizations and school programs. These activities have the potential to reach a wide variety of customers in several different demographic groups.

The program specialist interview conducted at the beginning of the evaluation revealed that the program needs to establish metrics to track during program implementation so analysis can be conducted to determine what marketing and outreach activities are working and are the most cost-effective.

### 6.2 DATA REVIEW

To complete this task, the program handbook, the marketing plan and various marketing and educational materials were reviewed. The information provided gave us a clear understanding of how the program is presented to customers. Major findings include the following:

- The program encompasses a wide variety of activities, but collects very little data. As a result, it is often difficult to measure the success of the activities.
- The marketing plan has some very good ideas for expanding the net to reach more customers. We summarize the ideas below.
  - Develop energy efficiency presentations that can be delivered on request by a variety of DSM & field employees
  - Redesign Fall Energy Efficiency and Green Living Series to enhance the cost-benefit ratio
  - Use educational displays to support energy efficient behavioral changes
  - Maintain a strong residential energy efficiency presence at an event in each region
  - Improve Idaho Power's energy efficiency web content
  - Educate IPC employees about energy efficient choices
  - Create a calendar of speaking engagements at existing venues and forums
  - Prioritize the type and number of events IPC chooses to participate in
  - Create information that summarizes IPC accomplishments in Energy Efficiency
  - Create usage profiles for customers
- The program has strong management support and a positive community perception.
- The program lacks data to support prioritizing specific behavior changes to promote that will yield the largest savings.

### 6.2.1 Available Survey Data

Surveys were conducted with attendees at the 2010 Green Expo, the 2010 Women's Show, and the 2008 and 2009 Energy Efficiency and Green Living series to gain insight regarding the attendees and improve participation in future years. These surveys are well designed and do a good job of determining customer satisfaction with the specific event or program. The surveys do not, however, provide a great deal of insight into whether the outreach activity influenced participants' energy use, attitudes or behavior.

The Energy Efficiency Education Initiative is a comprehensive program that strives to educate all residential customers. To do this effectively, more primary survey data should be collected from the general population of residential customers. This program needs to establish metrics that can be tracked to ensure that the program is effectively reaching IPC customers, increasing their knowledge and leading to changes in behavior. Example metrics to track could include:

- Awareness of energy efficiency technologies such as CFLs, heat pumps, programmable thermostats, faucet aerators, attic insulation, duct sealing, etc.,
- Knowledge of the benefits of these technologies
- Awareness of behavior changes that can save energy (e.g., lowering the temperature on hot water heater)
- Behavioral changes made
- Saturation of energy efficiency technologies
- Interest in purchasing energy efficiency technologies
- Awareness of IPC programs and incentives
- Participation in IPC programs, and receipt of incentives

The recently completed residential saturation survey is a good starting point and can be used as a baseline measurement for some of these metrics. Then, as we describe in Chapter 7, IPC can then conduct periodic surveys with the general population in the future to gauge whether awareness has increased and behaviors have changed.

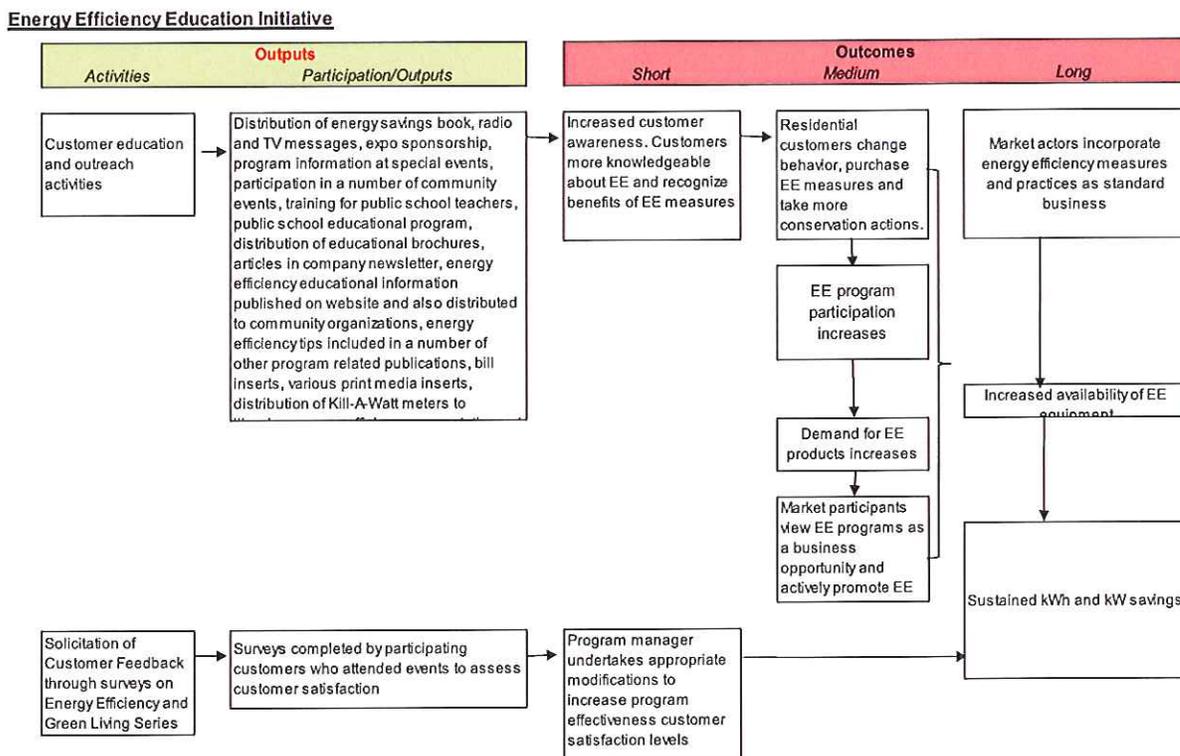
## 6.3 PROGRAM LOGIC MODEL

Figure 6-1 below represents the program logic model for the Residential Education program. This logic model was based on Global's understanding of the program design. It was derived from the program handbook and the interview with the IPC program specialist.

### 6.3.1 Activities

The program logic model identified two broadly defined activities.

- *Customer Education and Outreach.* IPC conducts a variety of outreach activities including distribution of an energy savings book, radio and TV messages, expo sponsorship, program information at special events, participation in a number of community events, training for public school teachers, a public school educational program, distribution of educational brochures, articles in the Customer Connections newsletter, energy efficiency educational information published on website and also distributed to community organizations, energy efficiency tips included in a number of other program related publications, bill inserts, various print media inserts, distribution of Kill-A-Watt meters to libraries, and energy efficiency presentations at corporate and community outreach events.
- *Solicitation of Customer Feedback.* Attendees at the 2010 Green Expo, the 2010 Women's Show, and the 2008 and 2009 Energy Efficiency and Green Living series completed surveys specifically about the events.

**Figure 6-1 Energy Efficiency Education Initiative Logic Model**

### 6.3.2 Outcomes

The two activities lead to short-, medium- and long-term outcomes. As the logic model shows, both activities drive to the same long-term outcome. As a result of the activities performed, the following short-term outcomes are expected:

- Increased customer awareness and knowledge of the availability of energy-efficient products and associated benefits
- Based on feedback, the program specialist undertakes appropriate modifications to increase customer satisfaction levels at events

These outcomes, along with the ongoing activities, lead to the following mid-term outcomes:

- Customers change behavior, ask about EE measures, purchase EE measures and take more conservation actions
- Demand for energy efficiency measures increase
- As a result of customer demand, contractors view energy efficiency as a business opportunity and actively promote the measures

Ultimately, the following outcomes are realized:

- Market actors incorporate energy efficiency measures and practices as standard business
- Increased availability of energy efficiency products and services
- The utility realizes sustained kW and kWh savings

The logic model illustrates that the activities and outcomes for the program lack specificity. The program would benefit from determining more specific behavioral outcomes) and then designing specific activities to directly influence those outcomes.

#### **6.4 BEST PRACTICES REVIEW**

For the best practices review, the following programs and research reports that dealt with education programs were identified:

- City of Berkeley – CA Youth Energy Services
- 2006-2008 EARTH Education & Training Program Funded By: Southern California Edison
- New York Energy \$martSM Programs (2006-2011)
- CA Statewide Energy Efficiency Education and Training Program
- New Jersey's Clean Energy Program
- 2006 - 2008 CA Statewide Marketing And Outreach
- Southern California Edison PY 2006–08 ETO Process Evaluation; Study Number SCE0285. Final Report, March 31, 2010.
- Efficiency Maine 2007 Annual Report

The review also revealed several important findings that will be helpful in improving IPCs program design and implementation. We list the full set below and then we extract the key items in the recommendations that follow.

##### **1. Develop clear goals with measureable impacts.**

Almost all of the above programs stressed the importance of clearly identifying program goals and performance metrics. Example of performance metrics could include: program reach (i.e., number of participants), percent of market reached, knowledge gain, awareness of energy saving opportunities, whether changes made have become standard practice, etc. The results can then be used to help inform future program design, such as the emphasis on some technologies over others and the level of effort placed on channeling participants into the other efficiency programs. Defining and targeting desired behavioral outcomes results in more powerful program effects.

##### **2. Track complete participant information.**

Whenever appropriate, educational programs make every effort to capture participant information including full name, address, phone number and e-mail address. Participants include people who attend events, check out meters at the library, receive the 30 Simple Things book, etc.

##### **3. Involve the entire community.**

It takes a village to change energy behavior. Take continued action to involve the entire community including schools, community organizations (Lions Club, Chamber of Commerce, etc.), charity organizations with similar goals (e.g., environmental groups), youth groups, retired seniors, local governments, and municipalities.

##### **4. Train the trainers to improve the quality and consistency of trainings.**

Successful programs work on improving the skills of trainers (for example, school teachers, librarians, and community organization leaders), so that training content is delivered more effectively and consistently<sup>19</sup>.

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<sup>19</sup> Best Practices in Energy Efficiency Education and Training Programs, ITRON, 2005 [www.eebestpractices.com](http://www.eebestpractices.com)

## 5. Explore community based social marketing (CBSM).

CBSM is gaining widespread recognition as a model behavioral-change program. It uses a framework based on traditional product marketing and sociology to change target audience behavior patterns. This strategy argues that engaging personal commitments, social interaction, pledges, and other personal responsibility elements to achieve behavioral change can be more effective than traditional broad-based, impersonal advertising.

CBSM literature indicates that programs based on this approach provide greater participation and behavior change, penetration to previously unconverted participants, and greater retention of the behavioral change.

### 6.5 CONCLUSIONS AND RECOMMENDATIONS

IPC's Energy Efficiency Education Initiative has conducted a wide variety of marketing and outreach to residential customers. It is supported by IPC management and is well received by the customers reached.

A major drawback of the program is its lack of focus. The program should strive to prioritize the behavior changes it promotes and gather the data to measure the success of the activities it undertakes. We have identified several enhancements to the program to help create and track metrics for the program.

- Build a database that tracks program activity including the name and type of activities, the cost of the activities and the number of customers reached by each activity (attendance at a speaker's bureau event, the number of booth visits at a sponsored event, the number of times the wattage meter was loaned out at the library, etc.).
- Develop a list of desired program outcomes and design activities that will directly impact those outcomes.
- Use the recently completed saturation survey to develop baselines for various behaviors (e.g., the saturation of high efficiency equipment).

In addition to the efforts to create and track program metrics, the data review and best practices analysis also identified several activities that could be undertaken to improve the Energy Efficiency Education Initiative. While these activities are not the highest priority, they have been used successfully by other programs and should be considered.

- Consider providing customized online energy education services to customers such as home energy reports. There are several third-party vendors that offer these services. They can be used to identify areas of the home where energy efficiency can be improved and what IPC programs can help them make the improvements.
- Build a database of participants. When possible ask customers at events to provide their name, address, and email in order to develop an accurate list of program participants. This can allow you to track whether these participants become participants in other programs in the future – one of the intended outcomes of the program.
- Include "success stories" at presentations and seminars that show how real IPC customers have made changes and improved the comfort and the efficiency of their home.
- Focus on high energy use customers.
  - Design newsletter and website content specifically for customers with high electricity use. This could include content specific to large families or all-electric homes. The recently completed saturation survey can be used to identify high-use customers.

- Have the call center track customers who call in with high-bill complaints. Follow-up with one-on-one phone consultations with these customers.
- Utilize social marketing to reach more customers. Create groups dedicated to saving energy, advertise IPC's attendance at events, and initiate discussions about energy savings tips and technologies.

Finally, we recommend that IPC consider a new approach to try to gauge the effect of education-based programs on customers' behavior and attribute any energy savings to behavioral programs. *Path Analysis* is a technique that has been used with some success in this area. The approach combines customer survey results, billing data and modeling to help determine the strengths and limitations of behavioral-based programs and whether the program should claim energy savings.

Conducting a path analysis requires development of a list of expected behavioral changes the program can influence, and definition of measureable points along a path that leads to the behavior change. The points may include exposure, awareness/knowledge, intention to take action, and behavior change, but the points may differ depending on the desired behavioral outcome.

For example if one of the goals of the education program was is to encourage the replacement of incandescent bulbs with CFLs. In this case, the following points would exist along the path to that behavioral change:

- Exposure – customers have seen or heard about CFLs
- Awareness/knowledge – customers are aware of the benefits of CFLs and knowledgeable about payback
- Intention to take action – customers indicate they plan to purchase and install CFLs
- Purchased CFLs – customers actually purchase CFLs
- Installed CFLs – customers install the CFLs they purchase
- Replaced burnt out CFLs with a new CFL
- Had a CFL in every available socket

An initial customer survey could establish the baseline of the proportion of customers at each point along the path (e.g., 70% have seen or heard about a CFL, 50% aware of benefits, 25% purchased, 20% installed, etc.) Follow-up surveys would be conducted once or twice a year (after educational initiatives have taken place) to measure customer movement along the path. Modeling and billing data are then used to determine the causal relationship between the program and the movement along the path to behavior change.

Because IPC's education program does not have energy saving goals, IPC does not *need* to conduct rigorous research and analysis such as path analysis. But path analysis does have value in helping to determine how the program is affecting customer behavior. It can help tease out what activities are the most successful. And as the Energy Efficiency Education Initiative matures, a more extensive approach may be warranted.

## RECOMMENDATIONS FOR FUTURE PROCESS EVALUATIONS

In addition to evaluating the four programs for 2010, a key objective of this project is to identify ways to improve the evaluation process. We feel the approach we took to performing the evaluations was appropriate. The only area for improvement is in survey research and we recommend strongly that IPC conduct additional primary market research. Not only will this improve the evaluation results we provide in this report, it will also enable additional analysis, such as the estimation of free ridership. We describe our recommendations for survey research and analysis of free ridership below.

### 7.1 SURVEY RESEARCH

Survey research is a core element for evaluating energy efficiency programs. Most process evaluators use surveys as a component of their investigations. Surveys of participants, partial participants, and nonparticipants are key tools for assessing how the program is operating in the field.

There is also often a full array of market actors who influence customer purchase decisions and serve the residential customer market. It is important for an evaluation to explore their knowledge, experience, and suggestions for the program. Relevant market actors could include equipment vendors and service providers, home builders, retailers and other trade professionals who are either intended recipients of program information or users of program information to develop projects.

The preferred approach for obtaining information from market actors is in-depth interviews (IDIs). While the information tends to be more qualitative, the format allows greater flexibility in asking questions more specifically tailored to the role of each actor.

In what follows, we describe the data currently available for each of the four programs, the research needs of the program and our recommendations for additional research to meet those needs.

#### 7.1.1 Heating and Cooling Efficiency Program

The Heating and Cooling Efficiency Program conducted a brief quantitative surveys of contractors in 2009 and participants in 2010. The process evaluation reveals that program has the following research needs:

- *Strategies for improving contractor satisfaction.* The contractor survey findings showed that contractors are only moderately satisfied with the program, several who attended the training have not completed any projects, and many find the paperwork difficult to complete.
- *An accurate estimate of free ridership.* Participant survey results revealed that free ridership may be an issue with the program. (That is, 21% of heat pump respondents said the program had no effect on their purchasing decision.) A more thorough assessment of free ridership should be undertaken.

To address these research needs, we recommend IPC conduct additional survey research in 2011. The first activity is a *participant survey* with a minimum sample size of 50 that covers the following topics:

- Reasons for being in the market for new equipment
- Barriers to purchasing high efficiency equipment other than cost

- Acceptance of new program ideas and concepts
- Awareness of Energy Efficiency Education Initiative activities
- Free ridership

The second activity is a survey with nonparticipants/general population with a minimum sample size of 250. This survey can combine questions relevant to the Heating and Cooling Efficiency Program, the Home Improvement Program and the Energy Efficiency Education Initiative. It should address the following topics:

- Program awareness
- Knowledge of the benefits of the program measures
- Free ridership
- Barriers to program participation

Finally, we recommend that IPC conduct in-depth interviews in 2011 with the two top performing contractors to get ideas on how to engage more contractors and improve contractor satisfaction. Specifically the interviews should address:

- Changes in the market
- The mix of standard and high efficiency equipment the contractor sells
- Feedback on program implementation and processes
- Contractor insight on which customers would have taken action outside the program (help estimate free ridership)

### **7.1.2 Energy House Calls Program**

The Energy House Calls program conducted a participant survey in 2008 and a very short nonparticipant survey in 2009. The program has the following research needs:

- *An accurate assessment of market size for the program.* The potential study predicted a decline in participation, but to date that decline has not happened. The nonparticipant survey that used the direct mail database revealed that a sizeable group in that sample is not eligible for the program. At this point the number of eligible customers in the service territory is unknown.
- *A verified list of participants.* Many of the respondents to the nonparticipant survey said they had participated in the program. The list of participants for the program should be examined to determine if it is inaccurate, or if participants are confused or don't remember participating in the program. It should be possible to compare the survey respondents to the participant database to determine if in fact, the nonparticipant list included past participants.
- *Research about willingness to pay.* Survey results indicated that a third of customers readily admit that they would pay some amount for this free service. And, one of the barriers identified in the nonparticipant survey is that customers distrust a free service. IPC should test the hypothesis that offering the program for a nominal fee may attract eligible customers that are currently not participating in the program.
- *Strategies for improving customer satisfaction.* The participant survey found that 10% of customers are dissatisfied with program. While that is a definite minority, it is important to understand the reason for this dissatisfaction, and make necessary improvements.

We recommend the following activities to address the identified research needs:

- Analyze most recent saturation survey to estimate the remaining market for the program.
- Develop an accurate list of program participants by capturing better information from the third-party contractor.

- In 2011, conduct annual in-depth interviews with Ecos Consulting and the participating contractors to get an objective view of how well the program is implemented and explore barriers to participation.
- Conduct a survey of 2010 participants that includes questions that address willingness to pay, and delve deeper into issues dealing with dissatisfaction. We recommend a minimum sample size of 50.
- In 2011, conduct a nonparticipant survey to establish remaining market size and identify strategies to engage these remaining customers. We recommend a minimum sample size of 150. A sample size of 150 will provide a confidence interval of +/-8% at the 95% confidence level.

### **7.1.3 Home Improvement Program**

The Home Improvement program has not conducted any primary research to date. The program has the following research needs:

- A quantitative measure of participant response to the program delivery.
- An assessment of contractor interest in training.
- An estimate of free ridership.
- Identifying any unknown barriers to program participation.
- Gauging customer and contractor response to adding new measures to the program.

We recommend the following research activities to address the identified research needs:

- In 2011, conduct a survey of 2010 participants, minimum sample size of 50, to assess customer response to the program.
- In 2011, conduct a nonparticipant/general population survey, with a minimum sample size of 250<sup>20</sup> that combines questions about the Heating and Cooling Efficiency Program, the Home Improvement Program and the Energy Efficiency Education Initiative. The survey should address program awareness, knowledge of the benefits of the eligible measures, , and barriers to program participation.
- In 2011, conduct in-depth interviews with 10 insulation contractors to assess program delivery, free ridership, barriers to participation, interest in training, and response to additional measures.
- In 2012, conduct in-depth interviews with non-participating or low participating contractors to identify strategies to get them more involved in the program.

### **7.1.4 Energy Efficiency Education Initiative**

The Energy Efficiency Education Initiative has conducted participant surveys with customers who attended events. The program needs to establish metrics that can be tracked to ensure that the program is effectively reaching IPC customers, increasing their knowledge and leading to changes in behavior.

We recommend IPC undertake the following activities to address the identified research needs:

- Develop a list of desired outcomes of the program and a corresponding list of metrics that can be used to gauge progress toward those outcomes.
- Analyze the recently completed saturation survey to get baseline estimates for some of the metrics.

<sup>20</sup> The recommended sample size increased from 150 to 250 because the survey covers three programs instead of one.

- Begin developing a list of program participants, This will allow customers to be tracked internally to determine if education participants become future participants of other IPC programs.
- Continue surveys at events to get feedback on the specifics of each activity.
- Add survey questions to the other programs' regularly scheduled participant surveys that determine if they have been reached by any education activities.
- In 2011, conduct a nonparticipant/general population survey, with a minimum sample size of 250 that combines questions about the Heating and Cooling Efficiency Program, the Home Improvement Program and the Energy Efficiency Education Initiative. The survey should address program awareness, knowledge of the benefits of the eligible measures, free-ridership, and barriers to program participation.
- In 2012, conduct a participant survey to assess how customers reached by the Energy Efficiency Education program perform on the established metrics.
- In 2013, conduct a general population survey, with a minimum sample size of 250, to assess progress of Energy Efficiency Education program toward the established metrics.

## 7.2 ESTIMATING FREE RIDERSHIP

The primary objective of free ridership analyses is to determine a program's net effect on customers' electric and gas usage. This requires estimating what would have happened in the absence of the program. This estimation hinges on the level of free ridership that exists for each measure. There are several different ways to estimate free ridership:

- *Self-report survey of participants.* Asking participants what they would have done in the absence of the program.

Disadvantages: Responses are self-reported which lead to potential bias or recall issues.

- *Regression analysis to compare participants and non-participants.* Non-participants are defined as the control group and the analysis provides estimates of what happens in the market in the absence of program participation.

Disadvantages: It can be difficult to get a good sample of respondents that is not exposed to the program. It also requires a well designed survey which can be long and negatively effects response rate

- *Market baseline.* Analyze data to estimate the proportion of sales for high-efficiency products sales before and after program, for the program region and a comparison region.

Disadvantages: Difficult to find a comparison region without any programs. It is costly and difficult to obtain sales data.

- *Deemed net to gross.* The approach does not attempt to estimate free ridership. Instead, it assumes a ratio of net to gross savings (such as 1.0, 0.8, 0.7, etc.) that is applied to all programs or all programs of specific types.

Disadvantages: Does not recognize actual differences in performance from different programs / designs / implementations.

IPC's current data collection practices do not support a survey-driven estimate of free ridership. Therefore, if free ridership estimates are required, the deemed net to gross approach would have to be used. The disadvantage of this approach is that it assumes all customers respond to all programs in the same way. It does not account for unique features of IPC customers, program designs or implementations.

### **ABOUT GLOBAL**

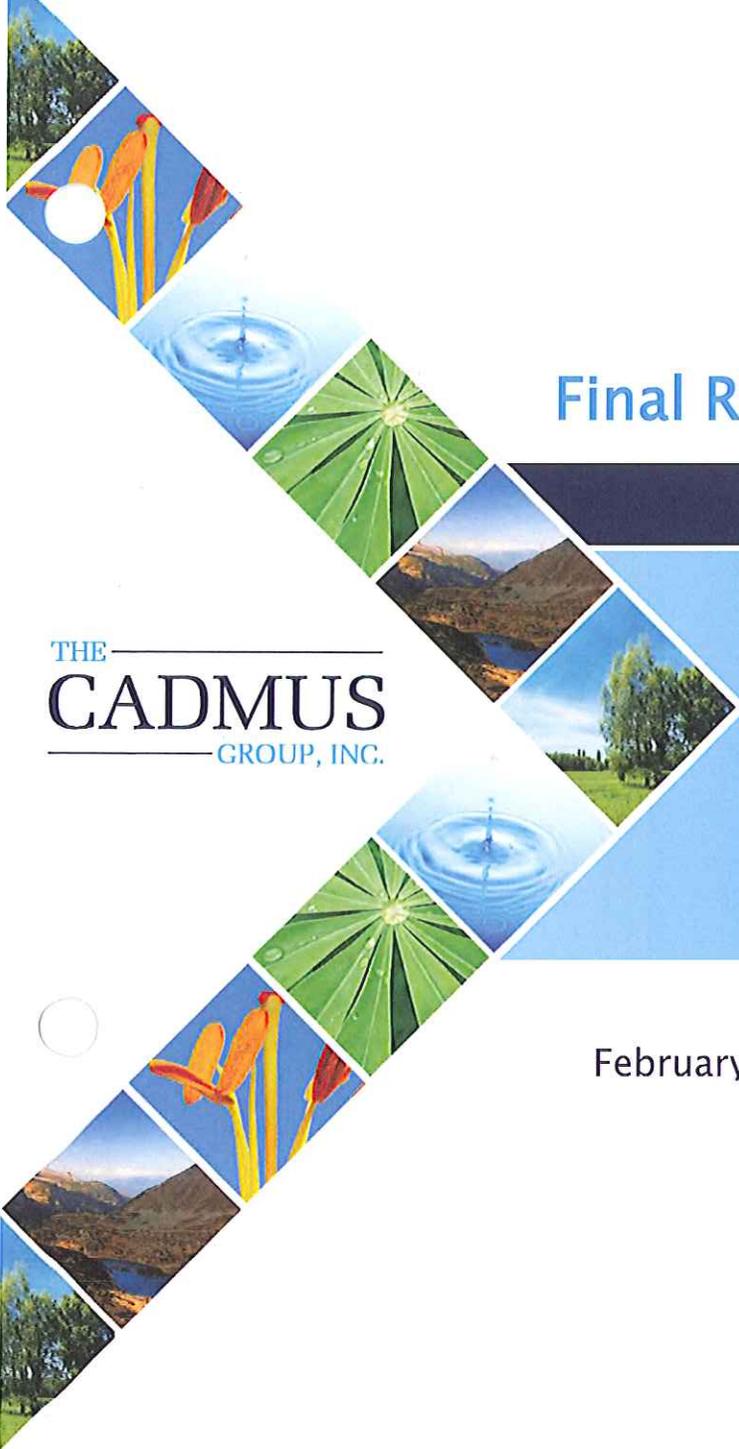
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## Final Report

THE  
**CADMUS**  
GROUP, INC.

# Idaho Power Company Process Evaluation CI&I Summary Report

February 4, 2011

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# Portfolio Level Analysis

## Introduction

Idaho Power (IPC), the largest regulated electric utility in the state of Idaho, serves over 80,000 commercial, industrial, and irrigation (CI&I) customers in Idaho and Eastern Oregon. These very diverse customers used over 60 percent of IPC's electricity production in 2009 and generated over 50 percent of IPC's annual revenues.

As described in IPC's Demand-Side Management (DSM) 2009 Annual Report, the utility, in an effort to meet the energy and demand needs of its electrical system, offers DSM services to its CI&I customers so as to assist these customers in better managing their energy use. In 2010, IPC commissioned The Cadmus Group Inc. (Cadmus) to conduct a process evaluation, a market characterization study, and a measure review for its CI&I energy-efficiency programs, with a primary focus on the process evaluation.

The goal of process evaluation is to provide feedback to help improve the organization, delivery, and demand for DSM programs. The analysis typically develops program logic models or process flow charts, describes findings and lessons learned about program operation and the perceptions of target audiences, and provides actionable recommendations for improving the programs.

This document summarizes cross-cutting findings for the five CI&I process evaluations and provides the executive summaries for individual program process evaluations.

## Success Indicators

Overall, based upon our interviews with staff and review of program materials, many aspects of the programs are functioning well, including:

- Program participation and savings goals are being met or exceeded, and participation and savings have steadily increased for most programs.
- Based on the strong demand for program services, the programs are attracting target audiences.
- Program marketing is well coordinated and clearly presented, especially the website that contains detailed program materials and information, success stories, and convenient navigation among the CI&I programs. In addition, detailed brochures and technical materials are available for most of the programs.
- Staff and customer representatives effectively engage community business partners and trade allies with the programs.
- Educational and technical training enhances program delivery, through the Commercial Education Initiative and regional and local energy efficiency organizations.
- Program specialists have strong skills, enthusiasm, and are dedicated to meeting goals.

## Opportunities for Improvement

The ability to conduct rigorous evaluations depends upon systematic program documentation and tracking. In addition, they depend upon multiple sources of information. In this project, we encountered a number of challenges with documentation; these challenges are typical for first-time process evaluations. In addition, for most programs, findings are only based upon internal perspectives and don't include direct input from target audiences and other market actors; this limits insights about the programs. Both these factors affected our ability to evaluate the programs. Based upon our review, these are the areas across the programs that would benefit from improvement; more program specific conclusions and recommendations are provided in the executive summaries that follow this portfolio-level discussion.

- Documentation of program design and processes were good for some programs but less good for others. Some program manuals were incomplete or out of date and documentation did not appear to be a strong priority for several programs. Logic models, which look at program theory and help map out programs over time, including key researchable issues, have not been done.
- Tracking of program activities varied in quality, consistency, and in some cases, needed data are not being tracked, such as participation in educational activities, which in turn limits the ability to collect data about the effectiveness of those activities. Some tracking issues may be resolved with the new database but tracking issues raised for each individual program need to be revisited once the new database is in place.
- While anecdotal feedback about the program exists, systematic feedback and guidance from customers, both participants and non-participants, A&E firms, consulting engineers reviewing projects, trade allies, training cohorts, and customer representatives have not been gathered and documented for most programs. Direct input from these wider perspectives would greatly bolster process evaluation findings and contribute to program planning and health.
- The protocols for quality assurance and verification could benefit from greater consistency and transparency. While staff review of project applications is required, systematic on-site verification protocols need to be better documented and implemented.

## Easy Upgrades Executive Summary

The Easy Upgrades program began in 2007 to encourage energy-efficiency retrofits for Idaho Power Company (IPC) commercial and industrial customers. The program provides energy-efficiency incentives for replacing existing electrical equipment with high-efficiency options for customer buildings and facilities. Eligible measures include an impressive list of lighting, HVAC, motors, building shell, plug loads, and grocery refrigeration. Participants may receive incentives of up to \$100,000 per site for energy-efficient retrofits that qualify for the program.

This assessment of the Easy Upgrades program is based on interviews with program staff, review of program materials, and a best practice comparison of similar, exemplary programs.

In this Executive Summary, we capture the key conclusions and recommendations from the process evaluation of Easy Upgrades.

### Conclusions and Recommendations

Easy Upgrades program participation has grown rapidly in just a few short years indicating high appeal to IPC's customers. Projects increased from 100 completed in the first year of the program's operation to a forecasted 1,800 projects in 2010.

#### *Program Demand and Quality Assurance*

The high appeal and demand for Easy Upgrades has also created some challenges for staff, who sometimes have found it difficult to keep up with best practices in program management, operation, tracking, quality assurance, and evaluation. For instance, in some cases both pre and final applications were allowed to be submitted together after the project was completed; this resulted in staff, participants, and contractors being uncertain about project eligibility. In addition, formalized checks and balances for program quality would be useful, including developing a systematic verification plan or project inspection protocol.

To address this high demand for Easy Upgrades services to IPC customers, Cadmus recommends improvements in a few general areas:

- Closer examination of program demand and benefits to be gained from matching the demand with program resources.
- Establishment of a more consistent framework for program processes and protocols in the areas of application materials and processing, data tracking, and quality assurance and verification.

#### *Marketing and Customer Feedback*

During this time of high demand, more aggressive and targeted marketing can be mostly on hold. Emphasis could be placed on making sure that current marketing and outreach materials are kept up-to-date. However, the lack of insight about drivers of the program's high demand makes the program vulnerable and its future uncertain. For instance, it is not known if program demand is driven by incentives that are too high, a long period of pent-up demand, or other factors.

To address marketing and customer feedback improvements, Cadmus recommends improvements in few general areas:

- More regular updates to the Website and program brochures to keep program information current and complete.
- Conducting market research with program and trade ally participants, as well as with nonparticipating customers. Market research would enable IPC's program management to better understand drivers behind the program's high demand, motivations and barriers to participation, and program strengths and weaknesses.

## Irrigation Efficiency Executive Summary

The Irrigation Efficiency Rewards program encourages irrigation customers to improve the energy efficiency of their irrigation systems. Offered to all Idaho Power Company (IPC) customers on the irrigation rate schedule, the program provides incentives through two distinct options: custom and menu. The custom option provides incentives for large-scale irrigation improvements and component upgrades of existing systems, or for new, more efficient irrigation systems. The menu option provides rebates for small maintenance upgrades to customers who have installed eligible measures that reduce the energy use of their irrigation systems.

This assessment of the Irrigation Efficiency Rewards program is based on interviews with program staff, review of program materials, and a best practice comparison of similar, exemplary programs.

In this Executive Summary, we capture the key conclusions and recommendations from the process evaluation of Irrigation Efficiency Rewards.

### Conclusions and Recommendations

The Irrigation Efficiency Rewards program began in 2004 with the goal of promoting adoption of more energy-efficient irrigation systems in IPC's service territory. Agricultural representatives (Ag Reps) and IPC staff specialists assess irrigation customer system improvement opportunities and provide individual technical assistance as needed. Ag Reps also provide training and educational outreach through community events and workshops.

Overall, the results of IPC's Irrigation Efficiency Rewards program process evaluation show that it is a robust, ambitious, and leading edge irrigation program. It has strong relationships with customers and trade allies, as well as credibility and high demand.

#### *Feedback Mechanisms*

Although we gathered good information about the design, operation, and implementation of the irrigation program from program staff (within the scope of this evaluation), future evaluations would benefit from gathering feedback from a wider set of program actors (e.g., customers, vendors, agricultural representatives). These efforts would produce a more multidimensional view of the program, adding to the validity of the process evaluation.

To collect these data, IPC may consider conducting surveys with participants, nonparticipants, trade allies, and any other partners (such as training partners). These surveys would provide ongoing data about program satisfaction, operations, areas to improve, and market trends. Surveys with customers would also provide IPC with data often used to inform impact evaluations.

#### *Program Database and Tracking*

While IPC's Irrigation Efficiency Rewards program has a well-organized system for data collection, processing, and verification, we found some program tracking processes in need of better documentation and greater transparency. Although a new database is in development (and may solve many of the program data tracking issues), the current system may create obstacles for performing an impact evaluation of the program.

To improve tracking processes, Cadmus recommends that IPC consider the following database features:

- Mechanisms to reduce key application errors and omissions (e.g., through targeted application reminders and informational hand-out sheets during training).
- Disaggregating measures and cost data in customer database entries.
- Creating a data management handbook that includes data definitions and data tracking and calculation guidance.

### *Marketing and Outreach*

While IPC program staff and irrigation equipment dealers engage in marketing and outreach to promote program participation, the program's technical strengths may not be fully realized. In addition, while much excellent information is available on the program Website, some information appears to be missing or outdated, which could confuse customers.

To better promote technical strengths of the program, consider improvements in the follow areas:

- Expand outreach and assistance to capitalize on the technical strength of well-trained program staff, Ag Reps, and many equipment vendors.
- Provide additional support for carrying out pump testing and energy audits.
- Consider developing a more formalized trade ally network to support the program.
- Consider regular updates to program marketing and outreach materials to ensure consistency and to provide clear program contacts.

## Building Efficiency Executive Summary

The Building Efficiency program began in 2004 to encourage more energy-efficient design features and technologies in new construction and major renovations. The goal of the program is to capture the greatest potential savings in the early planning of a project. The program offers a prescriptive list of 14 eligible measures, including lighting, air conditioning, building shell, and controls. Commercial and industrial customers who qualify for the program may receive incentives of up to \$100,000 per project for energy-efficient construction of new buildings or construction projects with significant additions, remodels, or expansions.

This assessment of the Building Efficiency program is based on interviews with program staff, review of program materials, and a best practice comparison of similar, exemplary programs.

In this Executive Summary, we capture the key conclusions and recommendations from the process evaluation of the Building Efficiency program.

### Conclusions and Recommendations

The Building Efficiency program had 72 participants in 2009, a 20 percent increase in participation from the previous year. As a primary sponsor of the Boise Integrated Design Lab (IDL), IPC offers free technical assistance and training to local architects and designers through the Building Efficiency program.

Through its presence at industry meetings and events, the Building Efficiency program is active in the new buildings market. Marketing and outreach activities have resulted in participants entering the program earlier than in previous years, enabling the IPC Building Efficiency program to influence the design and efficiency choices earlier in the process.

### *Application Process*

While the application process is manageable and the eligibility requirements are clear, some adjustments could be made to streamline the program processes, make the forms more complete and user friendly, and to enable evaluability of the program.

Cadmus' recommendations for application processing include regular updates for application materials, forms, information, and updates to Website links. If the program staff's time is constrained by handling daily demands of application processing, consider hiring additional administrative staff, thereby freeing up more time for program planning and management functions.

### *Data Tracking*

The program database for Building Efficiency provides a functional system for data collection, storage, and processing; however, we found some program tracking processes in need of better documentation and reporting. Although IPC is developing a new database that may solve some program tracking issues, the current system may prevent transparent and accurate evaluations.

To improve the program's data tracking, Cadmus recommends that IPC further develop and document data tracking protocols and manuals, including data dictionaries, mapping, and data entry policies that will enable staff to use consistent approaches for data collection and quality control.

***Feedback Mechanisms***

Building Efficiency lacks a formal mechanism for continuous feedback from program participants. Consider conducting market research with program participants and nonparticipants to enable program planners to have a better understanding of program awareness, drivers behind demand, motivations and barriers, satisfaction with key program areas, program strengths and weaknesses, freeridership, and spillover.

***On-site Verification***

While all Building Efficiency projects are subject to verification site visits as a condition of participation, on-site verification does not currently take place except for projects with daylighting control installations. Additionally, a systematic on-site verification plan or project inspection protocol has not been developed for this program.

Cadmus recommends development and documentation of a project inspection protocol to promote a consistent framework for checking eligibility and quality, and for tracking implemented projects.

## Custom Efficiency Executive Summary

The Custom Efficiency program began in 2003 to encourage commercial and industrial customers in Idaho and Oregon to implement energy-efficiency measures in their facilities. Idaho Power Company (IPC) provides financial incentives for implementing eligible measures covering a variety of energy-saving opportunities including lighting, HVAC, motors, building shell, plug loads, and refrigeration.

This assessment of the Custom Efficiency program is based on interviews with program staff, review of program materials, and a best practice comparison of similar, exemplary programs.

In this Executive Summary, we capture the key conclusions and recommendations from the process evaluation of the Custom Efficiency program.

### Conclusions and Recommendations

The Custom Efficiency program has grown significantly, completing 101 projects in 2008 and 132 projects in 2009. The program offers technical assistance, training, and energy auditing services to IPC customers. The Custom Efficiency program collaborates with the Northwest Energy Efficiency Alliance (NEEA) to support the education of its customers on energy efficiency. NEEA, which provides a series of technology-specific seminars, conducted five technical trainings for IPC in 2009.

#### *Marketing and Outreach*

Marketing and outreach, while effective at increasing the level of participation within the program, could benefit from more clear messaging within its own program documents and within marketing materials. To be more consistent with best practices, further expansion of the program may benefit from a more formalized (and documented) approach that will demonstrate stronger alliances with trade allies.

Cadmus recommends these general areas for improvement:

- Regularly review and update the Custom Efficiency program documents to ensure consistent branding.
- Include telephone contact information for the Custom Efficiency program support team on all marketing pieces.
- Consider expanding program outreach efforts with trade allies, who could help market the program and expand the level of participation. Expanded outreach efforts would include more formalized communication between IPC and contractors.
- Establish a contact list of contractors and trade allies and document communication about program updates and program training.

#### *Program Database*

To ensure effective evaluation, the Custom Efficiency program database needs to better demonstrate that an appropriate level of project detail is being captured at the best time in the program process. Various data issues may be resolved with the completion of IPC's new

database. However, for this evaluation, due to the unavailability of many of the current or planned database features, we were not able to conduct a thorough review of program achievements.

Improvements to the program database should include better definition of the existing fields to improve evaluability. All fields should be labeled and well-defined. In addition, development of a database dictionary would enable easier identification of database fields and other database features to be contained in the new database.

### ***Program QA/QC and Verification***

In many ways, the Custom Efficiency program exemplifies a quality efficiency program compared to similar efforts across the country. However, the Custom Efficiency program has not benefited from complete program documentation and regular evaluations.

Cadmus recommends program documentation improvements in these general areas:

- Development of a detailed program manual complete with thorough descriptions of the program intent, processes, and requirements. This document would include, among other items, (1) pre- and post-inspection protocols and standards, and (2) database entry requirements.
- Market research and surveys with program participants, nonparticipants, and trade allies. This research would help program managers to better understand awareness of program services and requirements, preferred sources of information and marketing preferences, drivers behind program demand, motivations and barriers to participation, satisfaction with key program areas, program strengths and weaknesses, and freeridership and spillover information.

## Commercial Education Initiative

The Commercial Education Initiative was launched in 2008 to encourage participation in the Idaho Power Company (IPC) commercial, industrial, and irrigation (CI&I) energy-efficiency programs. The initiative supports the educational and technical needs of the programs while enhancing customer awareness of energy efficiency. Technical and educational services support Easy Upgrades, Irrigation Efficiency Rewards, Building Efficiency, and Custom Efficiency programs at IPC.

This assessment of the Commercial Education Initiative program is based on interviews with program staff, review of program materials, and a best practice comparison of similar, exemplary programs.

In this Executive Summary, we capture the key conclusions and recommendations from the process evaluation of the Commercial Education Initiative program.

### Conclusions and Recommendations

The Commercial Education Initiative provides valuable educational and technical outreach to IPC's commercial customers. The program offers technical education materials, workshops, and technical assistance to targeted facilities. A common practice of the program is to leverage market actors to help recruit participants and to use technical experts to develop training content.

#### *Program Identity*

IPC provides many educational and technical services to its commercial customers, including outreach events, workshops, individualized technical assistance, and technical materials. These resources are provided to help customers manage their energy consumption, either through participation in IPC programs or through their own efforts. Results of the evaluation indicated that the components of the Commercial Education Initiative need better definition and integration.

To improve definition of the program, Cadmus recommends some general action items:

- Develop a fully defined initiative, including measureable goals, specific activities, and staff responsibilities.
- Update program handbooks and marketing materials to reflect these clearly defined boundaries, responsibilities, and objectives.
- Develop or update educational and technical materials used for events, workshops, and walkthroughs to reflect a more integrated corporate branding of the program activities.

#### *Evaluability and Tracking*

Based on results of the evaluation, Cadmus determined that program processes and outcomes need better tracking. In addition, more formal tracking would enable IPC to understand how well the program is meeting its goals, while gauging customer satisfaction, customer education, and technical assistance needs.

To implement a more consistent approach to tracking program participation, Cadmus recommends a few areas for improvements:

- For events and workshops, ask participants to provide complete contact information so that follow up can be conducted.
- Establish a more formalized protocol for reporting customer walkthroughs and results.
- Use the new database system (currently under development) to enable tracking of initiative events, workshops, and walkthroughs.

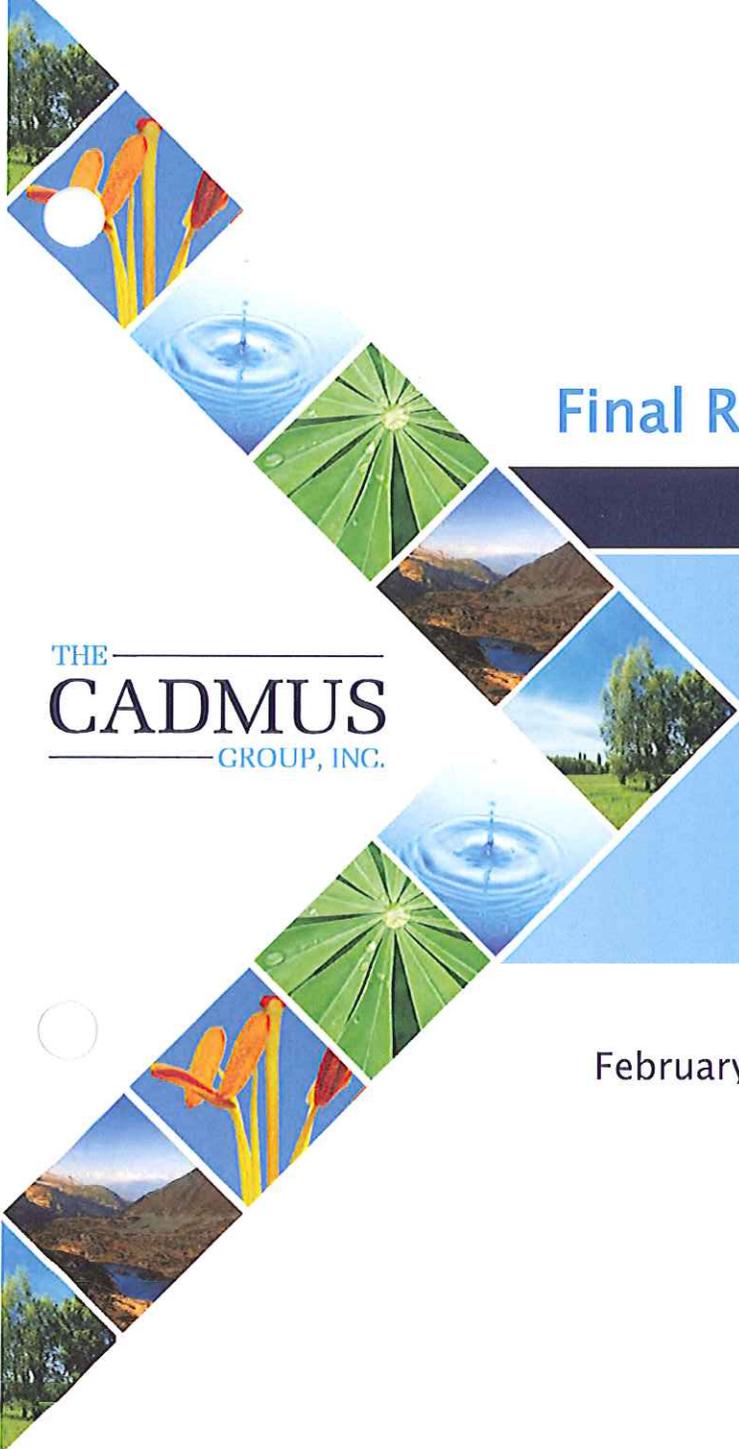
### ***Feedback Mechanisms***

While informal feedback is gathered by staff and customer representatives during outreach events, workshops, and walkthroughs, IPC does not have a formalized system for documenting feedback, assessing program effectiveness, and planning future services. Gathering more representative and consistent feedback through evaluation forms at the time of service and periodic follow-up surveys would inform evaluation of initiative performance, customer perceptions and needs, and potential new markets.

A more formal feedback approach would include some of these elements:

- Methods to gather participant feedback from outreach events, technical workshops, and walkthroughs. Easy-to-fill-out forms could be provided at events and walkthroughs, and providers of the education services could emphasize their importance and confidentiality; they could also allow time for participants to complete the forms at the end of training sessions.
- Periodic surveys of participating and nonparticipating customers could provide a bigger picture of educational services, including how well they are progressing over time and what changes will keep them valuable to customers.

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## Final Report

THE  
**CADMUS**  
GROUP, INC.

# Easy Upgrades Process Evaluation Findings and Recommendations

February 4, 2011

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## Executive Summary

The Easy Upgrades program began in 2007 to encourage energy-efficiency retrofits for Idaho Power Company (IPC) commercial and industrial customers. The program provides energy-efficiency incentives for replacing existing electrical equipment with high-efficiency options for customer buildings and facilities. Eligible measures include an impressive list of lighting, HVAC, motors, building shell, plug loads, and grocery refrigeration. Participants may receive incentives of up to \$100,000 per site for energy-efficient retrofits that qualify for the program.

In 2010, IPC commissioned The Cadmus Group Inc. to conduct a process evaluation of its commercial, industrial, and irrigation (CI&I) energy-efficiency programs. The primary goals of the process evaluation are to inform IPC about how well individual programs are operating, and to help IPC better plan, integrate, implement, and evaluate its entire portfolio of CI&I energy-efficiency programs.

This assessment of the Easy Upgrades program is based on interviews with program staff, review of program materials, and a best practice comparison of similar, exemplary programs.

In this Executive Summary, we capture the key conclusions and recommendations from the process evaluation of Easy Upgrades.

## Conclusions and Recommendations

Easy Upgrades program participation has grown rapidly in just a few short years indicating high appeal to IPC's customers. Projects increased from 100 completed in the first year of the program's operation to a forecasted 1,800 projects in 2010.

### *Program Demand and Quality Assurance*

The high appeal and demand for Easy Upgrades has also created some challenges for staff, who sometimes have found it difficult to keep up with best practices in program management, operation, tracking, quality assurance, and evaluation. For instance, in some cases both pre and final applications were allowed to be submitted together after the project was completed; this resulted in staff, participants, and contractors being uncertain about project eligibility. In addition, formalized checks and balances for program quality would be useful, including developing a systematic verification plan or project inspection protocol.

To address this high demand for Easy Upgrades services to IPC customers, Cadmus recommends improvements in a few general areas:

- Closer examination of program demand and benefits to be gained from matching the demand with program resources.
- Establishment of a more consistent framework for program processes and protocols in the areas of application materials and processing, data tracking, and quality assurance and verification.

### *Marketing and Customer Feedback*

During this time of high demand, more aggressive and targeted marketing can be mostly on hold. Emphasis could be placed on making sure that current marketing and outreach materials are kept up-to-date. However, the lack of insight about drivers of the program's high demand makes the program vulnerable and its future uncertain. For instance, it is not known if program demand is driven by incentives that are too high, a long period of pent-up demand, or other factors.

To address marketing and customer feedback improvements, Cadmus recommends improvements in few general areas:

- More regular updates to the Website and program brochures to keep program information current and complete.
- Conducting market research with program and trade ally participants, as well as with nonparticipating customers. Market research would enable IPC's program management to better understand drivers behind the program's high demand, motivations and barriers to participation, and program strengths and weaknesses.

## Chapter 1: Introduction

This report provides findings and recommendations specific to Easy Upgrades, a program that encourages commercial and industrial customers to improve the energy efficiency of their buildings and facilities and save money by replacing existing electrical equipment with high-efficiency options. The program offers a prescriptive list of eligible measures covering lighting, HVAC, motors, building shell, plug loads, and grocery refrigeration. Participants may receive incentives of up to \$100,000 per site for energy-efficient retrofits that qualify for the program.

### Easy Upgrades Process Evaluation Objectives

The primary purpose of this process evaluation is to document and analyze the way the program works in practice, and to understand important influences on its operation and achievements. The evaluation's objectives are to:

- Document the program history, components, and processes;
- Compare key program elements with similar, exemplary programs elsewhere (i.e., best practices comparison);
- Gather and review primary data, review secondary program information, and report on findings; and
- Provide conclusions and actionable recommendations.

### Methods and Sources of Information

Specific data collection and analysis methods will be discussed within their relevant sections. Key sources of information used for this process evaluation include:

- Interviews and correspondence with the program specialist and other staff at IPC;
- The program's current and planned databases;
- The program Website and program handbook;
- IPC's organizational chart and the DSM 2009 Annual Report Program; and
- The participant survey instrument and results.

### Organization of This Report

Following this introductory chapter, the report is organized into the following chapters:

- Chapter 2: Program Description
- Chapter 3: Assessment of Program Components
- Chapter 4: Best Practices Review
- Chapter 5: Conclusions and Recommendations

## Chapter 2: Program Description

### Introduction

This chapter describes Easy Upgrades' processes and key components. The menu-driven energy-efficiency program offers commercial and industrial customers technical assistance and prescriptive incentives for 143 separate energy-saving measures. The program began in 2007 with 104 projects and has grown significantly over time, completing 1,224 projects in 2009 and an expected 1,800 projects in 2010. A full-time IPC program specialist oversees all aspects of Easy Upgrades, with administrative help from a half-time coordinator. The program specialist's role includes planning, marketing and outreach, technical assistance, application review and follow-up, authorization of payments, quality assurance, and collecting program feedback from participants and trade allies.

In addition to its Website and customer representatives, the program depends heavily on trade allies, such as lighting and HVAC contractors, to market the program and drive participation. To help ensure ongoing support of these partners, IPC has tried to keep program requirements and operations as stable as possible, with program changes being made every other year. This process evaluation will help inform modifications being made to Easy Upgrades for 2011.

### Program Process

To create the Easy Upgrades process flowchart shown in Figure 1, we relied on the description in the program handbook; interviews and correspondence with the program specialist and coordinator; and communications with other IPC staff, one who contributed to program survey design and one who manages the program database. The blue boxes in Figure 1 represent key activities, in chronological order, for each Easy Upgrades participant. Green boxes with dashed arrows above and below the blue boxes identify additional steps that may occur in the program process.

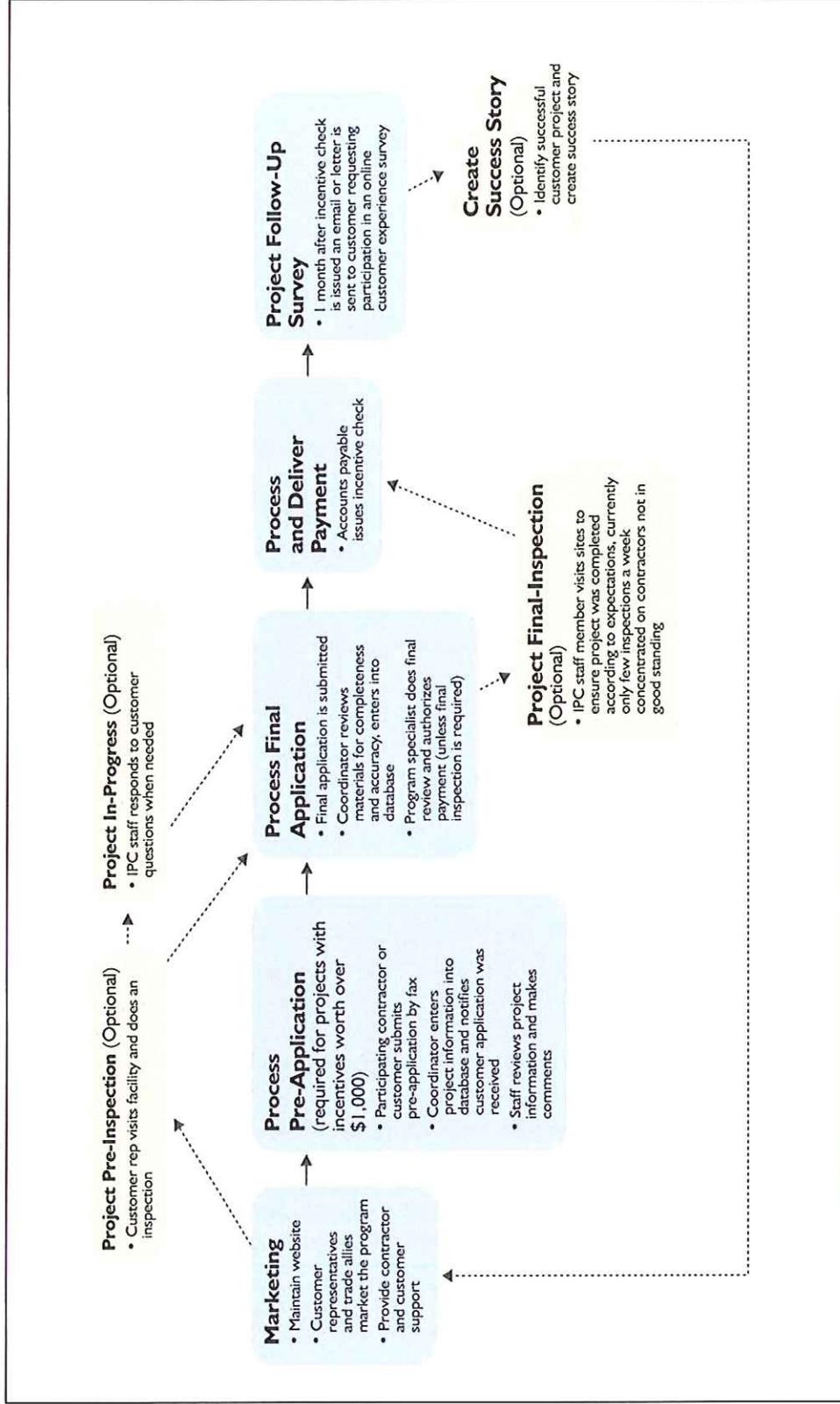
In the first phase of the Easy Upgrade process, customers become aware of the program through its Website, trade allies, or customer representatives. Program staff are available to answer questions and to advise customers on which programs best suit their projects (i.e., Easy Upgrades, Custom Efficiency, and Building Efficiency). Once a customer decides to become an Easy Upgrades participant, he or she submits a pre-application before the project is completed, usually by fax (this is an optional step for projects with incentive applications less than \$1,000). The program can also accommodate third-party applications, where the contractor submits the application on behalf of the participant receiving the retrofit.

The program staff process the pre-application and notify the participant that their application has been received. If the pre-application is incomplete, the coordinator follows up with the contractor or customer to correct it. Some projects are selected for a pre-walkthrough prior to issuing the pre-approval (on projects with incentives of \$1,000 or greater). A staff member reviews the project information once it is complete and enters the data into the program database. Participants submit a final application, along with supporting documentation, once the project is complete (usually by fax). The coordinator then updates the information in the database (if the project had prior preapproval). The program specialist conducts a final review before authorizing

payment, unless a final inspection is required. If an inspection is required, payment is made after the project successfully passes a final inspection.

In Figure 1, key program activities are shown in blue boxes, arranged in chronological order. Green boxes with dashed arrows identify activities that may be ongoing during the application process.

Figure 1. Easy Upgrades Process Flow Diagram



## Chapter 3: Assessment of Program Components

### Purpose

The purpose of this chapter is to review and assess the following program elements:

- Program demand and application processing
- Marketing and outreach
- Program tracking and database
- Participant and trade ally surveys
- Quality assurance and quality control (QA/QC)

### Methods

We used several methods to assess the program components listed above, including:

- Feedback during the project kick-off meeting and discussions with evaluation staff.
- Interviews and correspondence with staff directly involved with Easy Upgrades, including the program specialist; her administrative coordinator; a customer relations analyst who designed the participant and trade ally surveys; and an analyst working on program tracking. The interview discussion guide is included in Appendix A.
- Review of secondary information, such as program application forms, marketing materials, and the database.

### Findings

#### Program Demand and Application Processing

According to our interviews and review of program tracking and materials, the program has been a success. Projects have increased from 100 completed in 2007 to a forecasted 1,800 projects in 2010. This unexpected demand, while positive, has resulted in the program exceeding its allocated budget by several million dollars. While this response to Easy Upgrades indicates the program's appeal to IPC customers, staff report some challenges in keeping up with the demand. This—in addition to a fairly recent change in program management—has affected program operation and quality in a variety of areas, including keeping up with application processing, verification efforts, and finding adequate time for program planning.

In particular, the program specialist identified application processing as a time consuming and cumbersome function, requiring multiple reviews and steps, and detracting from other program management needs. Challenges with processing applications appear to stem from two interconnected sources:

- About 40 percent of applications require extra attention due to missing or incomplete information.
- The time it takes to review, correct, and input pre- and post-applications exceeds the time core staff have to devote to these tasks, and leaves little time for other program functions.

In the following sections, we analyze both of these challenges.

### **Review and Testing of Application Forms**

Our review and testing of the online application forms for the Easy Upgrades program revealed, while they were mostly clear and easy to complete, they also contained the following potential sources of confusion or error for applicants completing the forms:

- Data validation rules are not built into the calculator to prevent entry input mistakes. The Website has six incentive calculation worksheets, all available in PDF format with modifiable input fields. The input fields instruct the user to enter a quantity of measures in units. However, the user may enter digits or text without restrictions.
- Data input testing showed that calculation errors can occur from input entry mistakes. For example, entering '9m3' is interpreted as ',9.3' and multiplied by the incentive amount. In another example, "93-" is interpreted as minus 93.
- Some requirements are not well explained. For instance, the Lighting/Controls incentive calculation worksheet instructs users to enter both a quantity (in units) and operating hours. However, the reason why both entries are needed is not explained, nor does it have a feature checking that all required field are completed.

### **Calculation of Staff Time Needed to Process Applications**

The Easy Upgrades program has 1.5 dedicated FTEs responsible for various functions, including application processing, customer support, marketing, program planning, and coordinating inspections.<sup>1</sup> We estimated how much time the core staff need just for keeping up with applications.

Based on estimates of demand, we assumed the program needs to process 76 applications a week (pre and final), with each review time varying based on its complexity and accuracy. Average times for application processing were provided by the program specialist and coordinator. Table 1 shows that the full-time program specialist must spend 100 percent of their available hours processing applications, while the half-time coordinator must spend 135 percent of their available hours on this task. This indicates that program staffs are required to work more than 40 hours (more than 20 for half time) per week in order to meet all their responsibilities for the program to keep up with demand.

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<sup>1</sup> Analysts from another business group assist with customer research and program analysis tasks.

**Table 1. Weekly Application Processing Time**

Activity	Program Specialist hours/week	Program Coordinator hours/week
Data Entry*	-	17
Pre Application Review	20	-
Final Application Review	20	10
<b>Total</b>	<b>40</b>	<b>37</b>
<b>% staff hours**</b>	<b>100%</b>	<b>135%</b>

\*Assumes 40 percent of applications require re-work.

\*\*Assumes full time is 40 hours/week, half time is 20 hours/week.

## Marketing and Outreach

Our review of Easy Upgrades' marketing and outreach materials included its Website,<sup>2</sup> program brochures, and case studies about successful projects implemented as a result of the program. The Website provides information about the program at a glance and contains links to brochures, application forms, and success stories. The Website identifies general information about the program including eligibility and available incentives (up to \$100,000 for each project). Promotional materials on the Easy Upgrades program Website contain several brochures highlighting success stories about the project benefits ranging from refrigeration to lighting. For example, success stories detail lighting improvements at a Chevrolet dealership and local YMCA tennis courts.

The appeal and usefulness of marketing materials are best determined through the viewpoint of potential participants; while the findings from the Easy Upgrades 2009 participant survey reveal there is high satisfaction with many program elements, little feedback was gathered about the Website and marketing materials. Our review of the materials focused upon assessing if they are current, consistent with one another, and relevant to the range of projects participants might have. Using these criteria, we identified the following possible improvements:

- The Website contains a program brochure published in 2009, but does not assure the reader that the brochure is current for both 2009 and 2010.
- The link to „Easy Upgrades Overview' sends a visitor to a brochure with a 2007 copyright, stating that 2007 projects are eligible to receive incentives. This message conflicts with program eligibility timing requirements, also provided on the Website, which states that projects are only eligible to receive incentives for measures installed no more than six months prior to the final application.
- The link to „Program Updates' takes the visitor to a potentially useful source of information. However, the most recent update is from November 2009, which could lead the visitor to question if the updates are current and the page relevant.
- Both success stories are based on lighting projects; they do not highlight the diverse measures available.

<sup>2</sup> <http://www.idahopower.com/EnergyEfficiency/Business/Programs/EasyUpgrades/default.cfm>.

## Database Review

Management of program data is essential for accurate reporting, which in turn allows program managers to assess how well a program meets its goals. The Easy Upgrades database is currently in transition with a new system to become available soon; we were not able to review the new database for this report. However, IPC provided us with two versions of the Easy Upgrades database:

- **A 2009 measure-level extract from the Easy Upgrades legacy database.** The extract consists of 25 fields and 2,625 rows in a single worksheet providing details on measures, project location by city, costs, and energy savings for Easy Upgrades projects implemented in 2009. This extract provides a link to deemed savings values used in the annual report, allowing the user to identify which and how much of each measure contributed to each cost and savings statistic presented in the report. IPC recommended this database for our review as it has more user-friendly features, such as descriptions of each column header.
- **The entire Easy Upgrades legacy database to supplement the 2009 extract (if needed).** This database consisted of nine worksheets with customer, contractor, and field rep contact details; summary totals; incentive payments; and other details for projects from 2007 to present.

## Usability and Evaluability Analysis

We analyzed these databases for the following criteria:

- Ease of use;
- Completeness, accuracy, and consistency; and
- Ability to provide useful information for tracking and evaluation.

Based on this analysis, we found:

- Basic information—such as measure number, quantity, units, and other essential information—are being collected.
- Most values agree from the application forms, database, and the Demand-Side Management 2009 Annual Report Supplement 1: Cost Effectiveness.<sup>3</sup> However, there are a few minor discrepancies identified in the following bullets.
- Some column headings could be more clear. Fields such as “GrossPartCosts” are explained as deemed participant costs, not netted for incentives in the column descriptions document. In the DSM 2009 Annual Report, this column is referred to as “Gross Incremental Participant Cost.”
- The organization of columns is difficult to navigate, with some columns in per unit values and other adjacent columns in total values. Additionally, columns containing

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<sup>3</sup> Demand-Side Management 2009 Annual Report Supplement 1: Cost Effectiveness. Pages 45-55 in the Cost Effectiveness Table.

information directly from applications, which vary for each application, are interspersed with those containing deemed values.

- The 2009 database extract does not include dates or contact information, so there is no way to examine the flow of information through the system as an application is processed. Such information is available in the legacy database; however, the format is complicated and difficult to analyze.
- Some fields in the extract miss critical information, such as measure name or quantity. For example, application number 201 for air-side economizer controls misses quantity, kWh savings, and incentive amounts.
- There is inconsistency within the Fixtures column, defined as the quantity of measures with the units described in the Unit column. For example, in application number 160, measure P6 (Low-temperature dish machine), units in the database extract are kW, but the number of Fixtures given is 1. The legacy database indicates 9 kW is the correct quantity of Fixtures when considering proper units of kW for that measure; 9 kW also corresponds to the incentive amount recorded in the database.
- Annual Gross Energy Savings in the database extract and the DSM 2009 Annual Report do not match for various measures, such as programmable thermostats or automated control systems.
- In some instances, the measure number and measure name do not correspond. For example, one entry in the database extract for measure number L11 has a measure name of “4 lamp 4’ T5 fixtures,” whereas in the application worksheet, L11 is listed as a “3-lamp 4’ T5 fixture” (see Figure 2). In another case, the measure name in the database “LED Outdoor Sign Lighting” refers to two separate measures, L32 and L33, which are exit and sign lighting, respectively.

**Figure 2. Excerpt from Easy Upgrades Lighting Application Worksheet**

#### **T5 Fluorescents**

<i>L10</i>	1- or 2-lamp 4’ T5 fixture	1- or 2-lamp 4’ T12 fixture
<i>L11</i>	3-lamp 4’ T5 fixture	3-lamp 4’ T12 fixture
<i>L12</i>	4-lamp 4’ T5 fixture	4-lamp 4’ T12 fixture

#### **Measure and Incentive Analysis**

We conducted a high-level analysis by measure category to determine whether there are notable trends which may lead to adjustments of incentive levels or offerings. Table 2 shows results by measure category for the 2009 program year. The table is organized from the highest to lowest percent of total kWh savings. The table shows the majority of electricity savings, incentives, and project costs derive from lighting projects. Motor measures produce the second greatest amount of savings, followed by HVAC, grocery, plug load, and building shell measures. For most measure categories, the value of incentives is not proportional to incremental costs, with motors contributing a disproportionately high level of kWh savings compared to their incentive or incremental costs.

**Table 2. 2009 Database Results by Measure Category**

Measure	Deemed kWh Savings	Value of Incentives	Incremental Project Costs
Lighting	57%	72%	60%
Motor	20%	4%	4%
HVAC	12%	10%	24%
Grocery	9%	12%	8%
Plug Load	2%	1%	1%
Building Shell	1%	1%	4%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Our review of the 2009 database extract and the 2009 Annual Report revealed several instances where per unit incentive amounts were equal to or greater than per unit incremental costs, including measures for:

- Laundry machines,
- Refrigeration cases,
- Motors, and
- T5 fluorescents.

A footnote in the annual report indicates that IPC is aware of this issue and plans to make “*appropriate adjustments prior to program revisions in 2011.*”

### **Participant and Trade Ally Surveys**

As part of this evaluation, we reviewed the efficacy of surveys conducted with customers and trade allies taking part in the Easy Upgrades program. These surveys are intended to gauge customer and trade ally satisfaction with the program and to gather program feedback such as suggestions for improvement.

We reviewed the survey design, methods, raw survey data, and the analysis and results as presented in IPC’s 2008 and 2009 DSM Annual Reports. We also gathered background information on the survey approach during our interviews with IPC staff. During our conversation with the IPC survey specialist, we found out that she initially designed the surveys; Easy Upgrades staff then made final changes to the survey design, implemented the survey, and analyzed and reported on the results. Based on our review of documents and on conversations with IPC staff, we compared the survey process to industry standard practices.

### **Participant Survey Design**

During our review, we did not find any documentation that described the survey’s purposes or the research questions it set out to answer. Having a survey design and analysis plan is an important step to ensure all the recommended data are being collected. Our review, in this case, is based on conducting many energy-efficiency program participant surveys.

The current Easy Upgrades participant survey contains typical program satisfaction and awareness questions, but does not gather more specific information about marketing, program benefits and barriers, assessment of specific measures installed, and recommendations for

program improvements. In addition, it is likely that the responses to several open-ended questions, while containing thoughtful comments, were not content-analyzed or organized in a way that allowed them to be useful for guiding program operation.

Our further analysis of open-ended responses revealed some useful insights about the survey design and program performance. For instance, one open-ended asked:

*“How well would you say the energy-saving upgrades you made to your facility have performed? Please provide any comments you have related to the performance of the upgrades you made to your facility.”*

Responses indicated that several people may have been confused by the question and by the question’s placement within the survey. Other respondents used this field to make comments unrelated to the question. For example, they said:

- *“Final application has a lot of the same questions as the pre-application. It could be a little easier to leave off unnecessary information to make the final application a breeze.”*
- *“The program managers that ran the program were great to work with and were very helpful with providing assistance when needed.”*
- *“We have seen a dramatic decrease in our power consumption. We are very happy to have done this.”*

The participant survey also did not include questions to assess freeridership and spillover for the program. Measuring freeridership (net-to-gross) and spillover are valuable metrics for checking program performance and penetration. For instance, knowing that you are offering a program incentive for an efficiency measure that everyone is already doing, or knowing that your program influences other energy saving actions without having to incent them, can be critical to making good program decisions. Even though IPC only needs to report gross energy savings, they use net-to-gross adjustments (from sources such as the California DEER database) to calculate cost-effectiveness.

### **Participant Survey Methods**

From 2007 through 2009, all participants in Easy Upgrades were asked to complete a feedback survey within one month of receiving the incentive check for their project(s). Participants received an e-mail or letter requesting that they access a link connecting them to an online survey.<sup>4</sup> IPC staff estimate they received, on average, a 30 percent response rate from program participants across the three program years. While this response rate is very good for one mailing, a higher response rate may be obtained using reminder thank you cards and other nudges. A more robust return rate makes it more likely that the respondents represent the population of participants, rather than just those who are satisfied, those who want to make sure the program continues, or those who are dissatisfied.

The participant surveys, to ensure anonymity, did not identify the respondents; this prevented consumption and project information from being linked to survey information. However, since 64 percent of respondents provided contact information at the end of the survey, most

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<sup>4</sup> The survey was implemented using an online survey tool, SurveyMonkey™, which is especially useful when e-mail addresses are available and when the survey situation is straightforward.

participants may not be concerned about protecting their identity. If this restriction were relaxed (e.g., by reassuring participants that their individual data would never be published), the program would be able to make much more use of survey results.

Participants were not asked what measures they installed through the program, and, without a participant tracking ID, this information could not be obtained from the program database. Not using a participant tracking ID also prevented linking respondents to energy savings amounts, facility sizes, trade allies, and program years.

### **Trade Ally Survey Design and Methods**

Like the participant survey, we were unsure of the trade ally survey's research purposes and questions. While the survey asked some interesting questions, it did not include probes that would allow the answers to be most useful. For instance, when respondents were asked "*What percentage of your commercial projects qualify for Easy Upgrade Incentives?*" the most common response was "*less than 10 percent.*" While the survey later asks what the primary barriers to client participation were, it did not ask why client projects did not qualify for Easy Upgrades. In another case, 46 percent of respondents said they had not attended any Easy Upgrade trade ally workshop, but they were not probed for the reasons they did not attend.

Trade allies attending Easy Upgrades workshops were given paper surveys. We did not find the response rates for these surveys, but in a workshop environment it is possible to ensure a larger proportion of the attendees fill out the survey. For instance, sponsors can give small prizes for completing survey or withhold benefits from those who don't.

### **Reporting of Survey Results**

Results for both participant and trade ally surveys are available in the *Demand-Side Management 2009 Annual Report Supplement 2: Evaluation*. However, the description does not include any background information about the survey purposes. In addition, the presentation makes it difficult to understand the time period that each survey covers. The results only include frequencies, cut and pasted from the SurveyMonkey<sup>TM</sup> output, and do not include an analysis of open-ended responses or cross-tabulations. Some confidential information is also presented, including the customer referral contact name, organization, and e-mail address. Finally, while survey results show the number of respondents who skipped each question, the reasons for the skips are not clear (e.g., a planned skip pattern or a problem with following the questions).

### **Program Quality Assurance and Verification**

Quality assurance (QA) and verification procedures ensure that savings claimed by the program are actually realized in the field. IPC requires that all participants submit documentation and agree to project inspections (stated in the Terms & Conditions) in order to receive an incentive.

Information about the current QA practices was gained entirely from discussions with the program specialist, who reported that while some pre and final project inspections are performed, there are no officially documented guidelines and procedures to ensure consistency in the QA efforts. Also, there are no dedicated inspection staff members; rather, one staff member with extra time field-inspects four to six projects a week. Projects are not randomly selected for inspection, and are handpicked according to the program specialist's review of the projects. To provide IPC with a template for developing a systematic verification plan, we developed a

verification plan for Easy Upgrades. This sample plan balancing feasibility, importance, and costs is included in Appendix C.

## Chapter 4: Best Practices Review

### Purpose

This chapter compares Easy Upgrades with similar programs that the efficiency industry has rated as exemplary. This analysis allows Easy Upgrades to be benchmarked against these outstanding programs, revealing areas where it meets or exceeds industry best practices and where it may need improvements.

### Methods

To complete this analysis, Cadmus relied on the Energy Efficiency Best Practices Project.<sup>5</sup> This project is the result of a comprehensive study, publicly available online, identifying excellent practices among nationally-recognized energy-efficiency programs throughout the United States. From the study, we identified 30 best practices most applicable to IPC's Easy Upgrades program. This comprehensive study is available online and contains best practices area reports (Residential, Commercial, and Cross-Cutting) based on a detailed analysis of the design, marketing, operation, and implementation of programs identified as exemplary.

Although there were many exemplary programs identified in the best practice study, we relied on data from publicly available evaluation reports<sup>6</sup> to compare with information gathered from correspondence with IPC staff members and materials provided by the program specialist.

Cadmus selected four of these programs:

- Energy Trust of Oregon's Existing Buildings Program;
- National Grid's Design 2000Plus;
- Sacramento Municipal Utility District's (SMUD) Small Commercial Prescriptive Lighting Program; and
- National Grid's Energy Initiative Programs.

Although these programs vary in size, measures offered, and implementation, they are nationally-recognized as successful programs and have been in operation for many years. All are prescriptive commercial programs focusing primarily on the end user. In addition to information on the best practices Website, we reviewed evaluation reports and available materials for each of the four programs.

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<sup>5</sup> Best Practices Benchmarking for Energy Efficiency Programs: <http://www.eebestpractices.com/index.asp>. This study is managed by Pacific Gas and Electric Company under the auspices of the California Public Utility Commission in association with the California Energy Commission, San Diego Gas and Electric, Southern California Edison, and Southern California Gas Company.

<sup>6</sup> Best Practice Program Area Reports, available at <http://www.eebestpractices.com/index.asp>.

## Findings

We assigned the best practice comparison programs a score from zero to three in each best practice category, based on its perceived level of participation within that category. We determined participation levels based on a review of available literature.

Easy Upgrades is currently practicing 14 of 30 best practices in the areas of project management and implementation. Some best practices identified were not observed in any of the exemplary programs reviewed, and some best practices were only observed in one or two of the comparison programs, such as offering low-cost financing. Appendix B provides a comprehensive table mapping the best practices to the four programs compared to Easy Upgrades.

Findings from this comparison of best practices show:

- Easy Upgrades, while performing well on 14 of the 30 applicable best practices, could improve practices across all major areas, including:
  - Program theory and design
  - Project management
  - Program implementation
  - Quality control and verification
  - Evaluation
- In terms of program theory and design practices, Easy Upgrades, which does not have a fully developed logic model, lacks formal mechanisms for continuous feedback and improvement, identification of market barriers, and strategies for removing those barriers.
- Interviews with program staff revealed that the program is over-subscribed and staff are unable to effectively handle the response; comparable programs meet this best practice. Other areas for improving project management include a more automated data entry and reporting system and the ability to report program activity for each trade ally.
- Integrating trade allies into the program crosses several best practices areas, including design, management, and implementation. All programs compared to Easy Upgrades have well-documented program structures fully integrating trade allies (and descriptions of their responsibilities), while Easy Upgrades does not. These practices are important because they clearly define roles within the program, reduce confusion, and increase program accessibility. In addition, while most programs under review have well-established relationships with contractors, including certification programs and communication feedback loops, Easy Upgrades lacks this component.
- While most programs under review have established verification protocols, Easy Upgrades has limited quality control and verification procedures. With other programs, typical verification protocols include a random sample of pre- and post-inspections and regular auditing of program tracking and inspection data.
- Easy Upgrades' program tracking and evaluation does not include primary research to identify freeridership and net-to-gross program savings.

It is important to note that all best practices must be considered carefully in terms of a program's life cycle and resources. For example, given the current high demand for Easy Upgrades program services, best practices driving or contributing to program marketing may prove less urgent than better application processing and data tracking.

## Chapter 5: Conclusions and Recommendations

### Program Demand and Quality Assurance

The program's high demand has stretched program staff and resources thin. This had made it difficult for staff to keep up with best practices in program management, operation, tracking, quality assurance, and evaluation. For instance, in some cases both pre and final applications are allowed to be submitted together after the project is completed, resulting in staff, participants, and contractors being uncertain about project eligibility. In addition, normal checks and balances for program quality are not always present, including not having a systematic verification plan or project inspection protocol for the program.

#### Recommendations

Easy Upgrades would greatly benefit from a better match of program demand to resources and from establishment of a more consistent framework for program processes and protocols. Our specific suggestions to improve program processes are listed below.

##### Application Processing

- Allocate budget for additional staff resources to process pre and final applications.
- Require pre-applications to be submitted and approved before project work begins.
- Revise application form instructions to clearly define project eligibility requirements.
- Consider implementing a minimum waiting period for pre-applications to allow time for eligibility checks and random pre-inspections.
- Provide more training to contractors so they can be better program partners; consider requiring mandatory training to be listed on the program Website as a certified program partner. Training can be carried out through workshops or through Web-based training modules. Content would include information about program rules, eligibility and documentation requirements, inspection notifications, and other program changes.
- Establish program protocols and consistent documentation for program processes, including written guidelines for data tracking and updated program handbooks.

##### Application Materials

- Streamline and reduce application errors by automating the application process and imbedding data validation methods. This can best be achieved through Web-based application forms.
- Provide clear guidance and instructions to complete application forms, including an example of a properly filled out form.

##### Data Tracking

- For better program evaluation, ensure, at a minimum, that the following data are collected and reliably entered into an electronic format: type of measure installed, quantity of measures, dates of project implementation, and contractor and participant information.

- Ensure program measures are tracked by customer and contractor. Data tracking should occur at a granular level to enable calculation of participation rates, savings by project and measure, and other desired evaluation outputs.
- Develop data tracking protocols and manuals to enable staff to establish consistent approaches for collection and quality control.

### **Program Quality Assurance and Verification**

- Establish a verification plan to promote a consistent framework for checking the eligibility, quality, and tracking of the projects implemented for the Easy Upgrades program. We have developed a sample verification plan for the Easy Upgrades program (Appendix C). The verification plan includes guidance on ranking the program processes in order of importance.
- The verification plan should include an inspection protocol with the following components:
  - Based on standard industry practice, inspect approximately 10 percent of completed projects.
  - Consider performing pre-installation inspections to ensure eligibility. A 5 percent sampling rate from the pool of pre-applications would meet standard statistical requirements.<sup>7</sup> Note: pre and final inspections do not need to be performed for the same project.
  - Develop a method to flag projects for inspections early in the application process. This would allow generation of a project inspection list so that a site visit schedule can be planned independently from other processing functions.
  - Develop a final inspection protocol to check that:
    - Measure types and quantities installed correspond to project records.
    - Measures are installed correctly.
    - Operating assumptions (if applicable) correspond to project records.
    - Customers are satisfied with the equipment installed.
- Assign a dedicated person to conduct inspections; with the appropriate training and oversight, a dedicated inspector will help ensure reliable and consistent site visits and good customer relations.

## **Marketing and Customer Feedback**

During this time of high demand, more aggressive and targeted marketing can be mostly on hold. Emphasis should be placed on making sure that current marketing and outreach materials are kept up-to-date. However, the lack of insight about the drivers of the program's high demand makes the program vulnerable and its future uncertain. For instance, it is not known if program demand is driven by incentives that are too high, a long period of pent-up demand, or other

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<sup>7</sup> 90/10 confidence precision is attained assuming 1,600 projects per year.

factors. It is time to learn more about the current market and what the future might bring. Specific recommendations include:

### **Recommendations**

- Regularly update the Easy Upgrades Website and program brochures so that program changes, project-year eligibility requirements, and other program information are current and consistent.
- Conduct market research with program and trade ally participants. This research would help to better understand the current program participants, their awareness of program services and requirements, their preferred sources of information and marketing, drivers behind the program's high demand, motivations and barriers to participation, satisfaction with key program areas, program strengths and weaknesses, and freeridership and spillover information.
- Conduct market research with nonparticipating customers and trade allies. This research would provide insights about who is not participating, motivations and barriers to participating, program awareness and perceptions, program needs, their preferred sources of information and marketing, and future market trends.
- Taken together, these efforts would provide both a valuable market characterization as well as key information about how the Easy Upgrades program is performing. It would reveal details about the local market for efficiency retrofits, how it works, and how to effectively select and entice target markets to participate in CI&I programs. It would also inform marketing efforts and allow comparisons between participants and nonparticipants. For these survey efforts, IPC should consider using a third-party firm to design and implement the research, unless in-house expertise is both in-place and available.

## Appendix A. Program Specialist Interview Guide

### Introduction

Thank you talking about the Easy Upgrades program with me. As you know, the Cadmus Group is conducting a process evaluation of the C&I portfolio for Idaho Power. The purpose of this interview is to gather information on Easy Upgrade program processes, operations and activities so that we can see what is working well and what might be improved and how. As program manager, your perspective is very important to us.

### Program Overview

1. Can you briefly describe how the program currently operates? Is it consistent with the process flow in the handbook (if not, ask for revisions)?

### Program Design

Next, I will ask you about program design issues.

2. How would you describe Easy Upgrades' overall goal? Probe: What is the logic or theory behind the program so that the goals will be met?
3. What do you look for to indicate how well the program is doing?
4. The Easy Upgrades program was recently changed for 2009. Can you describe the general process for program changes and tell me why the changes were made?
5. What types of considerations drive program changes when you are planning or revising the program??

(if not mentioned, probe for the following)

- a. Freeridership
- b. Code/Standard changes
- c. Market demand
- d. Program processes
- e. Program management
- f. Assumptions about target market behavior
- g. Economic conditions

### Program Delivery

6. How is the program delivered?

### Program Administration

This next question is about program applications and processing of those applications.

7. Could you please tell me how participants find out about the program?
8. Can you tell me more about the application process for participants?
  - a. How do the participants decide to enter the Easy Upgrades program?
  - b. How well does the application process work? Do you know of any issues that participants have with the current application process?
9. Can you tell me what happens once the application is sent to IP? E.g., Who receives the applications and what are the steps for reviewing and approving them and setting up payments?
  - a. What are the conditions for payment of rebates?
10. What are the steps to process an application from start to finish? How many hours using what resources?
11. How many applications are received each week?
  - a. What % are rejected or need rework? Has this percentage changed over time? How has it changed?
  - b. What are the most common reasons for rejection? (customer eligibility, savings requirements, missing information...)
12. How well does the application process work? What improvements to the process would you like to see?
13. How are savings verified for individual projects?
  - a. Are there General QA/QC guidelines or requirements?
  - b. Are there program specific ones? Should there be?
  - c. Are they implemented?
  - d. What pre/post-inspections are required?
  - e. What factors are included in the verification process? PROBE on realization rates, in-service rate, free ridership.
  - f. Are there any issues with verifying savings?
  - g. What adjustments, if any, are made after verification of savings?

14. Who is responsible for collecting and tracking participation data?
- a. How and when are data entered?
  - b. Can you describe the data validation protocols to ensure quality? How often is quality checked?
  - c. How often are tracking database savings algorithms checked?
  - d. How is contractor activity tracked?
  - e. How are pre-applications tracked?
  - f. Have there been any difficulties with the data tracking systems?
  - g. What features or abilities do you hope the new system being developed will offer? Will it fully integrate the Easy Upgrades database with a larger portfolio level information system?
15. Would you recommend any changes to the data tracking procedures?

#### **Trade Ally Response**

16. Is IP involved in the recruitment or management of Trade Allies, retailers or contractors?
17. How many contractors do you actively deal with in a given program year?
18. How frequently do you communicate with trade allies and how is the communication carried out?
19. Have you had any particular challenges working with trade allies?
20. How are their problems and questions dealt with?
21. What kinds of things have been done or are being planned to identify trade allies and get them involved? (such as certification process)
22. How would you change or improve communications with trade allies?

**Closing Remarks**

23. You mentioned that 1.5 FTE's was not enough staff to support the program under current administration practices, what additional resources do you need to be able to properly manage the program with limited staff? (contractors, database functions, processing...)
24. Part of our evaluation work will be to gather information about other exemplary programs similar to Easy Upgrades. This will give you best practices and other criteria you can use to compare your program with these other programs. For instance, we will look at program delivery, cost-effectiveness, and total program costs. Are there other program criteria or attributes you are especially interested in that we should gather?
25. What would you say are the program's strengths?
26. What are the most important things you would like to see improved?
27. Do you feel that the program, generally, is accomplishing its stated goals?

## Appendix B. Best Practices Benchmarking

Cadmus assigned the best practice comparison programs a score from zero to three in each best practice category, based on its perceived level of participation within that category. We determined participation levels based on a review of available literature.

The best practices comparison is summarized in Table B1. The scoring symbols (from 0 to ++)  
indicate the extent to which the best practice appears to have been implemented for each program. The following is the symbol key:

0	Best practice not found in data sources
+	Somewhat implements best practice
++	Strongly implements best practice

Blank cells indicate areas where a rating could not be made or the category is not applicable.

**Table B1. Full Benchmarking Table for Easy Upgrades**

	Easy Upgrades, IP	Building Efficiency Program, Energy Trust Of Oregon	Design2000Plus, National Grid	Small Com Presc Lighting, SMUD	Energy Initiative, National Grid
<b>Program Theory and Design</b>					
The program has a written program implementation plan that details all program processes.	+	++	++	++	+
Continued improvement feedback loops are incorporated into the program design and logic models.	0	++	++		++
Program structure integrates trade allies/market actors while describing their responsibilities and interaction with the program	0	++	++	++	++
Program design identifies and addresses strategies to removing market barriers	0	+	++	+	+
<b>Program Management: Project Management</b>					
The program actively works to build strong relationships with vendors and contractors (that are key decision influencers on projects).	+	++	++	++	++
Provide program staff with adequate resources to handle program volume	0	++	++	+	++
<b>Program Management: Reporting and Tracking</b>					
The tracking database is well designed and fulfills the needs of both the program staff and evaluators.	+	++	++	++	++
The tracking system features internet-	0	0	0	0	0

	Easy Upgrades, IP	Building Efficiency Program, Energy Trust Of Oregon	Design2000Plus, National Grid	Small Com Presc Lighting, SMUD	Energy Initiative, National Grid
based data entry and reporting functions. It has fully automated data validation functions to assess data quality.					
The program tracks incentive commitments for all pending large projects.	+	++	++	++	++
The tracking system captures and reports program activity by each participating vendor.	0	++	++	++	++
<b>Program Management: Quality Control and Verification</b>					
The program works closely with vendors and utilizes a pre-screened list of products to reduce the need for quality control inspections.	0	++	++	++	++
The program's requirements and guidelines include measure product specifications for all measures promoted by the program.	++	++	0	++	0
Randomly select pre/post inspection sample during pre-approval process	0	++	0	++	0
On-site pre and post-installation inspections are done routinely	+	++	+	++	+
There is a comprehensive contractor program in-place, which includes screening, certification and training requirements.	0	++	+	0	+
<b>Program Implementation: Participation Process</b>					
Participation procedures are streamlined, eligibility is clearly defined, documentation requirements are reasonable, and forms are understandable.	+	++	+	++	+
The program uses an electronic application process. On-line forms are readily accessible to customers, subcontractors, trade allies and program administration staff.	+	++	+	+	++
The program uses a simple application form, which obtains important data, but involves minimal vendor time to fill in required fields.	+	++	0	++	0
The program offers zero percent or low-cost financing to offset the high cost of capital for small businesses.	0	0	++	0	++

	Easy Upgrades, IP	Building Efficiency Program, Energy Trust Of Oregon	Design2000Plus, National Grid	Small Com Presc Lighting, SMUD	Energy Initiative, National Grid
<b>Program Implementation: Marketing and Outreach</b>					
Utility partners are mentioned prominently in program promotional materials and messages.	0	++	++	+	++
Door-to-door marketing is performed in order to achieve high penetration rates, especially among small business customers.	0	0	0	0	0
The program leverages contractor marketing to promote prescriptive measures	+	++		++	+
The program leverages other community-based organizations (business, trade associations, etc) for expanded marketing opportunities.	+	++	++	+	++
<b>Program Evaluation</b>					
The data entry process is spot checked every year.	+	++	++		++
Inspection databases are reviewed every year.	0	+	++		++
Tracking database savings algorithms are checked annually to confirm that they are accurately capturing program data and computing savings impacts.	+	++	++		++
Process evaluations are conducted regularly, and use the latest data.	+	++	+	+	+
Ex-post impact evaluations are scheduled at least every two to three years and are sufficiently detailed.	+	++	++	+	,++
NTG is researched routinely (internally or during evaluations)	0	++	++	0	++
The program has a market transformation strategy and conducts market assessments periodically for the full range of market impacts expected.	+		+	0	0

**Table B2. Best Practices Benchmarking Data Sources**

Reference	Program	Document Name	Document Date
1	Energy Trust of Oregon	Energy Efficiency 2009-2010 Revised Budget and Action Plan	2009
2	Energy Trust of Oregon	Final Report: Impact and Process Evaluation of the 2006-2007 Building Efficiency Program	2009
3	Energy Trust of Oregon	An Evaluation of Energy Trust of Oregon's Refrigerator Recycling Program	2010
4	Energy Trust of Oregon	Business Efficiency Website	2010
5	Energy Trust of Oregon	Annual Reports	various
6	Energy Trust of Oregon	Energy Trust of Oregon 2007 Annual Report	2008
7	Energy Trust of Oregon	2007-2008 Action Plan	2006
8	Energy Trust of Oregon	Energy Trust of Oregon 2008 Annual Report	2009
9	National Grid Design 200Plus	2007 Energy Efficiency Plan	2007
10	Best Practices Benchmarking for Energy Efficiency Programs	Profile report for Design 2000plus	
11	National Grid Design 200Plus	Website	2010
12	National Grid Design 200Plus	Lighting Controls Impact Evaluation	2007
13	National Grid Design 200Plus	2008 Energy Efficiency Annual Report	2009
14	National Grid Design 200Plus	2007 Commercial and Industrial Programs Free-ridership and Spillover Study	2008
15	National Grid Design 200Plus	2009 Energy Efficiency Annual Report	2010
16	SMUD Commercial Prescriptive Lighting	2010 Program Implementation Plan	2010
17	SMUD Commercial Prescriptive Lighting	SMUD's 2010 Small Commercial Prescriptive Lighting Incentive Program	2010
18	Best Practices Benchmarking for Energy Efficiency Programs	Profile report for Commercial Prescriptive Lighting	
19	SMUD Commercial Prescriptive Lighting	2010 Commercial Prescriptive Lighting Incentive Program Website	2010
20	SMUD Commercial Prescriptive Lighting	Annual Reports	various
21	SMUD Commercial Prescriptive Lighting	2009 Public Good Report	2010
22	SMUD Commercial Prescriptive Lighting	2005/06 Prescriptive Commercial Lighting Efficiency Program Evaluation	2006
23	National Grid Energy Initiative	2007 Energy Efficiency Plan	2007
24	Best Practices Benchmarking for Energy Efficiency Programs	Profile report for Energy Initiative	
25	National Grid Energy Initiative	Existing Facility Incentives Website	2010
26	National Grid Energy Initiative	Annual Reports	various
27	National Grid Energy Initiative	2009 Energy Efficiency Annual Report	2010
28	Savings by Design	2010-2012 Program Cycle Participant Handbook	2010
29	Savings by Design	SCE 2009-2010 Energy Efficiency Plan	2009
30	Savings by Design	Savings by Design Market Assessment Study and Process Evaluation	2009
31	Savings by Design	Non-Residential New Construction Programs Impact Evaluation	2010
32	Savings by Design	Savings by Design Program Summary	2006-2008

## Appendix C. Verification Plan

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# Sample Verification Plan for Idaho Power Company's Easy Upgrades Program

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Prepared for  
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October 21, 2010

## Introduction

This sample verification plan for Idaho Power Company's Easy Upgrades Program is a stand-alone document. It is designed to provide program managers with guidelines and procedures to keep programs on track, identify areas for improvement, and find ways to improve efficiency and effectiveness of program tracking and implementation. Well-defined benchmarks that link the program activities to the final desired program impacts allow for better decisions about program operations and efficient use of program resources. The plan describes key program verification points that are derived from program activities. The verification plan also incorporates an assessment of the relative importance and cost of the individual verification components. IPC can use this document as a template for developing verification plans for other CII programs.

## Program Overview

### Program Description

The Easy Upgrades program objective is to encourage commercial and industrial customers in IP's service territory to implement energy efficiency retrofits by offering incentives, up to \$100,000 per site. Eligible measures cover a variety of energy-saving opportunities in lighting, HVAC, motors, building shell, plug loads, and grocery refrigeration. Easy Upgrades is designed to be "easy" for IP's customers and is one of the company's largest and most comprehensive programs, containing 143 separate measures.

### Program Theory & Processes

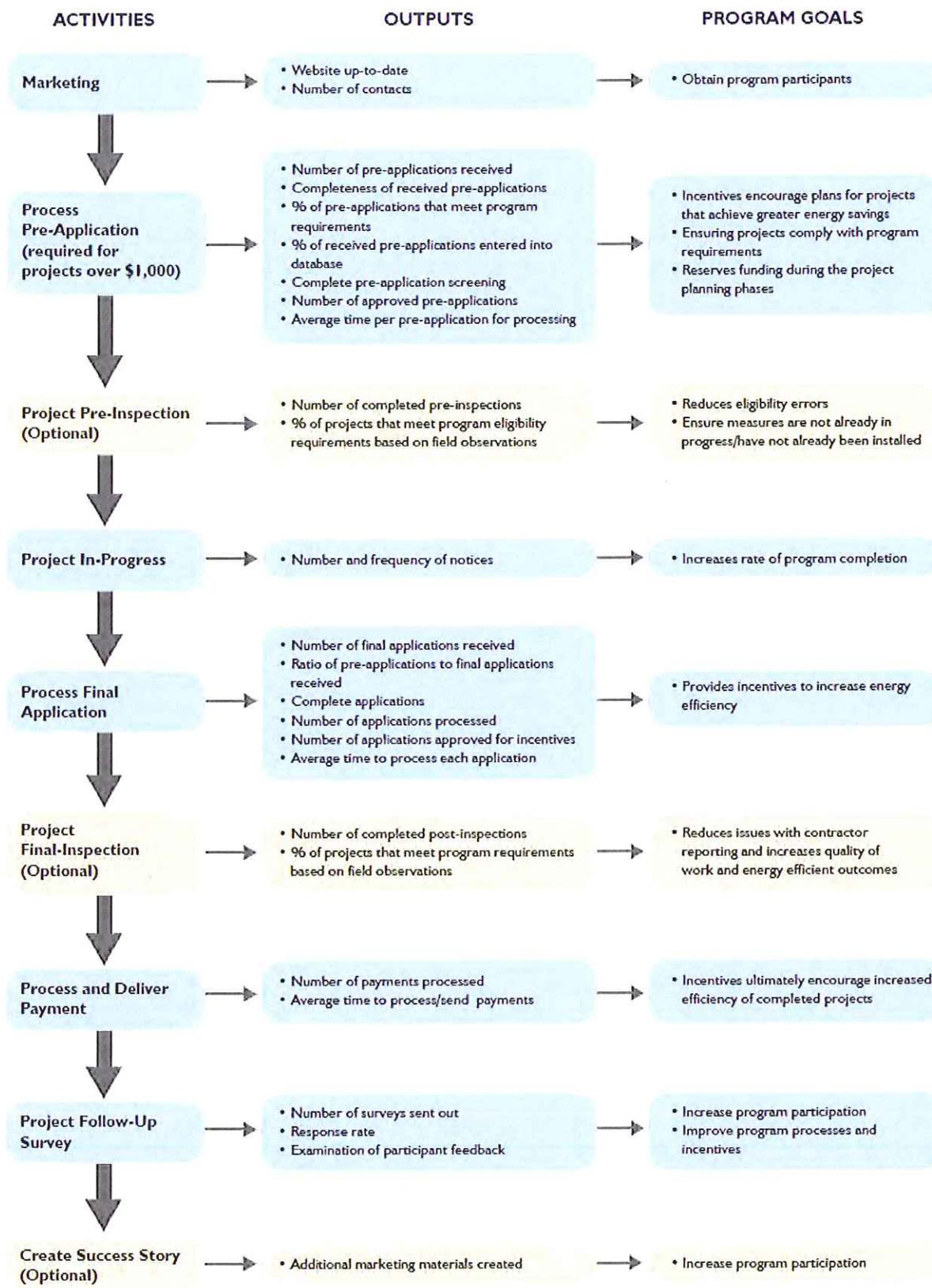
The underlying program theory consists of the program activities (what the program does), the expected outputs of each program activity (what the activities produce), and the eventual goals (rationale) that the outputs contribute to achieving. Each program activity has been examined and a program process flowchart created. This allows us to determine program activities and outputs that contribute to reaching energy savings goals at each step of the program process. Program goals help identify the relative importance of each program activity. Some activities result in direct and relatively immediate energy savings, while others may result in potential savings over time, or are complementary to other tasks but not primary drivers of energy savings. The program flow has been summarized below in Figure C1.

The program consists of nine primary activities.

1. **Marketing:** Marketing activities include contractor workshops, maintaining the website, and other outreach. This maintains interest in the program and keeps customers and contractors informed of project offerings.
2. **Process pre-application:** The pre-application allows program implementers to know how much funding will be required for upcoming projects, and also allows a pre-inspection to be conducted.
3. **Project pre-inspection:** The pre-inspection verifies that the project is eligible for the program.

4. Project In-Progress: Program staff provides on-going support for customers and contractors.
5. Process Final Application: After work is completed, the final application for the incentive is received and processed.
6. Project Final-Inspection: A post-installation verifies that the work was done in accordance with the application documents and the quality is acceptable.
7. Process and Deliver Payment: The incentive is then processed.
8. Project Follow-Up Survey: A survey is conducted for program participants to determine customer satisfaction and areas for improvement for the program.
9. Create Success Story: Success stories are also followed up on at this time for future marketing efforts.

Figure C1. Program Process Flowchart



## Activity Verification: Prioritization

Prioritization for verification of key program activities is based on a review of the Easy Upgrades program description and other documents, program flowchart and an interview with the current program specialist. Two factors are considered in the assignment of priority: the importance to the program goals associated with a program output and the costs and/or time associated with obtaining the information. The relative importance of verifying a program activity is based on the importance of that activity being carried out, the outputs of that activity, and the contribution to the programs goals of those outputs. Thus, the importance of an indicator is weighed against the burden imposed on program personnel. Likewise, an effort has been made to keep the number of indicators at a manageable level. See Table C1 for program activities and details about the verification prioritization process.

**Table C1. Activity Verification Prioritization**

Program Step Activities	Importance of Verifying Activity	Cost
Marketing Activities	Medium	Low
Process Pre-Application	Medium	Low
Project Pre-Inspection	High	High
Project In-Progress	Low	Medium
Process Application	Medium	Low
Project Final Inspection	High	High
Process Payment	High	Medium
Project Follow-Up	Medium	Low
Create Success Story	Low	Low

## Activity Verification Importance and Cost

### Marketing Activities

Marketing activities were rated as somewhat important, as obtaining participants is necessary in executing the program. It was not highly important at this point, because the program is currently oversubscribed. Verifying marketing activities would be inexpensive because reviewing existing documents and marketing records would not involve large amounts of time.

### Process Pre-Application

Verification of pre-application processing procedures was rated as somewhat important. Although the step itself is not critical to achieving energy savings, examination of current processes could result in important recommendations for increasing efficiency in the processes. Verification is not costly because the method of verification would primarily involve a document review of readily available program documents and collection of primary data would be limited to small scale interviews with implementation staff.

### Project Pre-Inspection

Although pre-inspections can be expensive and costly to conduct due to the time involved, this step is critical in ensuring that program participants meet program criteria and to ensure program

criteria are met. For example, some program applicants already have insulation with R-values that are too high to qualify for the program incentive. Determining the existing status of the building components ensures that the incentives that are later paid to program participants represent genuine energy efficiency improvements.

### **Project In-Progress**

Delivering high quality customer support and maintaining customer satisfaction is an important part of what IP does. However, the importance of verifying project in process activities was not determined to be necessary for the verification plan, because these activities did not directly lead to energy savings, which was the focus of the verification plan. Costs would be moderate due to program data not tracking all possible interactions between program staff and participants.

### **Process Final Application**

Verification of application processing procedures was rated as somewhat important, because although the step itself is not critical to achieving energy savings, examination of current processes could result in important recommendations for increasing efficiency in the implementation processes. Verification of this activity is not costly.

### **Project Final Inspection**

Although final-inspections can be expensive and costly to conduct due to the time involved, this step is critical in ensuring that program participants meet program criteria, to minimize incentive payments for ineligible projects, and to verify that quality work is being done. It is also a program QC best practice and the first line of defense against fraud.

### **Process Payment**

The timely processing and payment of program incentives is critical to maintaining customer satisfaction and program participation, so this was rated as of high importance. Verifying payment and payment processes is estimated to be reasonable but somewhat higher because of the steps and various documents involved in issuing payments.

### **Project Follow-Up Surveys**

Project follow up is not directly responsible for energy savings results, but can allow important improvements to overall program processes that can result in additional energy and cost savings over time. Verification of project follow-up activities is not costly because it does not involve extensive primary data collection.

### **Create Success Story**

Creation of success story type marketing materials is an important part of customer relations and shows utility customers the good work being done in their communities. Success story creation activities lead to outputs such as creation of additional marketing materials. Verification of this set of activities was determined to not be needed because the focus of the verification plan is to verify activities leading to energy savings, and additional marketing materials are not critical for a program that is already oversubscribed. Verification of these activities would not be costly.

## Summary

Based on the analysis of potential activities to focus on in the verification plan, marketing activities, processing pre-applications, project pre-inspections, processing applications, project final-inspections, project follow-up, and processing and delivering payment were determined to be the activities most appropriate to include in the verification plan. The next section describes the activity verification process.

## Selected Verification Points

In Table C2, Cadmus summarizes potential verification procedures for the Easy Upgrades Program. The table lists the program step and current activities (as we understand) with recommended verification points, methods, sample size, and frequency corresponding with each step and program activity. This table is provided as a guide only and is based on our understanding of the program. IPC may determine verification procedures for Easy Upgrades based on available resources.

**Table C2. Key Verification Points**

Program Step	Activities	Verification Points (Program Outputs)	Verification Method	Sample	Frequency
Marketing Activities	<ul style="list-style-type: none"> <li>Maintain website</li> <li>Idaho Power customer representatives and trade allies (contractors) market the program</li> </ul>	<ul style="list-style-type: none"> <li>Website up-to-date</li> <li>Number of contacts</li> </ul>	<ul style="list-style-type: none"> <li>Program document review</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Annually</li> </ul>
Process Pre-Application (required for projects over \$1,000)	<ul style="list-style-type: none"> <li>Pre-application is downloaded, completed, and faxed by customer (or someone acting on behalf of customer)</li> </ul>	<ul style="list-style-type: none"> <li>Number of pre-applications received</li> <li>Completeness of received pre-applications</li> <li>% of pre-applications that meet program requirements</li> </ul>	<ul style="list-style-type: none"> <li>Program document review</li> <li>Interview program implementers</li> </ul>	<ul style="list-style-type: none"> <li>90/10</li> </ul>	<ul style="list-style-type: none"> <li>Annually</li> </ul>
	<ul style="list-style-type: none"> <li>Department Clerk: Reviews, assigns application number, enters application information into database and screens for application form errors, creates folder and replies to customer/contractor</li> <li>Makes template and emails it to customer representative, customer, and contractor</li> </ul>	<ul style="list-style-type: none"> <li>% of received pre-applications entered into database</li> </ul>			
	<ul style="list-style-type: none"> <li>Program Specialist: Makes comments and reviews application application</li> <li>Site Visit Contractor or Program Staff: Perform site vVisits site to</li> </ul>	<ul style="list-style-type: none"> <li>Complete pre-applications</li> </ul>			

Program Step	Activities	Verification Points (Program Outputs)	Verification Method	Sample	Frequency
Project Pre-Inspection	<p>ensure project will qualify, assess other options, pre-inspects to verify existing conditions, and reports to (Program Specialist)</p> <ul style="list-style-type: none"> <li>Application completed by customer or someone acting on behalf of customer and faxed into office</li> </ul>	<ul style="list-style-type: none"> <li>Number of completed pre-inspections</li> <li>% of projects that meet program eligibility requirements based on field observations</li> </ul>	<ul style="list-style-type: none"> <li>Internal inspectors inspect field conditions to ensure program criteria are met</li> </ul>	<ul style="list-style-type: none"> <li>5% of all jobs</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing effort</li> <li>Quarterly review of data</li> </ul>
Process Final Application	<ul style="list-style-type: none"> <li>Research Assistant: reviews invoice, cut sheet, calculations</li> <li>Commercial Program Specialist II: reviews application, ensures scope of work and invoices match, ensures application meets program criteria, approves for payment</li> <li>Staff: Visits site to ensure project was completed, matches application and reports finding to Program Specialist</li> </ul>	<ul style="list-style-type: none"> <li>Number of applications received</li> <li>Ratio of pre-applications to applications received</li> <li>Complete applications</li> </ul>	<ul style="list-style-type: none"> <li>Program document review</li> <li>Interview program implementers</li> </ul>	<ul style="list-style-type: none"> <li>90/10</li> </ul>	<ul style="list-style-type: none"> <li>Annually</li> </ul>
Project Final-Inspection	<ul style="list-style-type: none"> <li>Requests check through Accounts Payable upload, provides payment cover letter to CR OR</li> <li>Accounts Payable sends out check (usually to CR)</li> </ul>	<ul style="list-style-type: none"> <li>Number of applications processed</li> <li>Number of applications approved for incentives</li> <li>Average time to process each application</li> <li>Number of completed post-inspections</li> <li>% of projects that meet program</li> </ul>	<ul style="list-style-type: none"> <li>Third party or internal inspectors will inspect completed projects to determine project quality and verify program criteria</li> </ul>	<ul style="list-style-type: none"> <li>10% of all jobs</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing effort</li> <li>Quarterly review of data</li> </ul>

Program Step	Activities	Verification Points (Program Outputs)	Verification Method	Sample	Frequency
Process and Deliver Payment	<ul style="list-style-type: none"> <li>Staff: Send out post-participation survey e-mail to customer for program feedback after incentive paid out (Survey Monkey)</li> </ul>	requirements based on field observations  <ul style="list-style-type: none"> <li>Number of payments processed</li> <li>Average time to process/send payments</li> </ul>	are met. Checklist will ensure appropriate verifications occur  <ul style="list-style-type: none"> <li>Program document review</li> <li>Interview program implementers</li> </ul>	<ul style="list-style-type: none"> <li>90/10</li> </ul>	<ul style="list-style-type: none"> <li>Annually</li> </ul>
Project Follow-Up Survey		<ul style="list-style-type: none"> <li>Number of surveys sent out</li> <li>Response rate</li> <li>Examination of participant feedback</li> </ul>	<ul style="list-style-type: none"> <li>Review survey results</li> </ul>	<ul style="list-style-type: none"> <li>Census of completed surveys</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing effort</li> <li>Annual review of customer satisfaction and other feedback</li> </ul>

## **Activity Verification: Implementation**

### **Program Document Review**

For program activities falling under the program steps of marketing activities, processing pre-applications, processing final applications, and processing and delivering payments, program documents will be reviewed as part of the verification process. Program documents generally will be reviewed to verify the completion of program activities, examine the internal program processes flow, review how each program step is being implemented, identify any difficulties or areas of strength identified, and check to see if any of the paperwork is redundant or can be eliminated. This will allow recommendations for streamlining processes, automating program calculations, reducing errors, and increasing program personnel efficiency.

More specifically, marketing materials will be reviewed to ensure they are up-to-date, tailored for the target audience, and distributed effectively. Program pre-application forms and final application forms will be used to verify program activities are being completed successfully, and to also identify ways to streamline the application processes, eliminate duplicated efforts, automate processes when possible, and generally increase efficiency. Program documents associated with processing and delivering payments will be reviewed to determine if invoices are being done correctly and are processed in a timely manner. Ways to streamline this step will also be identified if possible.

### **Implementation Interviews**

Program implementers will be interviewed as a supplement to program document reviews. Interviews will cover the program steps of processing pre-applications and final applications and processing and delivering payments. The focus of the interviews should be on ways program staff think the processes could be streamlined, improved, or are working especially well. Interviews should be fairly open-ended to allow program staff to express their program implementation expertise and ideas and to allow them to make suggestions for improvement. Any questions arising from the document review will also be addressed in the interviews.

### **Pre and Final Inspections**

Inspections will be the verification process for the program steps of project pre-inspection and for final inspections. Field inspections of a random sample of projects will be conducted before project work begins and for a random sample of completed projects to determine if contactors and program participants are complying with program requirements. A management approved checklist may be developed and utilized so that the same items are verified for each site inspection. After the final inspection, if contractors have done the job in accordance with the applications submitted, and the work is of sufficient quality, the incentives will be processed. If the work is of unacceptable quality, some work was not done, or it sufficiently differs from what was agreed upon in the application process, then the contractor must remedy the issue before incentives will be processed.

### **Inspection Sampling**

When each project is entered into the database during the pre-inspection phase, whether or not it will be inspected for pre and final inspections will be determined automatically. A column in the

program tracking database will assign each project entry a computer generated random integer between 1 and 100. The protocol for pre-inspections will require 5%<sup>8</sup> of sites to be inspected, so if the column returns a number between 1 and 5, that site will receive a pre-inspection. Another column will be used to select a different random sample for post-inspections, and 10% of all sites will receive a final inspection.

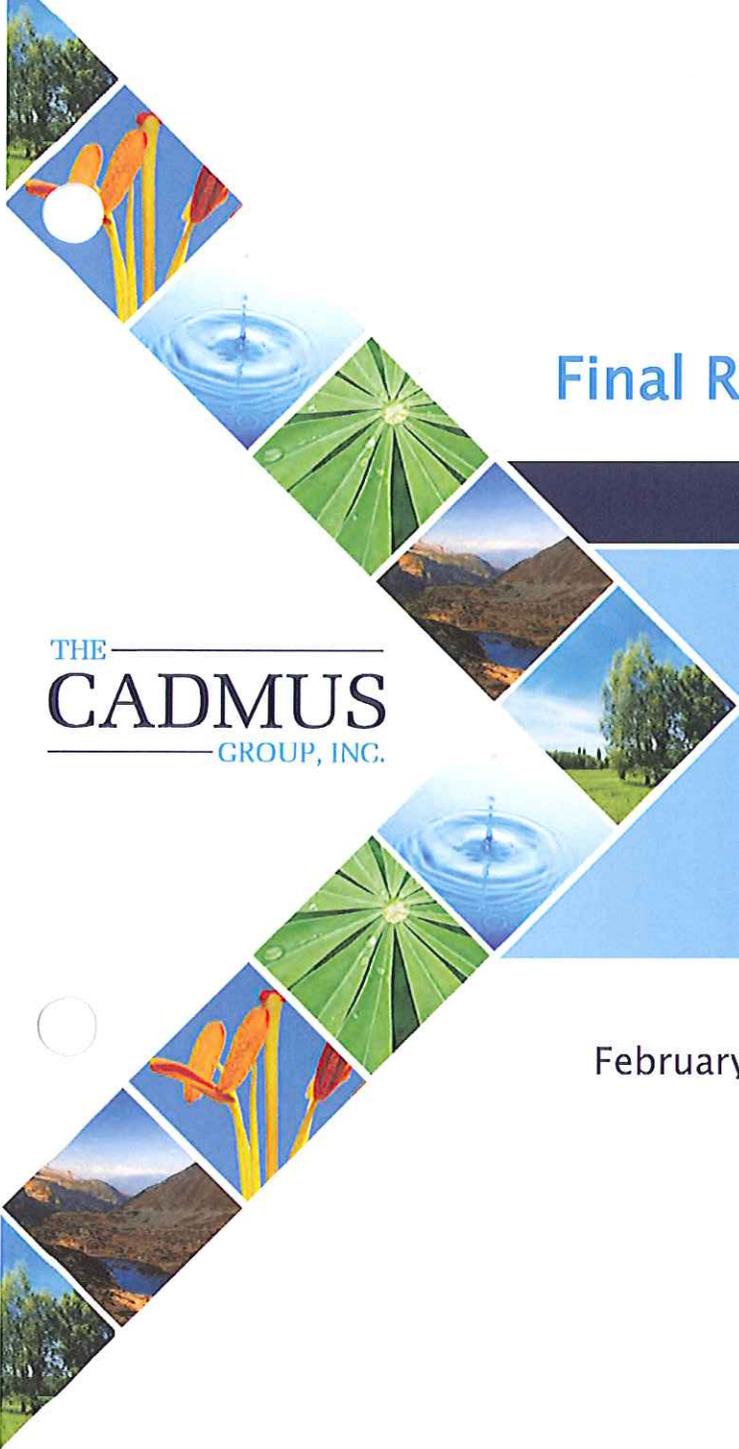
This will allow determination of which projects will receive an inspection to occur immediately upon entry into the data file, so that needless project delays are minimized. Currently the pre-application is sometimes submitted at the same time as the final application. This does not allow for the possibility of a pre-inspection to verify the building's status before work takes place, which could allow for incentives to be paid out for things that were already installed. This issue should be dealt with separately and it must be determined how to handle pre-inspection sampling if the current protocol remains in place.

## Review Survey Results

For the program activities included in the project follow-up survey step, the verification process will focus on review of the survey implementation and results. This will ensure the survey is carried out successfully, identify issues with response rates and survey design, and determine if the survey asks the questions that will best inform program design, implementation and improvement and omits questions that are not useful. The results of the survey will also be analyzed by the verification team and recommendations based on the results provided to IP.

---

<sup>8</sup> Using projected 1,600 projects/year, inspecting 5% of projects will lead to 90/10 confidence/precision.



## Final Report

# Building Efficiency Process Evaluation Findings and Recommendations

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February 4, 2011

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## Executive Summary

The Building Efficiency program began in 2004 to encourage more energy-efficient design features and technologies in new construction and major renovations. The goal of the program is to capture the greatest potential savings in the early planning of a project. The program offers a prescriptive list of 14 eligible measures, including lighting, air conditioning, building shell, and controls. Commercial and industrial customers who qualify for the program may receive incentives of up to \$100,000 per project for energy-efficient construction of new buildings or construction projects with significant additions, remodels, or expansions.

In 2010, Idaho Power Company (IPC) commissioned The Cadmus Group Inc. to conduct a process evaluation of its commercial, industrial, and irrigation (CI&I) energy-efficiency programs. The primary goals of the process evaluation are to inform IPC about how well individual programs are operating, and to help IPC better plan, integrate, implement, and evaluate its entire portfolio of CI&I energy-efficiency programs.

This assessment of the Building Efficiency program is based on interviews with program staff, review of program materials, and a best practice comparison of similar, exemplary programs.

In this Executive Summary, we capture the key conclusions and recommendations from the process evaluation of the Building Efficiency program.

## Conclusions and Recommendations

The Building Efficiency program had 72 participants in 2009, a 20 percent increase in participation from the previous year. As a primary sponsor of the Boise Integrated Design Lab (IDL), IPC offers free technical assistance and training to local architects and designers through the Building Efficiency program.

Through its presence at industry meetings and events, the Building Efficiency program is active in the new buildings market. Marketing and outreach activities have resulted in participants entering the program earlier than in previous years, enabling the IPC Building Efficiency program to influence the design and efficiency choices earlier in the process.

### *Application Process*

While the application process is manageable and the eligibility requirements are clear, some adjustments could be made to streamline the program processes, make the forms more complete and user friendly, and to enable evaluability of the program.

Cadmus' recommendations for application processing include regular updates for application materials, forms, information, and updates to Website links. If the program staff's time is constrained by handling daily demands of application processing, consider hiring additional administrative staff, thereby freeing up more time for program planning and management functions.

### *Data Tracking*

The program database for Building Efficiency provides a functional system for data collection, storage, and processing; however, we found some program tracking processes in need of better

documentation and reporting. Although IPC is developing a new database that may solve some program tracking issues, the current system may prevent transparent and accurate evaluations.

To improve the program's data tracking, Cadmus recommends that IPC further develop and document data tracking protocols and manuals, including data dictionaries, mapping, and data entry policies that will enable staff to use consistent approaches for data collection and quality control.

### ***Feedback Mechanisms***

Building Efficiency lacks a formal mechanism for continuous feedback from program participants. Consider conducting market research with program participants and nonparticipants to enable program planners to have a better understanding of program awareness, drivers behind demand, motivations and barriers, satisfaction with key program areas, program strengths and weaknesses, freeridership, and spillover.

### ***On-site Verification***

While all Building Efficiency projects are subject to verification site visits as a condition of participation, on-site verification does not currently take place except for projects with daylighting control installations. Additionally, a systematic on-site verification plan or project inspection protocol has not been developed for this program.

Cadmus recommends development and documentation of a project inspection protocol to promote a consistent framework for checking eligibility and quality, and for tracking implemented projects.

## Chapter 1: Introduction

This report provides findings and recommendations specific to the Building Efficiency program, which encourages commercial and industrial customers to design energy-efficient new construction and major renovations to capture the greatest potential savings at the early planning of a project. The program offers a prescriptive list of eligible measures, including lighting, air conditioning, building shell, and controls. Participants may receive incentives of up to \$100,000 per project for energy-efficient construction that qualifies for the program.

### Building Efficiency Process Evaluation Objectives

The primary purposes of this process evaluation are to (1) document and analyze how the program works in practice, and (2) ascertain important influences on its operation and achievements. The objectives for this evaluation are to:

- Document program components and processes;
- Compare key program elements with similar, exemplary programs elsewhere (i.e., a best-practices comparison);
- Gather and review primary data, review secondary program information, and report on findings; and
- Provide conclusions and actionable recommendations.

### Methods and Sources of Information

Specific data collection and analysis methods will be discussed within their relevant sections. Key sources of information used for this process evaluation include:

- Evaluation kick-off meeting;
- Interviews and correspondence with the program specialist;
- The current program database;
- The program Website and program handbook; and
- IPC's organizational chart and the DSM 2009 Annual Report Program.

### Organization of This Report

Following this introductory chapter, the report is organized into the following chapters:

- Chapter 2: Program Description and Process
- Chapter 3: Assessment of Program Components
- Chapter 4: Best Practices Review
- Chapter 5: Conclusions and Recommendations

## Chapter 2: Program Description and Process

### Introduction

This chapter describes the Building Efficiency program process and key components. The Building Efficiency program, which had 72 participants in 2009, is designed to encourage energy efficiency in new construction and major renovation projects by providing participants with prescriptive incentives for 14 energy-saving measures. In addition, the program offers technical assistance through a contract with the Integrated Design Lab (IDL).

A full-time IPC program specialist oversees all aspects of Building Efficiency, including activities such as planning, marketing and outreach, application review and follow-up, payment authorizations, and quality assurance. The program specialist also researches potential new measures for inclusion in future programs on an ongoing basis. New measures may be considered due to customer demand, in response to market changes, or to accommodate code changes.

### Program Process

We collected information about the program process from the program handbook and through interviews and correspondence with the program specialist. This information was used to develop the process flow diagram shown in Figure 1.

As shown in the process flow diagram, customers may become aware of the Building Efficiency program through marketing materials on the program Website, program outreach activities, or architect or engineer word-of-mouth. As part of the contractual agreement (funded through IPC's Building Efficiency program), IDL provides marketing and outreach to customers in addition to those provided by IPC's customer representatives. IPC's customer representatives also provide general program support, alerting the program specialist to new construction opportunities. The specialist is available to answer questions and to advise customers which IPC programs best suit their projects (Easy Upgrades, Custom Efficiency, or Building Efficiency).

Customers who decide to participate in the Building Efficiency program submit a pre-application before their project is completed. The program can also accommodate third-party applications, where the architect or engineer submits the application on behalf of the building owner. The program specialist processes the pre-application and follows up with the customer as needed. Once the pre-application is received, IPC staff enter the information in the database.

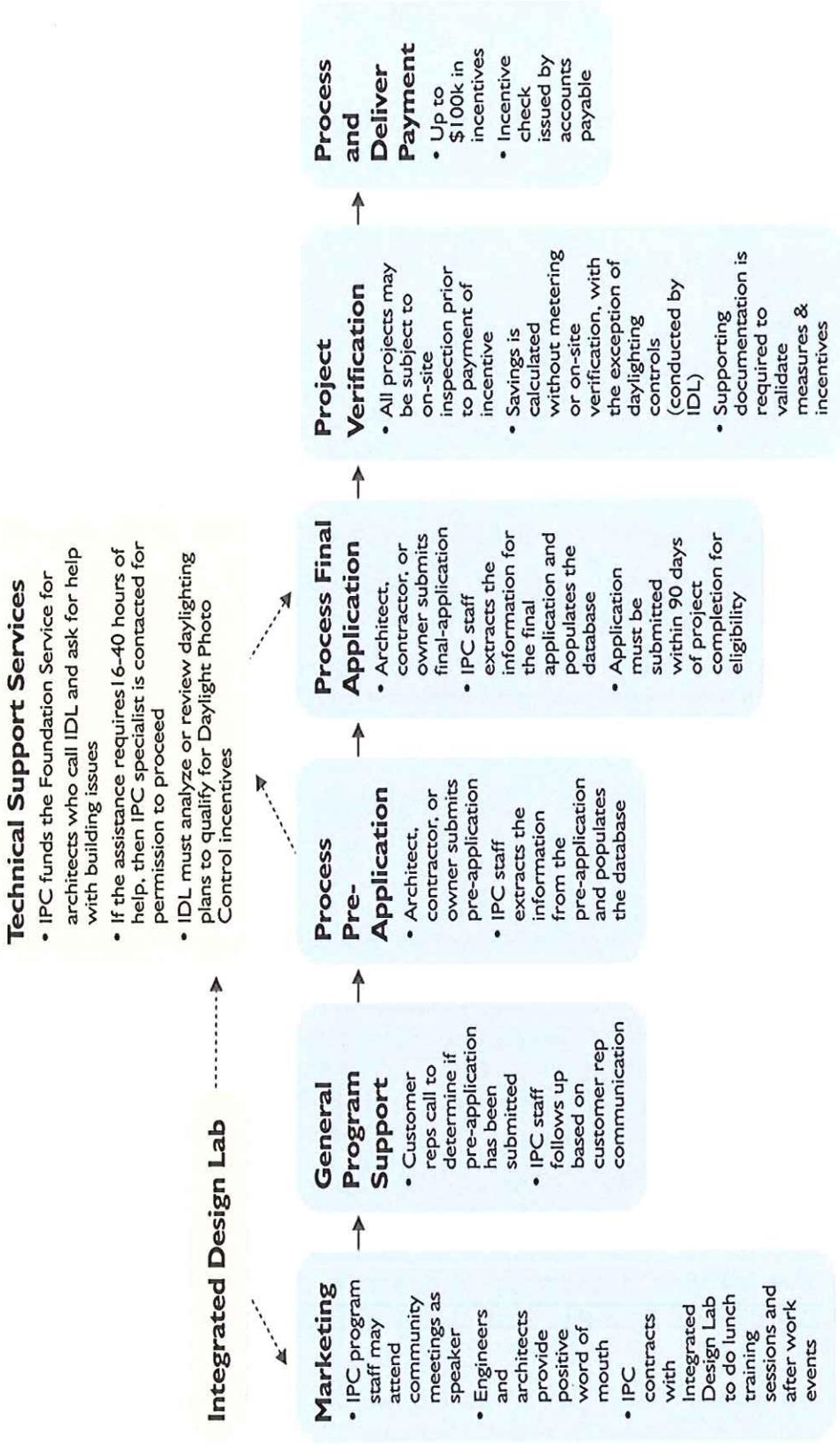
Program rules identified during the process evaluation require that participants submit a final application and supporting documentation within 60 days of project completion. However, this requirement was changed to 90 days for the 2011 program year.

Once the final pre-application is submitted, the program specialist updates the information in the database and verifies that required documentation is complete and accurate. After these steps are taken, the incentive is paid to the customer. All projects are subject to project verification site visits as a condition of participation. However, savings for all projects are calculated without metering or on-site verification, except for daylighting controls installations. The program specialist noted that a high level of supporting documentation is needed to validate measures and incentives. Daylighting controls installation savings are verified by IDL.

At any point during the program process, participants may contact IDL for free technical assistance. IPC funds this assistance to help participants better understand and incorporate energy-efficiency options into their new buildings. IDL provides up to 16 hours of technical assistance without prior approval from IPC, but ongoing assistance is subject to utility approval.

In the program process flow diagram on the next page, key program activities are shown in blue boxes, arranged in chronological order. Green boxes with dashed arrows identify activities that may be ongoing during the application process.

Figure 1. Building Efficiency Process Flow Diagram



## Chapter 3: Assessment of Program Components

### Purpose

This chapter reviews and assesses the following program elements:

- Application process
- Marketing and outreach
- Program tracking and database
- Customer feedback
- Quality assurance and quality control (QA/QC)

### Methods

We used several methods to assess the program components listed above, including:

- Feedback during the project kick-off meeting and discussions with evaluation staff.
- Interviews and correspondence with the Building Efficiency program specialist. The interview discussion guide is included in Appendix A.
- Review of secondary information, such as program application forms, marketing materials, and the database. Specific materials reviewed are presented with the findings.

### Findings

#### Application Process

##### Processing

According to the program specialist, the program workload is manageable. The program specialist spends approximately 50 to 70 percent of the day processing applications, with fewer applications some weeks than others. On a weekly basis, the program specialist receives approximately two preliminary applications and works with about five final applications in different stages of completion. Customers can either submit an electronic application or a PDF by e-mail, fax, or mail. Approximately 25 percent of the applications are submitted as a PDF and entered into an electronic application manually by the program specialist.

The program specialist helps customers complete forms (when necessary) and enters data into the Building Efficiency program database. Overall, about 60 to 80 percent of submitted applications require some re-work or follow up with the customer. The program specialist reported that Building Efficiency program applications are rarely rejected. The low rejection rate was attributed to IPC staff and participants working closely during the preliminary stages of the application process.

The program specialist reported that there is a backlog of pending but inactive applications. The pending applications are preliminary for projects that may or may not have been completed, but for which the utility has not yet received a final application. Because these inactive applications

require follow up by the program specialist, they likely take time away from other activities, such as responding to customer requests or researching new measures. To reduce this backlog, and to encourage customers to complete the final application after project completion, IPC will more strongly enforce the requirement that final applications be submitted within 90 days of project completion in 2011.

### **Forms**

Adopting the perspective of a potential program participant, we examined the following aspects of the application process: (1) the ease of use and accuracy of the application forms; (2) whether the application and all required documents were current; (3) whether links launched to correct sites; and (4) whether the required documents were included on the Website.

We reviewed the preliminary application, the final application, and the application checklist. While these forms were generally clear and easy to complete, they also contained the following potential sources of confusion or error for applicants:

- Multiple links in the „Application Checklist’ form bring up an e-mail window rather than directing the user to the linked document.
- Some links in the „Application Checklist’ form are outdated or bring up expired Web pages.
- Although utility e-mail contact information has been provided to customers, telephone contact information has been omitted.
- Participants cannot submit Web-based application forms and documentation.

### **Marketing and Outreach**

According to the program specialist, the architects and engineers participating in the program are key program marketers, communicating with their peers about their success with the Business Efficiency program. Additionally, the program specialist attends special events (such as conferences, code training events, and brown bag sessions) to educate the industry about the program. The program specialist reported that program marketing and outreach were generally successful, as more new projects have been brought to the program specialist’s attention earlier in the construction process.

Further outreach is provided through IPC’s contract with IDL. In addition to providing field verification for lighting measures and technical support to program participants, IDL hosts “lunch and learn” and other educational sessions, in which attendees can learn about the program while expanding their knowledge of energy efficiency and integrated design.

### **Building Efficiency Website**

The utility also promotes the Building Efficiency program on a Website. We reviewed Website program marketing materials from the perspective of a potential program participant. We assessed the effectiveness and clarity of IPC’s program message, the overall look and feel, brand and messaging consistency, program accessibility, and stakeholder criteria.

We found the Website had an effective layout, used branding well, and could be easily navigated. Information on the opening page clearly states changes in program incentive levels

and program run dates. Website visitors could easily identify general information about the program, such as eligibility and available incentives. Important links were highlighted and set apart from the rest of the Web page in a call box located on the side.

Cross-marketing also occurs with the Easy Upgrade and Custom Efficiency programs, which increases awareness and encourages visitors to click through the Website. The site also contains links to brochures, application forms, frequently asked questions (FAQs), program updates, and a success story, among other useful links. The FAQ section is especially useful, providing the majority of information potential participants will question.

The well-designed program brochure is another useful marketing tool, providing a summary of all pertinent information such as measures included, steps to participation, graphs providing a visual of savings potentials, and links to other resources and other IPC program Websites.

Specific findings from the marketing information review shows the following items that may need further attention. (These items also are discussed in this report's recommendations section.)

- There is only one success story under the „Success Stories’ link.
- The Website does not contain any customer testimonials.
- The link to „Program Updates’ takes visitors to a potentially useful source of information. However, the most recent update for this Web page is from April 2008. Lack of more recent updates could lead users to conclude program updates are no longer offered.
- E-mail contact information is available for customers; however, telephone contact information is omitted.
- Broken links exist in the documents as well as in the „Related Information’ box.
- Typing errors were found in the Building Efficiency FAQ PDF.
- Naming conventions are inconsistent in the application process. For example, the terms „pre-application’ and „preliminary application’ are used to describe the same application.

## Program Tracking and Database

Program data management is an essential tool for accurate reporting, which, in turn, allows program managers to assess how well a program meets its goals. The Building Efficiency database is currently in transition, with a new system soon to be available. However, during this evaluation, this new system was not fully in place. Thus, we reviewed extracts from the current database to assess data management for the Building Efficiency program.

A description of the database extract is as follows:

- ***Building Efficiency Flat Data File.*** The file consists of 146 fields and 213 rows in a single worksheet, providing details on project location by city, costs, and energy savings for projects implemented in the 2007 and 2009 program years. Also included are customer, engineer, architect, and general contractor contact information.

Using the following criteria, we analyzed this database, hardcopy, the electronic program applications used to populate the database, and the electronic application master, for:

- Ease of use for program participants;

- Completeness and accuracy;
- Consistency; and
- Ability to provide useful information for tracking and program evaluation.

As with our specific findings for application processing, forms, and marketing materials, Cadmus identified some areas in the database tracking that may deserve further attention. Based on the information provided, the database findings (which are also addressed in the recommendations section) are as follows:<sup>1</sup>

- Applications did not contain fields to record manufacturer information in addition to model numbers for many of the rebated measures, with the exceptions of Efficient A/C Units & Heat Pumps.
- Application forms did not contain fields for entering cooling hours and hours of operation for controls. Standard assumptions were used for these fields in the application master.
- The program year is indicated through the customer-defined number, but it is unclear how the program year is assigned as it does not consistently align with the planned start date, planned completion date, or payment date. The date of project completion was not provided in the database extract we received.
- The format used in the 'Planned Start Date' and 'Planned Completion Date' were inconsistent with formats used for other dates, making comparisons with application processing dates challenging.
- Some fields in the extract were missing critical information, such as the 'Applications Measure(s)' column, where entire fields are blank. Additionally, the program specialist said that more up-to-date information used by staff, such as contact phone numbers, may exist outside the database.
- Of the 209 database records reviewed, seven planned start dates and six completion dates were missing.
- The kW reduction, kWh savings, and total incentive amounts are shown for each measure bundle, but other key information is not included. Basic information—such as measure numbers, quantity, model numbers, and other data—are being collected in some cases, but not entered into the database.
- Currently, a field does not exist for tracking participation in other IPC programs.
- The database does not track on-site verification and inspection activities.

Based on a review of evaluation assessments (from our internal database) we identified criteria for data tracking and evaluation. Table 1 presents data commonly tracked for reporting and evaluation of commercial program databases. The first column lists the type of data needed to enable a comprehensive evaluation. The second, third, and fourth columns indicate whether data

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<sup>1</sup> It is our understanding that due to IPC's customer confidentiality policy, Cadmus may not have received a complete database extract for review during this process evaluation. Therefore, our review was limited to the database extract that we received.

found in Building Efficiency database extract were collected on application forms, whether the field was provided in the database, and whether these data were consistently entered in the Building Efficiency database. This assessment is based on the review of the Building Efficiency flat data file (extract of the master database).

**Table 1. Building Efficiency Flat Data File Field Status**

Data for Tracking and Evaluation	Collected in Application Forms	Field in Database	Consistent Data Entry
Company name	Yes	Yes	No
Contact name	Yes	Yes	No
Phone number	Yes	Yes	No
E-mail	Yes	Yes	Yes
Space heating fuel	No	No	N/A
Facility and building addresses	Yes	Yes	No
Account number	Yes	Yes	Yes
Measure by type	Yes	Yes	N/A
Measures installed by quantity	No	No	N/A
Number of treated buildings	No	No	N/A
Rebate received by measure and unit	Yes	Yes	No
Total square feet of building and facility	Yes	Yes	No
Total square feet affected by measure	Yes	No	N/A
Site verified/inspected	N/A	Yes	No
Primary contact name and contact information	Yes	Yes	Yes
Architect name and contact information	Yes	Yes	N/A
Engineer name and contact information	Yes	Yes	N/A
Contractor name and contact information	Yes	Yes	N/A
Program participation year	Yes	Yes	Yes
Planned/actual construction start date	Yes	Yes	No
Planned construction completion date	Yes	Yes	No
Actual completion date	No	No	No

## Customer Feedback

While feedback is sometimes received through communication with participants during the participation process, discussions with the program specialist revealed that surveys have not been conducted for this program. Consequently, no systematic method currently exists for collecting participant feedback for the Building Efficiency program.

The program specialist believes freeridership can be sufficiently screened through the preliminary application process; therefore, current freeridership estimates used to calculate net-to-gross (NTG) program savings are based on industry averages. As filed in the 2009 Annual Report,<sup>2</sup> the Building Efficiency program currently applies measure-level NTG values of 96 percent or 80 percent, depending on the measure.

<sup>2</sup> Demand-Side Management 2009 Annual Report, Supplement 1: Cost Effectiveness Revised, April 16, 2010.

IPC's program specialist expressed concern that incorporating freeridership questions into a survey may not solicit an accurate response from Building Efficiency participants who have participated in other IPC programs, as the participants may become confused about which program the questions address. Due to this concern, primary research has not been carried out to assess freeridership of Building Efficiency participants.

### **Program QA/QC and On-Site Verification**

QA/QC procedures ensure savings claimed by the program are actually realized in the field. Information about current QA/QC procedures was gained entirely from discussions with the program specialist. QA/QC is carried out through an extensive application process which includes data validation and application review. Although IPC has access to participating facilities for on-site verification purposes (as agreed in the application's terms and conditions), on-site verification is not conducted for most projects. Exceptions include (1) research-related M&V activities conducted for the demand ventilation measure and (2) requirements that daylight photo controls be verified by IDL. Savings are determined only through calculation, without metering or on-site verification.

## Chapter 4: Best Practices Review

### Purpose

This Best Practices Review compares IPC's Building Efficiency program with similar programs rated as exemplary by the efficiency industry. This analysis allows Building Efficiency to be benchmarked against these outstanding programs, revealing areas where it meets or exceeds industry best practices and where it may need improvements.

Additionally, in response to interest expressed by the program specialist, research was conducted into specific program components offered by utilities identified by the program specialist. These program components included:

- Commissioning,
- Architect/engineer incentives, and
- LEED certification incentives.

### Methods

#### Best Practices

To supplement the program evaluation, we conducted a comparison study of energy-efficiency best practices to determine how IPC's Building Efficiency program compared in its design and offerings to other, nationally-recognized commercial new construction programs. Programs selected for this study included:

- California's Savings by Design;
- The Energy Trust of Oregon's New Building Efficiency Program;
- Xcel Energy's Energy Design Assistance program;
- NSTAR's Construction Solutions Program; and
- The Energy Conscious Blueprint program, implemented by Connecticut Power and Light and the United Illuminating Company.

The programs and best practices selected for comparison borrowed extensively from two previous energy-efficiency best-practices projects sponsored by Pacific Gas and Electric (PG&E)<sup>3</sup> and New York State Energy Research and Development Authority (NYSERDA).<sup>4</sup> Both studies contained the above programs as well as several others. However, our efforts focused on programs most similar to IPC in their offerings and geographic regions.

Information used to complete the comparison table in Appendix B was obtained through a review of available reports, evaluations, and program materials. Where more up-to-date information was not available, these fields were completed using the PG&E and NYSERDA

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<sup>3</sup> National Energy Efficiency Best Practices Study: Volume NR8-Non-Residential New Construction Best Practices Report, Quantum Consulting, 2004.

<sup>4</sup> Best Practices Review, New Construction Programs, Research Into Action, 2007.

reports. The benchmarks themselves were identified through a review of the available best practice literature, available data, and DSM program experience.

## Findings

### Best Practices

Appendix B provides a comprehensive table mapping best practices to the five programs compared to Building Efficiency. Findings from our comparison show that Building Efficiency has fully implemented the best practice techniques presented below, which are listed by program area:

- Program theory and design
  - The program actively works to build strong relationships with vendors and contractors (as these are key decision project influencers).
- Participation process
  - Participation procedures are streamlined, eligibility is clearly defined, documentation requirements are reasonable, and forms are understandable.
- Marketing and outreach
  - The program leverages other community-based organizations (business, trade associations, etc.) for expanded marketing opportunities.
  - The program has a market transformation strategy and conducts market assessments periodically for the full range of market impacts expected.

The program utilizes 11 additional best practices, but to a lesser extent or less consistently than other utilities identified. While 13 of the practices identified in the study are not being utilized for the Building Efficiency program at all, it is important to note that all best practices must be considered carefully in terms of a program's life cycle, resources, and unique features. Consequently, it may not be necessary to meet each of the best practices provided in Appendix B; however, many are applicable to the program.

Our research findings, presented below, cover program theory and design, management, and evaluation:

- While all but one program identified offered a prescriptive option, only two were marketed as single-track, prescriptive programs. In all other cases, the prescriptive track has been presented with more robust, whole-building, or system-approach options. Also, some utilities offer incentives for building certifications, commissioning, or design.
- In terms of program theory and design practices, Building Efficiency lacks mechanisms for continuous feedback.
- A data entry and reporting system with the ability to track the status of large, pending projects in terms of financial and technical commitments is not utilized. Other successful programs track this information to ensure they can provide the support large projects require to reach completion.

- A review of verification procedures used by other utilities showed that all programs identified as best practices perform pre<sup>5</sup>- or post-project site visits on a sample of participating buildings, if not for 100 percent of all buildings. Typical on-site verification protocols include a random sample of pre- or post-inspections and regular auditing of program tracking and inspection data. While most programs under review have established on-site verification protocols, Building Efficiency has limited on-site verification procedures.
- Other successful programs use regular and thorough program evaluations, which entail participant surveys to determine NTG. Evaluations are generally performed in two- or three-year cycles, and these evaluations include process and impact components.

### **Program Component Research**

At the request of the program specialist, we researched several additional program components. This research focused on identifying ways utilities incorporate commissioning; compensation for program design teams, architects, and engineers; and LEED certification.

Information for these program components was first collected from utilities identified through the best practice research, where available. Additional research was also conducted for utilities identified by the program specialist (when possible) and other utilities.

It is worth noting for this comparison that of the 10 utilities offering these programs, five are dual fuel utilities. However, one of the five dual fuel utilities offers the program to electric customers only.

### **Commissioning**

Several programs identified offer incentives for commissioning. A brief description of the approach adopted by these utilities is provided below.

#### ***Savings By Design***

New to the nonresidential sector, in the Savings by Design program (as of program year 2010), participants who submit a comprehensive commissioning plan with their program documentation may be eligible for an incentive of up to 10 percent of the owner's incentive. New construction and major retrofit projects eligible for this additional incentive include:

- Heating, ventilation, air conditioning, and refrigeration systems and associated controls;
- Lighting and daylighting control systems; and
- Domestic hot water control systems.<sup>6</sup>

#### ***Energy Trust of Oregon***

The Energy Trust of Oregon's New Building Program offers an incentive for commissioning under the Custom Track for new and major retrofit construction. For commissioning work to be eligible for an incentive, it must meet strict ASHRAE commissioning standards.<sup>7</sup> Additionally,

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<sup>5</sup> Pre-project site visits conducted when applicable to major renovation projects.

<sup>6</sup> Savings By Design, 2010-2012 Program Cycle Participant Handbook, 2010.

<sup>7</sup> [http://www.govenergy.com/2007/pdfs/buildings/Traylor\\_Buildings\\_track\\_S5.pdf](http://www.govenergy.com/2007/pdfs/buildings/Traylor_Buildings_track_S5.pdf)

the commissioning authority must be a professional engineer registered in the state of Oregon, and this engineer must complete all functional equipment testing prior to an incentive's receipt. Commissioning incentives are capped at \$40,000 per project and are based on the annual energy savings of approved measures, at \$0.03 per kWh and \$0.20 per therm. In addition, to receive the commissioning incentive the project must complete the Custom Track.<sup>8</sup>

### ***NSTAR***

The Construction Solutions program from NSTAR offers cost sharing for design, technical, and engineering services, including commissioning services for new and major retrofit construction. The utility matches costs incurred up to 50 percent.<sup>9</sup>

### ***Other Commissioning Incentives***

Tacoma Power offers commissioning incentives for new and major retrofit construction. Designers and owners of buildings that are 30,000 square feet or more are eligible for these incentives if projects exceed energy-efficiency code requirements by a minimum of 30 percent.<sup>10</sup>

### **Architect/Engineer Incentives**

A review of the five nationally-recognized programs cited in this best practice research reveals that incentives are generally offered to the building owner. This holds especially true for program participants with small projects and for projects incented through prescriptive program tracks. However, all programs offer technical services for custom projects, and some offer cost-sharing options for additional technical assistance not offered by the utility.

Moreover, all programs provide extensive in-house support and individual attention to facilitate completion of program application materials. Only one program identified as a best practice directs incentives specifically to designers and architects. A brief description of the approach taken by this utility is provided below, followed by information on two utilities that offer similar incentives but were not identified as best practices.

### ***Savings by Design***

Of the five programs identified as best practices, Savings by Design appeared to be the only one with a comprehensive approach to incentivizing work performed by the designers and architects who designed the project. The amount of the incentive varies by the total savings of a project. The design team qualifies when its design exceeds 15 percent savings, and the incentive paid to the design team is 33 percent of the owner's incentive.<sup>11</sup>

### ***Other Architect/Engineer Incentives***

A review of other utility programs revealed New Jersey's SmartStart and Mid-American's New Construction programs also offer incentives to participating design teams.

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<sup>8</sup> <http://energytrust.org/business/incentives/other-businesses/new-construction/custom/custom-track-incentives> and [http://energytrust.org/library/forms/NBE\\_FM0520C.pdf](http://energytrust.org/library/forms/NBE_FM0520C.pdf)

<sup>9</sup> [http://www.nstar.com/docs3/tech\\_show/nstar-programs.pdf](http://www.nstar.com/docs3/tech_show/nstar-programs.pdf) and

[http://www.nstar.com/business/energy\\_efficiency/electric\\_programs/construction\\_solutions.asp](http://www.nstar.com/business/energy_efficiency/electric_programs/construction_solutions.asp)

<sup>10</sup> <http://www.mytpu.org/customer-service/your-business/rebates-promotions/new-construction.htm>

<sup>11</sup> <http://www.savingsbydesign.com/teamincen.htm>

- New Jersey's SmartStart program offers an incentive based on savings for projects exceeding 50,000 square feet. The calculation of the design simulation incentive is based on \$0.10/per square foot for the first 50,000 square feet, resulting in a minimum incentive of \$5,000. For each additional square foot, \$0.03 is added to the \$5,000.
- Mid-American offers a design incentive based on the size of the building, where buildings smaller than 5,000 square feet receive \$2,000 and buildings of 400,000 square feet and larger are eligible for incentives in the amount of \$13,000.<sup>12</sup>

In the Pacific Northwest, utilities such as Tacoma Power also provide incentive to project design teams in conjunction with commissioning incentives.

### **LEED Component**

The US Green Building Council (USGBC) LEED certification is a component of three programs identified as best practices, but it is a new addition to most of their services.<sup>13</sup>

### ***Savings by Design***

The California Savings by Design Program offers an incentive for program participants who achieve certification through USGBC LEED<sup>®</sup>, CHPS, or other certification programs approved by the utility, in their Whole Building Approach program track. The incentive offered is calculated as 10 percent of the owner's incentive. To achieve this rebate, the project needs to submit:

- Copy of a registration receipt;
- Copy of a final checklist documenting features completed; and
- Inspection report.<sup>14</sup>

### ***Energy Trust of Oregon***

The Energy Trust of Oregon offers new and existing program participants incentives for LEED building certification. Incentive levels for new construction are calculated at \$0.10/kWh and \$0.80/therm for the project's first year savings. For major renovations, the incentive is calculated at \$0.18/kWh and \$1.00/therm for the project's first year savings.

Savings estimates are determined in one of two ways: (1) estimated energy savings analysis is submitted to the USGBC and adjusted to reflect the Oregon Code baseline; or (2) USGBC allows some projects to follow a prescriptive path in pursuit of LEED NC or LEED CS Energy and Atmosphere Credit 1 points.

For these projects, incentives are determined by calculating savings based on the number of Energy and Atmosphere Credit 1 points awarded by the USGBC to the project, as well as the project size, occupancy type, and building vintage.<sup>15</sup>

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<sup>12</sup> <http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/design-support/comprehe-0> and

[http://www.midamericanenergy.com/ce/include/pdf/ia\\_cnc\\_brochure.pdf](http://www.midamericanenergy.com/ce/include/pdf/ia_cnc_brochure.pdf)

<sup>13</sup> Best Practices Review, New Construction Programs, Research Into Action, 2007.

<sup>14</sup> Savings By Design, 2010-2012 Program Cycle Participant Handbook, 2010.

***Xcel Energy***

Participants in the Energy Design Assistance Program Enhanced track receive support for LEED certification or other green certifications, where applicable. The support does not appear to be financial.<sup>16</sup>

***Other LEED Incentives***

In the Pacific Northwest, Avista<sup>17</sup> offers a \$0.25 per conditional square-foot incentive for LEED certification. New construction participants must be both electric and gas customers and must meet the following requirements:

- Register with USGBC;
- Submit a copy of the registration to Avista;
- Achieve a minimum of 10 points for Optimal Energy Performance;
- Submit final application to USGBC; and
- Submit a copy of an approval letter from USGBC, indicating that certification has been granted.

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<sup>15</sup> <http://energytrust.org/business/incentives/other-businesses/new-construction/custom/lead-track-incentives1>

<sup>16</sup> [http://www.xcelenergy.com/Colorado/Business/Programs\\_Resources/ConservationRebates\\_Incentives\\_Business/Pages/Business-New-Construction-EDA.aspx](http://www.xcelenergy.com/Colorado/Business/Programs_Resources/ConservationRebates_Incentives_Business/Pages/Business-New-Construction-EDA.aspx) and Best Practices Review, New Construction Programs, Research Into Action, 2007.

<sup>17</sup> [http://www.avistautilities.com/business/rebates/washington\\_idaho/Pages/incentive\\_10.aspx](http://www.avistautilities.com/business/rebates/washington_idaho/Pages/incentive_10.aspx)

## Chapter 5: Conclusions and Recommendations

This chapter presents conclusions from findings detailed in Chapter 3 and Chapter 4. We provide recommendations for IPC program staff and management. The section addresses the following topics:

- Application process
- Marketing and outreach
- Program tracking and database
- Customer feedback
- QA/QC
- Overall process and design

### Application Process

While the application process is manageable, the eligibility requirements are clear, and the application forms are functional, both the program specialist and our review of the forms suggest adjustments to streamline the process and make the forms more complete and user friendly and to enable evaluability. Specific suggestions for improving the application process are listed below.

### Recommendations

#### Processing

- Consider hiring staff to assist with the application process, freeing up time for the program specialist to focus on higher level management decisions.
- Consider automating the application process and imbedding data validation methods through use of Web-based application forms.
- As planned, enforce the 90 day post-construction time limit on submitting final applications.

#### Forms

- Periodically review application materials to ensure that links and information are current and function correctly.
- Consider adding the following information to the application forms to make program requirements more clear, improve accessibility to staff, and increase the program's evaluability:
  - Requirement that IDL review daylighting control plans.
  - Telephone contact information for utility staff.
  - Fields for manufacturer information for each measure rebated.

- Fields for hours of operation of controls on the final application form. Using actual hours of operation instead of standard assumptions would make savings estimates more accurate.

## Marketing and Outreach

Through its presence at industry meetings and events, the Building Efficiency program is an active member of the new buildings market. Satisfied customers, especially in the architectural and engineering communities, also actively promote the program. As the program specialist noted, these marketing and outreach activities have resulted in participants entering the program earlier than in previous years. This is significant because evaluations of other new construction programs have consistently shown the importance of early program entry for influencing the design process and efficiency choices.

We found the marketing materials available on the Website to be well designed and informative. However some information appeared to be missing or outdated, which could confuse customers.

### Recommendations

- Expand the Website „Success Story’ section to show a wider variety of successful program participants.
- Include brief customer testimonials on the primary Business Efficiency Web page. This may expand the program’s word-of-mouth presence among key market actors.
- Continue to regularly update the Building Efficiency Website and program brochures so that program changes, project year eligibility requirements, and other program information remain current and consistent. These efforts should entail the following:
  - Updating the „Program Updates’ section to reflect current program changes.
  - Ensuring program links are current and the links launch to correct sites.
- Add telephone contact information for the program support team on all marketing pieces. (On program documents, this information could be noted in the footer.) To help consumers obtain program contact information on Web-based media, a subheading or call box could be used.

## Data Tracking

While the program database for Building Efficiency provides a functional system for data collection, storage, and processing, we found some program tracking processes in need of better documentation and reporting. Although the new database (in development) may solve the program tracking issues, including tracking of measures by unit rather than by bundle, the current system may prevent transparent and accurate evaluations. It is important to note that for this evaluation, the new database was not yet completed and therefore not available for review.

### Recommendations

- Further develop data-tracking protocols and manuals, including data dictionaries, mapping, and data entry policies that will enable staff to establish consistent approaches for collection and quality control.

- Indicate cross-program participation in the database.
- Ensure that all fields for which data exist are completed for each database entry.
- Provide a field for program year in the database.
- In the new database, if not already under consideration,<sup>18</sup> we recommend adding all data entered into the application forms in the database including:
  - Measure name
  - Quantity
  - Measure incentive amount (applied for)
  - Tonnage
  - Roof area
  - Window area
  - Affected area
  - Hours of operation
  - System name
  - Efficiency
  - Model
  - Type
  - Deemed savings values
  - The actual code or minimum from which savings are applied and the differences for cooling and lighting loads
- Consider tracking multiple phases of each project more explicitly. Currently, when multiple phases occur for the same project, date columns are used to note differences between records for the different bids, which may cause confusion.
- Update and maintain the database on a regular basis. For example, if a participant provides a better contact phone number at a later time, this information should be updated in the database.

## Feedback Mechanisms

Building Efficiency lacks mechanisms for continuous feedback from program participants. Each program identified under best practices integrates such feedback into their programs and utilizes participant surveys to determine freeridership for calculating net-to-gross (NTG). Specific recommendations for capturing customer feedback are listed below.

### Recommendations

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<sup>18</sup> IPC staff has indicated the new database will track measures by unit rather than bundle, and therefore much of the data presented in this list will be tracked in the new database.

- Develop surveys for architects and engineers who participated in the program to gather information on:
  - Program awareness
  - Participation decision
  - Program satisfaction
  - Program process
  - Coordination with other programs and utilities
- Develop surveys for building owners who participated in the program to gather information on:
  - Program awareness
  - Participation decision
  - Program satisfaction
  - Measure satisfaction
  - Program process
  - Coordination with other programs and utilities
  - Freeridership
  - Spillover
- Conduct market research with program and trade ally participants. This research would help the program planners better understand current participants' awareness of program services and requirements; preferred sources of information and marketing preferences; drivers behind program demand; participation motivations and barriers; satisfaction with key program areas and program strengths and weaknesses; and freeridership and spillover information.
- Conduct market research with nonparticipating customers and trade allies. This research would provide insights about those choosing not to participate, their motivations, participation barriers, program awareness and perceptions, program needs, preferred information sources and marketing preferences, and future market trends.
- Proper survey design and sampling methods should be used to ensure responding participants address their experience with the Building Efficiency program and minimize confusion among participants engaging in multiple programs.

## On-Site Verification

While all Building Efficiency projects are subject to verification site visits as a condition of participation, on-site verification does not currently take place except for daylighting control installations. Additionally, a systematic on-site verification plan or project inspection protocol has not been developed for this program.

## Recommendation

Establish an on-site verification plan to promote a consistent framework for checking eligibility and quality and for tracking projects implemented for the program. Refer to the sample on-site verification plan provided with the Easy Upgrades evaluation for an example of a potential on-site verification plan design.

## Overall Process and Design

From the program specialist's perspective, the Building Efficiency program runs smoothly. However, the Cadmus evaluation team, as well as IPC's program specialist, believes that developing a consistent framework for program processes and protocols may be helpful. Since each recommendation in this chapter could be incorporated into a formal process, we list specific suggestions for improving the overall program process below:

- Establish and regularly update program protocols and provide consistent documentation for program processes, including written guidelines for data tracking and process flowcharts. Provide updated program handbooks.
- Develop a schedule for performing program evaluations. Programs identified as being best practices utilize evaluations conducted every two to three years. Also, these evaluations should have both process and impact components, and the results should help guide program changes, adjust savings estimates, and establish NTG values.
- In addition to adjustments to the program processes, research indicates that for closer alignment with best practices, it may be useful to revisit IPC's Building Efficiency program design. Best practice for building efficiency programs incorporate whole-building and systems approaches for new construction, as well as commissioning and incentives for LEED certification (or other certification boards).

By design, IPC's Building Efficiency program offers a prescriptive-only approach and funnels some new construction customers to IPC's Custom Efficiency program which may implement more of a whole-building or systems approach. However this approach may not capture projects at the optimal time to influence energy efficiency.

## Appendix A: Program Specialist Interview Guide

### Introduction

Thank you for talking about the Building Efficiency program with me.

As you know, The Cadmus Group is conducting a process evaluation of the C&I portfolio for IPC. The purpose of this interview is to gather information on Building Efficiency program processes, operations, and activities. We want to know what is working well and what might be improved and how. As program manager, your perspective is very important to us. I would like to record this interview to improve the accuracy of my notes; is that all right with you?

### Program Overview

1. How long have you worked for IPL?
  - a. For this program?
2. Do you have the program handbook handy? I would like to go through it with you, if possible.
  - a. How does the program currently operate?
  - b. How is the program delivered?

### Program Design

3. How would you describe Building Efficiency's goals? Probe: What is the thinking behind the program offerings that will help make sure that goal is met?
4. What things do you keep track of to tell you how well the program is doing?
  - a. What types of considerations drive program changes when you are planning or revising the program? (if not mentioned, probe for the following)
  - b. Freeridership
  - c. Code/Standard changes
  - d. Market demand
  - e. Program processes
  - f. Program management
  - g. Assumptions about target market behavior
  - h. Economic conditions

### Program Administration

5. Can you tell me more about the application process for participants? What are the steps to process an application from start to finish?
  - a. How do participants initiate the program process?
  - b. Who receives the applications, and what are the steps for reviewing and approving them and setting up payments?
  - c. How many hours does it take to process an average application?
6. How many applications are received each week?
  - a. What percentage is rejected or need rework? Has this percentage changed over time? How has it changed?
  - b. What are the most common reasons for rejection? (customer eligibility, savings requirements, missing information...)

7. How well do you think the application process works? Do you know of any issues with the current application process?
8. How are savings verified for individual projects?
  - a. Are there General QA/QC guidelines or requirements?
  - b. Are there program specific ones? Should there be?
  - c. Are they implemented?
  - d. What pre-/post-inspections are required?
  - e. What factors are included in the verification process? PROBE on realization rates, in-service rate, freeridership.
  - f. Are there any issues with verifying savings?
  - g. What adjustments, if any, are made after verification of savings?
9. Who is responsible for collecting and tracking participation data?
  - a. How and when are data entered?
  - b. Can you describe the data validation protocols to ensure quality? How often is quality checked?
  - c. How often are tracking database savings algorithms checked?
  - d. How is contractor activity tracked?
  - e. How are pre-applications tracked?
  - f. Have there been any difficulties with the data tracking systems?
  - g. How does IPC ensure that participants are not receiving multiple incentives for an individual measure?
  - h. What features or abilities do you hope the new system being developed will offer? Will it fully integrate the Building Efficiency database with a larger portfolio level information system?
10. Would you recommend any changes to the data tracking procedures?

### **Program Implementation**

11. How is the program promoted?
12. How would you assess the success of the marketing in reaching your target population? Why? Are there any improvements you would like to see?

### **Other Utilities**

13. Does IPC coordinate with other utilities?
  - a. Does the Building Efficiency program compliment other utilities' programs?
  - b. Are there shared measures?

### **Customer Response**

14. What aspects of the programs do customers seem to be most interested in? What do you think motivates them to participate? Do you have any feedback on what they like about the program?
15. Based on what you have heard from participants, how do they generally find out about the program?
  - a. Please describe how Better Bricks fits into the program?
  - b. Please describe how the Integrated Design Lab fits into the program?
  - c. How do you assess whether customers are using these resources?

16. Have you gotten any feedback about customer concerns or issues? What feedback? How did you resolve these issues?
17. Do participants of the Building Efficiency program “graduate” on to larger and more complex efficiency projects? Are there repeat participants?
18. Have you identified any major barriers to participation?
19. Have participants indicated interest in incentives for measures that are not currently being offered?

### **Trade Ally Response**

20. Is IPC involved in the recruitment or management of trade allies, architects, builders, retailers or contractors?
21. How many architects, builders, and contractors do you actively deal with in a given program year?
22. How frequently do you communicate with trade allies, and how is the communication carried out?
23. Have you had any particular challenges working with trade allies?
24. How are their problems and questions dealt with?
25. What kinds of things have been done or are being planned to identify trade allies and get them involved? (such as certification process)
26. How would you change or improve communications with trade allies?

### **Building Codes**

27. What building code is the program using for its current baseline?
28. How often is the baseline updated?
29. Please describe any building code outreach activities that IPL has been involved with.

### **Closing Remarks**

30. What additional resources would be helpful to properly manage the program? (contractors, database functions, processing...)
31. Part of our evaluation work will be to gather information about other exemplary programs similar to Building Efficiency. This will give you best practices and other criteria you can use to compare your program with these other programs. For instance, we will look at program delivery, cost-effectiveness, and total program costs. Are there other program criteria or attributes you are especially interested in that we should gather?
32. What would you say are the program’s strengths?
33. What are the most important things you would like to see improved?
34. Do you feel that the program, generally, is accomplishing its stated goals?
35. Other than what we’ve already discussed, what would you change about the program?

## Appendix B: Best Practices Benchmarking

Table B1 compares Building Efficiency with four similar, exemplary programs for the 30 applicable best practices. The level of use of each best practice is indicated on a three-point scale where:

- 0 indicates no use
- + indicates limited use
- ++ indicates full use
- NA indicates program details make the practice inapplicable
- - indicates the practice was undetermined

Blank cells indicate areas where a rating could not be made or the category was not applicable.

**Table B1. Full Benchmarking Table for Building Efficiency**

	Building Efficiency, IPC	Energy Conscious Blueprint, Northeast Utilities	Construction Solutions, NSTAR	Energy Design Assistance, Xcel	New Building Efficiency Program, ETO	Savings By Design, CA
<b>Program Theory and Design</b>						
The program has a written implementation plan that details all program processes.	+	++	++	++	++	++
Continued improvement feedback loops are incorporated into the program design and logic models.	0	+	++	+	++	++
Program structure integrates trade allies/market actors while describing their responsibilities and interaction with the program.	+	++	++	++	++	++
Program design identifies and addresses strategies to removing market barriers.	+	++	++	-	+	++
<b>Program Management: Project Management</b>						
The program actively works to build strong relationships with vendors and contractors (that are key decision influencers on projects).	++	++	++	+	++	+
Provide program staff with adequate resources to handle program volume.	+	+	++	++	+	++

	Building Efficiency, IPC	Energy Conscious Blueprint, Northeast Utilities	Construction Solutions, NSTAR	Energy Design Assistance, Xcel	New Building Efficiency Program, ETO	Savings By Design, CA
<b>Program Management: Reporting and Tracking</b>						
The tracking database is well designed and fulfills the needs of both the program staff and evaluators.	+	++	++	+	+	++
The tracking system features Internet-based data entry and reporting functions. It has fully automated data validation functions to assess data quality.	0	0	0	0	0	0
The program tracks incentive commitments for all pending large projects.	0	++	++	++	++	++
The tracking system captures and reports program activity by each participating vendor.	+	++	++	++	++	++
<b>Program Management: Quality Control and Verification</b>						
The program works closely with vendors and utilizes a pre-screened list of products to reduce the need for quality control inspections.	0	0	0	0	0	0
The program's requirements and guidelines include product specifications for all measures promoted by the program.	+	+	+	0	0	0
Randomly select pre/post inspection sample during pre-approval process	0	++	+	N/A	+	N/A
On-site pre- and post-installation inspections are done routinely.	+	++	++	++	++	++
There is a comprehensive contractor program in place, which includes screening, certification and training requirements.	0	0	0	0	++	0

	Building Efficiency, IPC	Energy Conscious Blueprint, Northeast Utilities	Construction Solutions, NSTAR	Energy Design Assistance, Xcel	New Building Efficiency Program, ETO	Savings By Design, CA
<b>Program Implementation: Participation Process</b>						
Participation procedures are streamlined, eligibility is clearly defined, documentation requirements are reasonable, and forms are understandable.	++	++	++	+	+	+
The program uses an electronic application process. On-line forms are readily accessible to customers, subcontractors, trade allies, and program administration staff.	+	++	++	++	++	0
The program uses a simple application form, which obtains important data, but involves minimal vendor time to fill in required fields.	+	++	++	+	++	0
The program offers zero percent or low-cost financing to offset the high cost of capital for small businesses.	0	++	0	0	+	++
<b>Program Implementation: Marketing and Outreach</b>						
Utility partners are mentioned prominently in program promotional materials and messages.	+	++	++	++	+	+
Door-to-door marketing is performed in order to achieve high penetration rates, especially among small business customers.	0	0	0	0	0	0
The program leverages contractor marketing to promote prescriptive measures.	+	0	0	0	++	+
The program leverages other community-based organizations (business, trade associations, etc) for expanded marketing opportunities.	++	++	+	+	++	++

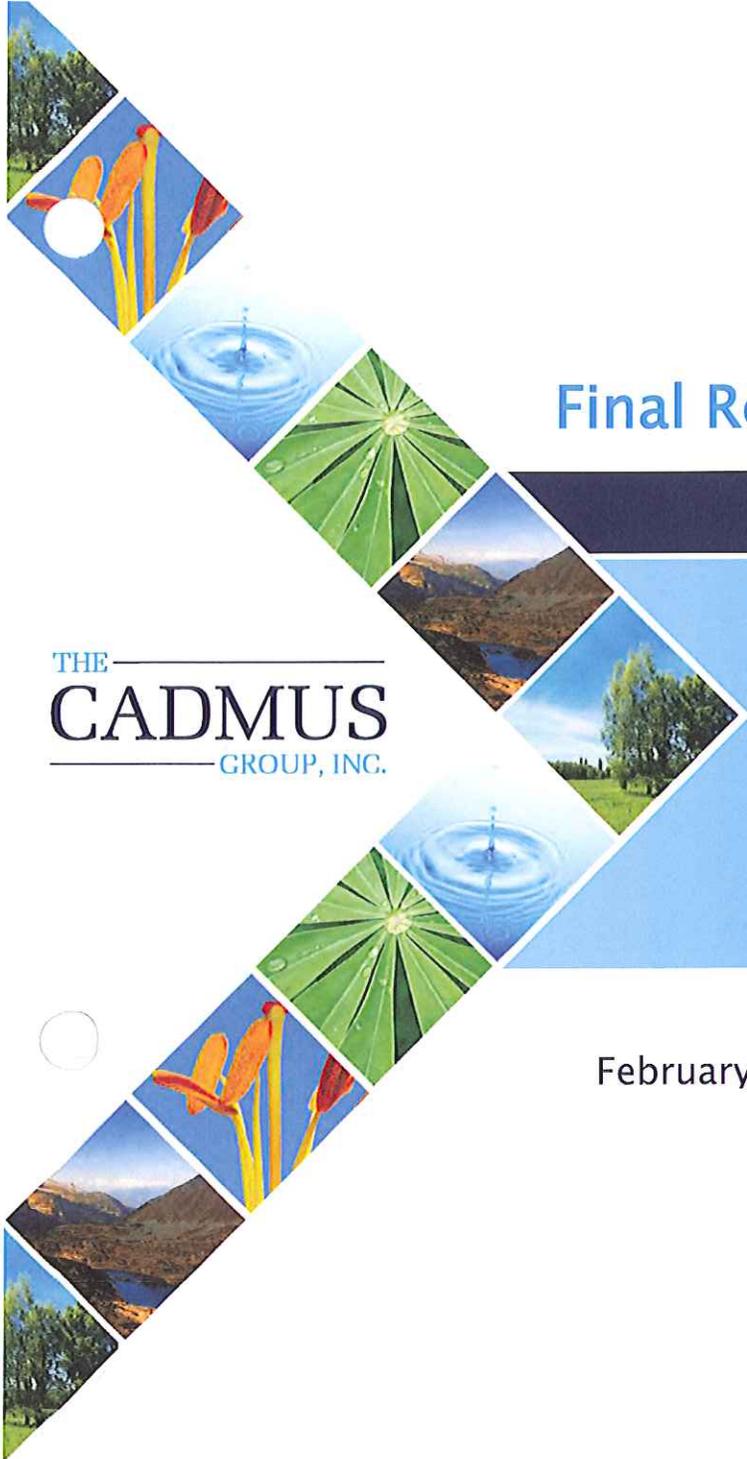
	Building Efficiency, IPC	Energy Conscious Blueprint, Northeast Utilities	Construction Solutions, NSTAR	Energy Design Assistance, Xcel	New Building Efficiency Program, ETO	Savings By Design, CA
<b>Program Evaluation</b>						
The data entry process is spot-checked every year.	++	-	-	-	++	-
Inspection databases are reviewed every year.	0	-	-	-	++	+
Tracking database savings algorithms are checked annually to confirm that they are accurately capturing program data and computing savings impacts.	+	++	++	++	++	+
Process evaluations are conducted regularly, and use the latest data.	0	++	+	++	++	++
Ex-post impact evaluations are scheduled at least every two to three years and are sufficiently detailed.	0	+	+	++	++	++
NTG is researched routinely (internally or during evaluations).	0	++	++	++	++	++
The program has a market transformation strategy and conducts market assessments periodically for the full range of market impacts expected.	++	++	++	++	++	++

Data sources used for this study are presented in Table B2.

**Table B2. Best Practices Benchmarking Data Sources**

Reference	Program	Document Name	Document Date
1	Savings by Design, CA Utilities	2010-2012 Program Cycle Participant Handbook	2010
2	Savings by Design, CA Utilities	SCE 2009-2010 Energy Efficiency Plan	2009
3	Savings by Design, CA Utilities	Savings by Design Market Assessment Study and Process Evaluation	2009
4	Savings by Design, CA Utilities	Savings by Design Program Summary 2006-2008	
5	Savings by Design, CA Utilities	Non-Residential New Construction Programs Impact Evaluation	2010
6	New Building Efficiency, ETO	Energy Efficiency 2009-2010 Revised Budget and Action Plan	2009
7	New Building Efficiency, ETO	Impact and Process Evaluation of 2006 and 2007 New Building Efficiency Program	2009
8	New Building Efficiency, ETO	Impact Evaluation of New Building Efficiency Program for 2004 and 2005	2008

Reference	Program	Document Name	Document Date
9	New Building Efficiency, ETO	Review of EnergyTrust.org	October, 2010
10	Energy Design Assistance, Xcel Energy	2009 Demand-Side Management Status Report	2010
11	Energy Design Assistance, Xcel Energy	2011 Demand-Side Management Plan	2010
12	Energy Design Assistance, Xcel Energy	Best Practices Benchmarking for Energy Efficiency Programs Summary Profile Report: Energy Design Assistance	2004
13	Energy Design Assistance, Xcel Energy	Minnesota Conservation Programs Summary	2010
14	Energy Design Assistance, Xcel Energy	Review of XcelEnergy.com	October, 2010
15	Construction Solutions, NSTAR	Best Practices Benchmarking for Energy Efficiency Programs Summary Profile Report: New Construction Program	2004
16	Construction Solutions, NSTAR	Review of NSTAR.com/Business	October, 2010
17	Construction Solutions, NSTAR	2007 Business & Construction Solutions (BS/CS) Programs	2009
18	Construction Solutions, NSTAR	NSTAR Electric Construction Solutions Program Year 2002 Impact Evaluation	2004
19	Energy Conscious Blueprint, Northeastern Utilities	Best Practices Benchmarking for Energy Efficiency Programs Summary Profile Report: Energy Conscious Construction	2004
20	Energy Conscious Blueprint, Northeastern Utilities	Review of CL-p.com	October, 2010
21	Energy Conscious Blueprint, Northeastern Utilities	Review of UINET.com	October, 2010
22	Energy Conscious Blueprint, Northeastern Utilities	Energy Efficiency, Investing in Connecticut's Future	2008
23	Energy Conscious Blueprint, Northeastern Utilities	The United Illuminating Company (UI) 2007 Commercial and Industrial Programs Freeridership and Spillover Study	2008
24	Energy Conscious Blueprint, Northeastern Utilities	United Illuminating Company and Connecticut Light & Power Final Report, 2005 Coincidence Factor Study	2007
25	Energy Conscious Blueprint, Northeastern Utilities	CT & MA Utilities 2004-2005 Lighting Hours of Use for School Buildings Baseline Study	2006
26	Multiple Programs	Volume NR8 – Non-Residential New Construction Best Practices Report	2004
27	Multiple Programs	Best Practices Review New Construction Programs	2007



## Final Report

THE  
**CADMUS**  
GROUP, INC.

# Custom Efficiency Process Evaluation Findings and Recommendations

February 4, 2011

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## Executive Summary

The Custom Efficiency program began in 2003 to encourage commercial and industrial customers in Idaho and Oregon to implement energy-efficiency measures in their facilities. Idaho Power Company (IPC) provides financial incentives for implementing eligible measures covering a variety of energy-saving opportunities including lighting, HVAC, motors, building shell, plug loads, and refrigeration.

In 2010, IPC commissioned The Cadmus Group Inc. to conduct a process evaluation of its commercial, industrial, and irrigation (CI&I) energy-efficiency programs. The primary goals of the process evaluation are to inform IPC about how well individual programs are operating, and to help IPC better plan, integrate, implement, and evaluate its entire portfolio of CI&I energy-efficiency programs.

This assessment of the Custom Efficiency program is based on interviews with program staff, review of program materials, and a best practice comparison of similar, exemplary programs.

In this Executive Summary, we capture the key conclusions and recommendations from the process evaluation of the Custom Efficiency program.

## Conclusions and Recommendations

The Custom Efficiency program has grown significantly, completing 101 projects in 2008 and 132 projects in 2009. The program offers technical assistance, training, and energy auditing services to IPC customers. The Custom Efficiency program collaborates with the Northwest Energy Efficiency Alliance (NEEA) to support the education of its customers on energy efficiency. NEEA, which provides a series of technology-specific seminars, conducted five technical trainings for IPC in 2009.

### *Marketing and Outreach*

Marketing and outreach, while effective at increasing the level of participation within the program, could benefit from more clear messaging within its own program documents and within marketing materials. To be more consistent with best practices, further expansion of the program may benefit from a more formalized (and documented) approach that will demonstrate stronger alliances with trade allies.

Cadmus recommends these general areas for improvement:

- Regularly review and update the Custom Efficiency program documents to ensure consistent branding.
- Include telephone contact information for the Custom Efficiency program support team on all marketing pieces.
- Consider expanding program outreach efforts with trade allies, who could help market the program and expand the level of participation. Expanded outreach efforts would include more formalized communication between IPC and contractors.
- Establish a contact list of contractors and trade allies and document communication about program updates and program training.

### ***Program Database***

To ensure effective evaluation, the Custom Efficiency program database needs to better demonstrate that an appropriate level of project detail is being captured at the best time in the program process. Various data issues may be resolved with the completion of IPC's new database. However, for this evaluation, due to the unavailability of many of the current or planned database features, we were not able to conduct a thorough review of program achievements.

Improvements to the program database should include better definition of the existing fields to improve evaluability. All fields should be labeled and well-defined. In addition, development of a database dictionary would enable easier identification of database fields and other database features to be contained in the new database.

### ***Program QA/QC and Verification***

In many ways, the Custom Efficiency program exemplifies a quality efficiency program compared to similar efforts across the country. However, the Custom Efficiency program has not benefited from complete program documentation and regular evaluations.

Cadmus recommends program documentation improvements in these general areas:

- Development of a detailed program manual complete with thorough descriptions of the program intent, processes, and requirements. This document would include, among other items, (1) pre- and post-inspection protocols and standards, and (2) database entry requirements.
- Market research and surveys with program participants, nonparticipants, and trade allies. This research would help program managers to better understand awareness of program services and requirements, preferred sources of information and marketing preferences, drivers behind program demand, motivations and barriers to participation, satisfaction with key program areas, program strengths and weaknesses, and freeridership and spillover information.

# Chapter 1. Introduction

This report provides findings and recommendations specific to the Custom Efficiency program, which offers technical assistance and financial incentives to encourage commercial and industrial customers in Idaho and Oregon to implement energy-efficiency measures. Eligible measures cover a variety of energy-saving opportunities including lighting, HVAC, motors, building shell, plug loads, and refrigeration.

## Custom Efficiency Process Evaluation Objectives

The purposes of this process evaluation are to (1) document and analyze how the program works in practice, and (2) ascertain important influences on its operation and achievements. The objectives for this evaluation are as follows:

- Document the program history, components, and processes;
- Compare key program elements with similar, exemplary programs elsewhere (i.e., a best-practices comparison);
- Gather and review primary data, review secondary program information, and report the findings; and
- Provide conclusions and actionable recommendations.

## Methods and Sources of Information

Specific data collection and analysis methods will be discussed within their relevant sections. Key sources of information used for this process evaluation include:

- Interviews and correspondence with the program engineers and other staff at IPC;
- The program's current database;
- The program Website and program handbook; and
- IPCs DSM 2009 Annual Report.

## Organization of This Report

Following this introductory chapter, the report is organized into the following chapters:

- Chapter 2: Program Description
- Chapter 3: Assessment of Program Components
- Chapter 4: Best Practices Review
- Chapter 5: Conclusions and Recommendations

## Chapter 2. Program Description

### Introduction

IPC's Custom Efficiency program offers energy audits, technical training, and financial incentives for new construction and retrofit projects that save energy in commercial buildings and industrial facilities. It also oversees the Green Rewind program.

From 2008 to 2009, the program grew significantly, completing 101 projects in 2008 and 132 projects in 2009. The expected savings also increased during that timeframe by approximately 26 percent or 10.7 GWh.<sup>1</sup>

### Energy Audits

The Custom Efficiency program provides free scoping audits to help identify energy saving opportunities at large commercial and industrial facilities having a demand of 500 kW or greater. The scoping audits may be performed by IPC engineers or by one of their six contracted consulting engineers. In addition, IPC will also pay 50 percent of the cost (to a maximum of \$10,000) of a detailed study. This level of analysis could entail data logging or system modeling to determine the energy savings potential. The final detailed study includes firm project scope, energy savings, and project cost.

### Technical Training

Technical training is an important component in helping commercial customers identify where they may have energy-efficiency opportunities within their facilities. The Custom Efficiency program collaborates with the Northwest Energy Efficiency Alliance (NEEA) to support the education of its customers on energy efficiency. NEEA, which provides a series of technology-specific seminars, conducted five technical trainings for IPC in 2009. These classes covered such topics as ammonia refrigeration, pumping systems, fan systems, motors, variable frequency drives, compressed air, and chilled water systems.

### Financial Incentives

There are two incentive options offered to IPC's Custom Efficiency customers: Cost Share and Self Directed.<sup>2</sup> For the purpose of this process evaluation, Cadmus will focus on the Cost Share option.

Financial incentives for the Cost Share option are based on the lesser of two calculations:

- 12 cents per kilowatt-hour (kWh) estimated to be saved in the first year, or
- 70 percent of direct project costs.

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<sup>1</sup> Idaho Power Company's Demand-Side Management 2009 Annual Report, page 71.

<sup>2</sup> The Self Directed option is available to Schedule 19 and special contract customers. Customers that choose the Self Directed option can use up to 100 percent of their Rider contributions for each three year cycle. Currently, IPC has less than five customers participating in the Self Directed option.

## The Green Rewind Program

Under the Custom Efficiency umbrella is Green Rewind, a program run by a non-profit entity that offers efficient motor rewinding to IPC customers.<sup>3</sup> This program component ensures that rewind motors maintain their original efficiency when brought in for rewinding. Approved motor service centers are paid \$2 per horsepower (hp) for each National Electrical Manufacturers Association (NEMA) standard hp-rated motor between 15 hp and 5,000 hp that receives a verified Green Rewind. There were 13 Green Rewind motors rewind under the Custom Efficiency program in 2009.

## Program Process

Three full-time IPC engineers oversee all aspects of the Custom Efficiency program. Program activities include:

- Planning
- Marketing
- Technical assistance and energy audits
- Application review and follow-up
- M&V and quality assurance
- Authorization of payments
- Collection of program feedback from participants
- Interaction with NEEA, Green Rewind, and the engineering firms contracted to provide support services

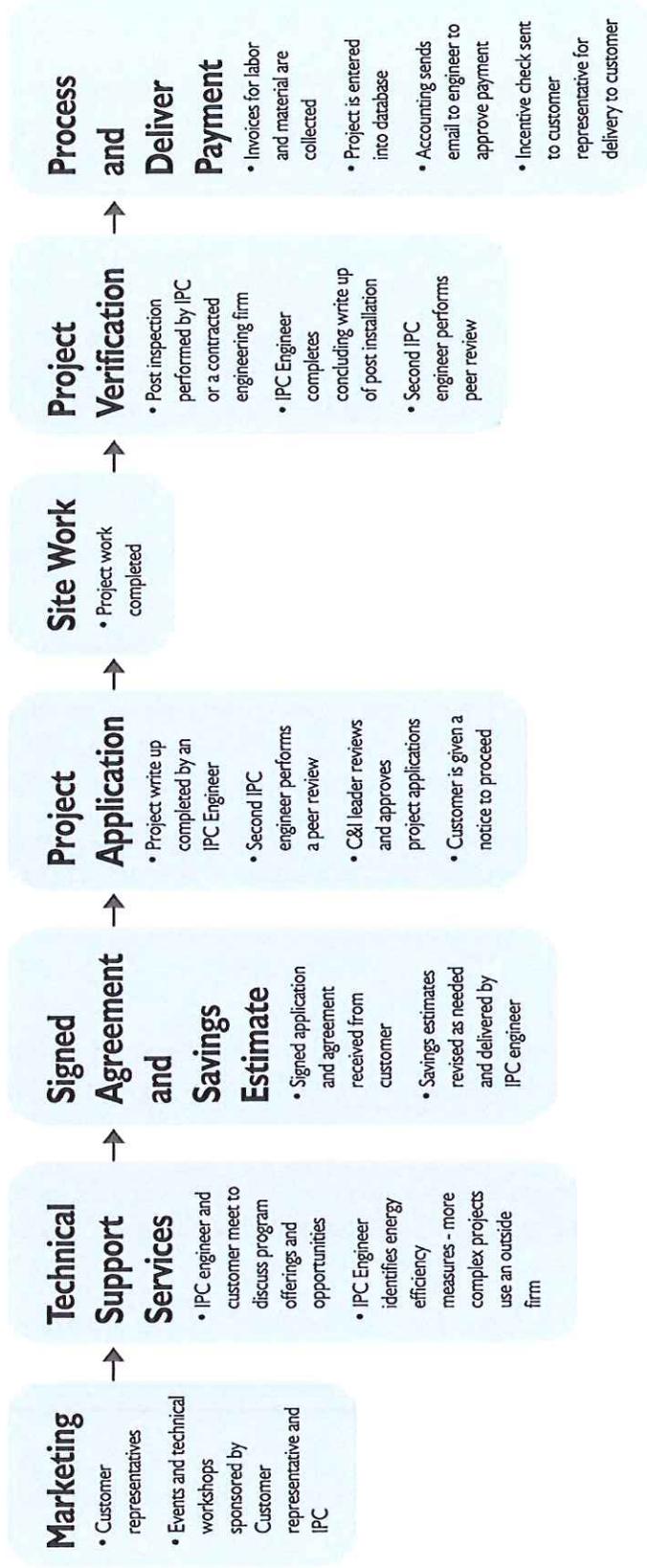
To create the Custom Efficiency process flowchart shown in Figure 1, Cadmus relied primarily on the program description in the program handbook and through information gathered from interviews with one of the program engineers.

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<sup>3</sup> Interview with Custom Efficiency program manager and IPC's Demand-Side Management 2009 Annual Report.

The blue boxes in Figure 1 represent key activities, in chronological order, for each Custom Efficiency program participant.

Figure 1. Custom Efficiency Process Flow Diagram



## **Process Steps**

### **Marketing**

The process begins once the IPC customer hears about the program. Customers typically hear about the program from their customer representatives. The program is also marketed by IPC engineers at all IPC sponsored trainings and events. If the customer is interested, the customer representative will schedule a meeting with one of the three IPC engineers to discuss program details.

### **Technical Support Services**

An IPC engineer may then perform a walk-through of the customer's site to identify energy-efficiency opportunities and determine how the program can benefit the customer's facility. Depending on location and on work load, one of six outside engineering firms may perform the audit.

### **Savings Estimates and Project Application**

Once customers decide to participate in the Custom Efficiency program, they submit their application for potential energy-efficiency projects to IPC.

Project applications are screened by IPC engineers for feasibility of the proposed project. If requested, IPC engineers will work with customers and their vendors to gather the required information to support the energy savings claims. If the savings estimates are provided from an IPC funded detailed study, then IPC engineers will review the savings estimates for accuracy. In some cases, IPC may elect to perform their own data logging to establish a system baseline.

An IPC engineer then drafts a project overview, which is reviewed for accuracy by a second IPC engineer. Once the incentive application and agreement are signed and approved by both the IPC engineer and commercial and industrial (C&I) program leader, the customer is given notice to proceed.

### **Site Work and Project Verification**

After the work is completed, IPC determines what type of post-inspection or post-metering is necessary. This inspection may be performed by an IPC engineer or, if the project is large and complex, by one of the contracted engineering firms. Certain project types generally do not have an engineering post-inspection (such as a motor swap or small lighting retrofits). When sites are not post-inspected, invoices and photographs may be collected by the assigned customer representative, providing a level of assurance that the project was completed as indicated in the application.

### **Process and Deliver Payment**

IPC always collects invoices for labor and material. When all of the project information is compiled, an IPC engineer completes the final report which, like the initial report, is reviewed by a second IPC engineer.

The project information is entered into the Custom Efficiency database, where it is reviewed and approved by the accounting department.

After the IPC engineer receives final approval, they generally hand deliver the incentive to the customer.

### **The Green Rewinds Program**

The Green Rewinds program is run separately by a subcontractor, the Green Motors Practice Group (GMPG). The program uses five service centers in IPC's service territory that have the expertise and ability to perform rewinds according to the program's strict specifications. As administrator, GMPG performs its own QA/QC process.

## Chapter 3. Assessment of Program Components

This chapter, which contains reviews and assessments of the following program components, highlights Cadmus' methods and observations regarding each element:

- Program design and guideline material
- Program demand and application processing
- Marketing and outreach
- Program tracking and database
- Participant and trade ally surveys
- Quality assurance and quality control (QA/QC)

### Methods

Cadmus used several methods to assess the program elements listed above:

- Interviews and correspondence with the Custom Efficiency program engineer. (The interview discussion guide is in Appendix A.)
- Review of secondary information, such as program application forms, marketing materials, and the Custom Efficiency program database extract covering projects from 2006 to present.

### Findings

#### **Program Design and Guideline Material**

Cadmus reviewed a draft of the program handbook, only in outline form. The program engineer reported that a new handbook is currently under development.

#### **Program Demand and Application Processing**

Cadmus assessed the Custom Efficiency program intake processes through (1) discussions with the program engineers, (2) correspondence, and (3) a review of the application forms.

Although program demand increased from the previous year (by about 30 percent), the program engineers indicated that there were no issues associated with processing the number of incentives in 2009. This may be partly due to the increase in engineering staff from two to three engineers over the previous year.

Application processing also appears to be operating well and required no adjustments.

#### **Review of Application Forms**

The program forms provided to customers are available from the customer representative or on the program Website. Cadmus reviewed the Custom Efficiency Program Application, Custom Efficiency Program Agreement, Detailed Audit Application, and the Third-Party Payment Authorization form.

Cadmus' review of the Custom Efficiency program forms revealed that while they are generally clear and easy to complete, they contain potential sources of confusion for applicants, specifically:

- The Custom Efficiency Program Application directs customers to send all documents electronically or in hardcopy form; however, IPC's contact information (both e-mail and mailing address) is missing from the application form.
- Although the Custom Efficiency program Detailed Audit Application states that audits must be conducted by eligible engineers and specialists, a link to a list of eligible engineers and specialists is not included. The application states that IPC will determine the eligibility of engineers who perform the audits based on qualification, past performance, and other appropriate criteria. The Third-Party Payment Authorization form is missing both the e-mail and mailing address for sending documents. It also lacks a detailed explanation of the purpose of the form.

## Marketing and Outreach

To determine the effectiveness and clarity of IPC's message, Cadmus reviewed the Custom Efficiency program marketing materials from the perspective of a potential program participant.

### The Custom Efficiency Website

Our review started with the Custom Efficiency program Website<sup>4</sup> and the documents posted there. We reviewed the materials for their overall look and feel, brand and messaging consistency, and accessibility. The promotional materials on the Custom Efficiency program Website were (1) success stories for large and small businesses and (2) the program overview document.

We found the Website had an effective layout, used branding well, and could be easily navigated. The Website had important documents listed under the „Program Details' including program FAQ's, program application and agreement forms, a list of program contacts, and success stories.

Cross-marketing occurs with the Easy Upgrade and Building Efficiency programs, which increases awareness and encourages visitors to click through the Website, further encouraging their participation. A pie chart is included at the bottom of the Website illustrating savings for the most common Custom Efficiency program projects.

Visitors to the Website can easily identify general information about the program including project eligibility and an estimation of savings with the installation of energy-efficient equipment. Success stories were well laid out and incorporated customer testimonials, energy savings estimates/calculations, and information about indirect savings. Multiple testimonials were included, which emphasize to readers the high degree of program satisfaction.

During the review of the Website and marketing materials available, Cadmus identified a few minor areas for improvement. These include:

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<sup>4</sup> <http://www.idahopower.com/EnergyEfficiency/Business/Programs/CustomEfficiency/default.cfm>

- The Custom Efficiency program overview document does not have consistent branding. The first page of the document had the IPC logo at the top of the page, but the logo is missing on the second page.
- The overview documents indicate that the program requires projects to go beyond “*presently established building codes*,” but does not offer additional information about the current building codes (when building codes apply).
- The forms (application and letter of agreement) and the overview document are missing e-mail and phone contact information.

### **Program Tracking and Database Review**

Management of program data is essential to accurate reporting, which, in turn, allows program managers to assess how well a program meets its goals. Because IPC is in the process of implementing a new database system, we were not able to review this component. It is our understanding that the Custom Efficiency program will be a part of that new system.<sup>5</sup>

The database file export provided for our review, ‘Idaho Power Custom Efficiency datafile,’ contained 35 fields and 479 records. The fields captured most of the pertinent information necessary for program managers to maintain an accurate account of the program achievements. This included such information as customer names, addresses, energy savings, approval dates, incentive, etc.

### **Usability and Evaluability Analysis**

Cadmus used the following criteria to analyze the database export:

- Ease of use;
- Completeness, accuracy, and consistency; and
- Ability to provide useful information for tracking and evaluation.

Based on our analysis of the database file, we found several items of interest:

- There is no data definition table, which is an issue because some fields are difficult to interpret by title alone.
- The Custom Efficiency program application contains many items that are either not in the database file or are not clearly identified.
  - Company Name and Project Address appear in the application; however, the database has fields for Customer, Customer Street, and Street Addr2, which may not be the same.
  - Tax ID, Customer Account Number, Contact Person, Title, and Phone appear on the application but were not in the database file.

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<sup>5</sup> For our review, IPC provided an export of the Custom Efficiency program database. However, as we understand, some of the fields may have been hidden or deleted due to IPC’s concerns with customer confidentiality. Therefore, our review is based on the information contained within the database extract provided.

- Payback Period w/o Incentive is on the application but was not in the database file.
- The entire Financial Incentive Calculations section appears on the application but was not included the database file.
- The Status field consists of one value, Paid. This may be a function of the way the database export was created.
- Business names are mostly standardized, with a few exceptions.
- Measure information is mostly standardized, with a few exceptions.
- Projects are recorded in the summary form; however, the Project Description field may include multiple measures, making it difficult to discern how the savings were aggregated.
- The Project Description field contains useful information; however, nomenclature was not standardized. There are 288 unique project descriptions for the 479 total projects in the database.
- Twenty-eight project records have either missing or incorrect approval dates (e.g., 1900).
- The database was missing nine column headers (AG – AO). Without labels, it was difficult to interpret the data in these columns.
- The 2009 IPC Demand-Side Management report<sup>6</sup> indicates that many projects receive a verification inspection. However, there is no field in which to clearly indicate that this verification inspection took place or when it took place.

### **Program and Customer Feedback**

Surveys provide formal and valuable program feedback on various topic areas because the results can:

- Be quantified;
- Provide otherwise unattainable insight;
- Help to explain market trends;
- Allow program management to understand the factors influencing nonparticipants and market actors; and
- Provide ideas on how to improve and grow the program.

Formal information from participants, nonparticipants, trade allies, and implementers has not been gathered for some time. While IPC conducted a utility-wide customer satisfaction survey that included commercial customers, based on our review, that effort was not specific to the Custom Efficiency program. In the early years of the program, IPC staff members would meet with some of the larger customers and receive formal feedback on the program. Now, however, this type of information is gathered informally in the field and does not appear to have a formal process.

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<sup>6</sup> Idaho Power Company's Demand-Side Management 2009 Annual Report, page 73.

Listed below are some common topic areas that program-specific surveys typically gather and an explanation of their importance.

- **Program satisfaction.** This survey topic can provide unique insight that program staffers might not receive through informal conversations or anecdotal evidence. This information also enables program managers to identify which aspects of the program their customers like and which aspects customers would like to see altered.
- **Program awareness.** This topic provides details on how people heard about the program, what marketing channels to target, and the degree of participant understanding of program offerings.

IPC program management appears to have a very good understanding of how to reach out to its eligible base of large customers, having either rebated projects or held direct meetings with approximately 85 percent of them.<sup>7</sup> Performing these types of surveys should help program staff identify ways to reach a broader audience and provide an understanding of what customers think or know about the program.

- **Decision making.** This topic helps program management understand why people choose to participate (once or multiple times), whether people plan to participate again, and, if so, in what capacity.

While most programs assume that customers are participating because they want to save money and/or are motivated by environmental concerns, it is hard to discern motivation solely by relying on informal customer feedback. IPC could learn significantly about customer motivations and intentions, and this information would help to inform net-to-gross (NTG) analyses capturing freeridership and spillover.

- **Market barriers.** This topic identifies participation barriers and assesses whether the program is successful in overcoming those barriers.
- **NTG and spillover.** This topic analyzes and quantifies freeridership and spillover rates, so that appropriate adjustments can be made to gross savings. Freeridership adjusts for customers who *would have taken* the same efficiency steps on their own in the same time frame, while spillover gives the program credit for influences on other efficiency actions outside the program.

The program currently assumes an NTG value of 1, and savings are not adjusted based on freeridership or spillover data. This type of adjustment, however, is common among DSM programs and governing bodies often require this information to assess net energy savings.

## Quality Assurance and Quality Control

QA/QC (verification) procedures ensure that savings claimed by the program are actually realized in the field. We gained information about current QA/QC procedures entirely from discussions with the program manager, who outlined the policies and procedures discussed in Chapter 2 and illustrated in Figure 1.

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<sup>7</sup> Idaho Power Company's Demand-side Management 2009 Annual Report

IPC's QA/QC process contains many of the key steps that are part of any well-established protocol, including:

- Savings estimates are based on a standard industry practice and are peer reviewed internally.
- Pre-installation inspections are performed on select projects, and metering and data logging may also be performed depending on project specifics.
- Final inspections are performed on select projects, depending on project specifics. The inspections check to confirm that:
  - Measure types and quantities installed correspond to project records,
  - Measures are installed correctly, and
  - Operating assumptions (if applicable) correspond to project records.

## Chapter 4. Best Practices Review

### Purpose

This best practices review compares the Custom Efficiency program with five similar, nationally-recognized programs. We compared these programs across 19 common best practices that include quality assurance, program design, and outreach. Programs were assigned a score of 0, +, or ++ in each best practice category, based on their perceived level of participation within that category. We determined participation levels based on a review of available literature.

### Methods

The selection of programs for comparison borrowed extensively from the energy-efficiency program best practice work conducted by Quantum Consulting.<sup>8</sup> Four programs were selected based on similarity in program structure, geographic location, and measure offerings for comparison. These were supplemented with a fifth program, outside of the work conducted by Quantum Consulting; these programs are:

- Business Energy Service, Efficiency Vermont
- Power Smart Partners (Industrial), BC Hydro
- C&I Performance Program, NYSERDA
- Custom Efficiency Program, Xcel Energy
- Production Efficiency Program, Energy Trust of Oregon.

We populated the comparison table (Table B1 in Appendix B) with program-specific information obtained from a variety of sources including the Quantum Consulting report, program Websites, recent evaluation materials, and program filings. A complete list of all sources used appears in Table B2 of Appendix B. The availability of recent data was constrained by the program evaluation cycles. In cases where input data could not be located, we left those fields blank.

### Findings

The best practices comparison of the five programs and the Custom Efficiency program revealed that many of the practices highlighted are already carried out by the staff at IPC.

The Custom Efficiency program is participating in 16 of the 19 best practices categories identified. Custom Efficiency scored highest among all programs within the management and implementation categories, but scored last in program evaluation (as the program has not undergone an evaluation to date).

Overall, the Custom Efficiency program compared very favorably with the five programs used for comparison in the best practices review. These five programs participate in approximately the same number of categories as the Custom Efficiency program and, while this is encouraging, there appear to be some areas for improving the Custom Efficiency program:

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<sup>8</sup> Volume NR5-Non-Residential Large Comprehensive Incentive Programs Best Practices Report: 2004.

- Program theory and design,
- Program implementation: participation process, and
- Program evaluation.

### **Program Theory and Design**

All of the comparison programs demonstrated some level of planning, which involved a thorough program plan and a clearly articulated program theory. In the nationally-recognized programs, this generally appeared in the form of an annual planning document or report. These documents provided a high-level assessment of the following: (1) program strengths and weaknesses, (2) changes in program emphasis, (3) program design, and (4) a projected budget.

Conversations with the Custom Efficiency program manager and a review of available material suggest that IPC has placed less importance on this element of the program than on other elements, particularly in regard to documented protocols and program theory.

### **Program Implementation: Participation Process**

All of the comparison programs placed some emphasis on developing relationships and clearly defining roles and activities of trade allies. Trade allies may include contractors or equipment dealers, among others. These entities could help market the program, reduce confusion in the application process, provide feedback, and reduce the level of QA/QC required. Although the Custom Efficiency program contracts with engineering firms in IPC's territory, there is no documented feedback about the participation process for trade allies.

While the Custom Efficiency program uses third parties in the program processes, these third parties typically fill more of an implementation role and are limited both in number and in the potential services offered to the program. The outreach IPC performs in terms of regularly scheduled trainings sponsored by NEEA helps to expand IPC's interactions with the trade ally community.

### **Program Evaluation**

Program evaluation appears to be the area with the greatest potential for improvement. Regular impact and process evaluations—performed both internally and by a third party—are integral parts of all of the comparison programs. Most of the programs have evaluation cycles of two years and have evaluations planned several years in advance. While cost-effectiveness at the project level is generally the most important metric for these programs, all other programs incorporate freeridership and spillover components into their evaluations.

## Chapter 5. Conclusions and Recommendations

Conclusions and recommendations for the Custom Efficiency program are discussed in this section, organized by the component reviewed under the process evaluation. Overall, the program appears to be operating smoothly from design to implementation. Cadmus provides recommendations in the area of marketing, the program database, and QA/QC.

### Marketing and Outreach

Marketing and outreach, while effective at increasing the level of participation within the program, could benefit from more clear messaging within its own program documents and within marketing materials. To be more consistent with best practices, further expansion of the program may benefit from a more formalized (and documented) approach that will demonstrate stronger alliances with trade allies.

#### Recommendations for Messaging

- Regularly review and update the Custom Efficiency program documents to ensure consistent branding.
- Consider including a brief customer testimonial on the primary Custom Efficiency program Web page. This may grab the attention of potential program participants visiting the Website.
- Include telephone contact information for the Custom Efficiency program support team on all marketing pieces. Program contact information noted in the footer of documents would bridge the gap in communications, as electronic contact information may not be appropriate for all audiences.

#### Recommendations for Outreach

- IPC should consider expanding its outreach efforts with trade allies, who could help market the program and expand the level of participation. Expanded outreach efforts would include more formalized communication between IPC and contractors. A few examples are maintaining a list of active trade allies, sending out newsletters, and considering trade ally recognition awards.
- Establish a contact list of contractors and trade allies and document communication about program updates and program training.

### Program Database

To ensure effective evaluation, the Custom Efficiency program database needs to better demonstrate that an appropriate level of project detail is being captured at the best time in the program process. These data issues may be resolved with the completion of IPC's new database. However, for this evaluation, due to the unavailability of many of the current or planned database features, we were not able to conduct a thorough review of database components.

## Recommendations

Ensure that the new database includes the following data tracking features:

- Discrete measures with known measure lives, costs, and savings. This information would essentially involve carrying multiple measure-level records for each project in the database. If the project is too complex to be characterized at the measure level, this could be noted in the project record.
- Tax ID, site ID, or distinct customer account number. These are useful for clearly identifying projects belonging to the same business entity. For instance, most of the 27 instances of Fred Meyer in the database represent stores at different locations, but several represent multiple projects at the same location. Since Tax ID is collected on the Custom Efficiency program application, entering it in the database would make it easier for IPC to identify and characterize these business entities.
- All records should contain a valid approved date and a paid date.
- Records should contain a date field indicating when the required verification inspection took place (and, ideally, include a note as to who performed it).
- The database needs better definition of the existing fields to improve evaluability. At a minimum, all fields should be labeled and well-defined. Data fields corresponding to data entered on the Custom Efficiency application form should be described the same way both places.
- Consider developing a database dictionary that will enable easier identification of database fields and other database features.

## Program QA/QC and Verification

In many ways, the Custom Efficiency program exemplifies a quality efficiency program compared to similar efforts across the country. However, the Custom Efficiency program has not benefited from complete program documentation and regular evaluations.

### Recommendations

- IPC should consider developing a detailed program manual complete with thorough descriptions of the program intent, processes, and requirements. This document would include, among other items:
  - Pre- and post-inspection protocols and standards
  - Database entry requirements
- IPC should consider implementing a program-specific survey and impact evaluation that addresses the following areas:
  - Conduct market research with program and trade ally participants. This research would help the program managers better understand the current participants, their awareness of program services and requirements, their preferred sources of information and marketing preferences, drivers behind the program's demand,

- motivations and barriers to participation, satisfaction with key program areas, program strengths and weaknesses, and freeridership and spillover information.
- Conduct market research with nonparticipating customers and trade allies. This research would provide insights about nonparticipants, such as their motivations and barriers to participating, program awareness and perceptions, program needs, preferred sources of information, and marketing preferences. This research could also predict future market trends.
  - The impact evaluation should cover a representative sample of customer projects to provide an appropriate level of assurance that the realization rates are 100 percent, as claimed by IPC.

## Appendix A. Program Specialist Interview Guide

### Custom Efficiency Program Manager Interview Guide

Name  
Title  
Company  
Program  
Date

#### Introduction

Thank you for taking the time today to discuss the Custom Efficiency program with me. As you know, the Cadmus Group is conducting a process evaluation of the C&I portfolio for Idaho Power. The purpose of this interview is to gather information on program processes, operations and activities. Cadmus' goal is to create a complete description of the program so that we can identify what is working well and what can potentially be improved. Because of your role as program manager, your perspective is very important to us. I would like to record this interview to improve the accuracy of my notes, is that alright with you? The recording will be deleted after I create a written summary of Cadmus' discussion.

#### Program Overview

1. Can you briefly describe how the program currently operates? Is there a process flow diagram or a completed program manual?
2. How does not having a program manager affect you and the other engineers?
  - a. Can you elaborate on the NEEA „Training Program“? (How is it managed, do they claim savings?)
  - b. Can you also explain your relationship with NEEA and your support of their delivery of “energy improvement practices” as stated in the 2009 IPC DSM Annual Report?
  - c. The Green Rewind component was introduced in 2009, can you explain more about what that component is?
3. Does the program currently have a QA/QC protocol, especially as it pertains to the audits and review of savings estimates (both pre/post installation)?
4. We will be reviewing best practices and other benchmarking criteria across similar programs. Best practices will include the processes from design to program delivery. The quantitative metrics that we will benchmark will include things like program cost effectiveness and total costs per participant. Are these areas in line with what you had in mind for the benchmarking evaluation task?

## Program Design

Next, I will ask you about program design.

5. What are the goals and indicators of success for the program? (39 GWh is the goal for 2010, are there MW goals or other metrics?)
6. The Custom Efficiency program eligibility requirements were changed in 2008 to increase the minimum amount of savings from 20 MWh to 100 MWh. Additionally, in 2009 IPC added the Green Rewind component. Can you describe the general process by which the program normally evolves and explain why the changes were made? (2009 DSM report indicates minimum savings was changed to promote more non-lighting measures)
7. What types of considerations drive program changes during planning? (new technology, customer complaints, contractor complaints, measure mix within the program)

(if not mentioned, probe for the following)

- a. Freeridership
- b. Code/Standard changes
- c. Market demand
- d. Program processes
- e. Program management
- f. Assumptions about target market behavior
- g. Economic conditions

## Program Delivery

8. How is the program delivered?
  - a. Who delivers each aspect of the program's activities? And what are their roles?
  - b. How many contractors outside of the program delivery do you actively deal with in a given program year?

## Program Administration

This next question is about program applications and processing of those applications.

9. Could you please describe your understanding of the application process from the participant's perspective:
  - a. How do the participants decide to enter the Custom Efficiency program as opposed to other programs?
  - b. Are there any issues participants have with the current application process?
10. Now I'd like to discuss IPC's end of the application process. Who receives the applications and what are the steps for reviewing and approving applications and setting up payments?
  - a. What are the conditions for payment of rebates?

11. What does it take to process an application from start to finish? How many hours using what resources?
12. How many applications are received each week?
  - a. What % are rejected or need rework? Has this percentage changed over time? How has it changed?
  - b. What are the most common reasons for rejection? (customer eligibility, savings requirements, missing information...)
13. How are savings verified for individual projects?
  - a. What pre/post-inspections are required and when do they regularly take place? Are they for all Custom projects? (service territory is very large so pre/post is difficult, especially given the necessary manpower and costs associated with that)
  - b. What types of data are collected at the time of inspection? (sub-metering, billing data, etc)
  - c. Are there any issues with verifying savings? (Any usual miscalculations or customer receptiveness issues?)
  - d. What adjustments, if any, are made after verification of savings? (They adjust savings and incentives)
14. Who is responsible for collecting and tracking participation data?
  - a. Are data entered and reported in a timely fashion?
  - b. Are there data validation protocols to ensure quality? How often is quality checked?
  - c. How often are tracking database savings checked, how do you account for persistence?
  - d. How is contractor activity tracked? (open projects, audit reports, etc.)
  - e. How are pre-applications tracked? (completed, removed, suspended, probability of completion)
  - f. Have there been any difficulties with the data tracking systems?
  - g. Are there any plans to for a change in your databases? If so will it fully integrate the Custom Efficiency database with a larger portfolio level information system?
15. Would you recommend any changes to the data tracking procedures?

### **Program Implementation**

16. How is the program promoted? (Major Customer Reps *MCR*'s, and IPC engineers) (5 *MCR*s and 15-18 smaller reps)
17. How has participation by the target population been affected by the marketing approach? (51% of large customers have participated with another 34% having been contacted by IPC engineers. Does this mean 85% of large customers have been „involved'? What about smaller customers)

**Customer Response**

I will now ask you about customer feedback on the Custom Efficiency program.

18. What aspects of the programs do customers seem to be most interested in?
19. Did customers express any concerns? How were they addressed?
20. Have you identified any major barriers to participation?

**Trade Ally Response**

21. Is IPC involved in the recruitment or management of Trade Allies, retailers or contractors? (There are six engineering firms currently under contract to IPC)
22. How frequently do you communicate with trade allies/engineers and how is the communication carried out?
23. Have you had any particular challenges working with trade allies/engineers?
24. How are their problems and questions dealt with?
25. What kinds of things have been done or are being planned to identify trade allies and get them involved? (such as certification process)
26. How would you change or improve communications, either within the program, or with trade allies/engineers?

**Closing Remarks**

27. What would you say are the program's strongest points?
28. What are its weakest points?
29. Do you feel that the program, generally, is accomplishing its stated goals?
30. Other than what we've already discussed, what would you change about the program?
31. What are the most important things you would like to see improved

## Appendix B. Best Practices Benchmarking

Table B1 compares Easy Upgrades with four similar exemplary programs for the 30 applicable best practices. The level of use of a best practice is indicated by a three-point scale where:

- 0 indicates no use
- + indicates limited use
- ++ indicates full use

Cells containing "N/A" indicate areas where a rating could not be made or the category is not applicable.

**Table B1. Full Benchmarking Table for Custom Efficiency Program**

	Custom Efficiency, IPC	Business Energy Services, Efficiency Vermont	Power Smart Partners, BC Hydro	C&I Performance Program, NYSERDA	Custom Efficiency Program, Xcel CO	Production Efficiency, Energy Trust of Oregon
<b>Program Theory and Design</b>						
Develop a sound program plan, if possible have a clearly articulated program theory	+	++	++	++	++	++
<b>Program Management: Project Management</b>						
Develop and maintain clear lines of responsibility and communication	+	+	+	++	++	+
Use well-qualified engineering staff	++	N/A	N/A	N/A	N/A	++
<b>Program Management: Reporting and Tracking</b>						
Integrate all program data, including measure-level data, into a single database	++	++	0	++	++	0
Use automated or otherwise regularly scheduled notification to achieve close monitoring and management of project progress	+	++	N/A	++	++	++
<b>Program Management: Quality Control and Verification</b>						
Require post-inspections and commissioning for all large projects and projects with highly uncertain savings	+	+	N/A	N/A	++	N/A
Require pre-inspections for large projects with highly uncertain baseline conditions that significantly affect project savings	+	+	N/A	N/A	++	N/A
Consider using third-party M&V contractors to oversee or conduct M&V	+	++	0	++	++	++
<b>Program Implementation: Participation Process</b>						

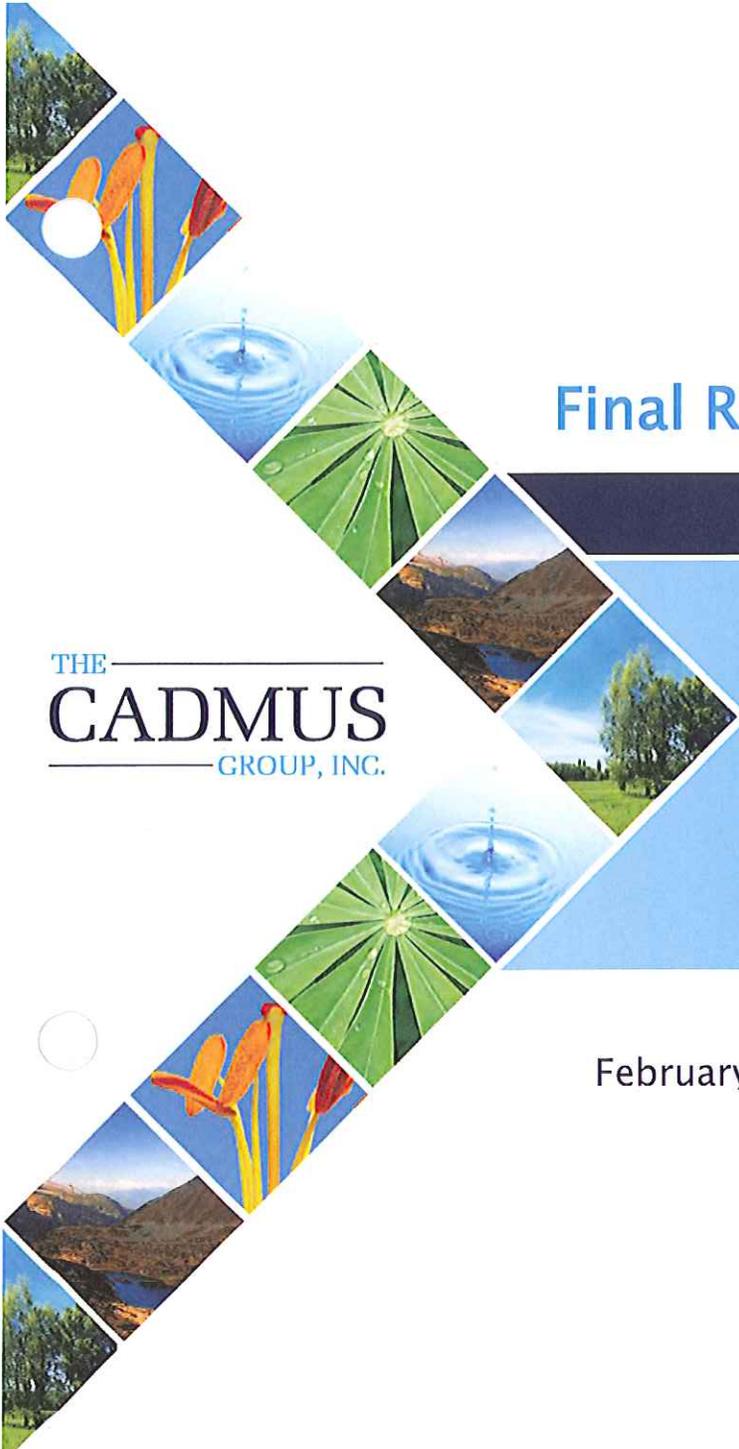
	Custom Efficiency, IPC	Business Energy Services, Efficiency Vermont	Power Smart Partners, BC Hydro	C&I Performance Program, NYSERDA	Custom Efficiency Program, Xcel CO	Production Efficiency, Energy Trust of Oregon
Keep the application process and forms from being overly complex and costly to navigate while at the same time not being over-simplified	++	++	+	++	+	+
Provide technical assistance to help applicants through the process	++	++	++	++	++	++
Develop a cadre of trade allies who can then assist customers through the process	+	++	++	++	+	++
<b>Incentive Approaches</b>						
Use incremental costs to benchmark and limit payments	++	++	++	++	++	++
Limit or exclude incentive payments to known free riders	0	0	++	+	+	0
<b>Program Implementation: Marketing and Outreach</b>						
Leverage the extensive marketing efforts of the private sector, particularly of ESCOs	0	++	0	++	0	+
Keep energy-efficiency service providers well informed about program features and changes through seminars, training sessions, trade shows, and annual meetings of key groups	++	++	++	+	+	+
Use personal marketing, where cost effective, to identify and address customer-and industry-specific barriers and customer issues	++	++	++	+	++	++
Conduct on-going training of account managers and other marketing staff to keep abreast of the latest efficiency technologies and practices	++	N/A	++	+	+	++
<b>Program Evaluation</b>						
Conduct both process and impact evaluations routinely	+	++	++	++	++	++
Include estimation of free-ridership and spillover	0	++	+	++	++	++

Table B2 illustrates the Program, Document Name, and Document Date used for the best practices comparison.

**Table B2. Best Practices Benchmarking Data Sources**

Reference	Program	Document Name	Document Date
1	Business Energy Services, Efficiency Vermont	Year 2007 Annual Report	2008
2	Business Energy Services, Efficiency Vermont	Summary Profile Report, Business Energy Services-Large Comprehensive	2004
3	Business Energy Services, Efficiency Vermont	Efficiency Vermont, Efficiency Vermont Oversight 2000 through 2008	2010
4	Business Energy Services, Efficiency Vermont	Report Volume NR5-NON-Res Large Comprehensive Incentive Program Best Practices Report	2004
5	Business Energy Services, Efficiency Vermont	Review of Program Website	2010
21	Power Smart Partners, BC Hydro	Summary Profile Report, Power Smart Partners-Industrial	2004
22	Power Smart Partners, BC Hydro	Demand Side Management Milestone Evaluation Summary Report	2008
23	Power Smart Partners, BC Hydro	Electric Utility Industrial DSM and M&V Program Report	2008
24	Power Smart Partners, BC Hydro	Finding Hidden Energy Savings: Operational, Maintenance and Behavioral Savings for Large Commercial Customers	2007
25	Power Smart Partners, BC Hydro	Program Website Review	2010
26	Power Smart Partners, BC Hydro	BC Hydro 2008 Annual Report, Reporting On Our Triple Bottom Line Performance	2009
31	C&I Performance Program, NYSERDA	Summary Profile Report, C&I Performance Program	2004
32	C&I Performance Program, NYSERDA	Enhanced Commercial/Industrial Performance Program, Program Opportunity Notice (PON) 1101	2008
33	C&I Performance Program, NYSERDA	New York Smart Program, Evaluation and Status Report	2007
34	C&I Performance Program, NYSERDA	Program Website Review	2010
41	Custom Efficiency Program, Xcel CO	2009/2010 Biennial Demand-Side Management Plan	2009
42	Custom Efficiency Program, Xcel CO	Summary Profile Report, Xcel Energy Custom Efficiency CO	2004
43	Custom Efficiency Program, Xcel CO	2009 Demand-Side Management Annual Status Report	2010
44	Custom Efficiency Program, Xcel CO	Program Website Review	2010
51	Production Efficiency, Energy Trust of Oregon	Production Efficiency Program Evaluation Report	2009
52	Production Efficiency, Energy Trust of Oregon	Program Website Review	2010
53	Production Efficiency, Energy Trust of Oregon	Energy-efficiency 2009-2010 Revised Budget and Action Plan	2010
54	Production Efficiency, Energy Trust of Oregon	Energy Trust of Oregon, Production Efficiency Programs 2003-2005, Impact Evaluation	2007
61	IPC	2009 Demand-Side Management Annual Report	2010
62	IPC	Interview with Randy Thorn – IPC Program Manager	2010

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## Final Report

THE  
**CADMUS**  
GROUP, INC.

# Education Initiative Process Evaluation Findings and Recommendations

February 4, 2011

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## Executive Summary

The Commercial Education Initiative was launched in 2008 to encourage participation in the Idaho Power Company (IPC) commercial, industrial, and irrigation (CI&I) energy-efficiency programs. The initiative supports the educational and technical needs of the programs while enhancing customer awareness of energy efficiency. Technical and educational services support Easy Upgrades, Irrigation Efficiency Rewards, Building Efficiency, and Custom Efficiency programs at IPC.

In 2010, IPC commissioned The Cadmus Group Inc. to conduct a process evaluation of its CI&I energy-efficiency programs. The primary goals of the process evaluation are to inform IPC about how well individual programs are operating, and to help IPC better plan, integrate, implement, and evaluate its entire portfolio of CI&I energy-efficiency programs.

This assessment of the Commercial Education Initiative program is based on interviews with program staff, review of program materials, and a best practice comparison of similar, exemplary programs.

In this Executive Summary, we capture the key conclusions and recommendations from the process evaluation of the Commercial Education Initiative program.

## Conclusions and Recommendations

The Commercial Education Initiative provides valuable educational and technical outreach to IPC's commercial customers. The program offers technical education materials, workshops, and technical assistance to targeted facilities. A common practice of the program is to leverage market actors to help recruit participants and to use technical experts to develop training content.

### *Program Identity*

IPC provides many educational and technical services to its commercial customers, including outreach events, workshops, individualized technical assistance, and technical materials. These resources are provided to help customers manage their energy consumption, either through participation in IPC programs or through their own efforts. Results of the evaluation indicated that the components of the Commercial Education Initiative need better definition and integration.

To improve definition of the program, Cadmus recommends some general action items:

- Develop a fully defined initiative, including measureable goals, specific activities, and staff responsibilities.
- Update program handbooks and marketing materials to reflect these clearly defined boundaries, responsibilities, and objectives.
- Develop or update educational and technical materials used for events, workshops, and walkthroughs to reflect a more integrated corporate branding of the program activities.

### ***Evaluability and Tracking***

Based on results of the evaluation, Cadmus determined that program processes and outcomes need better tracking. In addition, more formal tracking would enable IPC to understand how well the program is meeting its goals, while gauging customer satisfaction, customer education, and technical assistance needs.

To implement a more consistent approach to tracking program participation, Cadmus recommends a few areas for improvements:

- For events and workshops, ask participants to provide complete contact information so that follow up can be conducted.
- Establish a more formalized protocol for reporting customer walkthroughs and results.
- Use the new database system (currently under development) to enable tracking of initiative events, workshops, and walkthroughs.

### ***Feedback Mechanisms***

While informal feedback is gathered by staff and customer representatives during outreach events, workshops, and walkthroughs, IPC does not have a formalized system for documenting feedback, assessing program effectiveness, and planning future services. Gathering more representative and consistent feedback through evaluation forms at the time of service and periodic follow-up surveys would inform evaluation of initiative performance, customer perceptions and needs, and potential new markets.

A more formal feedback approach would include some of these elements:

- Methods to gather participant feedback from outreach events, technical workshops, and walkthroughs. Easy-to-fill-out forms could be provided at events and walkthroughs, and providers of the education services could emphasize their importance and confidentiality; they could also allow time for participants to complete the forms at the end of training sessions.
- Periodic surveys of participating and nonparticipating customers could provide a bigger picture of educational services, including how well they are progressing over time and what changes will keep them valuable to customers.

## Chapter 1: Introduction

This report provides findings and recommendations specific to the Commercial Education Initiative (Education Initiative), a program that provides educational and technical outreach to IPC's commercial customers. The Education Initiative was launched in 2008 to encourage participation in IPC's CII energy-efficiency programs; it supports the educational and technical needs of the programs while enhancing customer awareness of energy efficiency. Technical and educational services support Easy Upgrades, Irrigation Efficiency Rewards, Building Efficiency, and Custom Efficiency programs at IPC. While IPC supports other educational activities in the CII sector, this report focuses on just those activities overseen by a program specialist responsible for developing technical materials; conducting training for commercial customers, trade allies, and other interested parties; and providing on-site technical assistance to commercial customers.

### Commercial Education Initiative Process Evaluation Objectives

The purposes of this process evaluation are to (1) document and analyze how the program works in practice, and (2) ascertain important influences on program operation and achievements. The objectives for this evaluation are as follows:

- Document the program history, components, and processes;
- Compare key program elements with similar, exemplary programs elsewhere (i.e., best practices comparison);
- Gather and review primary data from IPC staff, review secondary program information, and report on findings; and
- Provide conclusions and actionable recommendations.

### Methods and Sources of Information

Specific data collection and analysis methods will be discussed within relevant sections. Key sources of information used for this process evaluation include:

- Interviews and correspondence with the program specialist and other staff at IPC;
- The current and planned program databases;
- The program handbook and other educational materials; and
- IPC's organizational chart and the DSM 2009 Annual Program Report.

### Report Organization

Following this introductory chapter, the report is organized into the following chapters:

- Chapter 2: Initiative Description and Process
- Chapter 3: Assessment of Initiative Components
- Chapter 4: Best Practices Review
- Chapter 5: Conclusions and Recommendations

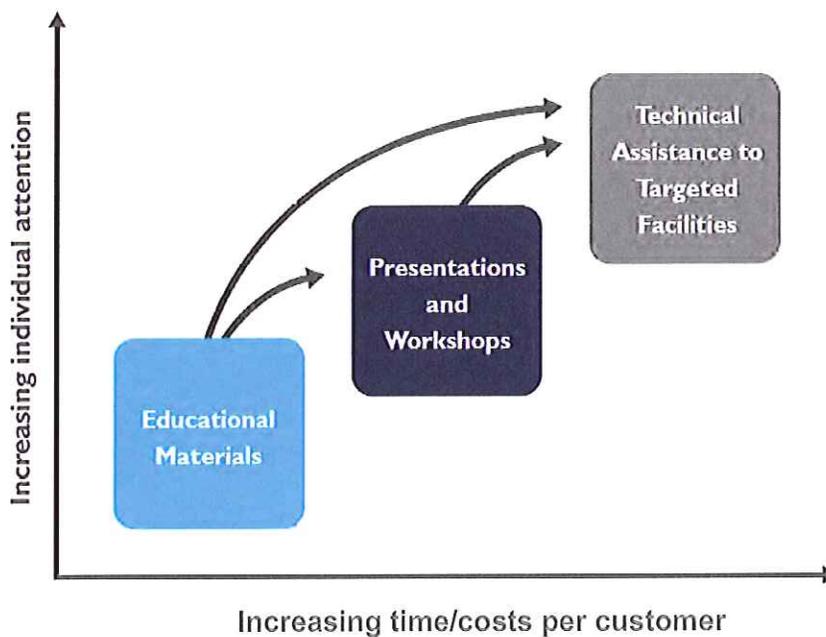
## Chapter 2: Initiative Description and Process

### Introduction

The Education Initiative goal is to provide technical and educational support to IPC's commercial customers through a three-pronged approach that includes providing (1) technical educational materials, (2) workshops, and (3) technical assistance to targeted facilities. These activities may be used together or may operate independently. Figure 1 ranks these activities from the least targeted to most targeted and by individualized technical assistance. Figure 1 also suggests that as educational strategies become more individualized, they also are likely to cost more and require more time on a per customer basis.

**Figure 1. Education Initiative Components**

### Commercial Education Initiative



Educational materials provide information and guidelines about specific energy-efficiency equipment. Although there is no official Web page for the initiative, informational resources—designed to help commercial customers manage energy use—are available on several of IPC's commercial Web pages.

The second activity of the Education Initiative is the delivery of commercial and industrial training workshops. Workshops range from specialized technical training for industry groups to general information about energy efficiency for potential customers. IPC sometimes teams with other partners, such as the Northwest Energy Efficiency Alliance (NEEA) and the Building Operators and Managers Association (BOMA), to market and deliver these trainings.

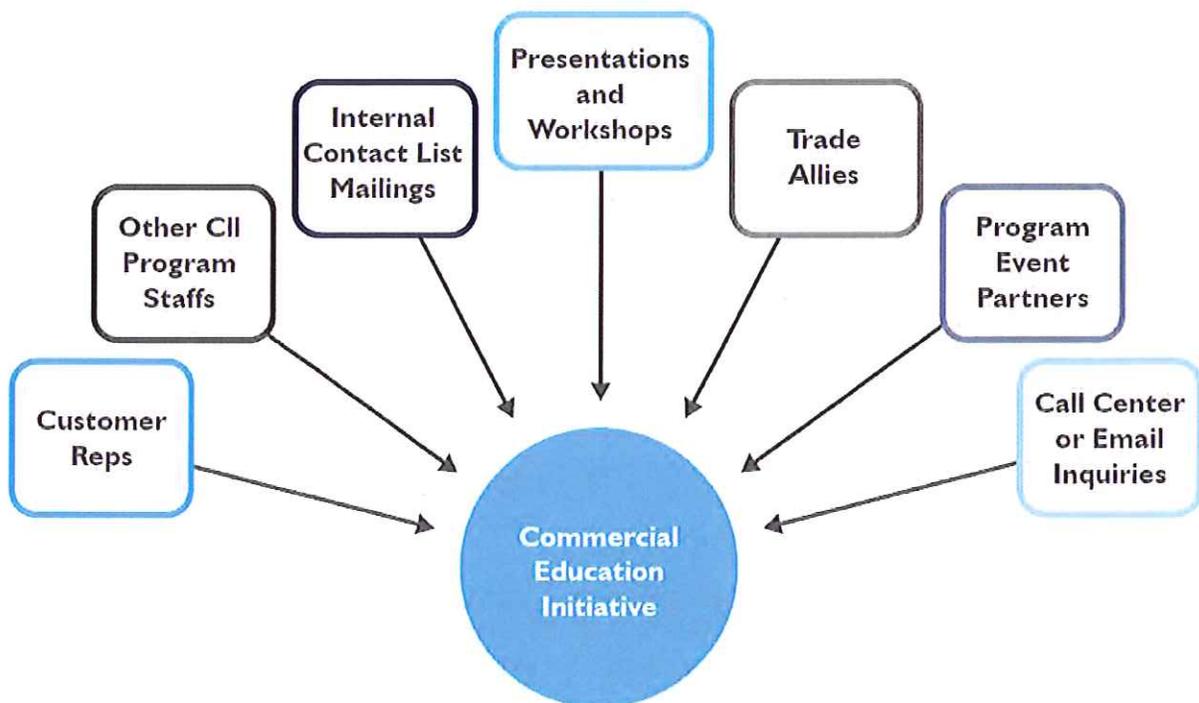
According to the program specialist, educational workshops are a place for participants to exchange technical ideas and gain awareness of the additional services available through the Education Initiative. IPC may identify customers at these workshops who may benefit from the on-site technical assistance services provided by the Education Initiative offers. Some participants may request more assistance at the time of the workshop, while others may contact IPC sometime after the workshop.

Expert technical assistance is the third prong of the Education Initiative. This service involves working one-on-one with CII customers to assess energy-efficiency opportunities at their buildings and facilities and to encourage their participation in IPC energy-efficiency programs.

## Education Initiative Processes

A full-time IPC program specialist oversees the Education Initiative, coordinating with IPC central and field staff, trade allies, and other partners, such as regional and national efficiency organizations. As shown in Figure 2, program participants, which can include IPC customers as well as trade allies and other partners, can access the initiative's resources through many and various channels.

**Figure 2. Paths to Participation in the Education Initiative**



The program specialist's time is divided among the three initiative activities. The smallest portion of his time is spent developing the technical educational materials that support all aspects of the Education Initiative. He may coordinate with IPC's corporate communications department to develop these educational materials.

The program specialist also devotes time to delivering technical workshops and presentations to commercial customers, trade allies, and other interested parties. Workshops are advertised and delivered throughout IPC's service territory, using customer contact lists and with assistance from industry partners. For example, IPC worked with the BOMA to deliver a presentation to building owners on turning building efficiency into a winning financial proposition. The program specialist coordinates with other organizations to conduct the presentations and workshops for commercial customers. IPC coordinates with NEEA to lead industrial training sessions within IPC's territory.

IPC markets and promotes training workshops with the help of its training partners. Program specialists may send workshop notifications to customers (using the customer database); however, many of the customers involved in custom projects may have also heard about IPC workshops through word-of-mouth (from customer representatives or trade allies). Industry partners, such as BOMA, often advertise an IPC training event.

The Education Initiative program specialist reported that he currently spends the large majority of his time providing one-on-one technical assistance to small and medium sized commercial customers, particularly those that are current or potential customers for IPC's Easy Upgrades and Building Efficiency programs. He noted that technical assistance is especially important for these two CII programs because they do not have dedicated field staff like IPC's Custom Efficiency and Irrigation Efficiency Rewards programs. Customer representatives (reps) and trade allies often identify customers who need technical assistance. The program specialist commented that customer reps and trade allies try to refer customers who are likely to follow through with an energy-efficiency project. IPC customers may also request technical assistance directly.

## Chapter 3: Assessment of Initiative Components

### Purpose

This chapter assesses various aspects of the design and delivery of the three components included in the Education Initiative:

- Development of technical and educational materials,
- Delivery of presentations and workshops, and
- On-site individual technical assistance.

### Methods

We used several methods to assess the components listed above, including:

- Discussions with evaluation staff.
- Interviews and correspondence with the Education Initiative program specialist and commercial energy-efficiency program leader (the interview discussion guide is included in Appendix A).
- Review of secondary information, such as educational materials and the initiative handbook.

### Findings

#### Development of Technical and Educational Materials

The program specialist provided us with examples of the education materials used in the Education Initiative, including:

- An energy-efficiency brochure specifically for restaurants, developed in coordination with corporate communications.
- Specification sheets on various efficiency measures, such as economizers, air filter maintenance, and sensors.
- Tools and references on the Website, including an energy smart library, business energy benchmark analysis, and links to other energy-efficiency Websites.
- A checklist for evaluating potential efficiency improvements (currently in development).

In addition to these materials, the program specialist reported that he developed a letter for customers to help ensure a successful retrofit experience through the Easy Upgrades program. The letter, developed in response to feedback from Easy Upgrades program participants, gives guidance on topics such as choosing and contracting with a good contractor and properly disposing of waste products. Along these lines, the program specialist emphasized that important aspects of his job are to manage customer expectations about participating in IPC's energy-efficiency programs and helping ensure that customers are satisfied with their program experiences.

## **Cadmus Review of Education Materials**

We reviewed the educational materials from a marketing perspective and found that they display strong corporate branding. All materials have corporate logos prominently placed, and all directed readers to IPC's program incentive options. Educational materials contain practical information and are tailored to a specific topic area. For example, the specification sheet on filter changing describes why this is necessary in clear and convincing language. The sheet is detailed yet concise, and cites reputable sources such as the U.S. Department of Energy. The restaurant brochure describes the high value proposition of energy-efficiency retrofits for a restaurant owner (e.g., cost savings per year).

While our review revealed that most materials are well designed, complete, and accurate, some items, such as the program handbook and walkthrough checklist, still need to be completed, and at least one document directed the reader to a Web page that is no longer functional.<sup>1</sup>

The program specialist also reported that the use and usefulness of some educational tools are uncertain. He pointed out that 5,000 of the restaurant brochures were distributed throughout IPC's service territory, but that effort only resulted in two responses. He also said that the IPC Website provides the Business Energy Benchmarking tool,<sup>2</sup> but that customer use of this tool has been limited. He added that informal feedback suggested that customers view energy efficiency as a low priority due to a lack of time.

## **Delivery of Presentations and Training Workshops**

This section discusses several topics that are central to providing meaningful training opportunities to commercial customers, including identifying target markets and workshop content, coordinating with other educational services at IPC, and collecting feedback about training received and future training needs.

### **Identifying Target Markets for Training Opportunities**

The program specialist reported that IPC initially tried grouping its customers for training according to four SIC codes:

1. Health Care
2. Hotels
3. Groceries
4. Restaurants

However, they found that using SIC codes did not always produce clear results for targeting customers. For example, a chiropractor would have a health care SIC code, but may have little potential savings if the practice is in a single family home rezoned for commercial activity. In contrast, a large hospital (also categorized under the health care SIC code) presents much greater opportunities for efficiency.

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<sup>1</sup> The Economizer Spec Sheet.

<sup>2</sup> <http://www.idahopower.com/EnergyEfficiency/Business/Tips/energyBenchmark.cfm>

To identify target markets for training delivery, IPC has found it most useful to classify customers by building age and size. While this approach pinpoints energy saving potential, it loses the power to attract participants based on their identification and allegiance to a common businesses and peer groups; NEEA and others have found these factors to be very useful to creating interest in, and normative pressure for, energy-efficiency activities.

### Training and Presentation Content

Technical workshop content is developed through a combination of proactive discussions with customers, customer feedback through other channels, and requests from industry partners. The Education Initiative program specialist normally arranges training content for a specific sector based on advanced discussions with the target audience. Rather than deliver general presentations about energy efficiency, IPC has found that customers prefer workshops about specific topics addressing technical issues.

Customer feedback may be received by IPC representatives working directly in the field with customers or involved in community outreach efforts. Partners, like NEEA, BOMA, or the International Building Operators Association (IBOA), will often request specific training for their members. IPC also targets specific audience needs for technical training when there are program changes (such as for trade allies).

Cadmus reviewed two Microsoft PowerPoint® slide decks used for IPC workshops. One of the slide decks presented technical information about HVAC systems, and another presented guidelines for building walkthroughs and included a handout. Overall, the presentations appeared informative and contained relevant technical information, formulas, and equipment schematics (based on our engineering review). The formats also were generally good, and had the corporate logo on each slide; however, we did find some inconsistencies in text and formatting.

### Other Educational Outreach Events

IPC conducts a variety of additional outreach events throughout the year to inform and educate CII customers and other stakeholders about technical topics related to IPC's commercial energy-efficiency programs. These events may or may not be coordinated through the Education Initiative. While the reach of these activities appears to be wide, the potential lack of central coordination could create challenges with scheduling and overlapping choices for target audiences.

A small sample of these events (trainings and general outreach) is listed in Table 1.

**Table 1. Examples of CII Field Events in 2010**

Activity Name	City	Target Audience
USGBC Meeting	Boise	Trade Ally
Energy Efficiency of Chillers and Chilled Water Systems	Nampa	Commercial
Ag Expo – Eastern Idaho	Blackfoot	Other
VFD Training	Boise	Commercial
Field Measurements for Industrial Pump Systems	Pocatello	Commercial

### **Training Results and Feedback**

The program specialist noted that IPC may be experiencing market fatigue with training and outreach events. The evidence of this fatigue is that staff may spend many hours preparing for a workshop that only a few participants attend. In addition, the specialist said that the customers they interact with are better informed about energy efficiency and that identifying and reaching new audiences can be challenging.

In an effort to reach new participants, IPC has begun to reach out to audiences considered nontraditional or nonconventional, such as smaller communities, organizations, and environmental groups. The program specialist reported that this approach has proven successful for identifying new customers and potential new opportunities for energy efficiency.

The program specialist reported that IPC does not formally collect feedback during or following outreach and training events; thus IPC is missing an opportunity to identify reasons behind low turnout as well as other topics, such as satisfaction with the training provided and future training needs/requests. In addition, IPC has not conducted a larger assessment among initiative participants and nonparticipants to better understand customer training needs.

### **Technical Assistance to Targeted Facilities**

This section assesses elements of the on-site technical assistance that comprises a large part of the services offered through the Education Initiative, including the roles of those involved and steps of the walkthrough.

### **Walkthrough Roles and Requirements**

The program specialist reported that his role is to provide expert technical assistance (through walkthroughs) to identify energy saving opportunities; this type of technical assistance has been implemented only in the past couple of years. Although the program specialist normally conducts the walkthroughs, sometimes the customer representative and contractor may participate as well. The specialist believes the walkthroughs provide a valuable service to the customer, and also trains the customer representative to identify energy-efficiency opportunities and solutions at customer facilities.

The customer representatives are expected to reach out to each of their 5,000 commercial customers and support the Education Initiative. With a target of five customers a day, their interactions may be brief. The customer representatives often identify customers who may have more pressing needs (and may therefore be more likely to follow through on walkthrough recommendations). These proactive customers are then referred to the Education Initiative program specialist for further assistance, and a walkthrough may be scheduled with the customer.

Contractors help to promote the program and encourage participation in IPC's various commercial programs. Contractors may accompany the program specialist on a walkthrough if they have an existing relationship with the customer. Otherwise, the program specialist asks the contractor to have the end customer contact IPC and request a walkthrough without the contractor present. The program specialist explained that this policy was enforced to promote objectivity and avoid the appearance of contractor favoritism. Often, conversations between the program specialist and customer are more open and candid without the presence of the contractor.

The program specialist reported that walkthroughs are time and staff intensive—sometimes requiring five or more customer interactions from initiation to program participation. Thus, walkthroughs are not actively promoted and are provided only to select customers. Audits are then performed for customers who are most likely to follow through and become program participants.

Walkthroughs are conducted for these reasons:

- Customer complaints about high electric bills.<sup>3</sup>
- Customers who are aware of the program but want more information about applying the program to their particular facility.<sup>4</sup>
- Requests from trade allies regarding customer concerns.
- Requests from customer representatives with a concern regarding a customer's facility.<sup>5</sup>
- Customers who are looking for independent validation of a project already proposed by a contractor.

### Walkthrough Process

A walkthrough includes the following steps:

1. Interview with the facility owner to get background information on the building and to better understand concerns. Questions seek to clarify, among other things, whether the customer participated in past programs or if the programs were factored into the building construction.<sup>6</sup>
2. General inspection of the building exterior, equipment, and representative spaces. The program specialist does not bring diagnostic equipment on the site visit (this is later provided by a contractor). If the specialist notices that a lighting project was recently completed, he avoids discussing lighting.
3. Identification of potential energy-efficiency benefits at the facility.
4. Provide recommendations considering building occupancy, equipment, type of business, and culture. Recommendations are targeted for the highest return and best payback.<sup>7</sup>

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<sup>3</sup> In these situations, the customer representative attends the walkthrough since their responsibilities include evaluating the customer's billing history and helping customers with other issues. The customer representative also has a positive established relationship with the customer.

<sup>4</sup> With so many measure incentive offerings, many IPC customers do not have time or interest to research applicable measures for their equipment or facility.

<sup>5</sup> Customer representatives are responsible for handling most customer concerns, and only escalate to the program specialist when appropriate.

<sup>6</sup> The program specialist noticed that some buildings that had gone through a program still have high consumption. The specialist identified a variety of reasons for this, ranging from occupancy to operations, and is planning to create a follow up letter to provide guidance on energy efficiency after project completion.

<sup>7</sup> The program specialist once had a "green" customer with the habit of turning off all the lights every night. In this case, he would not recommend lighting controls because the customer would not benefit.

Occasionally, the program specialist gets requests from customers with gas heating. Those customers heard that IPC offers walkthroughs and want to discuss gas options since the local gas utilities have few demand-side management resources. IPC is an all electric utility, so the program specialist focuses the discussion on electric measures during the visit.

### **Walkthrough Results and Effectiveness**

Although customer feedback is not formally logged or collected during walkthroughs, the program specialist reported the following observations:

- Customer representatives say that customers are satisfied with the walkthroughs, find value in the audit, and often follow through with recommendations (and become program participants).
- Customers are not aware that there is a formal name for the Education Initiative and may have difficulty associating activities with the initiative.
- Walkthroughs have enabled customer representatives to better assist customers, identify potential energy-efficiency issues at customer facilities, and suggest solutions to technical issues.
- Walkthroughs are an effective means of assisting controls contractors. The program specialist reported (based on an informal analysis) that more projects have been completed with controls contractors who receive frequent visits from the program specialist. The program specialist reported that the success of walkthroughs is not entirely due to the technical assistance, but also to the fact that customers receiving the service are also more likely to execute a project.

IPC staff have discussed the possibility of offering an official building walkthrough service. However, there is some debate on whether requirements such as a deposit<sup>8</sup> are needed to ensure customers have sufficient interest. The program specialist reported that other organizations in the community currently offer building walkthroughs, and therefore IPC works with the local business development center to train students to provide this service.

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<sup>8</sup> The deposit would be applied towards the cost of an efficiency project suggested during the walkthrough.

## Chapter 4: Best Practices Review

This best practices review compares the Education Initiative with similar and exemplary programs in the industry. This analysis provides a framework and set of criteria IPC can use to gauge its practices.

### Methods

To complete this analysis, we relied on the Energy Efficiency Best Practices Project.<sup>9</sup> This project is the result of a comprehensive study, publicly available online, identifying excellent practices among nationally-recognized energy-efficiency programs throughout the United States. From the study, we identified 10 best practices most applicable to IPC's Education Initiative. Although there were many exemplary programs with technical training components in the best practice study, we relied on data available from publicly available evaluation reports<sup>10</sup> to compare with information gathered from correspondence with IPC staff members and program documents provided by the Education Initiative program specialist.

Cadmus selected these three programs for the best practice review:

- The 2002 CA Statewide Education, Training, and Services Program, implemented by PG&E, SCE, SCG, and SDG&E:
  - Data source: Evaluation of the 2002 Statewide Education, Training, and Services Program Final Report, KEMA-XENERGY, December 16, 2003.
- The Power Smart Partners Program, implemented by BC Hydro:
  - Data source: Revenue Requirement Application 2004/05 and 2005/06, Volume 2, Appendix N.
- BetterBricks Operations Initiative, implemented by NEEA:
  - Data source: BetterBricks Building Operations Initiative Market Progress Evaluation Report #2, TechMarket Works.

### Findings

We assigned the best practice comparison programs a score thereof 0, +, or ++ in each best practice category, based on its perceived level of participation within that category. We determined participation levels based on a review of available literature.

The best practices comparison is summarized in

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<sup>9</sup> Best Practices Benchmarking for Energy Efficiency Programs: <http://www.eebestpractices.com/index.asp>. This study is managed by Pacific Gas and Electric Company under the auspices of the California Public Utility Commission in association with the California Energy Commission, San Diego Gas and Electric, Southern California Edison, and Southern California Gas Company.

<sup>10</sup> Best Practice Program Area Reports, available at: <http://www.eebestpractices.com/index.asp>.

Table 2. The symbols in

Table 2 indicate the extent to which the best practice appears to have been implemented for each program. The following is the symbol key:

0	Best practice not found in data sources
+	Somewhat implements best practice
++	Strongly implements best practice

The Education Initiative is currently practicing seven of 10 best practices considered in this study. IPC's initiative scores high in the areas of program design, project management, curriculum development, and program implementation. Leveraging market actors to help recruit participants and using technical experts to develop training content is a common practice for IPC's Education Initiative, and is also a best practice identified in the comparison programs.

The findings of this review suggest two areas for improvement:

1. Reporting and tracking of activities and success indicators; and
2. Evaluating measure behavior change targeted by the program.

Reporting and tracking activities and gathering customer feedback is important for evaluating program effectiveness. However, IPC is not currently documenting the program performance of its Education Initiative. According to the Education Initiative program specialist, IPC is taking actions that will enable collection of participant feedback. A new tracking database is in development that may enable this task.

**Table 2. Best Practices Comparison**

	Commercial Education Initiative	CA Statewide	BC Hydro	Better Bricks
<b>Program Theory and Design</b>				
The program has researched the market need for various levels of training and has designed a course to address knowledge gaps.	++	+	+	++
<b>Program Management: Project Management</b>				
The program has an established network of local trainers and relies on this network rather than national experts to deliver training.	++	++	++	++
<b>Program Management: Reporting and Tracking</b>				
All of the program data requirements were well defined early in the program development process and are being tracked. The program is able to accurately report program activities and success indicators.	0	++	+	+
The need for accurate and timely attendee tracking data has been well-communicated to program sponsors and training hosts and accurate data is being provided to them in a timely manner.	0	+	0	0
<b>Curriculum Development and Content Delivery</b>				
The program provides information that is current, from a credible source, and that demonstrates tangible benefits to the attendee and/or their company	++	++	++	++
The program uses technical experts to develop the content of technical training courses.	++	++	++	++
<b>Program Implementation: Marketing and Outreach</b>				
The program uses market segmentation to identify the target audience, and tailors the marketing message to the needs of that audience.	+	+	+	+
The program marketing messages clearly communicate the training benefits in tangible terms that are valued by the prospective trainee. Marketing messages are personalized where feasible. Sf—a	++	+	++	++
<b>Program Implementation: Participation Process</b>				
The program uses key market actors—trade allies, trade associations, and/or local utility contacts—to recruit participants and disseminate information about the training opportunity.	++	++	0	+
<b>Program Evaluation</b>				
Evaluation efforts measure behavior change as a function of the specific behaviors targeted by the program, using questions that address the behavior as precisely as possible.	0	++	++	++

## Chapter 5: Conclusions and Recommendations

Based on our discussions with the program specialist and his manager, and on our review of program materials, the Education Initiative is providing valuable educational services to commercial customers. Our analysis is based on limited information about the initiative and from commercial customers. The following conclusions and recommendations identify some specific areas that could improve the program identity, evaluability and tracking, and feedback mechanisms.

### Program Identity

IPC provides many educational and technical services to its commercial customers, including outreach events, workshops, individualized technical assistance, and technical materials. These resources are provided to help customers manage energy consumption, either through participation in IPC programs or through their own efforts. However, based on our evaluation, the components of the program need better definition and integration.

#### Recommendations

- Develop a fully defined initiative, including measureable goals, specific activities, and staff responsibilities. Strategize internally with key stakeholders to reach consensus on what design best serves customers needs and encourages conservation program participation.
- Update program handbooks and marketing materials to reflect these clearly defined boundaries, responsibilities, and objectives.
- Develop or update all educational and technical materials used for educational events, workshops, and walkthroughs to reflect a more integrated corporate branding of the Education Initiative activities.

### Evaluability and Tracking

Although IPC staff provided good anecdotal information about the design, delivery, and implementation of the Education Initiative goals, program processes and outcomes need better tracking. Without such tracking, it is not possible to provide a thorough assessment of the program and how well it is meeting its goals, especially its goal to increase participation in other IPC energy-efficiency programs. In addition, more formal tracking would enable IPC to gauge customer satisfaction and customer education and technical assistance needs. The following recommendations suggest how IPC might implement a more consistent approach to tracking and documenting program participation.

#### Recommendations

- For events and workshops, ask participants to provide complete contact information so that follow-up can be conducted.
- Establish a more formalized protocol for reporting customer walkthroughs and results.
- Use the new database system to enable tracking of initiative events, workshops, and walkthroughs. Tracking would include identifiers, cross-searchable throughout the DSM

database, such as facility, contractor, event, and participant name. For example, a participant who received a walkthrough would show up in the walkthrough list. If that customer subsequently participates in Easy Upgrades, then the database system would link the two events.

## Feedback Mechanisms

While informal feedback is gathered by staff and customer representatives during outreach events, workshops, and walkthroughs, IPC does not have a formalized system for documenting feedback, assessing program effectiveness, and planning future services. Gathering more representative and consistent feedback through evaluation forms at the time of service, and periodic follow-up surveys, would evaluate initiative performance, customer perceptions and needs, and potential new markets.

### Recommendations

- Consider developing methods to gather participant feedback from outreach events, technical workshops, and walkthroughs. Easy to fill out forms could be provided at events and walkthroughs, and providers of the education services could emphasize their importance and confidentiality; they could also allow time for participants to complete the forms. Questions could address topics such as satisfaction with the services, suggestions for improvements, intention to take efficiency actions, and best method of contact.
- In addition, periodic surveys of participating and nonparticipating customers could provide a bigger picture of educational services, including how well they are progressing over time and what changes will keep them valuable to customers.

## Appendix A. Program Specialist Interview Guide

Hi, thanks for speaking with me today. As you know, Cadmus is working with Idaho Power to assess its commercial programs. One of the programs we are responsible for evaluating is the Education Initiative, and that's what I'd like to talk with you about today.

### Program Overview

1. First, as you may know, we're trying to get a clear picture of the Education Initiative and how it works. Could you please describe your understanding of IPC's Education Initiative?
2. What would you say are the key goals of the education initiative?
3. What specific activities do you provide for the CEI? (Probe: do your activities comprise the major part of the initiative?).
4. Which Idaho Power commercial programs and people do you work with to carry out your activities?
5. How do you work with corporate communications to deliver the program?
6. Do you work with any outside contractors to deliver education and training? Which ones?
7. Do some commercial programs require more technical assistance than others? Which ones? Why?
8. At this point, how well is the initiative able to meet customer demand?

The next several questions relate to the initiative's design and marketing.

### Program Design and Marketing

1. I want to ask you about the various steps in the process you go through to plan and deliver your services. The program handbook lists four steps (read)—do these steps generally reflect how the program operates? (If not, correct). As we go through each one, could you tell me more about what's involved.
  - a. Identify education need through talking to customers and market research (what happens in this step? Probe: any segmentation?).
  - b. Create generic training outline (what happens in this step?).
  - c. Refine materials for different audiences (what happens in this step?).
  - d. Test delivery of information (what happens in this step?).
2. How do you prioritize outreach efforts?
3. How are program materials tailored for different audiences? You sent us a marketing plan. Can you tell me how that plan relates to the activities in the Education Initiative?

Now I will ask you more specifically about the site visits.

## Site Visits

1. What are all the ways you become aware of the need to conduct a site visit?
2. What are the most common reasons you are asked to go on a site visit?
3. Under what circumstances do customer reps go on the site visits?
4. Do you see part of your job as training customer reps? If so, what's involved with that training?

Now let's discuss the services you provide on your site visits.

5. How do customers find out about your technical assistance services?
  - a. Who else is usually on-site when you visit?
  - b. What happens during the site visit walkthrough from start to finish?
    - i. What data are collected during site visit? (such as customer data, customer requests, or interests in emerging technologies).
  - c. As part of your site visits, do you talk with customers about how to pick a contractor or manage an energy-efficiency project?
  - d. What feedback do you get about site visits?

The next set of questions relates to the workshops and seminars you conduct.

## Training Participants

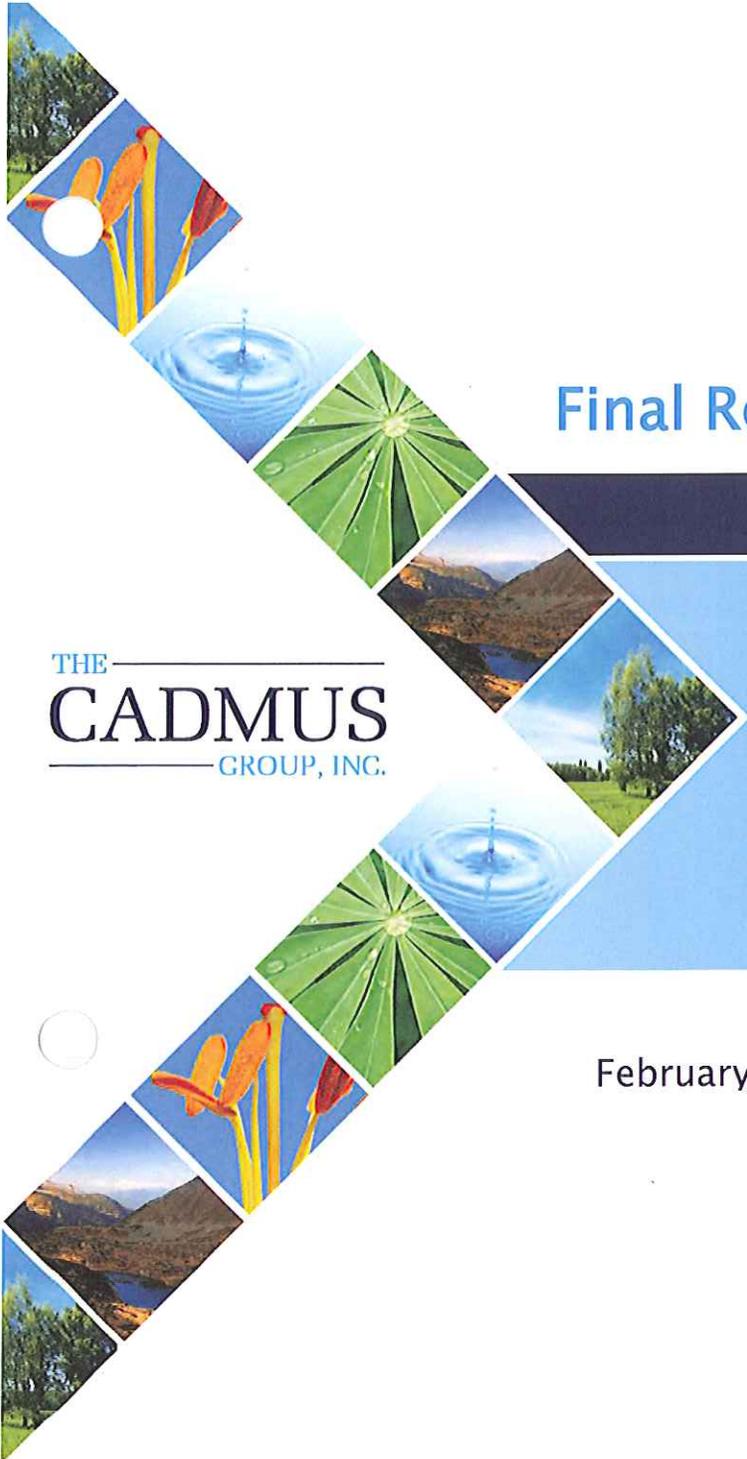
1. How do you determine what types of training to offer?
2. How do participants find out about the training opportunities?
3. Who attends the training sessions? (all the types of people).
4. What feedback do you get about the trainings?

## Closing Remarks

Now I have just a few wrap-up questions.

1. How do you work with contractors as part of this initiative?
2. What is your goal in working with contractors? (Probe: quality control).
3. How well do you feel the initiative is accomplishing its goals?
4. What would you say are the greatest strengths of the initiative?
5. What changes would you like to see with the program?
6. What do you think are the best ways to assess the benefits of this program?
7. Are there any other elements of the program that you would like to discuss?

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## Final Report

THE  
**CADMUS**  
GROUP, INC.

# Irrigation Efficiency Rewards Process Evaluation Findings and Recommendations

February 4, 2011

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## Executive Summary

The Irrigation Efficiency Rewards program encourages irrigation customers to improve the energy efficiency of their irrigation systems. Offered to all Idaho Power Company (IPC) customers on the irrigation rate schedule, the program provides incentives through two distinct options: custom and menu. The custom option provides incentives for large-scale irrigation improvements and component upgrades of existing systems, or for new, more efficient irrigation systems. The menu option provides rebates for small maintenance upgrades to customers who have installed eligible measures that reduce the energy use of their irrigation systems.

In 2010, IPC commissioned The Cadmus Group Inc. to conduct a process evaluation of its commercial, industrial, and irrigation (CI&I) energy-efficiency programs. The primary goals of the process evaluation are to inform IPC about how well individual programs are operating, and to help IPC better plan, integrate, implement, and evaluate its entire portfolio of CI&I energy-efficiency programs.

This assessment of the Irrigation Efficiency Rewards program is based on interviews with program staff, review of program materials, and a best practice comparison of similar, exemplary programs.

In this Executive Summary, we capture the key conclusions and recommendations from the process evaluation of Irrigation Efficiency Rewards.

## Conclusions and Recommendations

The Irrigation Efficiency Rewards program began in 2004 with the goal of promoting adoption of more energy-efficient irrigation systems in IPC's service territory. Agricultural representatives (Ag Reps) and IPC staff specialists assess irrigation customer system improvement opportunities and provide individual technical assistance as needed. Ag Reps also provide training and educational outreach through community events and workshops.

Overall, the results of IPC's Irrigation Efficiency Rewards program process evaluation show that it is a robust, ambitious, and leading edge irrigation program. It has strong relationships with customers and trade allies, as well as credibility and high demand.

### *Feedback Mechanisms*

Although we gathered good information about the design, operation, and implementation of the irrigation program from program staff (within the scope of this evaluation), future evaluations would benefit from gathering feedback from a wider set of program actors (e.g., customers, vendors, agricultural representatives). These efforts would produce a more multidimensional view of the program, adding to the validity of the process evaluation.

To collect these data, IPC may consider conducting surveys with participants, nonparticipants, trade allies, and any other partners (such as training partners). These surveys would provide ongoing data about program satisfaction, operations, areas to improve, and market trends. Surveys with customers would also provide IPC with data often used to inform impact evaluations.

### ***Program Database and Tracking***

While IPC's Irrigation Efficiency Rewards program has a well-organized system for data collection, processing, and verification, we found some program tracking processes in need of better documentation and greater transparency. Although a new database is in development (and may solve many of the program data tracking issues), the current system may create obstacles for performing an impact evaluation of the program.

To improve tracking processes, Cadmus recommends that IPC consider the following database features:

- Mechanisms to reduce key application errors and omissions (e.g., through targeted application reminders and informational hand-out sheets during training).
- Disaggregating measures and cost data in customer database entries.
- Creating a data management handbook that includes data definitions and data tracking and calculation guidance.

### ***Marketing and Outreach***

While IPC program staff and irrigation equipment dealers engage in marketing and outreach to promote program participation, the program's technical strengths may not be fully realized. In addition, while much excellent information is available on the program Website, some information appears to be missing or outdated, which could confuse customers.

To better promote technical strengths of the program, consider improvements in the follow areas:

- Expand outreach and assistance to capitalize on the technical strength of well-trained program staff, Ag Reps, and many equipment vendors.
- Provide additional support for carrying out pump testing and energy audits.
- Consider developing a more formalized trade ally network to support the program.
- Consider regular updates to program marketing and outreach materials to ensure consistency and to provide clear program contacts.

## Chapter 1: Introduction

This report provides findings, conclusions, and recommendations for Irrigation Efficiency Rewards, a program that offers all IPC customers on the irrigation rate schedule the opportunity to improve the energy efficiency of their irrigation systems. It provides incentives for large-scale irrigation improvements, component upgrades, and small maintenance upgrades. The program has two distinct options:

- The Menu Incentive provides rebates to irrigation customers for program-eligible measures within one year of purchase. Rebates are paid based on a per kWh amount saved, with some restrictions on the number of measures installed per acre over a three-year period.
- Under the Custom Incentive, rebates are offered to customers for installing new irrigation systems or upgrading their existing systems. Rebates are calculated based on a per kWh or kW amount saved above standard installations (or as compared to what was previously in place).

### Irrigation Efficiency Rewards Process Evaluation Objectives

This process evaluation examines how the Irrigation Efficiency Rewards operates in order to:

- Document its history, components, and processes;
- Identify its strengths and areas for improvements;
- Compare it to best industry practices for irrigation programs; and
- Provide conclusions and actionable recommendations.

### Methods and Sources of Information

Specific methods will be discussed within their relevant sections. Key information sources used for this process evaluation include:

- Interviews and correspondence with IPC's program specialist and agricultural engineer;
- The program handbook, organizational chart, and current databases;
- The program Website and other marketing materials; and
- The DSM 2009 Annual Report.

### Organization of This Report

Following this introductory chapter, the report is organized into the following chapters:

- Chapter 2: Program Description
- Chapter 3: Assessment of Program Components
- Chapter 4: Utility Irrigation Program Good Practices Review
- Chapter 5: Conclusions and Recommendations

## Chapter 2: Program Description

### Introduction

The Irrigation Efficiency Rewards program was launched in 2004. The program intends to promote adoption of more energy-efficient irrigation systems in IPC's service territory. Delivered through a network of Agricultural Representatives (Ag Reps) and other IPC irrigation specialists, the program offers customer rebates for repairs or replacement of irrigation components that improve the energy efficiency of systems. The program also offers incentives for efficiency improvements of extensive system upgrades and new systems. Outreach for the program is through workshops and community presentations, and individualized technical assistance is available to customers. IPC's irrigation program strives to educate irrigation customers on the energy, water, and cost saving benefits offered through program participation.

### Program Processes

We developed process flowcharts for the Irrigation Efficiency Rewards by reviewing the program handbook and existing program flowcharts and carrying out interviews with the program specialist and agricultural engineer. The process flowcharts provided in this section expand on those in the program handbook, and include marketing, program subtasks, and application processing steps. Separate process flowcharts are presented for the Menu and Custom Incentive options.

### Menu Incentive Option

Under the Menu Incentive option, only measures purchased within the past year are eligible for incentives. Based on information in the program brochure, the incentives are calculated on a per unit basis for eligible replacement parts and components; in some cases, incentives may be limited to 50 percent of the invoice cost or to two items per acre. The present Menu Incentive application lists 11 types of eligible sprinkler equipment components that will increase irrigation efficiency, such as nozzles with lower flow rates, pressure regulators, and wheel line hubs.

The steps for the Menu Incentive option, from marketing to incentive payment, are described below and shown in 0.

- **Marketing:** Customers may learn about the program through the IPC Ag Rep, an equipment dealer, irrigation workshops, agricultural shows and other events, or through the Website. In addition, a program brochure is mailed to all Idaho Power irrigation customers.
- **Project Installation:** Customers select measures from a pre-approved list and purchase and install them. As part of this process, customers obtain an itemized invoice from the equipment dealer which needs to be submitted with the application.
- **Application Submission:** Customers obtain an application from an Ag Rep, equipment dealer, interested community organizations,<sup>1</sup> or through the program Website. They

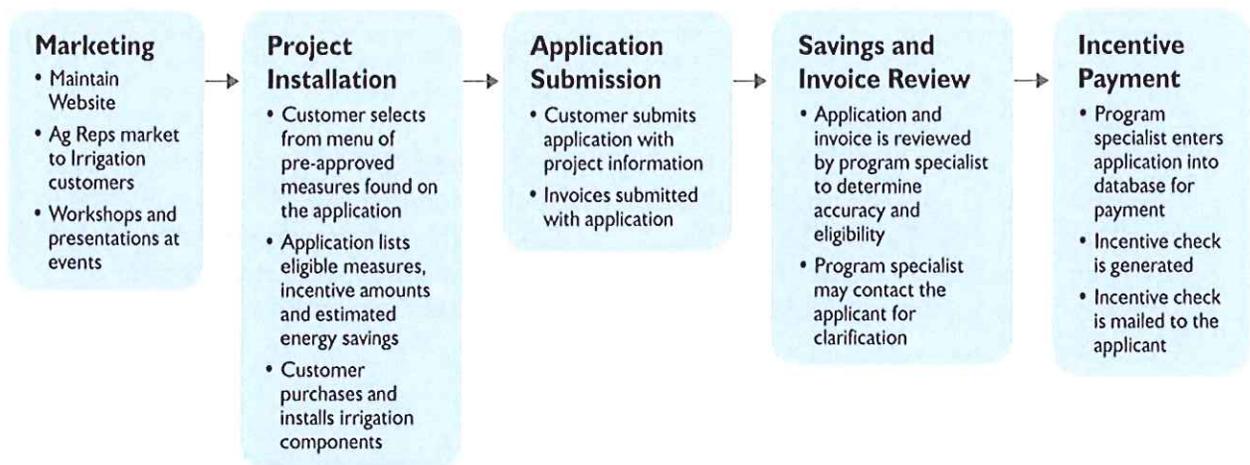
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<sup>1</sup> An example of an interested community organization is Idaho Soil & Water Conservation Commission.

complete the application, including the itemized invoice, a signed agreement that they have complied with various program conditions, and other documentation, and submit it by mail.

- **Savings and Invoice Review:** Program specialists review and verify that the applications are complete and contain information consistent with the invoice. If necessary, corrections are made to the applications before data are entered into the program database.
- **Incentive Payment:** Once data are entered into the database, an incentive payment is generated and mailed to the customer.

**Figure 1. Irrigation Efficiency Rewards Menu Incentives Option Process Flow Diagram**



### Custom Incentive Option

The Irrigation Efficiency Rewards program Custom option offers incentives for major retrofits of existing irrigation systems and for installing new systems. IPC's incentives for irrigation projects under this option are based on estimates of the annual reduction in energy use. For new systems, incentives start at \$0.25 per kWh saved above standard practice efficiency installations and may not exceed 10 percent of the total project cost. For existing systems, the incentive is the greater of \$0.25 per kWh or \$450 per kW and may not exceed 75 percent of the project costs. The steps for the Custom irrigation program process include:

- **Marketing:** Customers become aware of the program through the IPC Ag Rep, irrigation equipment dealers, irrigation workshops, agricultural shows and other events, through the Website, or from a program brochure mailed to IPC irrigation customers. Customers then contact the Ag Rep for more information about incentive details and project eligibility. Ag Reps may also provide customers with information about system design ideas and concepts, energy audits, or pump tests.
- **Submit Application/Sign Letter of Agreement:** Customers prepare and mail applications to their IPC Ag Rep. The application includes an itemized bid from the

customer's irrigation supplier along with other documentation, such as equipment specifications, system drawings, pump curve, and topographical and aerial maps.

Based on the application and supporting documentation, the Ag Rep reviews the system design and estimates the energy savings and incentives IPC will pay upon proof of the project's completion. The Ag Rep mails an approval letter and contract that includes savings and cost share estimates. Once the customer signs and returns the agreement, ordering equipment and installation of the project can begin.

- **Complete Project/Submit Invoices:** Upon project completion, customers submit invoices as proof of installation. If modifications to the original application have occurred, customers need to provide supporting documentation. For large or complex projects, the IPC's Ag Reps typically consult the agricultural engineer.
- **Process and Deliver Payment:** IPC's Ag Reps review the final application materials for accuracy before incentive payments are made. Project verification is carried out primarily through documentation review. However, IPC irrigation staff may review the customer billing history to compare before and after project energy use during the irrigation season. In cases where expected energy savings are not apparent, the Ag Rep may visit the customer to verify project installation.

The following optional steps may occur during the Custom Incentive process:

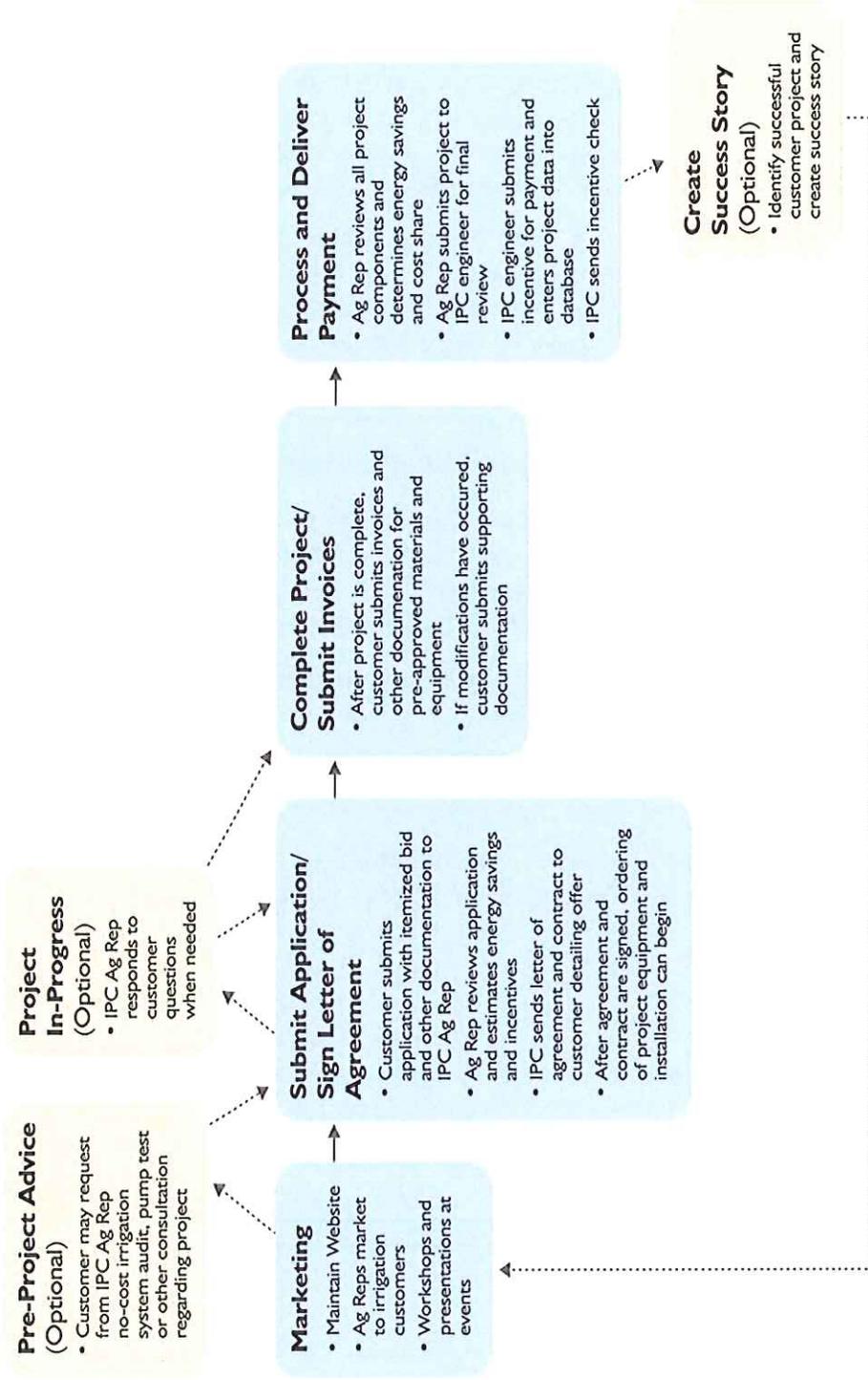
**Pre-Project Advice:** Eligible customers may receive a free irrigation system audit or pump test from the IPC Ag Rep. On request at this stage, other information is provided to customers, including savings opportunities. The Ag Rep may also assist customers by providing information on savings opportunities that could be addressed through program participation.

**Project-in-Progress:** Customers receive support by request, including advice on project measures and designs.

**Success Stories:** After projects are successfully installed, IPC may contact customers to document projects and create a "success story" for use in program promotion efforts.

**Error! Reference source not found.** illustrates the program flow for the Custom Incentive option. Blue boxes illustrate the key activities. Green boxes with dashed arrows identify additional steps that may occur.

Figure 2. Irrigation Efficiency Rewards Custom Incentives Option Process Flow Diagram



## Chapter 3: Assessment of Program Components

### Purpose

This chapter assesses the design and delivery of various components of the Irrigation Efficiency Rewards program. Program components discussed in this chapter include:

- Project application forms and processing
- Program tracking and database
- Marketing and outreach
- Technical assistance
- Program participation and customer feedback
- Quality assurance and quality control (QA/QC)

### Methods Used

We used several methods to assess the program components listed above, including:

- Feedback gathered during the project kick-off meeting and discussions with evaluation staff.
- Interviews and correspondence with the Irrigation Efficiency Rewards program specialist and the IPC agricultural engineer. Appendix A contains the interview guide used.
- Review of program documents and information, including marketing materials, the Website, program application forms, the contract, and an extract of the Menu and Custom program databases.

### Findings

#### Project Application Forms and Processing

##### Overall

IPC staff reported that the application process often allowed them to work proactively with customers to identify their needs, provide direction, and, in some cases, identify additional energy savings. They also said that while the application forms have been designed to be simple—just one page—the overall process, from customer submission to project payment, can take a significant amount of time. This is because it can take the customer a significant amount of time to complete the project and submit invoices.

##### Menu Incentive

The Menu Incentive application requires information about the type and quantity of measures purchased and associated costs. These applications are normally processed about two weeks after they are received. Columns are provided to calculate the total incentive. However, the program specialist reported that customers sometimes submit all the needed supporting documentation (e.g., invoices) but may not fill out the application. He indicated that completing the customer

applications currently takes about 20 percent of his time. Although he is still able to process the applications in a timely way, filling in missing data takes time away from other program tasks.

### **Custom Incentive**

The Custom Incentive application requires specific information that enables IPC staff to estimate energy savings resulting from new or upgraded systems and components. The application requires customers to provide details on their current irrigation situation and the design and location of the proposed irrigation project, whether retrofit or new.

Both the IPC program specialist and the agricultural engineer reported that they frequently need to talk with customers during the project approval process. At the beginning stages, customers may request additional guidance about the most effective changes for their irrigation systems. Continuing interactions may involve technical assistance and document verification before a contract can be put in place.

### **Program Tracking and Databases**

IPC is in the advanced stages of introducing a new database to integrate DSM planning, data tracking, and portfolio management. However, during this evaluation the database was not fully in place. Thus, Cadmus reviewed extracts from the current Menu and Custom Incentive databases to assess data management for IPC's irrigation program. This section describes the program's existing databases and calculation worksheets used for tracking program data and estimating potential program savings.

#### **Menu Incentive Database**

The Menu Incentive database stores the type and volume of measures eligible and rebated under this program. Each row in the database contains data for a single project; projects often contain multiple rebated products. The database captures information on the type, number of units, and total estimated costs of incentives provided. Additional information includes the date of purchase and specific attributes about service points identified in the application. Calculation-based fields in the Menu Incentive database are used to develop adjusted estimated savings and cost per unit, based on expected hours of operation.

#### **Custom Incentive Database**

Prior to final upload to the Custom option database, each Custom project is analyzed in a dedicated Microsoft Excel<sup>®</sup> workbook. The workbook contains a number of spreadsheets designed to collect, store, and estimate potential energy savings from the irrigation system replacement or upgrades. Each workbook captures data from application forms used in the preapproval and final stages of the project. The workbook is used to trigger an acceptance letter once expected savings and incentives are estimated.

A number of additional worksheets for estimating Custom program energy savings may be used less frequently. These include worksheets related to column friction loss, pod line calculations, lateral friction calculations, linear friction, multiple pump calculations, pivot friction, parallel pipe calculations, existing pump information, and VFD savings. Once a project has been completed and a payment determination made, selected fields from each workbook are entered into a single Custom database.

### *Usability and Evaluability Analysis*

Cadmus analyzed the program's Menu and Custom Incentive database extracts and project calculation sheets to assess their ability to provide useful information for program tracking and evaluation purposes. We assessed database clarity, completeness, and consistency.

Overall, our analysis showed that both databases contained essential information and that much of this information is clearly defined, comparable, and well-specified (such as payment dates, pump identification, customer contact information, measure life, and, in general, savings estimates). Thus, these data can be used to determine program totals across the options and to compare data between the two options.

As with most databases, we also found some ways to improve database usability.

- Although many column headings were self-explanatory, there were no descriptions included in the database spreadsheets to enable a third party to verify data without input from the database originator.
- Projects with multiple pump numbers and service points did not allow us to identify the number of measures or the energy savings associated with each location. Databases did not contain a unique customer number. Although databases contained pump identifications, SPIDs, and addresses, customers participating more than once could not be easily located. This may be due to customers having more than one entity name or spelling variations in the addresses.

In the next sections we note some areas in each database that may need attention; however, we did not discuss these issues with the program specialist and realize good explanations may exist for the situations we observed.

#### **Menu Incentive Database**

- The Menu Incentive database includes tax ID information and details from the application on the quantities and types of measures purchased after 2008. The database uses one row per project. No measure quantities are listed for 2008 projects (we understand these data are available).
- The database uses rows for annual summary totals, making it difficult for a third party to readily sort, review, and analyze the data.
- Three projects show incentives that appear to be errors because the amounts are greater than invoice amounts. Each instance is for a different set of measures and differences ranged from \$7 to \$2,708.
- The menu incentive application has 11 equipment incentives listed. All 11 incentives appear in the database, but only for projects with paid dates in 2009 or later.

#### **Custom Database**

- The Custom Incentive database includes four areas of savings that do not seem to represent any information on the type of measures installed. All savings are reported as totals by project, with each project presented as a row in the spreadsheet. While this information is captured in the dedicated Excel workbooks for each custom project, it is not represented in the program tracking database.

- The database includes columns for measure life, labor savings, water savings, and yield benefits. Because installations are not disaggregated by measures and because calculation formulas are not built into the program tracking database, entries are difficult to interpret.
- The Custom Incentive application requires user-supplied details on the proposed, modified, or new system. These details do not appear in the custom database.
- Two Custom Incentive projects appeared to have errors, with incentive amounts greater than cost.

## Marketing and Outreach

The Cadmus evaluation team assessed program marketing and outreach for clarity, consistency, and their potential appeal to irrigation customers. We included the following marketing and outreach materials in our review: the program Website and online materials; case studies; advertisements for the program; and training and technical assistance.

The IPC Website, which appears as the first listing when Idaho Power is Googled, provides a clear link to energy efficiency and another clear link to a general irrigation page<sup>2</sup> with an overview of available programs, tools, and tips. This general page enables customers to understand, at a glance, the various irrigation program options. Links are provided to both the Irrigation Efficiency Rewards program and the Irrigation Peak Rewards programs.

The Irrigation Efficiency Rewards page<sup>3</sup> contains links to detailed program documents; downloadable application forms; a letter of agreement; a list of Ag Reps by region; irrigation energy savings tips; and project success stories. The Website includes call-out boxes, graphics, and tabs that guide the user to select items of interest. A detailed brochure includes a step-by-step description about how to participate in the irrigation program. Visitors to the Website can also read many success stories about irrigation program projects. These stories highlight savings and other benefits resulting from participating in the irrigation program.

The advertising samples reviewed for the evaluation include Ag Weekly and the Buhl Herald. These advertisements provided general messaging about potential energy savings and incentives available for IPC's irrigation program. Although both documents direct potential participants to Web addresses for the Idaho Power Energy Center Website, the particular ads that were viewed did not have a direct Internet link to the Irrigation Efficiency Rewards Web page nor a direct phone number to call.

Cadmus also reviewed several presentations used in technical training for potential participants as well as equipment dealers. The presentations include information about types of irrigation systems, opportunities for program incentives, and other technical information. These presentations have a consistent style and format and provide information about other commercial programs. The one presentation included on the Website—Pumps & Variable Frequency Drives—is in a different style and appears to be outdated.

IPC regularly sponsors outreach and education events at venues such as agricultural and dairy shows; these events are often co-sponsored with other organizations such as the University of

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<sup>2</sup> <http://www.idahopower.com/EnergyEfficiency/Irrigation/default.cfm?tab=Irrigation>

<sup>3</sup> <http://www.idahopower.com/EnergyEfficiency/Irrigation/Programs/EfficiencyRewards/default.cfm>

Idaho Extension Service and the U.S. Department of Agriculture. IPC supports staff training and certification of Certified Irrigation Designers (CID) by the Irrigation Association, a nationally-recognized certification organization, so that staff is well qualified to talk about technical irrigation issues as well as program benefits and services.

Ag Reps also offer technical services to irrigation customers through a variety of venues, including one-on-one consultations and workshops. Ag Reps can also provide free irrigation audits and pump tests. On larger projects, customers may also receive technical assistance from IPC's agricultural engineer.

The program specialist also reported actively reaching out to irrigation equipment dealers with training and education so that they can help support for the program. Other services for equipment dealers include project design and application assistance. The program specialist also reported that some irrigation equipment dealers are CIDs, making these dealers strong partners in providing system audits, pump testing, and design services for efficiency projects.

### **Program Participation and Customer Feedback**

Overall, the Irrigation Efficiency Program has experienced continued high demand, with customers evidently being aware of the program ramping up and anticipating the opportunity to share equipment costs. IPC staff report program activity surged when the Menu Incentive option was introduced in the program's second year. They also report that Custom Incentive program activity has remained high due to customer trends toward installing improved irrigation systems (high pressure to low pressure) and replacing old equipment.

Through an informal process, IPC irrigation program staff keep tabs on repeat customer activity. Repeat customer projects have included repairs and upgrades, system replacements, and new installations. However, customers tend to move from the Menu Incentive to the Custom Incentive option and not the other way around. The program specialist thinks this is a logical progression from smaller scale projects served by the Menu Incentive option to larger-scale system improvements or installations served by the Custom Incentive option.

IPC irrigation staff gather informal feedback about the program from Ag Reps, customers, and irrigation dealers. This feedback indicates that customers are motivated to invest in automation and system improvements partly for water and energy saving benefits (including cost savings) and decreased labor costs, and partly for perceived improvements to property values.

Other types of feedback, which would allow IPC to assess customer satisfaction, barriers to participation, customer trends, freeridership, spillover, market transformation, and savings realization, is not being gathered in any systematic way. Market transformation, in particular, is something the irrigation program specialist would like to know more about, especially when customers submit multiple rebate requests through the Menu Incentive option.

### **Quality Assurance and Control**

For measures rebated under the Menu Incentive option, project savings and rebates are based on reviewing the application, an itemized invoice, and other required documentation; customers also sign a contract and attest they are satisfying certain conditions. However, since on-site verifications are limited to special circumstances, measures may not be installed in a timely way or not at the specific location identified.

For projects rebated under the Custom Incentive option, applications and supporting documentation, including an itemized bid, are reviewed before the project is approved. For this option, energy savings are estimated based on extensive calculations in various worksheets, rolled up in an Excel workbook, and then stored in the program database. We found the links between the worksheets and database hard to trace, a challenge that would need to be resolved if a third-party evaluator were charged with assessing savings. Staff report they verify savings through a review of pre- and post-project billing histories during the irrigation season to ensure that differences in consumption are evident when data is available at the time of project payment. If customer energy demand has not changed post-installation, on-site verification is triggered.

## Chapter 4: Utility Irrigation Program Best Practices Review

### Purpose

This review compares Irrigation Efficiency Rewards with similar and exemplary programs in the industry; it provides a framework and set of criteria IPC can use to gauge its practices.

### Methods

The Cadmus evaluation team, after an extensive search, could not find literature about best practices for irrigation efficiency programs at electric utilities. We then talked with several utility irrigation program experts, who identified practices they think are important for irrigation efficiency program success and who pointed us to exemplary programs that could be compared to Irrigation Efficiency Rewards.<sup>4</sup> We combined these two types of guidance for the discussion in this chapter.

Based on the expert advice we received, as well as our review of information about the recommended programs, we used the following criteria to compare irrigation efficiency programs:

- Presence of trained and experienced staff to provide technical assistance;
- Low or no-cost pump testing and audits;
- Direct, personal marketing and outreach;
- Promotion of irrigation management; and
- Use of trade allies to promote and deliver programs.

Again, based on expert advice, we included these programs in our comparative review with Irrigation Efficiency Rewards:

- Energy Solutions for Ag and Irrigation, PG&E
- Irrigation Energy Savers, Rocky Mountain Power
- Hardware Program, Water Management Program, Grant Count PUD
- Energy Management Solutions for Ag and Food Processing, SCE

### Findings

#### Overall

0 summarizes the comparison of irrigation efficiency programs for each of the best practices characteristics. The table uses a simple rating system to compare the programs, with 0 indicating

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<sup>4</sup> Interview with: Ricardo Amon, U.C. Davis Extension, formerly with the Ag Industrial Program of the CEC; Phil Degens, Energy Trust of Oregon; and Josaphine Tichel, PG&E.

no use of that best practice; one plus indicating limited use; and two plusses indicating full use of the practice. Overall, IPC's Irrigation Efficiency Rewards program implements all the best practices at some level and compares very well to the programs recommended to us. The program implements two of the five practices fully and three of the practices somewhat. The two fully implemented criteria are: having a trained and experienced staff to provide technical assistance and having sector-specific marketing and outreach. The findings are discussed in greater detail in the following sections on each best practice.

**Table 1. Best Practices Comparison of Energy Efficiency Irrigation Programs**

Best Practices	Irrigation Efficiency Rewards	Energy Solutions for Ag and Irrigation <sup>a</sup>	Irrigation Energy Savers <sup>b</sup>	Hardware Program, Water Management Program <sup>c</sup>	Energy Management Solutions for Ag and Food Processing <sup>d</sup>
	IPC	PG&E	Rocky Mountain Power	Grant County PUD	SCE
Trained and experienced staff provides technical assistance	++	+	++	+	++
Sector-specific marketing and outreach	++	0	++	+	+
Low or no-cost pump testing and audits	+	+	++	+	++
Promotion of irrigation management	+	0	0	++	0
Use of trade allies to promote and deliver programs	+	+	++	+	+

a <http://www.pge.com/includes/docs/pdfs/mybusiness/energysavingsrebates/incentivesbyindustry/agriculture/agPumping.pdf> and <http://www.pumpefficiency.org/>

b <http://www.rockymountainpower.net/bus/se/epi/idaho/agricultural/ipwd.html>

c <http://www.gcpud.org/customerService/energyServices/energyPrograms.html> and <http://www.gcpud.org/customerService/energyServices/farmIrrigationHardwareReplacement.html>

d <http://www.sce.com/business/ems/default.htm> and <http://www.sce.com/business/ems/agandfoodprocessing/default.htm>

**Trained and experience staff provides technical assistance.** Our experts reported that irrigation programs benefit strongly when program personnel are technically skilled in irrigation audits, design, and system testing and, in turn, inform and assist customers in these areas. This assistance helps customers identify savings for the various options they might pursue.

We rated three of the five programs in our review as fully implementing this best practice, including Irrigation Efficiency Rewards at IPC. IPC fully supports staff training to be certified irrigation design specialists and other types of relevant training. While IPC offers technical assistance through its internal staff, other programs, including the other two programs with two plusses for this practice, may contract out expert services. This finding suggests that both strategies can work equally well.

**Sector-specific marketing and outreach.** By leveraging existing events designed to appeal to the irrigation community, utilities can maximize educational outreach. Feedback from these events can be used to determine new markets and approaches for reaching potential customers. IPC includes this as an integral and important part of its marketing and outreach efforts for the irrigation program. The only other program rated as fully implementing this practice is Rocky Mountain Power's Irrigation Energy Savers.

**Low- or no-cost pump testing and audits.** Low- or no-cost pump testing and audits are commonly provided to irrigation program customers. Pump tests and audits help customers identify savings opportunities and can also serve as a crucial marketing tool to alert new customers to potential energy and cost savings available through utility programs. All utilities researched for this comparison offer pump testing and audits, with some implementing more fully than others. As with training and technical assistance, the methods of delivery may differ from one program to another, with some offering these services through internal staff and some through external contractors. While IPC's program is using this strategy in its program, we found it not quite as fully implemented as in two other programs (Irrigation Energy Savers and Energy Management Solutions for Ag and Food Products).

**Promotion of irrigation management.** Irrigation management strategies incorporate approaches for water and soil testing to reduce energy use during irrigation (for example, the Scientific Information Systems approach). This practice is fully used in Grant County PUD's program and by IPC; the three other programs are not using this best practice. Notably, this approach is not being used at Rocky Mountain Power, although this program is fully using the other four best practices.

Our experts highlighted the importance of this approach since it has a wider appeal than just reducing energy use, but it can, at the same time, increase energy savings. Broader irrigation management strategies reinforce the potential for capturing energy savings through regulation of water, and can encourage growers to use less water per unit of crop yield.

**Use of trade allies to promote and deliver program services.** Trade allies, such as irrigation equipment dealers, can provide a useful link between the utility and the end-user target market. Trade allies can promote, reinforce, and supply technical and program services through their relationships with customers; at the same time, an association with an irrigation program can provide trade allies with credibility and leads. At IPC, many equipment dealers are well-trained to provide customers with reliable guidance. While IPC's program does rely on these contractors, as do the programs at Grant County PUD, SCE, and PG&E, they are not leveraged as fully as in Rocky Mountain Power's program. Further integration of these trade allies to promote and deliver IPC's irrigation program will benefit all parties involved, especially customers.

## Chapter 5: Conclusions and Recommendations

Overall, the results of IPC's Irrigation Efficiency Rewards program process evaluation show that it is a robust, ambitious, and leading edge irrigation program. It has strong relationships with customers and trade allies, credibility, and high demand. The following conclusions and recommendations point to specific areas that could improve understanding of market actors (e.g., participating and nonparticipating customers, trade allies, Ag Reps), its evaluability, and its operations.

### Feedback Mechanisms

Although we gathered good information about the design, operation, and implementation of the irrigation program within the scope of this process evaluation, future evaluations would benefit from gathering feedback from a wider set of program actors (e.g., customers, vendors, Ag Reps). These efforts would produce a more multidimensional view of the program, adding to the validity of the process evaluation. In addition, the surveys would collect data on program satisfaction, areas to improve, and data often used to inform impact evaluations.

### Recommendations

IPC should consider establishing regular feedback loops with program actors in the Irrigation Efficiency Rewards program. Surveys with participants, nonparticipants, trade allies, and any other partners (such as training partners) would provide ongoing data about program satisfaction, operation, and market trends. Surveys with customers would also inform IPC about the level of freeridership and spillover; these indicators are often used to calculate net savings. In addition to gathering regular feedback from program actors, subsequent process evaluations should include interviews with Ag Reps about their perspectives on the program, since they appear to be integral to program delivery.

Surveys of market actors should address, at the least:

- Program awareness and sources of information.
- Motivations to participate and decision-making.
- Program satisfaction and success stories.
- Barriers to participate.
- Benefits of participating.
- Program strengths and suggested improvements.
- Market trends.
- Freeridership.
- Spillover.

### Program Database and Tracking

While IPC's Irrigation Efficiency Rewards program has a well-organized system for data collection, processing, and verification, we found some program tracking processes in need of

better documentation and greater transparency. Although the new database (in development) may solve program data tracking issues, the current system may create obstacles for performing an impact evaluation of the program.

### **Recommendations**

- Consider adding automated applications that could be submitted online, at least for the Menu Incentive option. This approach could simplify the application process for customers, reduce data omissions by customers, and reduce potential errors during the data transfer processes.
- Consider additional ways to reduce key application errors and omissions, such as targeted reminders on the Website and in the application, and hand-out sheets during in-person outreach and training. These materials could focus on areas where the most errors or omissions are made.
- Consider linking background calculation sheets and formulas for energy-savings estimates and follow-up adjustments with the more summarized project database.
- To enable better tracking of savings and costs by project and customer, consider disaggregating measure, energy, and cost data in customer database entries.
- Consider developing a data management handbook that includes data definitions and data tracking and calculation guidance.

### **Marketing and Outreach**

While IPC program staff and irrigation equipment dealers engage in marketing and outreach to promote program participation, the program's technical strengths may not be fully realized. In addition, while much excellent information is available on the program Website, some information appears to be missing or outdated, which could confuse customers.

### **Recommendations**

- Consider expanding outreach and assistance to capitalize on the technical strength of a well-trained program staff, Ag Reps, and many equipment vendors. For instance:
  - Provide additional support for carrying out pump testing and no-cost audits.
  - Consider developing a more formalized trade ally network to support the program.
- Consider establishing a regular review of marketing and outreach materials to make sure they are up-to-date, consistent, and provide clear program contacts. In addition, check in with Ag Reps and equipment vendors to determine if further marketing materials would benefit the program.

## Appendix A. Program Specialist Interview Guide

### Irrigation Efficiency Rewards Program Manager Interview Guide

#### Introduction

Thank you for talking about the Irrigation Efficiency Rewards program with me. As you know, the Cadmus Group is conducting a process evaluation of the C&I portfolio for Idaho Power. The purpose of this interview is to gather information on Irrigation Efficiency Rewards program processes, operations, and activities; so that we can see what is working well and what might be improved and how. As program manager, your perspective is very important to us. I would like to record this interview to improve the accuracy of my notes; is that all right with you?

#### Program Design

I would like to ask you about program design.

1. How would you describe Irrigation Efficiency Rewards' overall goal?
2. Probe: What is the logic or theory behind the program so that the goals will be met?
3. What do you look for to indicate how well the program is doing?
4. The Menu Option of the Irrigation Efficiency Rewards program was recently changed to shorten the time allowed for submitting a rebate application. Can you describe the process for this program change and tell me why the change was made? Can you describe the general process for program changes?
5. What types of considerations drive program changes when you are planning or revising the program? (If not mentioned, probe for the following.)
  - a. Freeridership
  - b. Standard changes
  - c. Market demand
  - d. Program processes
  - e. Program management
  - f. Assumptions about target market behavior
  - g. Economic conditions
6. Have questions about this program been included in recent IPC customer surveys? What questions have been included? How have the results of these survey questions been used?
7. Besides the customer survey, what are other sources of customer and equipment dealer feedback about the program? How is this feedback used?

#### Program Delivery

8. Can you briefly describe how the program currently operates? Is it consistent with the process flow in the handbook (if not, ask for revisions)?

9. What Idaho Power staff is involved with the Irrigation Efficiency Rewards program? (PROBE on Account Reps, Agricultural Reps and Agricultural Engineer) What qualifications are they required to have? What kind of training do they receive in support of the program?

### Program Administration

(NOTE: Questions will be skipped if answers were provided in previous questions.)

This next question is about program applications and processing of those applications.

10. Could you please tell me how participants find out about the program?
11. Can you tell me more about the application process for participants?
- How well does the application process work? Do you know of any issues that participants have with the current application process?
  - The application process allows someone authorized by the customer to complete the application. About how often does the customer authorize someone else to complete the application? What types of people customers tend to authorize (i.e., family members, equipment dealers, other Trade Allies)?
  - Can you tell me what happens once the application is sent to IPC? For example, who receives the applications, and what are the steps for reviewing and approving them and setting up payments?
12. For the Menu option, what are the steps that Idaho Power takes to process an application from start to finish? Do you track the number of hours it takes internally for each of these steps? About how many hours do the different steps take?
13. For the Custom option, what are the steps that Idaho Power takes to process an application from start to finish? Do you track the number of hours it takes internally for each of these steps? About how many hours do the different steps take?
14. What other differences are there between the Menu and the Custom application processes, in terms of staffing and procedures?
15. How many applications for the Menu option are received each week? How many applications for the Custom option are received each week?
- What percent of applications are rejected or need rework? Has this percentage changed over time? How has it changed?
  - What are the most common reasons for rejection? (Customer eligibility, savings requirements, missing information...)

16. What fields in the application are required to be completed? Which information is confirmed in the application review process? What information is confirmed through follow-on site visits?
17. What are the conditions for payment of rebates?
18. How well does the application process work? What improvements to the process would you like to see?
19. How are savings verified for individual projects?
  - a. Are there General QA/QC guidelines or requirements?
  - b. Are there program specific ones? Should there be?
  - c. Are they implemented?
  - d. What pre/post-inspections are required?
  - e. What factors are included in the verification process? PROBE on realization rates, in-service rate, and free ridership.
  - f. Are there any issues with verifying savings?
  - g. What adjustments, if any, are made after verification of savings?
20. Who is responsible for collecting and tracking participation data?
  - a. How and when are data entered?
  - b. Can you describe the data validation protocols to ensure quality? How often is quality checked?
  - c. How often are tracking database savings algorithms checked?
  - d. How is contractor activity tracked?
  - e. How are pre-applications tracked?
  - f. Have there been any difficulties with the data tracking systems?
  - g. In the program database, in some cases, multiple site IDs or meters are listed in a single row. Does the program input information on measure installation by unique site ID to enable verification of measures by site ID?

- h. What features or abilities do you hope the new system being developed will offer? Will it fully integrate the Irrigation Energy Rewards database with a larger portfolio level information system?

21. Would you recommend any changes to the data tracking procedures?

### **Trade Ally Response**

22. Is IPC involved in the recruitment or management of Trade Allies? By "Trade Allies" I mean equipment dealers, other retailers or contractors.

23. How many Trade Allies do you actively deal with in a given program year?

24. How frequently do you communicate with Trade Allies and how is the communication carried out?

25. Have you had any particular challenges working with Trade Allies?

26. How are their problems and questions dealt with?

27. What if any kinds of things have been done or are being planned to identify Trade Allies and get them involved? Is there a certification process for equipment dealers or other Trade Allies?

28. How would you change or improve communications with Trade Allies?

### **Closing Remarks**

29. Part of our evaluation work will be to gather information about other exemplary programs similar to Irrigation Energy Rewards. This will give you best practices and other criteria you can use to compare your program with these other programs. For instance, we will look at program delivery and total program costs. Are there other program criteria or attributes you are especially interested in that we should gather?

30. What would you say are the program's strengths?

31. What are the most important things you would like to see improved?

32. Do you feel that the program, generally, is accomplishing its stated goals?

33. In addition to any of the issues we have talked about today, are there additional issues you would like this evaluation to address?

**THANK YOU!**

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## SURVEYS

Table 4. 2010 Surveys

Report Title	Program or Sector	Analysis Performed by	Study Manager	Study/Evaluation Type
Energy Efficiency and Green Living Series Survey Results	Residential	Idaho Power	Idaho Power	Survey
Green Expo Survey Results	All Sectors	Idaho Power	Idaho Power	Survey
Ductless Heat Pump Pilot Survey Results	Residential	Idaho Power	Idaho Power	Survey
Women's Show Attendee Survey	All Sectors	Idaho Power	Idaho Power	Survey
Heating and Cooling Efficiency Program Evaporative Cooler Survey	Residential	Idaho Power	Idaho Power	Survey
Easy Savings CAPAI Scranton Survey	Residential	Idaho Power	Idaho Power	Survey
Idaho Power Residential End-Use Survey	Residential	Market Strategies	Idaho Power	Survey
Students for Energy Efficiency Program Follow-up Survey	All Sectors	Idaho Power	Idaho Power	Survey
Students for Energy Efficiency Program Survey Results	All Sectors	Idaho Power	Idaho Power	Survey
Heating and Cooling Efficiency Program Survey	Residential	Idaho Power	Idaho Power	Survey
Easy Upgrades Program Customer Survey	Commercial	Idaho Power	Idaho Power	Survey

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1. Which session of the Fall 2010 Energy Efficiency & Green Living Series did you attend?

	Response Percent	Response Count
Simple Changes Make Cents - Boise Public Library	3.3%	3
Simple Changes Make Cents - Ada Community Library	6.5%	6
Simple Changes Make Cents - Meridian Library	3.3%	3
Simple Changes Make Cents - Eagle Public Library	7.6%	7
<b>Simple Changes Make Cents - College of Southern Idaho</b>	<b>30.4%</b>	<b>28</b>
Get Ready, Get Set, Go - Boise Public Library	22.8%	21
Get Ready, Get Set, Go - College of Southern Idaho	26.1%	24
	<b>answered question</b>	<b>92</b>
	<b>skipped question</b>	<b>1</b>

**2. How did you hear about the *Fall 2010 Energy Efficiency and Green Living Series*?**

	Response Percent	Response Count
Times-News	17.7%	14
CSI Web Site	12.7%	10
CSI Teacher	20.3%	16
Poster	3.8%	3
Word of Mouth	7.6%	6
Idaho Power Bill	6.3%	5
Library Web Site	2.5%	2
Library Display	10.1%	8
Statesman Events	19.0%	15
Other (please specify)		18
	<b>answered question</b>	<b>79</b>
	<b>skipped question</b>	<b>14</b>

**3. Please rate the following statements using a scale of 1 to 5 where '1' means you strongly disagree with the statement and '5' means you strongly agree with the statement.**

	1 - Strongly disagree	2	3 - Neutral	4	5 - Strongly agree	Rating Average	Response Count
The information presented in this session was useful	1.1% (1)	2.2% (2)	2.2% (2)	15.6% (14)	78.9% (71)	4.69	90
The information presented in this session met my expectations	0.0% (0)	3.4% (3)	10.1% (9)	20.2% (18)	66.3% (59)	4.49	89
						<b>answered question</b>	<b>91</b>
						<b>skipped question</b>	<b>2</b>

**4. Please indicate how much each of the following influenced your decision to attend this session:**

	Influenced a lot	Influenced some	Did not influence at all	Response Count
Saving money	63.5% (54)	29.4% (25)	7.1% (6)	85
Environmental commitment	61.6% (53)	38.4% (33)	0.0% (0)	86
			answered question	91
			skipped question	2

**5. How likely would you be to recommend this session to a friend or family member?**

		Response Percent	Response Count
Definitely would		56.0%	51
Probably would		44.0%	40
Probably would not		0.0%	0
Definitely would not		0.0%	0
		answered question	91
		skipped question	2

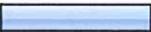
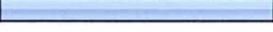
**6. How likely would you be to attend future Energy Efficiency and Green Living Series presentations?**

		Response Percent	Response Count
Very likely		60.2%	56
Somewhat likely		35.5%	33
Not very likely		4.3%	4
Not likely at all		0.0%	0
		answered question	93
		skipped question	0

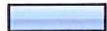
**7. What is your gender?**

		Response Percent	Response Count
Male		38.2%	34
Female		61.8%	55
		<b>answered question</b>	<b>89</b>
		<b>skipped question</b>	<b>4</b>

**8. What range listed below best describes your age?**

		Response Percent	Response Count
Under 25		22.8%	18
25-34		5.1%	4
35-49		13.9%	11
50-65		41.8%	33
Over 65		16.5%	13
		<b>answered question</b>	<b>79</b>
		<b>skipped question</b>	<b>14</b>

9. What is the last level of education you completed?

		Response Percent	Response Count
Less than High School		1.3%	1
High School or Equivalent		10.7%	8
<b>Some College/Technical School</b>		<b>42.7%</b>	<b>32</b>
4 year College Degree		14.7%	11
Some Graduate courses		8.0%	6
Graduate Degree		22.7%	17
		<b>answered question</b>	<b>75</b>
		<b>skipped question</b>	<b>18</b>

**10. How likely would you be to attend a future presentation on the following topics?**

	<b>Would attend</b>	<b>Might attend</b>	<b>Would not attend</b>	<b>Response Count</b>
Landscaping for energy efficiency	48.6% (34)	41.4% (29)	10.0% (7)	70
Renewable energy	60.6% (43)	35.2% (25)	4.2% (3)	71
Home energy monitoring systems	36.6% (26)	56.3% (40)	7.0% (5)	71
Idaho Power rebates and incentive programs	43.7% (31)	45.1% (32)	11.3% (8)	71
Energy efficiency for "older" homes	41.2% (28)	35.3% (24)	23.5% (16)	68
Energy efficient window coverings	42.9% (30)	40.0% (28)	17.1% (12)	70
Do-it-yourself energy audit	39.1% (27)	47.8% (33)	13.0% (9)	69
Teaching children to be energy conscious	20.0% (14)	41.4% (29)	38.6% (27)	70
Energy efficiency in the kitchen	37.1% (26)	54.3% (38)	8.6% (6)	70
			<b>answered question</b>	<b>75</b>
			<b>skipped question</b>	<b>18</b>

**11. What actions are you likely to take at your home as a result of attending this presentation?**

	<b>Response Count</b>
	55
<b>answered question</b>	<b>55</b>
<b>skipped question</b>	<b>38</b>

**12. Other comments:**

	<b>Response Count</b>
	32
<b>answered question</b>	<b>32</b>
<b>skipped question</b>	<b>61</b>

**3. How did you hear about the <i>Fall 2010 Energy Efficiency and Green Living**

**Other (please specify)**

1	"notice under Today's Events in Times-News	Nov 8, 2010 6:34 PM
2	Environmental Science Bio 120	Nov 8, 2010 6:41 PM
3	poster location CSI	Nov 8, 2010 6:43 PM
4	poster at CSI	Nov 8, 2010 6:46 PM
5	bio 120 class	Nov 8, 2010 6:47 PM
6	bio 121 teacher	Nov 8, 2010 6:48 PM
7	Eviro science class	Nov 8, 2010 6:50 PM
8	Brother-in-law asked me to come	Nov 8, 2010 7:05 PM
9	Website	Nov 8, 2010 7:13 PM
10	Attended last week's presentation	Nov 8, 2010 7:31 PM
11	Work	Nov 8, 2010 8:07 PM
12	T.V.	Nov 8, 2010 8:53 PM
13	TV	Nov 8, 2010 9:41 PM
14	Work	Nov 8, 2010 10:09 PM
15	Work	Nov 8, 2010 10:11 PM
16	flyer	Nov 10, 2010 3:02 PM
17	Flyer	Nov 10, 2010 3:03 PM
18	Work	Nov 10, 2010 3:05 PM

**12. What actions are you likely to take at your home as a result of attending this**

**Response Text**

1	Will use Web site to check my annual usage. Considering solar.	Nov 8, 2010 6:34 PM
2	Evaluate current use using the "30 Simple Things" booklet. go room to room to see what improvements can be made and implement them! Check progress and continue refining. Participate in Green Power Program	Nov 8, 2010 6:38 PM
3	Check out how to become more efficient.	Nov 8, 2010 6:40 PM
4	Limit my heat usage.	Nov 8, 2010 6:41 PM
5	Build energy efficient home -- straw or adobe heat water with solar, run it under floors for hyeat. Other energy will be wind -- our place is 5 miles off the grid.	Nov 8, 2010 6:46 PM

## 12. What actions are you likely to take at your home as a result of attending this

	Response Text	
6	Turn off the appliances that I don't need or that often. Watch what Im' using at home.	Nov 8, 2010 6:47 PM
7	Go home and look at my meter!	Nov 8, 2010 6:48 PM
8	Looking more info digital meters	Nov 8, 2010 6:50 PM
9	Monitor use of electrical around the house. Turn lights off.	Nov 8, 2010 6:51 PM
10	We are canging out the light bulbs. Getting rid of our older than dirt fridge.	Nov 8, 2010 6:52 PM
11	Making changes to home, windows, doors.	Nov 8, 2010 6:53 PM
12	-Explore solar panel options for homej -Assess home energy usage.	Nov 8, 2010 6:54 PM
13	I will try to turn off little electronics when not used.	Nov 8, 2010 7:05 PM
14	Unplugging unused elctronivd. Turning heater down. Using less water. Changing light bulbs to energy efficient ones.	Nov 8, 2010 7:11 PM
15	Change light bulbs, caulk windows and doors, insulate behind thermostat	Nov 8, 2010 7:13 PM
16	Evaluate feasibility of using solar for my home.	Nov 8, 2010 7:31 PM
17	Practice ways of being more energy efficient.	Nov 8, 2010 7:33 PM
18	Efficient appliances	Nov 8, 2010 7:34 PM
19	Insulation for roof estimate. Window -- house audit. Estimate for roof solar panel system.	Nov 8, 2010 7:35 PM
20	Attic insulation	Nov 8, 2010 7:37 PM
21	Monitoring of PV solar now installed	Nov 8, 2010 7:38 PM
22	Looking into having a solar system installed	Nov 8, 2010 7:42 PM
23	Conservation first	Nov 8, 2010 7:43 PM
24	Thinking solar	Nov 8, 2010 7:44 PM
25	Reduce unused consumers	Nov 8, 2010 8:05 PM
26	Unplug phantom energy users	Nov 8, 2010 8:06 PM
27	Building a shop -- look seriously at solar installation	Nov 8, 2010 8:08 PM
28	Look more into small vertical blade wind turbine	Nov 8, 2010 8:09 PM
29	Adding the insulation with rebate	Nov 8, 2010 8:11 PM
30	Research Morgan Brown's metal rof solar system from Ketchum Look at PV watts website	Nov 8, 2010 8:13 PM
31	Washing in cold water more, more lights off, timers, flourescent light bulbs, be more aware of waste in my home	Nov 8, 2010 8:39 PM
32	Change light bulbs, change havits	Nov 8, 2010 8:40 PM
33	Be more aware of leaving TV and lights on	Nov 8, 2010 8:42 PM
34	Turn off the electronic stuff that I don't use.	Nov 8, 2010 8:44 PM
35	Unplugging electronics. Turning lights off. Watch heat & cooling.	Nov 8, 2010 8:45 PM
36	I would like to take out all my lawn and plant rocks so I would not have to water or pay someone to cut my grass	Nov 8, 2010 8:48 PM
37	Change light bulbs.	Nov 8, 2010 8:49 PM
38	Changing out the light bulbs	Nov 8, 2010 8:49 PM
39	Insulate attic Check out kill A Watt gizmo	Nov 8, 2010 8:50 PM
40	Putting in trip plugs. Recycle water from bath to toilet.	Nov 8, 2010 8:52 PM

## 12. What actions are you likely to take at your home as a result of attending this

	Response Text	
41	Changing light bulbs, making sure things are turned off better.	Nov 8, 2010 8:53 PM
42	I will unplug things I am not using, look into using all energy saving bulbs, turn off lights when not using, watch how much heat I use.	Nov 8, 2010 9:39 PM
43	Be sure all bulbs are changed. Get smart strip. Turn off computer strip.	Nov 8, 2010 9:40 PM
44	Swithes, Website, Power Survey	Nov 8, 2010 9:41 PM
45	Finish changing out light bulbs.	Nov 8, 2010 9:43 PM
46	Turn lights off. Unplug things.	Nov 8, 2010 9:48 PM
47	-The idea of an hourly rate -You choose the bill you get -Check water temp	Nov 8, 2010 10:05 PM
48	Turn the water heater down Change light bulbs	Nov 8, 2010 10:07 PM
49	Great job!	Nov 8, 2010 10:09 PM
50	Check out an energy efficiency kit.	Nov 8, 2010 10:13 PM
51	Use the Kill A Watt tool Read the 30 Simple Things Book	Nov 8, 2010 10:14 PM
52	Change light bulbs, caulk windows & doors, insulate behind thermostat	Nov 8, 2010 10:21 PM
53	Behavior change in a sense of how I use energy--being more aware.	Nov 8, 2010 10:22 PM
54	Reduce shower usage.	Nov 10, 2010 2:58 PM
55	Attic insulation	Nov 10, 2010 3:02 PM

## 13. Other comments:

	Response Text	
1	Great presenters -- Scott & Denise Slides -- good, good meeting room Interesting presentation -- Thanks you!	Nov 8, 2010 6:38 PM
2	The class is awesome.	Nov 8, 2010 6:47 PM
3	Thanks for coming!! :)	Nov 8, 2010 6:48 PM
4	I'll use tis information for my classroom content in energy conservation.	Nov 8, 2010 6:51 PM
5	Great presentation.	Nov 8, 2010 6:52 PM
6	Talking to company about wind power (mountain wind power)	Nov 8, 2010 6:53 PM
7	Thanks! Great Information!	Nov 8, 2010 6:54 PM
8	I would like to hear more on hydroelectric systems, but I did like this presentation.	Nov 8, 2010 7:05 PM
9	Renewable energy is not as great of an investment as I previously thought.	Nov 8, 2010 7:07 PM
10	Very good presenters. Denise did a great job last week too. Please include me on any announcements re: energy audits/home evaluations in the local area. Thank you! Kathy Pidjeon, 3185 Falling Brook Ln. Boise 83706	Nov 8, 2010 7:31 PM
11	Would love a handut with list of Websites for solar energy resources. (both local and national)	Nov 8, 2010 7:32 PM
12	Would love a handut with list of Websites for solar energy resources. (both local and national)	Nov 8, 2010 7:32 PM
13	Thank you for sharing your knowledge	Nov 8, 2010 7:34 PM

### 13. Other comments:

Response Text		
14	Thank you.	Nov 8, 2010 7:35 PM
15	Need a handout with the Websites you recommend.	Nov 8, 2010 7:37 PM
16	Enjoyed!	Nov 8, 2010 7:42 PM
17	Very good show!	Nov 8, 2010 7:43 PM
18	Lots of information. Well presented by knowledgeable employees. Very good!	Nov 8, 2010 8:06 PM
19	Good info!	Nov 8, 2010 8:08 PM
20	More information on contractors, suppliers, and other resources to actually do the projects discussed.	Nov 8, 2010 8:13 PM
21	Class needs to be longer and enough materials available -- a lot of issues were missed	Nov 8, 2010 8:39 PM
22	Not enough brochures and time to answer questions -- need a longer class & perhaps with construction people attending -- heating & air conditioning, etc.	Nov 8, 2010 8:40 PM
23	Very useful & well presented	Nov 8, 2010 8:42 PM
24	I am really going to take responsibility to be a more efficient homeowner to save money by doing everything I can.	Nov 8, 2010 8:48 PM
25	Thanks.	Nov 8, 2010 8:49 PM
26	Very good -- Thanks you!	Nov 8, 2010 8:50 PM
27	It was great. Thanks for coming! :)	Nov 8, 2010 9:39 PM
28	Great job! Very useful!	Nov 8, 2010 9:41 PM
29	Thanks. Very well done.	Nov 8, 2010 9:43 PM
30	Great program for people who own homes.	Nov 8, 2010 10:15 PM
31	Denise did a great job!	Nov 10, 2010 3:02 PM
32	Really enjoyed hearing your personal story from Italy. Very interactive.	Nov 10, 2010 3:05 PM



## **2010 Green Expo Survey Results and other metrics**

Denise Humphreys  
Customer Relations  
Program Specialist

**Draft 1  
June 1, 2010**

## Summary of survey findings<sup>1</sup>

- More women attended than men (56%).
- Age groups were mixed with the highest single age group (28%) between ages 46-59.
- Seventy-one percent of attendees were homeowners.
- Almost 65% of respondents had a bachelor's degree or higher.
- Nearly 20% of respondents were from the 83702 zip code. Other zip codes garnering over 7% each and listed in order of attendance were 83706, 83709, 83712 and 83705.
- Thirty-six percent of respondents reported having participated in an energy efficiency program and/or the A/C Cool Credit Program offered by Idaho Power. Of the 8 sustainable practices surveyed, this behavior ranked 7<sup>th</sup>.
- Fifty-seven percent reported that this was their first time attending the Expo.
- The most popular reasons for attending the Expo were because it seemed like an interesting thing to do and to get specific ideas about how to make sustainable choices. Only 10% came to attend a specific workshop.
- Word of mouth was the most effective marketing channel (41%) followed by the Statesman (34%) and Boise Weekly (27%).
- Attendees were happy with the quality and variety of Exhibitors.
- Most people (45%) attended with their spouse or significant other, but 28% attended alone.
- Nearly 70% of survey respondents attended the Expo on Sunday.
- Most people spent 1-2 hours at the Expo and plan to attend the Green Expo in 2011

Compared to all attendees, those who had participated in an Energy Efficiency Program or A/C Cool Credit were:

- Older – 37.6% were between 46-59 years of age.
- More educated – 40.2% had graduated degrees vs. 25% in the overall group.
- More likely to be homeowners.
- Self-reported higher participation rates in all other sustainable practices.
- More likely to have attended the Expo in previous years.
- More likely to have heard about the Expo via the Statesman, Boise Weekly or a sponsoring organization and less likely to have heard about the Expo on-line or via Facebook.
- Slightly more likely to have attended with family members (spouse, teenagers and children under age 12) and slightly less likely to have come alone or with friends.

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<sup>1</sup> We can access the survey data directly for further analysis by signing onto the GreenWorks Survey Monkey account with Userid=GWIdaho and Password=expo.

- More inclined to spend more than 2 hours at the Expo and more inclined to attend in upcoming years.

### Summary of other metrics

- Expo volunteers counted attendees as they entered through the front doors of the Boise Centre. At any given time, a single individual was responsible for logging the count on a mechanical tally counter. On Saturday, 5296 visitors were recorded and on Sunday, 3280 were counted.
- IPC Booth staff recorded 325 “touches” on Saturday (6.1% of total) and 284 on Sunday (8.6% of total) for an overall total of just over 7%.
- Account Manager sign-ups for the Expo Weekend were up 37% and 53%, respectively, from the two weekends just prior to the Expo. And the 7-day period beginning May 8 showed a 23% increase in signups over the 7-day period beginning May 1.
- Between May 7-14, there was a total of 6498 visits to Account Manager generating 10,083 Views for a page ranking of 2. During that same period, the number of people entering ENERGY Tools through the Account Manager link totaled 37. This is about an average number based on 2010 usage through April 30

Note: It was fairly difficult to discern the degree to which we impacted ENERGY Tools. Aclara owns the web data once the tool is accessed, but 21 users accessed the graphs on May 8 – about 9 times the average of the previous or subsequent 5-day periods. The Web Trends report only counted “hits” from the link on the Account Manager page.

## Survey background

This is the first year Idaho Power has tried to capture event metrics in conjunction with our participation in the Green Expo. Celeste Becia, Denise Humphreys and Cory Read met to discuss the relative value of various questions and provided feedback to an initial survey proposed by the Green Expo staff. As our objectives were in alignment with those of GreenWorks Idaho, we were ultimately invited to develop the survey. Denise Humphreys worked with Becky Andersohn to create the survey. It was posted to the GreenWorks Survey Monkey Account and administered by Green Expo staff and volunteers.

At the Expo, signage and volunteers directed attendees to a computer kiosk to complete an exit survey. Participation in the survey was voluntary and an iPod was offered as an incentive if the participant provided their email address. Of the 318 respondents, 245 were willing to share their e-mail addresses and participate in the drawing. When a line formed at the computer kiosk, volunteers offered a paper survey to speed the process. We hoped to collect 400 random surveys over the two-day period. At the conclusion of the Expo, 328 individuals had responded. This resulted in a 3.85% response rate.

*Based on a population of approximately 8500 attendees and a response of 328 individuals, this allows for a 5.3% confidence interval at a 95% confidence level. In other words, we are 95% confident that the responses are representative of the entire population of 8500 attendees +-5.3%.*

### Survey results

Survey responses were analyzed from both an overall perspective as well as whether the respondent had previously participated in an Energy Efficiency Program or A/C Cool Credit. The primary differences between the subset who had participated in an EE Program were age, education, level of engagement and family commitment.

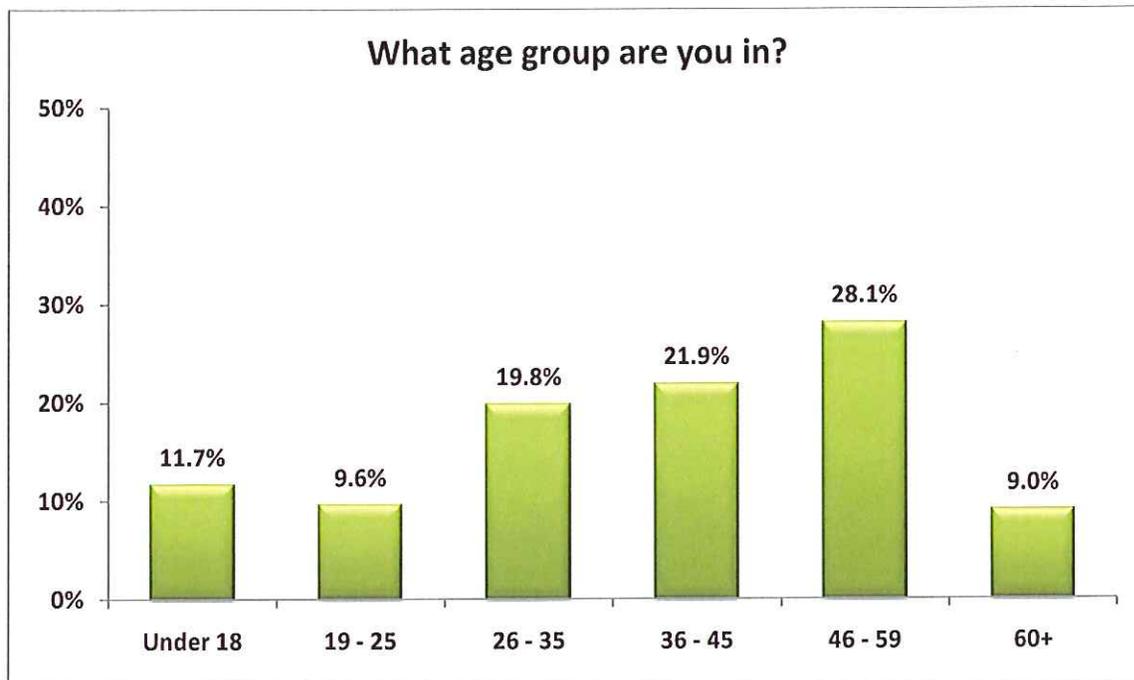
More women attended the Expo than men

Exhibit 1: Gender of attendees



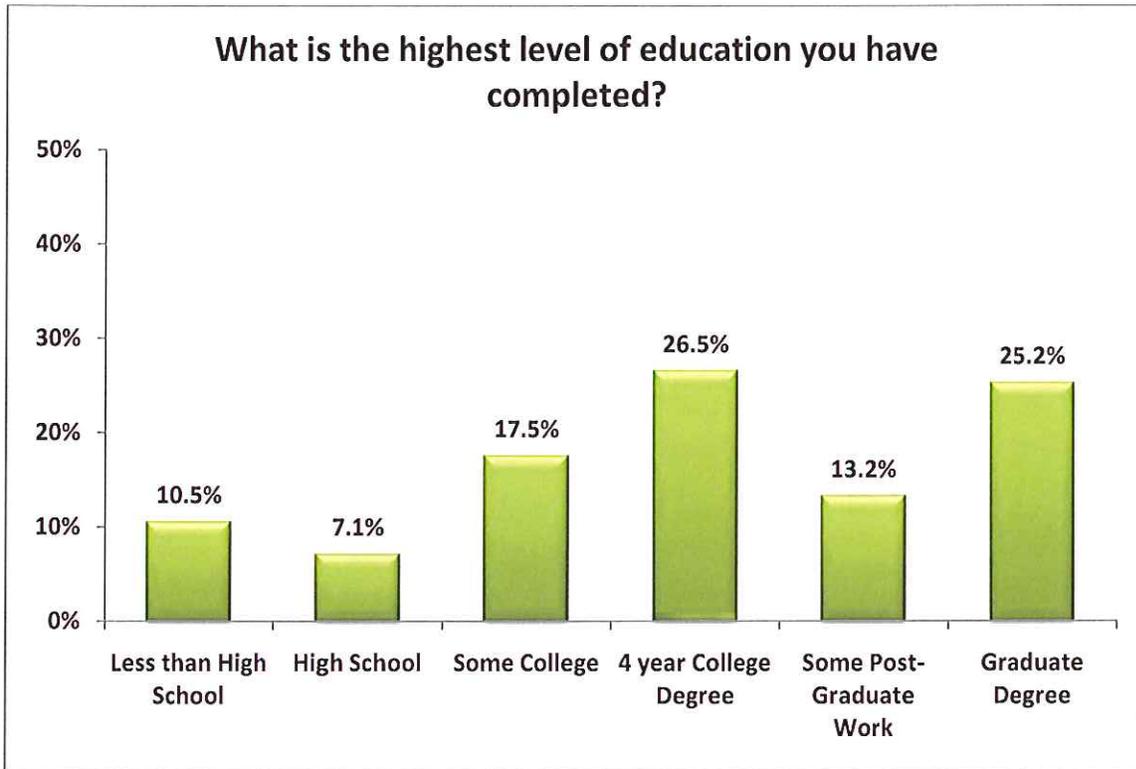
The largest age group represented at the Expo was 46-59.

**Exhibit 2: Age Grouping of Attendees**



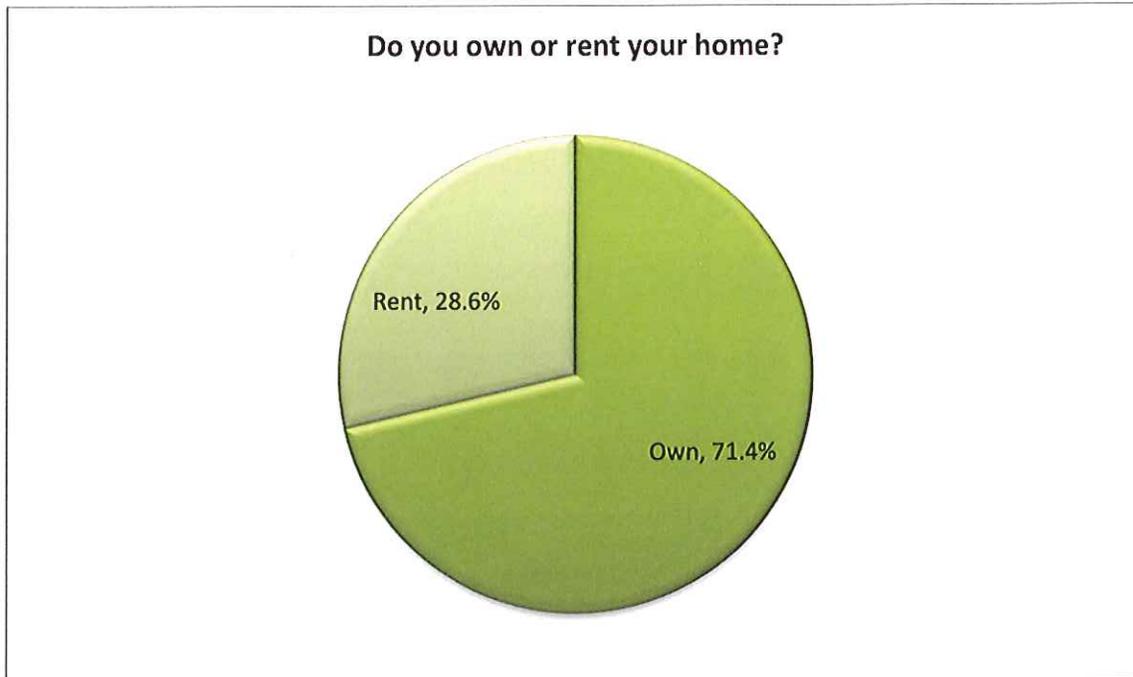
Attendees were asked to identify their education level which oftentimes can be correlated with income level.

**Exhibit 3: Education Level of Attendees**



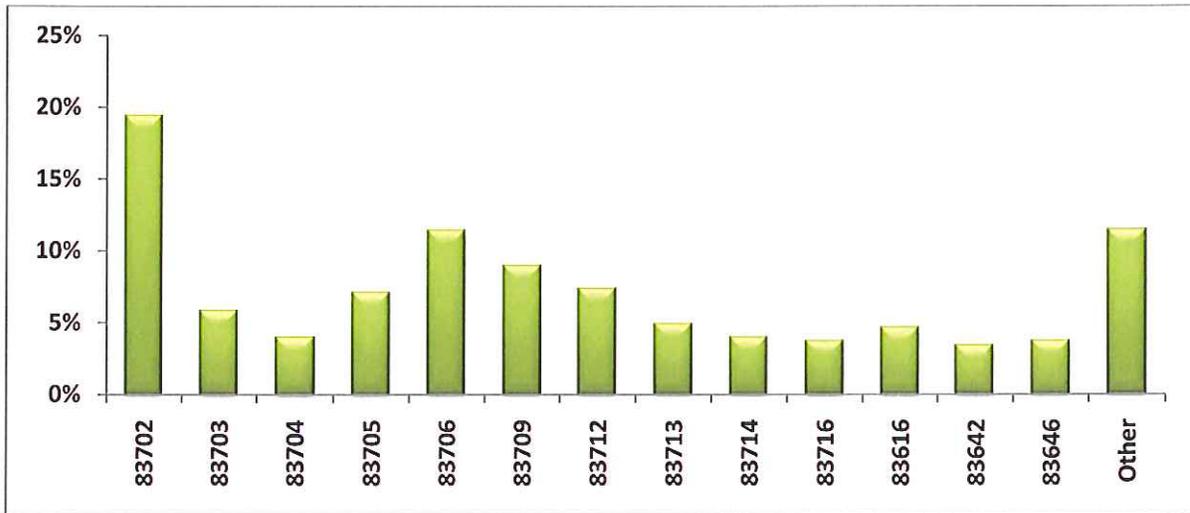
Attendees were largely homeowners.

**Exhibit 4: Home Ownership**



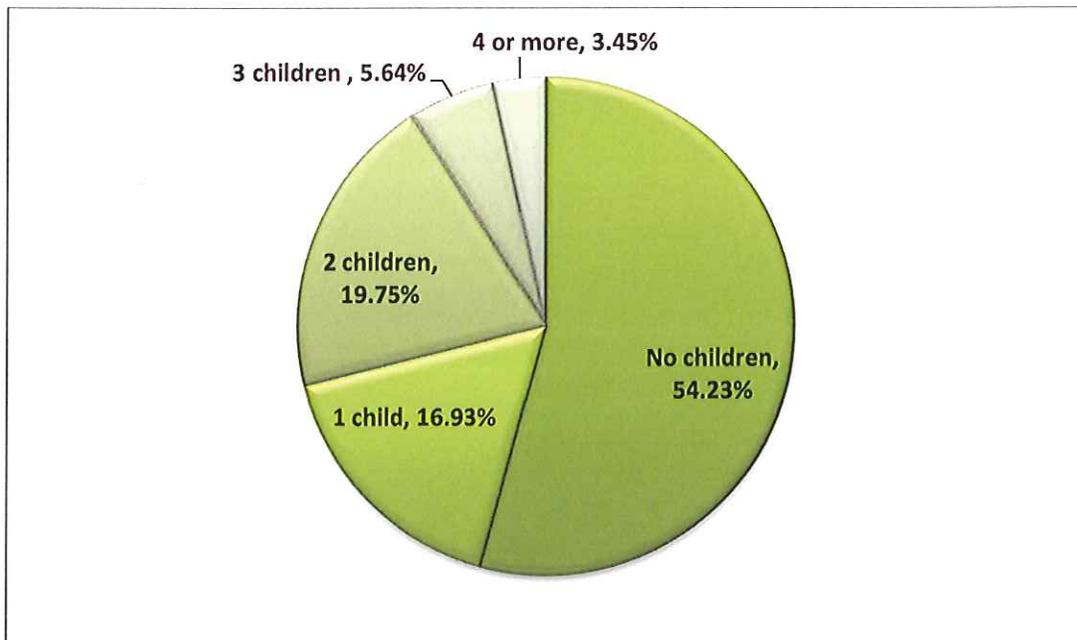
Thirty-seven different zip codes were represented in our survey sample. Most attendees were from Idaho but there were some from as far away as California and The Dalles, Oregon.

**Exhibit 5: Zip Codes relative to Attendees**



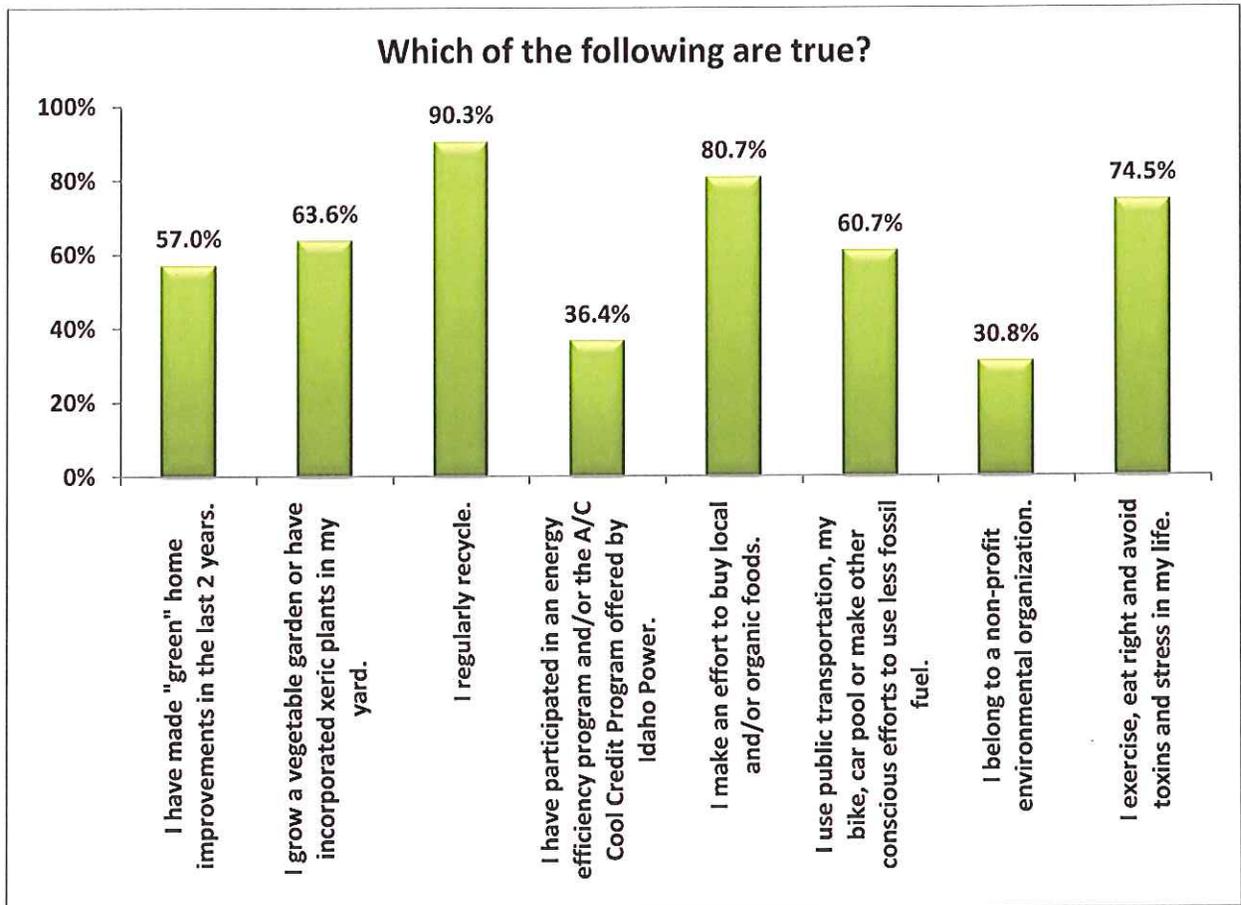
The majority of attendees had no under-age children living at home with them at the present time.

**Exhibit 6: Number of Children Under Age 18 Living at Home**



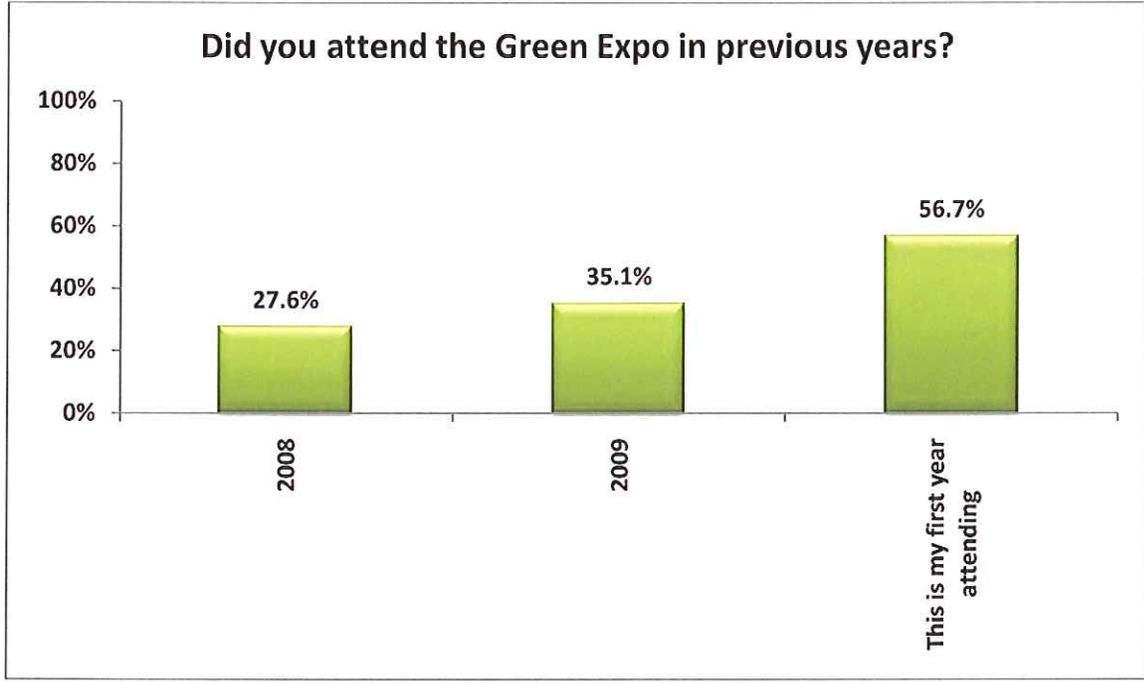
The respondents were asked to self-report whether or not they had participated in various green and sustainable practices. 90 percent report that they participate in recycling programs while only 30 percent belong to an environmental organization.

**Exhibit 7: Level of Engagement in Sustainable Practices**



Fifty-six percent of respondents reported that they attended the Green Expo for the first time in 2010.

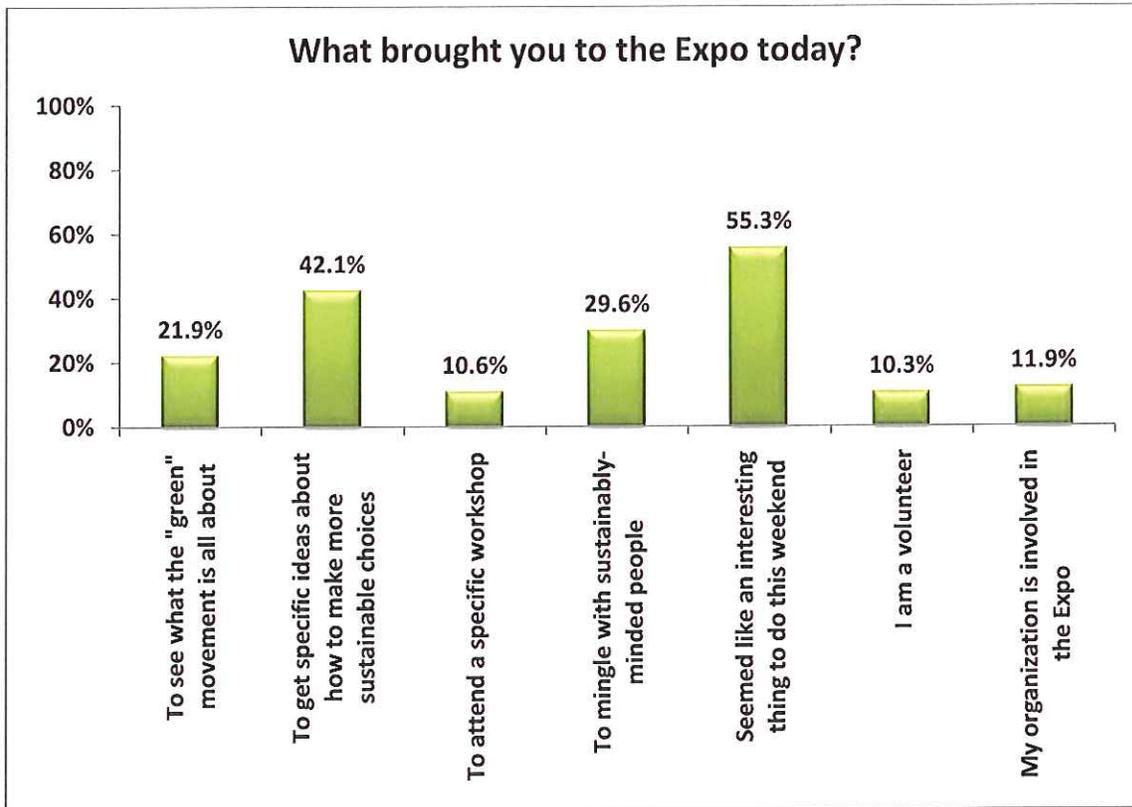
**Exhibit 8: Previous Expo Attendance**



The top two reasons respondents gave for attending the Expo were:

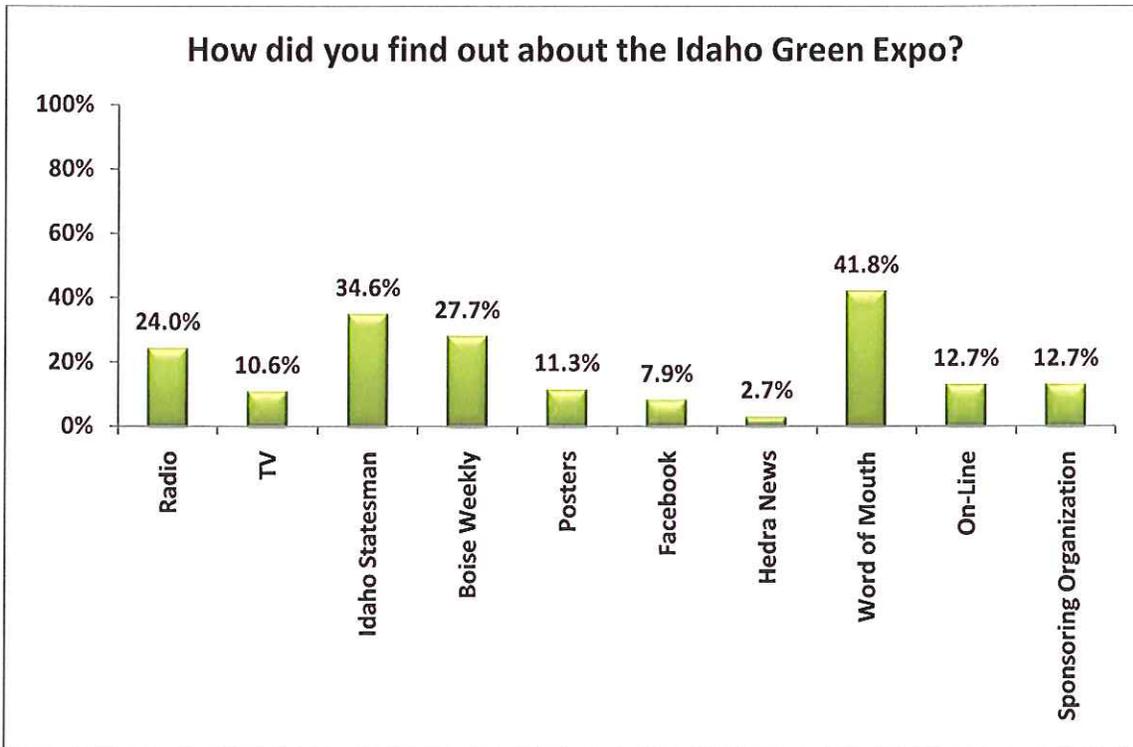
- It seemed like an interesting thing to do over the weekend
- To get specific ideas about how to make sustainable choices

Exhibit 9: Why People Attended



Word of mouth seems to be the most effective way to spread the news about the Green Expo. Other effective advertising mechanisms seemed to be the Idaho Statesman, Boise Weekly, and radio spots. The ?? was the radio partner for 2010.

Exhibit 10: Expo Marketing



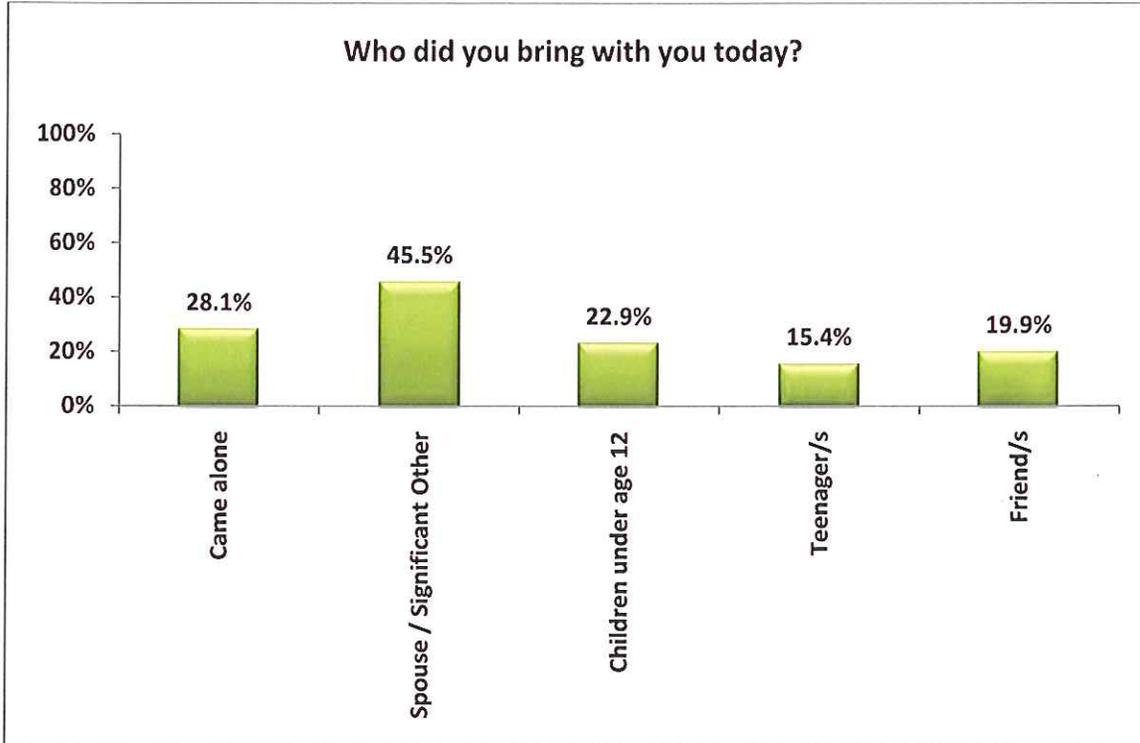
Respondents were asked to rate the various features of the Expo in which they participated on a 1-4 scale with 1 being Poor and 4 being Excellent. Of the items rated, the respondents were most pleased with the venue, the quality and variety of exhibitors and the “Green Within Workshops”. The “Green Within Workshops” focused on topics relating to holistic health and wellness.

**Exhibit 11: Participants’ View of the 2010 Expo**



The bulk of the attendees came with a spouse, significant other, or a friend but 28% came alone. More families brought young children than older teenage children.

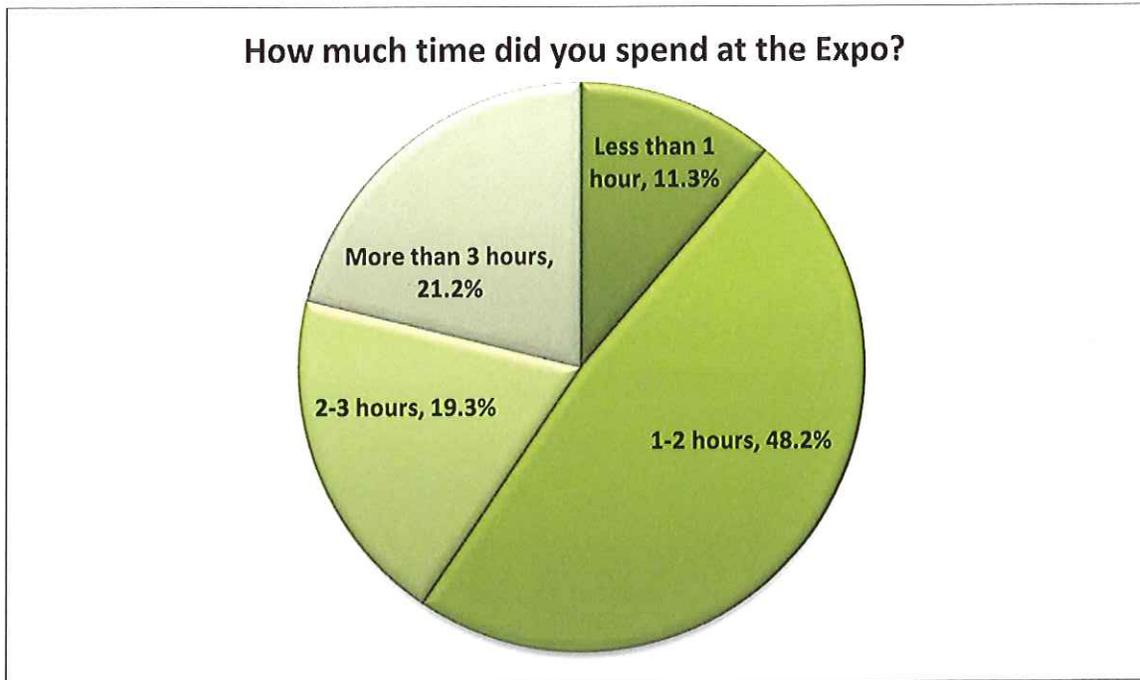
**Exhibit 12: Who Came With Attendees**



Forty-seven percent of respondents attended on Saturday and 69.6% attended on Sunday. Participants were asked to check both days if they attended on both days. It appears that about 17% of the attendees participated in activities on both Saturday and Sunday.

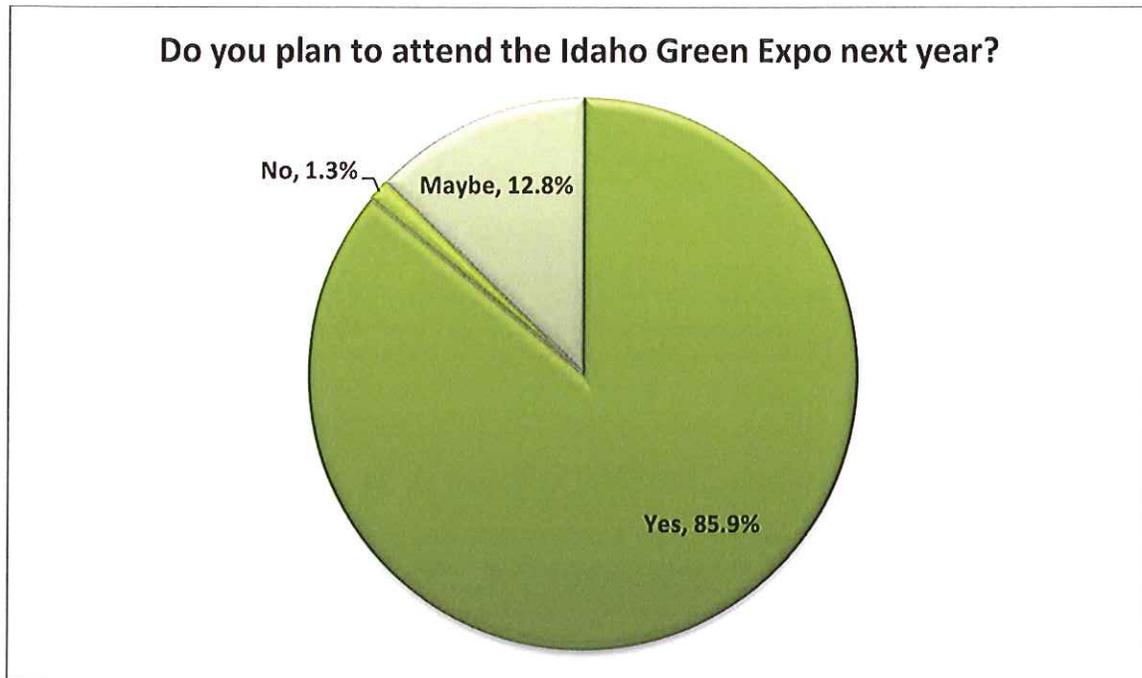
Most of the attendees spent between one and two hours at the Expo and a small portion (11.3%) spent less than an hour there.

**Exhibit 14: Length of Time Spent at the Expo**



An overwhelming majority of attendees said they plan to attend the Expo again in 2011.

**Exhibit 15: 2011 Attendance**



## Verbatim Comments

**When asked for suggestions for improving the Idaho Green Expo, these comments were offered:**

- Everything is very well laid out and the information and people are very helpful.
- everything is excellent! GO GREEN!
- it seemed a little crowded, i think it would be better to have a little more room between booths or to have a larger venue. (but I dont think you should limit the number of venders)
- its a great event.
- none. it is very good!
- thanks thanks. great to see the growth in 3 years. exhibitors are showing completed projects they were talking about at the 1st green expo. congrats. great stuff.
- There is no electric vehicle show this year. That was a really exciting exhibit, especially for young people last year and the year before.
- The first year the expo focused on like minded people working toward a greener environment. Last year was poor and this year, better with the workshops, is very commercial with big companies and business. Buying a \$500.00 compost bin for a 2 person household is not cost efficient. Small steps by individuals would be a more interesting focus to many of us.
- More theater!
- more free stuff!
- Keep doing it
- More workshops
- have less retail venders selling products that we all know about or see at places like the state fair. would be interested in more information provided from local and non-local corporations actively involved in the alternative energy, and organic food markets / investments.
- More SAMPLES!
- More food choices, health food choices, to eat while you are here. The food the venue sells sucks, and we are starving. We would spend more time here, but need to leave to eat.
- Kids hours longer, they didn't get to participate and tomorrow is moms day, not coming back
- keep ecokids open later
- Expand the transportation section to include more about city cycling; gardening workshops
- It is just WONDERFUL !!!
- Keep up the great work!!!!
- Nope I love the expo and all the great ideas it offers
- more green creave solutions

- Expand creative solutions and innovators!
  - more free pens (just kidding)  
not really, it was pretty good
  - no, it was awesome
  - The hands-on exhibits were especially engaging for kids and attending adults. The beekeeping, trash sorting. More practical, hands-on exhibits would be great!
  - contest to win this computer!!!!
  - No, everything is great!
  - Free parking for this event!!
  - outdoors!
  - no it is good
  - More gardening and landscaping workshops (choosing turf, for instance). More xeric landscaping is something we can all do to make a difference. We can't all afford solar panels or other green technology at this point.
  - None. I wish I had stayed longer. I would have liked to see more of the special topics and demonstrations.
  - Increased advertising weeks in advance
  - public transportation shuttle
  - i think there should be more teenage oriented games in ecokids
  - add a map.
  - More middle school educational hands on activities. Adult expo not entertaining for kids, but eco kids too young for 3rd grade and up.
  - have more veritiry
  - Going green is more than lower utility bills or growing a garden. We need some real discussion on structures that provide sustainability for all, yes all, mankind. That will require rethinking our current models.
  - have some exhibits outside
  - It was awesome but some organizations that wanted to have a booth were unable to because of the high cost of booth space. There should be a certain amount of people who can be sponsored by the expo to have a booth who are unable to afford the high cost of booth space. The massive amount of money that was made this weekend goes to what? Money is green but not that green!!
  - More seminars with ideas for individuals/families to conserve.
  - anything extra on how easy it is for people to do green things.
  - no manual lawn mowing opportunities presented.
  - make volunteer shirts purple
  - More contractors
  - Let vendors know in advance about booth request
  - Free Food for Visitors.
- HAD FUN !!

- More information for practically making a difference in moving Idaho to a more sustainable community (How to personally make a larger impact)
- more on sustainable gardening next year
- address water conservation, use of gray water.
- Some more of the big thinkers who lead green design and engineering, as were here in 2009. Would also have loved to have a tankless-water-heater vendor here. None-the-less, great job.
- keep up the good work
- my 9 year old says he wants to do origami out of recycled paper.
- none- liked everything
- more samples!
- More variety of vendor booths
- Keep growing the workshops - incentives to attend the 2020.
- Please tone down intercom when there are fewer people (end of day) - deafening!
- include other colors
- valet bike parking
- I was unable to fully see the expo. Therefore I have no comments. I did enjoy the workshop.
- more workshops like seed saving and got worms....they were great sources of knowledge
- more mini work shops
- Eco Beer home brew contest!
- Find more ways to publicize and "hound people" for 45 days prior
- More recycled items by vendors
- Get more younger people
- More nutritious food samples
- More samples
- Less wine
- shorter surveys
- Be more selective about the people and business's you let into your event, specifically the green within room. A green within room should be actual ways for people to improve their health, not based on mysticism. Get rid of all the crap not founded in reality or that has to bearing to a green within room (ex. Reiki, crystals, the lady just selling sandals). Lastly, buy out the Boise Centre on the Grove's concession stand and get rid of the crap (processed nachos, hot dogs, and pretzels, bagged chips, cookies, etc.). There is an amazing local food scene that could use the publicity and this would be a great way to showcase them. Find a concession sponsor, and then sub rent space to local vendors. This makes your expo more eco-viable and healthier at the same time!

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# 2010 Idaho Power Ductless Heat Pump Pilot Survey



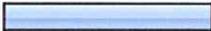
1. Please enter the following information that will help us evaluate the overall program.

	Response Percent	Response Count
Name of company that installed your ductless heat pump: <input type="text"/>	100.0%	41
City you live in: <input type="text"/>	97.6%	40
	answered question	41
	skipped question	0

2. How did you hear about Idaho Power's Ductless Heat Pump Pilot Program? (check all that apply)

	Response Percent	Response Count
Heating and cooling contractor <input type="checkbox"/>	43.9%	18
Idaho Power Web site <input type="checkbox"/>	7.3%	3
Friend or relative <input type="checkbox"/>	12.2%	5
Letter from Idaho Power <input type="checkbox"/>	39.0%	16
Community event <input type="checkbox"/>	4.9%	2
Idaho Power employee <input type="checkbox"/>	2.4%	1
Other (please specify) <input type="checkbox"/>	7.3%	3
	answered question	41
	skipped question	0

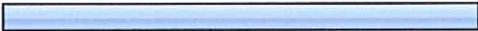
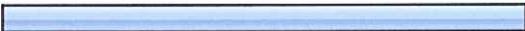
**3. Were you aware of Idaho Power offering an incentive for the purchase of a ductless heat pump prior to your purchase?**

		Response Percent	Response Count
Yes		68.3%	28
No		31.7%	13
<b>answered question</b>			<b>41</b>
<b>skipped question</b>			<b>0</b>

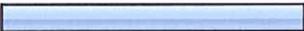
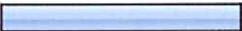
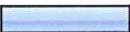
**4. How much did the Idaho Power incentive influence your purchasing decision?**

		Response Percent	Response Count
A lot		72.5%	29
Some		27.5%	11
Not at all		0.0%	0
<b>answered question</b>			<b>40</b>
<b>skipped question</b>			<b>1</b>

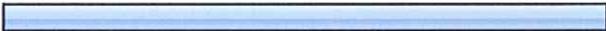
**5. Why did you choose to install a ductless heat pump? (Check all that apply)**

		Response Percent	Response Count
Contractor suggested it		24.4%	10
Reduce electric bill		73.2%	30
Receive incentive		56.1%	23
Best technology for the purpose		36.6%	15
No ducting available for other heating sources		80.5%	33
Other (please specify)		7.3%	3
<b>answered question</b>			<b>41</b>
<b>skipped question</b>			<b>0</b>

**6. What factors influenced your decision to hire the contractor you did for this project: (Check all that apply)**

		Response Percent	Response Count
Contractor on Idaho Power's list of participating companies		46.3%	19
Recommendation from friend or relative		19.5%	8
Familiarity		36.6%	15
Price		19.5%	8
Other (please specify)		19.5%	8
<b>answered question</b>			<b>41</b>
<b>skipped question</b>			<b>0</b>

**7. Overall, how would you rate the contractor's knowledge of Idaho Power's Ductless Heat Pump Pilot Program?**

		Response Percent	Response Count
Very knowledgeable		92.7%	38
Somewhat knowledgeable		7.3%	3
Neutral		0.0%	0
Not very knowledgeable		0.0%	0
Not knowledgeable at all		0.0%	0
<b>answered question</b>			<b>41</b>
<b>skipped question</b>			<b>0</b>

**8. Please rate the contractor on the following questions using a scale of 1 to 5 where "1" means you Strongly Disagree with the statement and "5" means you Strongly Agree with the statement:**

	Strongly Agree 5	4	Neutral 3	2	Strongly Disagree 1	N/A	Response Count
Contractor arrived at scheduled time	90.2% (37)	4.9% (2)	4.9% (2)	0.0% (0)	0.0% (0)	0.0% (0)	41
Contractor was courteous	90.0% (36)	10.0% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	40
Contractor was thorough	78.0% (32)	19.5% (8)	2.4% (1)	0.0% (0)	0.0% (0)	0.0% (0)	41
Contractor spent enough time explaining how to use the new equipment	77.5% (31)	17.5% (7)	5.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	40
<b>answered question</b>							<b>41</b>
<b>skipped question</b>							<b>0</b>

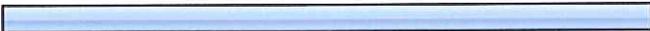
9. How likely would you be to recommend this contractor to a friend or relative?

		Response Percent	Response Count
Definitely would		90.2%	37
Probably would		7.3%	3
May or may not		2.4%	1
Probably would not		0.0%	0
Definitely would not		0.0%	0
<b>answered question</b>			<b>41</b>
<b>skipped question</b>			<b>0</b>

**10. Overall, how satisfied are you with Idaho Power's Ductless Heat Pump Pilot Program?**

		Response Percent	Response Count
Very satisfied		97.5%	39
Somewhat satisfied		2.5%	1
Neither satisfied nor dissatisfied		0.0%	0
Somewhat dissatisfied		0.0%	0
Very dissatisfied		0.0%	0
		<b>answered question</b>	<b>40</b>
		<b>skipped question</b>	<b>1</b>

**11. How likely would you be to recommend Idaho Power's Ductless Heat Pump Pilot Program to a friend or relative?**

		Response Percent	Response Count
Definitely would		100.0%	40
Probably would		0.0%	0
May or may not		0.0%	0
Probably would not		0.0%	0
Definitely would not		0.0%	0
<b>answered question</b>			<b>40</b>
<b>skipped question</b>			<b>1</b>

**12. If you have other comments about the Ductless Heat Pump Pilot Program, please enter them below:**

	Response Count
	13
<b>answered question</b>	<b>13</b>
<b>skipped question</b>	<b>28</b>

**1. Please enter the following information that will help us evaluate the overall**

**Name of company that installed your ductless heat pump:**

1	Jacob Mecham Electric	Jul 17, 2010 6:31 PM
2	Jim's Heating and AC	Jul 21, 2010 6:35 PM
3	Jerry's	Jul 21, 2010 6:45 PM
4	One Hour Heating & Air Conditioning/Youngberg	Jul 21, 2010 6:46 PM
5	Vogts	Jul 21, 2010 6:56 PM
6	First Call Jewel	Jul 21, 2010 6:57 PM
7	Youngberg Heating & Cooling	Jul 21, 2010 6:59 PM

# 1. Please enter the following information that will help us evaluate the overall

## Name of company that installed your ductless heat pump:

8	Comfort Zone Heating	Jul 21, 2010 7:00 PM
9	Owyhee Sheet Metal	Jul 21, 2010 7:01 PM
10	A-1 Heating	Jul 21, 2010 7:02 PM
11	A-1 Heating	Jul 21, 2010 7:04 PM
12	Jim's Heating	Jul 21, 2010 7:05 PM
13	Terrys Heating	Jul 21, 2010 7:06 PM
14	Jim's Heating	Jul 21, 2010 7:07 PM
15	First Call Jewel	Jul 23, 2010 8:07 PM
16	Vogts	Jul 23, 2010 8:08 PM
17	Vogts	Jul 23, 2010 8:09 PM
18	YMC Heating & Cooling	Jul 23, 2010 8:09 PM
19	Vogts	Jul 26, 2010 7:27 PM
20	Vogts	Jul 26, 2010 7:28 PM
21	Youngberg	Jul 29, 2010 1:11 AM
22	Vogts	Jul 30, 2010 4:17 PM
23	Youngberg Heating and Cooling	Aug 2, 2010 4:16 PM
24	blank	Aug 3, 2010 5:13 PM
25	K&M Refrigeration	Aug 5, 2010 5:29 PM
26	Jerry's	Aug 16, 2010 8:44 PM
27	First Call Jewel	Aug 21, 2010 10:54 PM
28	Mountain West Mechanical in Rexburg	Aug 28, 2010 3:24 AM
29	Terry's Heating & AC	Sep 8, 2010 2:34 AM
30	Owyhee Sheet Metal	Sep 8, 2010 2:35 AM
31	Jerry's Heating & Air Conditioning	Sep 8, 2010 2:36 AM
32	HVAC Services in Jerome	Sep 8, 2010 2:37 AM
33	Mayne Mechanical	Sep 8, 2010 2:38 AM
34	Terry's Heating	Sep 8, 2010 2:39 AM
35	Vogts	Sep 8, 2010 2:40 AM
36	Terry's Heating	Sep 8, 2010 2:41 AM
37	Brizee Heating	Sep 8, 2010 2:42 AM
38	Terry's Heating & AC	Sep 8, 2010 2:43 AM
39	HVAC Services Inc	Feb 8, 2011 6:31 PM
40	Advanced Heating & Cooling	Feb 8, 2011 6:33 PM
41	K-M Refrigeration	Feb 8, 2011 6:34 PM

# 1. Please enter the following information that will help us evaluate the overall

## City you live in:

1	Blackfoot	Jul 17, 2010 6:31 PM
2	Boise	Jul 21, 2010 6:35 PM
3	Hagerman	Jul 21, 2010 6:45 PM
4	Caldwell	Jul 21, 2010 6:46 PM

# 1. Please enter the following information that will help us evaluate the overall

City you live in:

5	Pocatello	Jul 21, 2010 6:56 PM
6	Blackfoot	Jul 21, 2010 6:57 PM
7	Cambridge	Jul 21, 2010 6:59 PM
8	Vale	Jul 21, 2010 7:00 PM
9	Caldwell	Jul 21, 2010 7:01 PM
10	Emmett	Jul 21, 2010 7:02 PM
11	Emmett	Jul 21, 2010 7:04 PM
12	Boise	Jul 21, 2010 7:05 PM
13	Twin Falls	Jul 21, 2010 7:06 PM
14	Emmett	Jul 21, 2010 7:07 PM
15	Blackfoot	Jul 23, 2010 8:07 PM
16	American Falls	Jul 23, 2010 8:08 PM
17	Pocatello	Jul 23, 2010 8:09 PM
18	Hammett	Jul 23, 2010 8:09 PM
19	Chubbuck	Jul 26, 2010 7:27 PM
20	Chubbuck	Jul 26, 2010 7:28 PM
21	New Plymouth	Jul 29, 2010 1:11 AM
22	Pocatello	Jul 30, 2010 4:17 PM
23	Emmett, Idaho	Aug 2, 2010 4:16 PM
24	blank	Aug 3, 2010 5:13 PM
25	Blackfoot	Aug 5, 2010 5:29 PM
26	Buhl	Aug 16, 2010 8:44 PM
27	Pocatello	Aug 21, 2010 10:54 PM
28	Pocatello Idaho	Aug 28, 2010 3:24 AM
29	Twin Falls	Sep 8, 2010 2:34 AM
30	Nampa	Sep 8, 2010 2:35 AM
31	Hagerman	Sep 8, 2010 2:36 AM
32	Wendell	Sep 8, 2010 2:37 AM
33	Bruneau	Sep 8, 2010 2:38 AM
34	Hagerman	Sep 8, 2010 2:39 AM
35	American Falls	Sep 8, 2010 2:40 AM
36	Hagerman	Sep 8, 2010 2:41 AM
37	Twin Falls	Sep 8, 2010 2:42 AM
38	Jerome	Sep 8, 2010 2:43 AM
39	Shoshone	Feb 8, 2011 6:31 PM
40		Feb 8, 2011 6:33 PM
41	Blackfoot	Feb 8, 2011 6:34 PM

## 2. How did you hear about Idaho Power's Ductless Heat Pump Pilot Program?

Other (please specify)		
1	Company seminar	Jul 21, 2010 6:56 PM
2	I can't really remember.	Jul 30, 2010 4:17 PM
3	Newspaper	Feb 8, 2011 6:34 PM

## 5. Why did you choose to install a ductless heat pump? (Check all that apply)

Other (please specify)		
1	Wanted air conditioning to cool whole house.	Jul 21, 2010 6:45 PM
2	Fast install; very little mess.	Jul 30, 2010 4:17 PM
3	Get A/C	Aug 28, 2010 3:24 AM

## 6. What factors influenced your decision to hire the contractor you did for this

Other (please specify)		
1	work for him	Jul 17, 2010 6:31 PM
2	Home Depot recommended	Jul 21, 2010 7:00 PM
3	Been a local business for years.	Jul 21, 2010 7:01 PM
4	I have used them for other.	Jul 30, 2010 4:17 PM
5	Spring Fair	Aug 21, 2010 10:54 PM
6	Most helpful in phone conversation	Aug 28, 2010 3:24 AM
7	Nearby contractor	Sep 8, 2010 2:38 AM
8	Personal research	Sep 8, 2010 2:43 AM

## 12. If you have other comments about the Ductless Heat Pump Pilot Program,

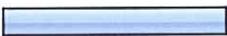
Response Text		
1	Very satisfied with performance. Above expectations. B. Bendixsen	Jul 21, 2010 6:57 PM
2	Contractor at first undersized unit and had to replace with a larger unit at additional cost.	Jul 21, 2010 6:59 PM
3	Great program - hope it can help others also.	Jul 21, 2010 7:04 PM
4	I love the system. Another good point: it's so quiet.	Jul 21, 2010 7:07 PM
5	When contractor was explaining how to use the equipment it was kind of fast and confusing. I have already recommended the program to several people - it's a great system. I had no heat in my living areas and could not place a furnace with ductwork so this was perfect!	Jul 30, 2010 4:17 PM
6	The installation was not a professional as what I expected it would be. Not enough time was spent showing us how to use the unit. They set it up then told us to read the manual.	Aug 2, 2010 4:16 PM

## 12. If you have other comments about the Ductless Heat Pump Pilot Program,

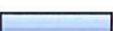
Response Text		
7	Should be advertised more	Aug 28, 2010 3:24 AM
8	Thank you!	Sep 8, 2010 2:36 AM
9	Federal income tax credits may expire this year.	Sep 8, 2010 2:40 AM
10	After seeing mine my neighbor got one.	Sep 8, 2010 2:41 AM
11	Thank you.	Sep 8, 2010 2:42 AM
12	Contractor did an outstanding job and was very professional.	Sep 8, 2010 2:43 AM
13	We hope these units will heat as good as they cool. They operate so nice and quiet.	Feb 8, 2011 6:33 PM

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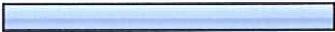
1. What brought you to the Women's Show today? (check all that apply)

		Response Percent	Response Count
To shop the "Show"		24.2%	116
To pick up samples and get other free stuff		34.2%	164
To learn about women's fitness and healthy choices		19.8%	95
To pick up my race number and t-shirt		46.7%	224
To mingle with active women		16.9%	81
To see a specific presentation or performance		3.3%	16
I am a volunteer		8.3%	40
My organization is involved in the Women's Show		11.0%	53
	Other (please specify)		18
	<b>answered question</b>		<b>480</b>
	<b>skipped question</b>		<b>16</b>

2. How did you hear about the Women's Show? (check all that apply)

		Response Percent	Response Count
Radio		12.4%	52
TV		24.6%	103
Idaho Statesman		17.0%	71
Boise Weekly		3.8%	16
Poster		6.2%	26
Facebook		3.3%	14
<b>Word-of-Mouth</b>		<b>39.7%</b>	<b>166</b>
Billboard		6.7%	28
Web site		10.3%	43
Email		16.7%	70
Sponsoring Organization		16.3%	68
	Other (please specify)		90
	<b>answered question</b>		<b>418</b>
	<b>skipped question</b>		<b>78</b>

3. If you have attended the Women's Show in previous years, what years did you attend? (check all that apply)

		Response Percent	Response Count
2007 or prior		50.9%	249
2008		41.5%	203
2009		44.8%	219
This is my first year attending		26.4%	129
		<b>answered question</b>	<b>489</b>
		<b>skipped question</b>	<b>7</b>

4. Did you come to the Women's Show alone or did you come with someone else?

		Response Percent	Response Count
Came alone		19.4%	94
Came with spouse/significant other		11.1%	54
Came with teenage child/children		7.0%	34
Came with child/children under 12		8.0%	39
Came with friend(s)		48.9%	237
Came with co-worker(s)		5.6%	27
		<b>answered question</b>	<b>485</b>
		<b>skipped question</b>	<b>11</b>

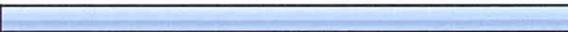
**5. Which day(s) are you attending the Women's Show?**

	Response Percent	Response Count
Thursday 	45.4%	223
Friday 	44.0%	216
Both Thursday and Friday 	10.6%	52
	<b>answered question</b>	<b>491</b>
	<b>skipped question</b>	<b>5</b>

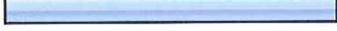
**6. How much time do you plan to spend at the Women's Show?**

	Response Percent	Response Count
Less than 1 hour 	6.3%	31
1-2 hours 	53.8%	264
2-3 hours 	27.7%	136
More than 3 hours 	12.2%	60
	<b>answered question</b>	<b>491</b>
	<b>skipped question</b>	<b>5</b>

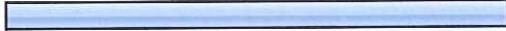
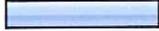
**7. Do you plan to attend the Women's Show again next year?**

	Response Percent	Response Count
Yes 	88.2%	434
No 	0.2%	1
Not sure 	11.6%	57
	<b>answered question</b>	<b>492</b>
	<b>skipped question</b>	<b>4</b>

**8. What motivated you to stop at the Idaho Power booth? (check all that apply)**

		Response Percent	Response Count
To learn about energy efficiency		12.6%	61
To learn about Idaho Power's programs		9.3%	45
To ask a question		3.9%	19
To get the lip balm they were giving away		41.3%	200
To register to win the Kindle 3G		63.0%	305
Friendly people working at the booth		50.6%	245
	Other (please specify)		13
	<b>answered question</b>		<b>484</b>
	<b>skipped question</b>		<b>12</b>

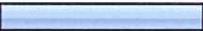
**9. Do you own or rent the home you live in?**

		Response Percent	Response Count
Own		77.0%	378
Rent		23.0%	113
	<b>answered question</b>		<b>491</b>
	<b>skipped question</b>		<b>5</b>

10. Are you the person that pays the electricity bill for your home?

		Response Percent	Response Count
Yes		83.5%	410
No		11.2%	55
Sometimes		5.3%	26
		answered question	491
		skipped question	5

11. Which of the following best describes your role when making purchase or upgrade decisions for your home?

		Response Percent	Response Count
Influencer		8.2%	40
Primary decision maker		30.9%	151
Co-decision maker		56.1%	274
Bystander		4.7%	23
		answered question	488
		skipped question	8

12. Have you participated in any of the following Idaho Power programs? (Check all that apply)

		Response Percent	Response Count
A/C Cool Credit		39.3%	116
Heating & Cooling Efficiency		18.0%	53
Home Products		11.9%	35
ENERGY STAR Lighting		12.9%	38
ENERGY STAR Homes		13.2%	39
Energy House Calls		1.4%	4
See Ya Later Refrigerator		6.1%	18
Home Improvement		15.3%	45
Weatherization Assistance for Qualified Customers		2.7%	8
Preferred Pay		13.2%	39
Budget Pay		34.6%	102
Green Power		4.4%	13
Net Metering		2.7%	8
	Other (please specify)		7
<b>answered question</b>			<b>295</b>
<b>skipped question</b>			<b>201</b>

**13. In the past three years, have you installed or replaced any of the following at your home?**

	Yes	No	Don't know	Response Count
Attic insulation	12.9% (47)	83.0% (303)	4.1% (15)	365
Duct sealing	10.2% (36)	84.7% (299)	5.1% (18)	353
Window(s)	22.6% (86)	73.7% (280)	3.7% (14)	380
Furnace	17.4% (64)	78.8% (290)	3.8% (14)	368
Heat Pump	7.8% (27)	86.8% (302)	5.5% (19)	348
Central air conditioning system	16.8% (61)	79.6% (289)	3.6% (13)	363
Refrigerator(s)	35.6% (139)	61.8% (241)	2.6% (10)	390
Stand-alone freezer	18.1% (66)	78.3% (285)	3.6% (13)	364
Dishwasher	30.4% (114)	66.7% (250)	2.9% (11)	375
Clothes washer	39.7% (156)	57.3% (225)	3.1% (12)	393
			<b>answered question</b>	<b>454</b>
			<b>skipped question</b>	<b>42</b>

**14. What is your zip code?**

	Response Count
	479
	<b>answered question</b>
	<b>479</b>
	<b>skipped question</b>
	<b>17</b>

15. What is your gender?

		Response Percent	Response Count
Female		93.7%	459
Male		6.3%	31
<b>answered question</b>			<b>490</b>
<b>skipped question</b>			<b>6</b>

16. Which of the following best describes your age?

		Response Percent	Response Count
Under 18		0.6%	3
19-25		6.2%	30
26-35		22.8%	111
36-45		23.0%	112
46-60		37.2%	181
Over 60		10.1%	49
<b>answered question</b>			<b>486</b>
<b>skipped question</b>			<b>10</b>

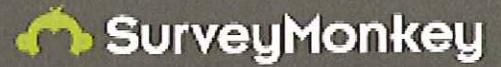
**17. What is the highest level of education you have completed?**

	Response Percent	Response Count
Less than High School 	0.8%	4
High School or Equivalent 	11.9%	58
<b>Some College/Technical School</b> 	<b>41.6%</b>	<b>202</b>
4 year College Degree 	25.7%	125
Some Graduate courses 	8.2%	40
Graduate Degree 	11.7%	57
	<b>answered question</b>	<b>486</b>
	<b>skipped question</b>	<b>10</b>

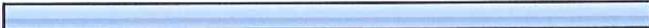
**18. For a chance to win the Kindle 3G, please enter your email address below.**

	Response Count
	462
	<b>answered question</b> <b>462</b>
	<b>skipped question</b> <b>34</b>

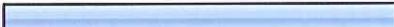
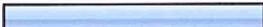
2010 Heating and Cooling Efficiency Program  
Evaporative Cooler Survey



1. 1. Please enter the following information that will help us evaluate the overall program.

	Response Percent	Response Count
City you live in: 	100.0%	5
Retail store where you bought evaporative cooler: 	100.0%	5
	answered question	5
	skipped question	0

2. 2. Were you aware of Idaho Power offering an incentive for the purchase of an evaporative cooler prior to your purchase?

	Response Percent	Response Count
Yes 	60.0%	3
No 	40.0%	2
	answered question	5
	skipped question	0

**3. 3. How much did the Idaho Power incentive influence your purchasing decision?**

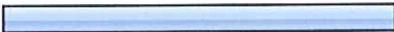
		Response Percent	Response Count
A lot		60.0%	3
Some		0.0%	0
Not at all		40.0%	2
answered question			5
skipped question			0

**4. 4. How would your purchase of an evaporative cooler have changed, if you had not received an incentive from Idaho Power?**

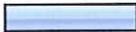
Would you have.....

		Response Percent	Response Count
Postponed the purchase		0.0%	0
Repaired existing equipment		20.0%	1
Purchased less expensive equipment		0.0%	0
Installed less energy efficient equipment		40.0%	2
Purchase decision would not have changed at all		40.0%	2
answered question			5
skipped question			0

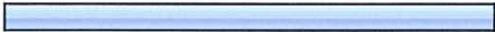
**5. 5. How did you hear about Idaho Power's Heating and Cooling Efficiency program? (please check all that apply)**

		Response Percent	Response Count
Bill insert		0.0%	0
Community event		0.0%	0
<b>Retail store</b>		60.0%	3
Friend or relative		0.0%	0
Idaho Power Web site		40.0%	2
Idaho Power employee		0.0%	0
	Other (please specify)		3
	<b>answered question</b>		<b>5</b>
	<b>skipped question</b>		<b>0</b>

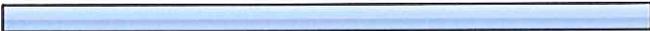
**6. 6. Overall, how easy was it for you to participate in Idaho Power's Heating and Cooling Efficiency Program?**

		Response Percent	Response Count
<b>Very easy</b>		80.0%	4
Somewhat easy		20.0%	1
Neutral		0.0%	0
Somewhat difficult		0.0%	0
Very difficult		0.0%	0
	<b>answered question</b>		<b>5</b>
	<b>skipped question</b>		<b>0</b>

**7. 7. Overall, how satisfied are you with Idaho Power's Heating and Cooling Efficiency program?**

		Response Percent	Response Count
Very satisfied		75.0%	3
Somewhat satisfied		0.0%	0
Neither satisfied nor dissatisfied		25.0%	1
Somewhat dissatisfied		0.0%	0
Very dissatisfied		0.0%	0
		<b>answered question</b>	<b>4</b>
		<b>skipped question</b>	<b>1</b>

**8. 8. How likely would you be to recommend Idaho Power's Heating and Cooling Efficiency program to a friend or relative?**

		Response Percent	Response Count
Definitely would		100.0%	4
Probably would		0.0%	0
May or may not		0.0%	0
Probably would not		0.0%	0
Definitely would not		0.0%	0
<b>answered question</b>			<b>4</b>
<b>skipped question</b>			<b>1</b>

**9. Entering the following information is optional:**

		Response Percent	Response Count
Name:		100.0%	3
Address		100.0%	3
Phone #:		66.7%	2
<b>answered question</b>			<b>3</b>
<b>skipped question</b>			<b>2</b>

10. If you have other comments about the Heating and Cooling Efficiency Program, please enter them below:

Response  
Count

3

answered question

3

skipped question

2

**Idaho Power  
Easy Savings Program 2010**

Scantron Survey Summary Report

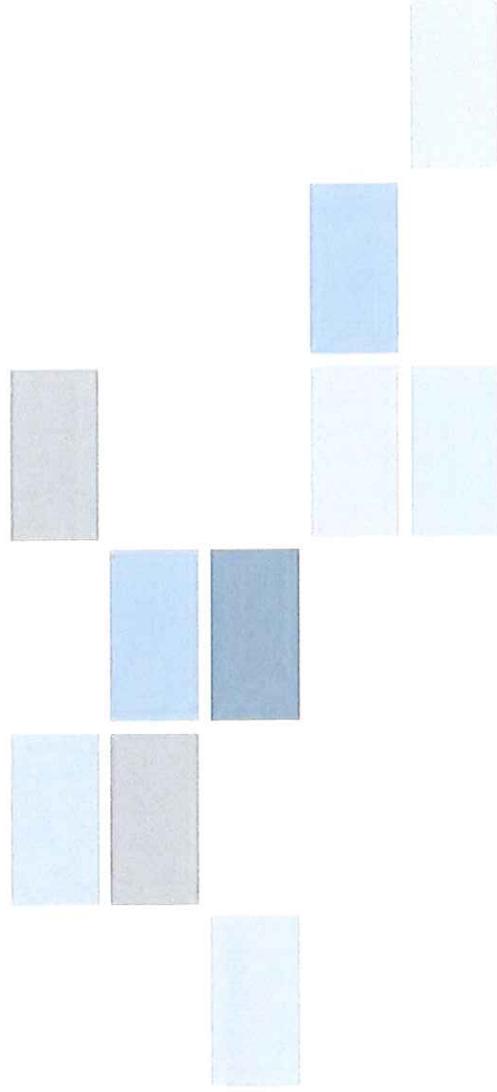
<u>Question</u>	<u>Number Answered</u>	<u>Percent Answered</u>
How much would you like to save?		
\$30 - Install just the showerhead, CFLs, and LED Night Light	8	3.08%
\$85 - Install the showerhead, CFLs, LED Night Light, and unplug under used appliances	42	16.15%
\$300 - Complete the Easy Savings® Quick Start Guide Steps	<u>210</u>	80.77%
	<b>260</b>	
<b>2. Have you (or will you) lower your heat during the day?</b>		
Yes	258	94.51%
No	<u>15</u>	5.49%
	<b>273</b>	
<b>3. Have you (or will you) lower your heat at night?</b>		
Yes	258	94.85%
No	<u>14</u>	5.15%
	<b>272</b>	
<b>4. Did you place the Thermostat Temperature Sticker near your thermostat?</b>		
Yes	226	85.61%
No	<u>38</u>	14.39%
	<b>264</b>	
<b>5. How many new Compact Fluorescent Lamps (CFLs) did you install?</b>		
1	10	3.77%
2	247	93.21%
Didn't install CFLs	<u>8</u>	3.02%
	<b>265</b>	
<b>6. Did you place the Turn Off Light Sticker near a light switch that was often left on?</b>		
Yes	218	82.26%
No	<u>47</u>	17.74%
	<b>265</b>	
<b>7. Do you turn off lights in empty rooms more often now?</b>		
Yes	260	96.30%
No	<u>10</u>	3.70%
	<b>270</b>	
<b>8. Did you install the High-Efficiency Showerhead?</b>		
Yes	231	85.56%
No	<u>39</u>	14.44%
	<b>270</b>	
<b>9. Do you use cold water when you do your laundry?</b>		
Yes, always	172	63.47%
Yes, sometimes	98	36.16%
Never	<u>1</u>	0.37%
	<b>271</b>	
<b>10. Did you place the Wash in Cold Water Magnet on your washing machine?</b>		
Yes	188	69.37%
No	34	12.55%
Don't have a washing machine	<u>49</u>	18.08%
	<b>271</b>	
<b>11. Did you use the Digital Thermometer to check the temperature of your water?</b>		
Yes	222	85.38%
No	<u>38</u>	14.62%
	<b>260</b>	

**Idaho Power  
Easy Savings Program 2010**

<b>12. Did you change the temperature setting of your water heater?</b>			
	Yes, raised (warmer)	22	8.30%
	Yes, lowered (cooler)	116	43.7%
	No	<u>127</u>	47.0%
		<b>265</b>	
<b>13. Did you check the temperature of your refrigerator(s) and freezer(s)?</b>			
	Yes	248	92.54%
	No	<u>20</u>	7.46%
		<b>268</b>	
<b>14. Did you adjust the temperature of your refrigerator(s) and freezer(s)?</b>			
	Yes, turned up (warmer)	96	36.50%
	Yes, turned down (colder)	62	23.57%
	No	<u>105</u>	39.92%
		<b>263</b>	
<b>15. Did you recycle or unplug your second or old refrigerators or freezers?</b>			
	Yes, recycled 1 unit	27	10.55%
	Yes, unplugged 2 units	36	14.06%
	Yes, unplugged 1 unit	5	1.95%
	No	<u>188</u>	73.44%
		<b>256</b>	
<b>16. Did you place the Turn Your Computer Off Sticker on your computer?</b>			
	Yes	144	53.73%
	No	27	10.07%
	I don't have a computer	<u>97</u>	36.19%
		<b>268</b>	
<b>17. How many items from your Easy Savings® Kit did you install?</b>			
	1	3	1.15%
	2	4	1.5%
	3	20	7.5%
	4	67	25.57%
	5+	<u>168</u>	64.12%
		<b>262</b>	
<b>18. What is your average yearly income?</b>			
	\$0 - \$7,999	73	27.44%
	\$8,000 - \$15,999	109	40.98%
	\$16,000 - \$23,999	52	19.55%
	\$24,000 - \$31,999	11	4.14%
	\$32,000+	0	0.00%
	No Answer	<u>21</u>	7.89%
		<b>266</b>	
<b>19. How effective was the Easy Savings® Quick Start Guide in helping you install the items in your kit?</b>			
	Very helpful	221	82.46%
	Somewhat helpful	39	14.55%
	Not helpful	2	0.75%
	Didn't use	<u>6</u>	2.24%
		<b>268</b>	
<b>20. Now that you have completed the Easy Savings® Quick Start Guide, how much have you learned about saving energy and money in your home?</b>			
	I learned a lot	206	76.87%
	I learned a little	58	21.64%
	Nothing	<u>4</u>	1.49%
		<b>268</b>	

# Idaho Power 2010 Residential End-Use Survey

January 2011



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## Research Background

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- The Residential End-Use Survey is a periodic market research study conducted by Idaho Power Company. The primary objective of the 2010 study is to profile residential customers to better understand their housing and end-use characteristics which includes home demographics, fuel source, home heating and cooling, and appliance and consumer electronics saturation.
- In addition, actual monthly kWh usage information at the customer-level was linked to the survey data to analyze predictors of kWh usage.

# Research Methodology

- The targeted population of this study is Idaho Power's base of residential customers across the entire service territory. Three sample lists including customer names and addresses were provided by Idaho Power:
  - A random sample of residential customers to be used for the overall analysis
  - A random sample of Oregon customers to be combined with the Oregon customer results from the random sample
  - A list of all Load Research customers to be collected and cleaned but not analyzed
- A six-page survey was mailed to these customers. Two methodologies were employed: mail and Internet. The survey was mailed to a total of 5,407 customers, and customers had an option to complete the survey on-line with each customer having a URL to access and a unique personal identification number (PIN) to enter upon arrival to the website.
- Approximately four weeks after the initial mailing, a follow-up postcard was sent to all customers who received the first mailing reminding them about completing the survey. About two weeks after the postcard was delivered a second survey package was sent to those who had not yet completed the survey. (Note: Of the 4,065 non-responders from the first mailing, 3,093 received a second survey mailing due to budgetary constraints.)
- A total of 1,943 survey responses were received distributed across three samples: 1721 surveys from the general sample (35% response rate), 124 surveys from the Oregon-only list (43% response rate), and 98 surveys from the Load Research sample (37% response rate).

	Mailings			Total Survey Mail Outs	Returns			
	1st Mailing (9-30-10)	Reminder Postcard (10-28-10)	2nd Mailing (11-12-10)		Mail	Web	Survey Returns	Response Rate
Main Sample	4,851	4,851	2,682	7,533	1,442	279	1,721	35%
Oregon Oversample	288	288	210	498	113	11	124	43%
Load Research Sample	268	268	201	469	84	14	98	37%
<b>TOTAL</b>	<b>5,407</b>	<b>5,407</b>	<b>3,093</b>	<b>8,500</b>	<b>1,639</b>	<b>304</b>	<b>1,943</b>	

# Research Methodology

- Idaho Power provided three sample lists including customer name and address:
  - Main sample: A random sample of residential customers to be used for the overall analysis. The list included five operating regions (Canyon, Capital, Eastern, Payette, Southern).
  - Oregon oversample: A random sample of Oregon customers to be combined with the Oregon customer results from the main sample.
  - Load Research sample: List of all Load Research customers to be collected and cleaned but not analyzed.
- Sample was pulled proportional to the distribution in the Main and Supplement sample pulls.
- This report presents the results from the main sample and the Oregon oversample.
- The sampling error\* associated with a total of 1721 interviews is  $\pm 2.4\%$  at a 95% confidence level.
- The data are weighted\* by region to accurately reflect the actual Idaho Power customer population.

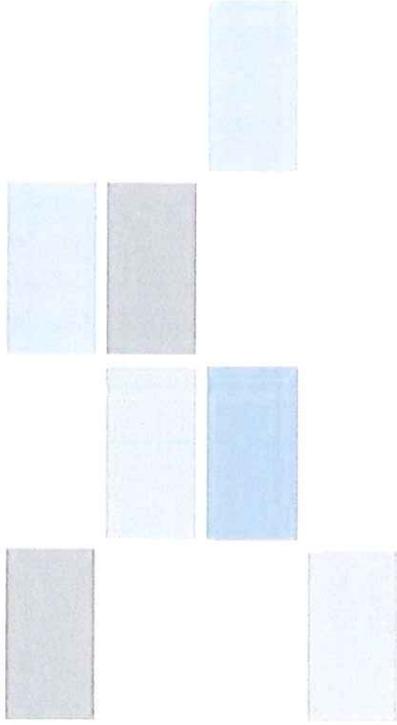
**Weighting and Sampling Error**

Region (General sample only)	Number of Surveys	Sampling Error	Unweighted Distribution	Weighted Distribution
Canyon	271	$\pm 6\%$	15.7%	17.5%
Capital	660	$\pm 4\%$	38.3%	42.0%
Eastern	212	$\pm 7\%$	12.3%	12.0%
Western	264	$\pm 6\%$	15.3%	12.4%
Southern	314	$\pm 6\%$	18.2%	16.1%
<b>Total</b>	<b>1721</b>			
<b>Jurisdiction</b>				
Idaho	1664	$\pm 2\%$		
Oregon (including oversample)	181	$\pm 7\%$		

**\*Definitions**

**Sampling error:** The degree to which the results from the sample deviate from those that would be obtained from the entire population because of random error in the selection of respondent and the corresponding reduction in reliability (e.g., the sampling error associated with Canyon (n=271) is  $\pm 6\%$ ). Therefore, the Canyon sample estimate would range from 44% to 56% in 95 out of 100 samples for a true population proportion of 50%.

**Weighting:** A data weight is a multiplier that makes the contribution from a given case (survey) larger or smaller. In this case, a data weight adjustment was applied to the System results to bring the region proportions in line with the overall population distribution.



# Executive Summary with Customer Profile Snapshots by Region and Jurisdiction

# Executive Summary

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## Housing Characteristics

- 75% live in a single-family home (consistent with 76% in 2004). (p. 14)
- 67% have one or two people living in the residence, up from 60% in 2004. (p. 15)
- 84% are home owners (compared to 80% in 2004). (p. 15)
- 24% live in a home built within the last decade (down from 27% in 2004). (p. 16)
- 56% of residences are under 1800 square feet (consistent with 57% in 2004). (p. 16)
- 74% have double pane windows and 53% have vinyl window frames. (p. 17)

## Heating & Cooling

- 68% have natural gas available at their residence. (p. 26)
- 56% say natural gas is their primary heating fuel, while 31% use electricity (down from 35% in 2004). (p. 27)
- 73% use a central furnace as their primary heating source. (p. 28)
- 46% use an additional heating system. Among these residences, 43% use a stove, fireplace, or fireplace insert. (p. 30, 32)
- Among all respondents, 69% indicated they have central air or a heat pump, up from 60% in 2004. Among those with air conditioning (85%), 75% use a central air conditioner. (p. 36-37)
- Half (50%) have a manually adjusted heating and cooling thermostat, followed by a programmable thermostat (47%). (p. 40)
- Among all respondents, 49% have an electric water heater in 2010, down from 56% in 2004.
- Among those with a water heater, 52% use electric water heaters, and another 45% use natural gas water heaters. (p. 43)
- 98% of residences have a conventional water heater. (p. 44)

# Executive Summary, cont.

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## **Appliances & Electronics**

- Natural gas stove use is 16% and natural gas oven use is 10%. (p. 46-47)
- The majority of households have one or more of the following – mid/full-size refrigerator (99%), microwave oven (96%; unchanged from 2004), electric dishwasher (82%; up from 77% in 2004) and stand-alone freezer (56%; compared to 53% in 2004). (p. 48-49, 52, 54)
- 95% have a clothes washer and dryer for private use. (p. 56-57)
  - 88% have an electric dryer, consistent with 87% in 2004.
- 85% have one or more standard TVs. Fewer have one or more: LCD TVs (52%), Plasma TVs (24%) or LED TVs (14%). (p. 61)
- 72% have a desktop computer and 66% have a laptop. (p. 61)

## **Energy Star & Energy Efficiency**

- The top two most common Energy Star-qualified appliances in the home are clothes washers (62%) and refrigerators (60%). (p. 73)
- Within the past three years, 28% have installed or replaced their clothes washer, 23% have installed or replaced their refrigerator , or and 20% have installed or replaced their dishwasher. (p. 75)
- 77% are aware that Idaho Power offers energy efficiency rebates.\* (p. 77)

# Profile Snapshots – By Region

## Canyon

- 65% have natural gas available to their home.
- 54% say natural gas is their primary heating fuel while 31% use electricity.
- 80% use a central furnace as their primary heating source.
- 44% use an additional heating system.
- Among those with air conditioning (95%), 79% use a central air conditioner.
- 53% use electric water heaters and another 43% use natural gas water heaters.
- Natural gas stove use is 14% and natural gas oven use is 11%.
- 67% are aware that Idaho Power offers energy efficiency rebates.\*
- In terms of demographic and household characteristics of respondents:
  - 44% are under 55, 19% are 55-64, 19% are 65-74, and 18% are 75 or older
  - 39% have a high school education or less, while 21% graduated from college
  - 78% live in a single-family home, and 57% live in a newer home (built after 1989)

## Capital

- 83% have natural gas available to their home.
- 72% say natural gas is their primary heating fuel.
- 85% use a central furnace as their primary heating source.
- 37% use an additional heating system.
- Among those with air conditioning (96%), 85% use a central air conditioner.
- 65% use a natural gas water heater.
- Natural gas stove use is 20% and natural gas oven use is 13%.
- 82% are aware that Idaho Power offers energy efficiency rebates.\*
- In terms of demographic and household characteristics of respondents:
  - 50% are under 55, 21% are 55-64, 15% are 65-74, and 14% are 75 or older
  - 21% have a high school education or less, while 45% graduated from college
  - 77% live in a single-family home, and 49% live in a newer home (built after 1989)

# Profile Snapshots – By Region (cont'd)

## Eastern

- 68% have natural gas available to their home.
- 56% say natural gas is their primary heating fuel while 31% use electricity.
- 66% use a central furnace as their primary heating source.
- 55% use an additional heating system.
- Among those with air conditioning (67%), 57% use a central air conditioner. 23% use a heat pump.
- 60% use electric water heaters and another 38% use natural gas water heaters.
- Natural gas stove use is 12% and natural gas oven use is 9%.
- 82% are aware that Idaho Power offers energy efficiency rebates.\*
- In terms of demographic and household characteristics of respondents:
  - 38% are under 55, 25% are 55-64, 21% are 65-74, and 16% are 75 or older
  - 29% have a high school education or less, while 31% graduated from college
  - 74% live in a single-family home, and 68% live in an older home (built before 1980)

## Western

- 29% have natural gas available to their home.
- 17% say natural gas is their primary heating fuel while 49% use electricity.
- 49% use a central furnace as their primary heating source.
- 65% use an additional heating system.
- Among those with air conditioning (69%), 53% use a central air conditioner. 22% use a heat pump and another 25% use an individual/window unit.
- 82% use electric water heaters.
- Natural gas stove use is 4% and natural gas oven use is 3%.
- 72% are aware that Idaho Power offers energy efficiency rebates.\*
- In terms of demographic and household characteristics of respondents:
  - 30% are under 55, 30% are 55-64, 23% are 65-74, and 17% are 75 or older
  - 30% have a high school education or less, while 31% graduated from college
  - 21% live in a manufactured or mobile homes, while 71% live in a single-family home. 47% say their house was built before 1980

## Southern

- 61% have natural gas available to their home.
- 46% say natural gas is their primary heating fuel while 40% use electricity.
- 58% use a central furnace as their primary heating source.
- 53% use an additional heating system.
- Among those with air conditioning (70%), 60% use a central air conditioner. 19%-20% use heat pumps or an individual/window unit.
- 68% use electric water heaters while another 30% use natural gas water heaters.
- Natural gas stove use is 19% and natural gas oven use is 10%.
- 69% are aware that Idaho Power offers energy efficiency rebates.\*
- In terms of demographic and household characteristics of respondents:
  - 37% are under 55, 28% are 55-64, 18% are 65-74, and 17% are 75 or older
  - 26% have a high school education or less, while 34% graduated from college
  - 71% live in a single-family home, and 53% live in an older home (built before 1980)

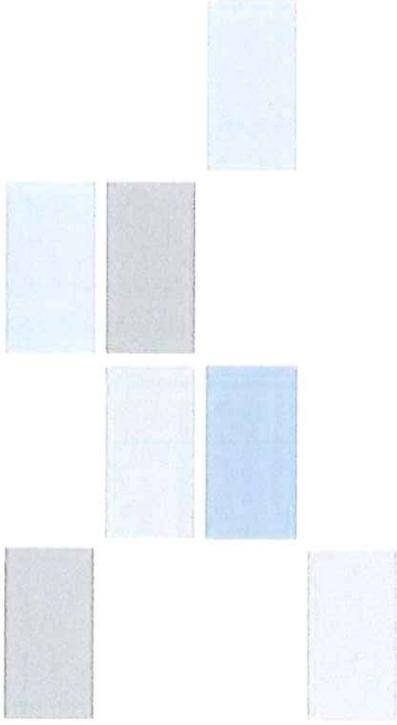
# Profile Snapshots – By Jurisdiction

## Idaho

- 69% have natural gas available to their home.
- 57% say natural gas is their primary heating fuel.
- 74% use a central furnace as their primary heating source.
- 46% use an additional heating system.
- Among those with air conditioning (85%), 75% use a central air conditioner.
- Just over half (51%) use electric water heaters and another 46% use natural gas water heaters.
- Natural gas stoves and ovens are used by 10%-16% of Idaho households.
- 77% are aware that Idaho Power offers energy efficiency rebates.\*
- Idaho respondents tend to be younger (43% under the age of 55, 23% are 55-64, 18% are 65-74, and 16% are 75 or older). They also tend to have a higher percentage with college degrees (36%), live in a single-family home (75%), and live in a newer home (44% built after 1989) compared to households in Oregon.

## Oregon

- 43% have natural gas available to their home.
- 44% say electricity is their primary heating fuel while 30% use natural gas.
- Just over half (55%) use a central furnace as their primary heating source.
- 58% use an additional heating system.
- Among those with air conditioning (86%), 54% use a central air conditioner.
- 87% use electric water heaters while another 11% use natural gas water heaters.
- Natural gas stoves and ovens are used by 2%-4% of Oregon households.
- Three in five (60%) are aware that Idaho Power offers energy efficiency rebates.\*
- Oregon respondents tend to be older (32% are under the age of 55, 26% are 55-64, 24% are 65-74, and 18% are 75 or older). They also tend to have a lower percentage with college degrees (24%), include more manufactured or mobile homes (21%), and live in an older home (42% built before 1960) compared to households in Idaho.



# Household Characteristics

# Household Characteristics

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The 2010 survey included several questions about household characteristics. Questions include:

- Type of residence
- Occupancy (primary residence occupied all or most of the year vs. seasonal/vacation home)
- Number of people living in the residence
- Own vs. rent
- Year built
- Approximate overall square footage
- Type of windows
- Type of window frames

# Household Characteristics

	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Residence Type</b>								
Single Family Home	75%	78% (e)	77%	74%	71%	71%	75% (g)	68%
Apartment, condo, townhouse – 2-3 units	8%	4%	10% (a,d)	8% (d)	3%	10% (a,d)	8%	6%
Manufactured home	6%	8% (b)	4%	6%	12% (b,c,e)	7% (b)	6%	11% (f)
Apartment, condo, townhouse – 4 or more units	5%	3%	5%	6%	4%	7% (a)	5%	3%
Mobile home	5%	7% (b)	3%	5%	9% (b,e)	4%	5%	10% (f)
Other	1%	0%	1%	1%	1%	1%	1%	2% (f)
Base (unweighted)	1696	267	653	209	260	307	1640	179
Base (weighted)	1697	--	--	--	--	--	1651	--
<b>Use of Home</b>								
All or most of year	94%	97% (d,e)	98% (d,e)	96% (d,e)	78%	90% (d)	94%	94%
Seasonal home/vacation home	5%	1%	1%	2%	19% (a,b,c,e)	9% (a,b,c)	5%	4%
Other	1%	2%	1%	2%	3% (b)	1%	1%	2%
Base (unweighted)	1699	271	653	207	260	308	1644	178
Base (weighted)	1700	--	--	--	--	--	1655	--

A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter.  
 A1: Which of the following best describes this residence?  
 A2: Is this residence occupied year-round or for only part of the year?

# Household Characteristics

	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Number in Residence</b>								
1-2	67%	63%	66%	66%	74% (a,b)	69%	67%	71%
3-5	29%	31%	30%	30%	24%	28%	29%	28%
6 or more	4%	6%	3%	3%	2%	3%	4% (g)	1%
Not my primary residence	<1%	0%	1%	1%	0%	<1%	<1%	0%
Base (unweighted)	1560	258	633	197	201	271	1513	164
Base (weighted)	1574	--	--	--	--	--	1535	--
<b>Own vs. Rent</b>								
Own	84%	84%	82%	85%	89% (b,e)	83%	84%	84%
Rent	16%	16%	18% (d)	15%	11%	17% (d)	16%	16%
Base (unweighted)	1704	269	655	209	261	310	1647	176
Base (weighted)	1704	--	--	--	--	--	1658	--

A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter.

A3: If this is your primary residence, how many people live here?

A4: Do you own or rent this residence?

# Household Characteristics

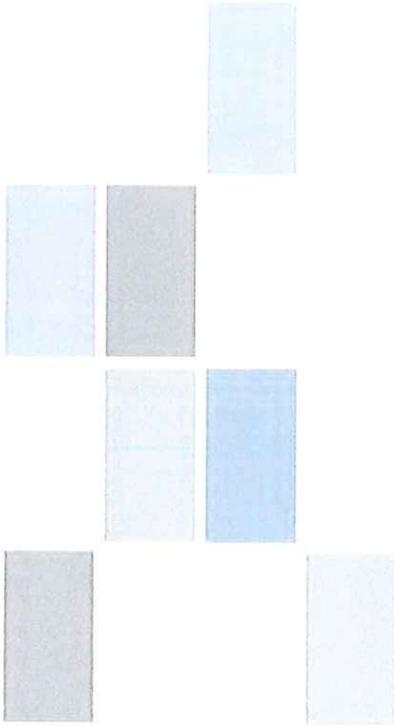
Year Built	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
Before 1960	20%	16%	15%	33% (a,b,d)	21% (b)	26% (a,b)	19%	42% (f)
1960-1979	25%	20%	24%	35% (a,b)	27%	27% (a)	25%	28%
1980-1989	11%	7%	12% (a)	9%	13% (a)	13% (a)	11% (g)	6%
1990-1999	20%	21% (c)	24% (c,e)	12%	20% (c)	15%	21% (g)	13%
2000-2006	19%	31% (b,c,d,e)	20% (c,e)	8%	15% (c)	13%	19% (g)	10%
2007-2010	5%	5%	5%	3%	4%	6%	5% (g)	1%
Base (unweighted)	1551	242	610	184	240	275	1570	155
Base (weighted)	1553	--	--	--	--	--	1517	--
<b>Square Footage</b>								
Less than 1,000 sq ft	13%	15%	12%	12%	12%	15%	13%	11%
1,000-1,799 sq ft	43%	48% (c)	43%	35%	49% (c,e)	40%	43%	56% (f)
1,800-2,499 sq ft	24%	22%	26% (d)	29% (d)	18%	25%	24%	18%
2,500-3,499 sq ft	14%	11%	15%	17%	14%	12%	14%	11%
3,500-4,499 sq ft	4%	3%	3%	5%	6%	5%	4%	3%
4,500 sq ft or more	2%	1%	1%	2%	1%	3%	2%	1%
Base (unweighted)	1623	262	639	186	239	297	1576	159
Base (weighted)	1627	--	--	--	--	--	1589	--

A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter.  
 A5: When was this residence originally built? (Select when the building was originally constructed, not when it was remodeled, added to, or converted.)  
 A6: What is the approximate overall square footage of this residence? Include basement or garage ONLY if it is regularly heated or cooled by your heating and cooling system?

# Household Characteristics

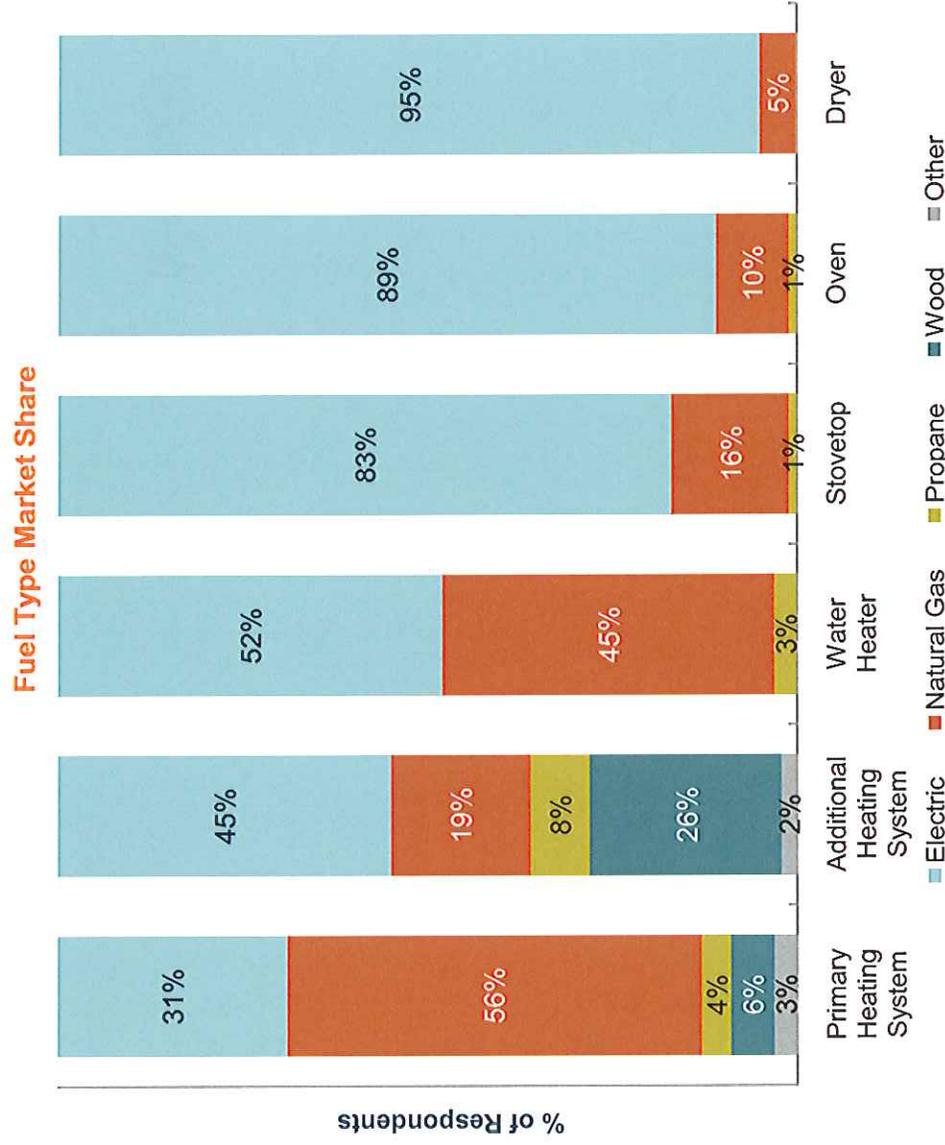
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Type of Windows</b>								
All or most are single pane	16%	17%	18% (e)	19% (e)	13%	12%	16%	20%
All or most are double pane	74%	77% (c)	72%	67%	79% (b,c)	77% (c)	74%	71%
Mixture of both	10%	6%	10% (a)	14% (a)	8%	11% (a)	10%	9%
Base (unweighted)	1608	248	618	198	251	293	1556	170
Base (weighted)	1607	--	--	--	--	--	1564	--
<b>Type of Window Frames</b>								
All or most have vinyl frame	53%	58% (c,e)	55% (e)	48%	55%	47%	53%	49%
All or most have wood frame	15%	16%	13%	14%	15%	21%	15%	17%
All or most have metal frame	22%	18%	24%	21%	20%	19%	22%	23%
Mixture of all	10%	8%	8%	17% (a,b)	10%	13% (a,b)	10%	11%
Base (unweighted)	1603	250	615	199	252	287	1551	172
Base (weighted)	1721	--	--	--	--	--	1560	--

A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter.  
 A7: Choose the statement that best describes the type of windows at this residence.  
 A8: Choose the statement that best describes the type of window frames at this residence.



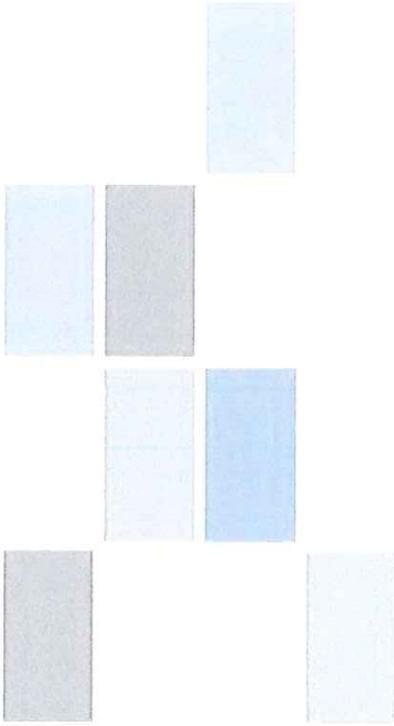
# Fuel Type Market Share

# Fuel Type Market Share



B2, B6, C2, C4, C5, C16. What one fuel is most often used....?

Bases: Primary Heating: 1673, Additional Heating: 700, Water Heater: 1607, Stovetop: 1638, Oven: 1655, Dryer: 1392

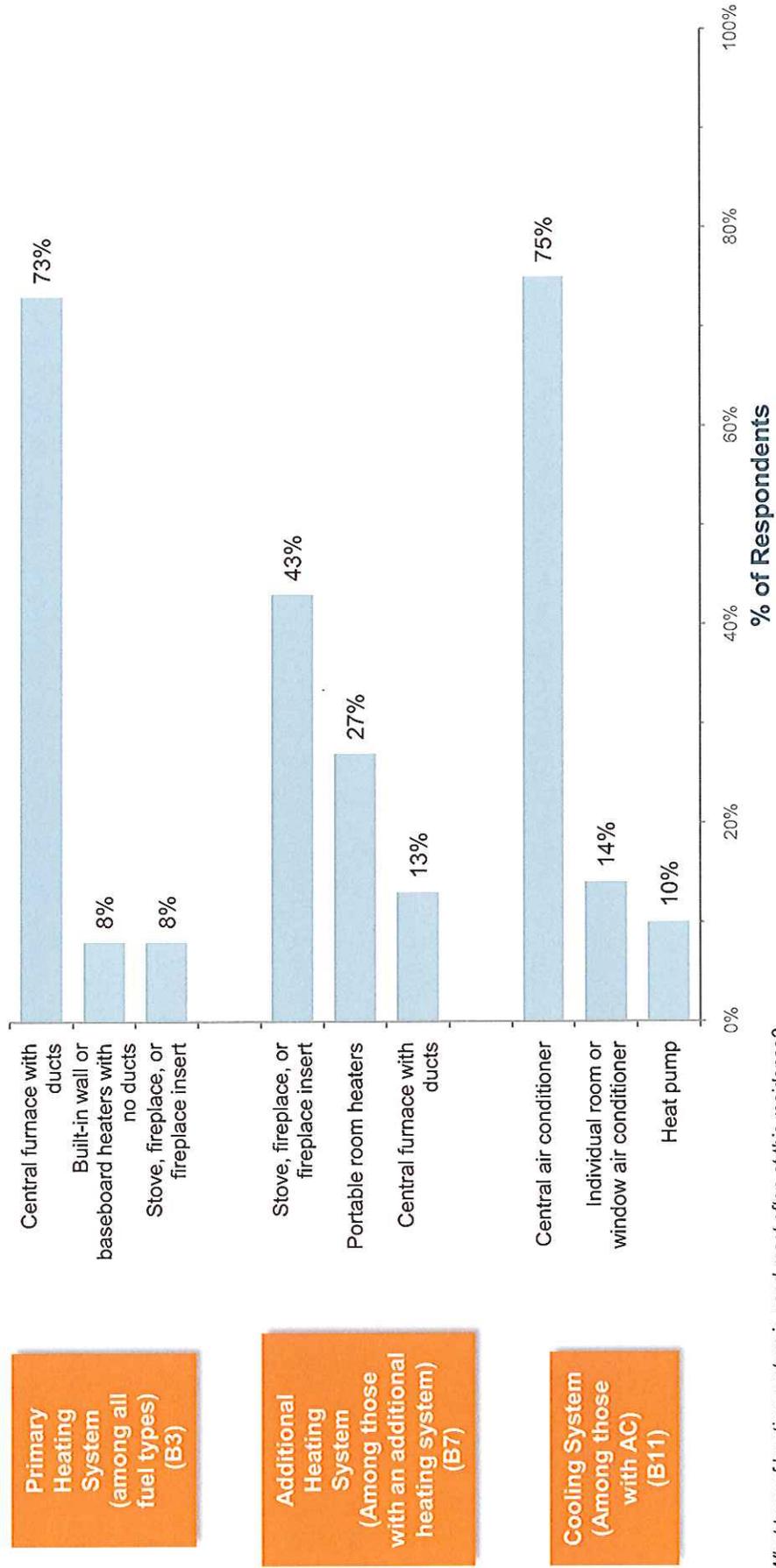


# Market Saturation



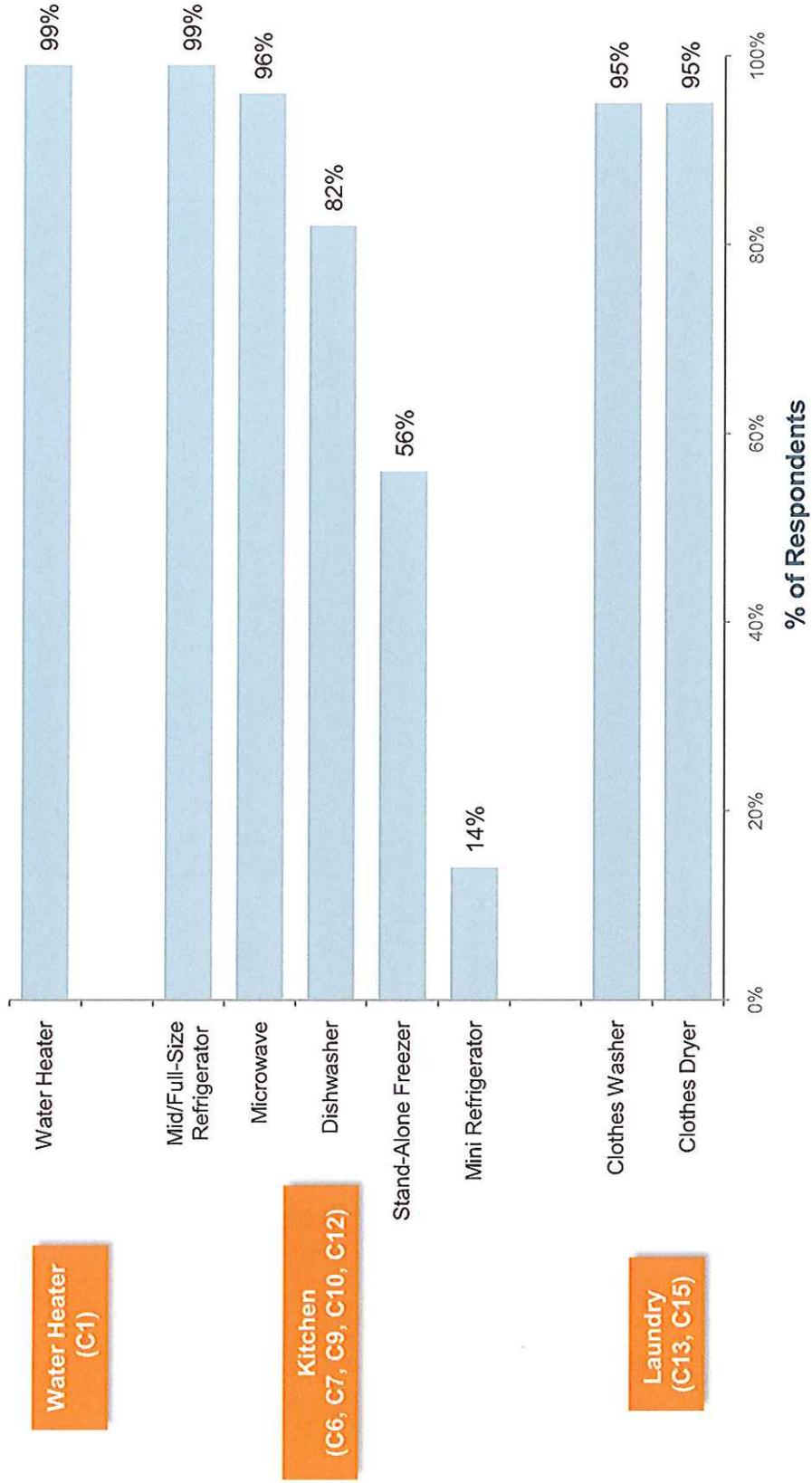
# Market Saturation

## Most Frequently Mentioned Responses



B3. What type of heating system is used most often at this residence?  
 B7. What type of additional heating system is used at this residence?  
 B11. What type of air conditioning system is used at this residence?  
 Base: Primary heating: 1658, Additional Heating: 700, Cooling: 1364

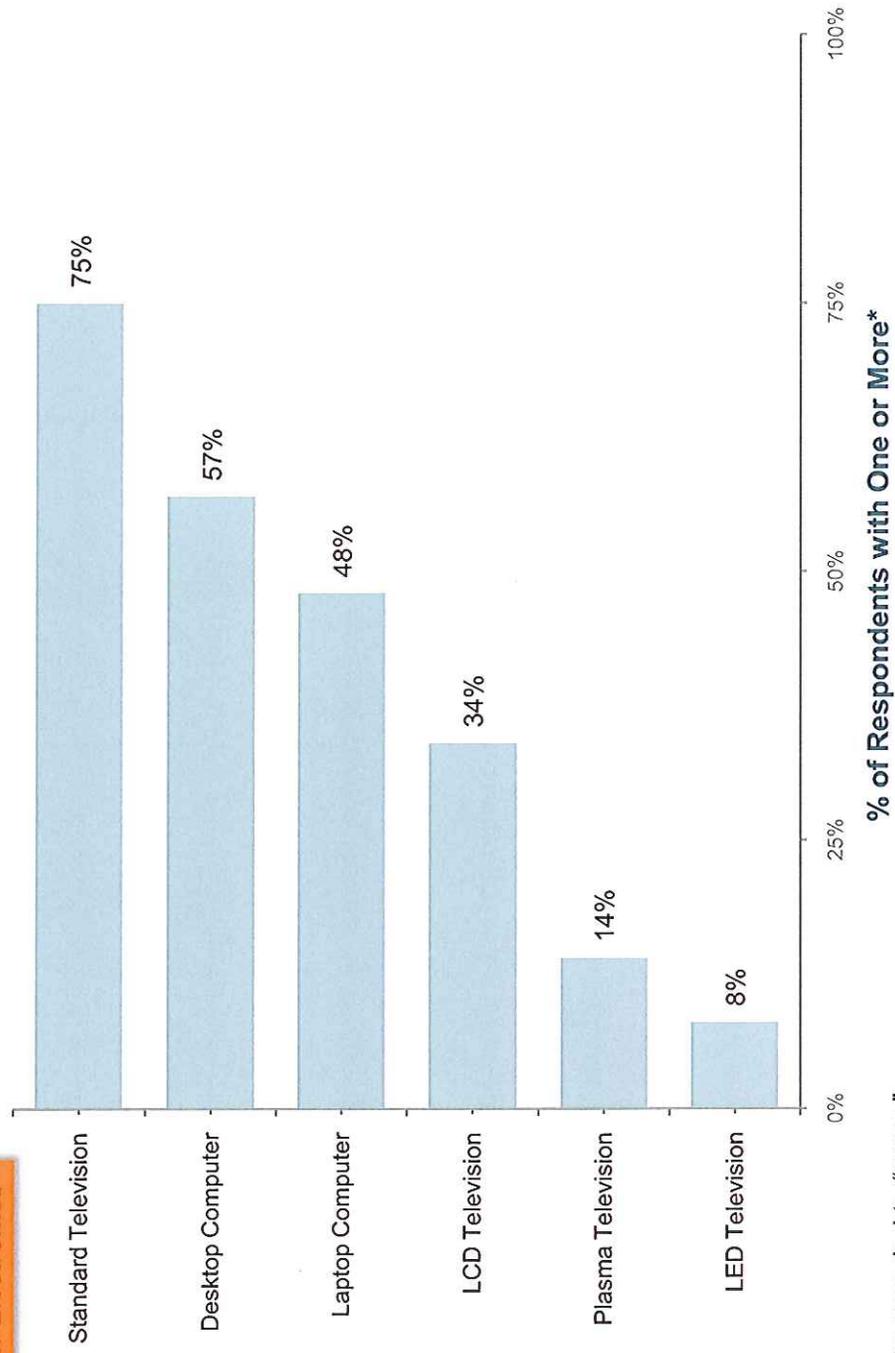
# Market Saturation (cont'd)



C1, C6, C7, C9, C10, C12, C13, C15: % saying yes/have at least one in use at residence  
 Base: Water Heater: 1699, Microwave: 1695, Mid-Full-Size Refrigerator: 1705, Stand-Alone Freezer: 1694, Mini Refrigerator: 1678, Clothes Washer: 1703, Clothes Dryer: 1496.

## Market Saturation (cont'd)

### D1A-D1F: Consumer Electronics



\* "Missing" responses are recorded to "none."

D1A-D1F. % saying yes/have at least one in use at residence  
Base: 1721

## Market Saturation (cont'd)

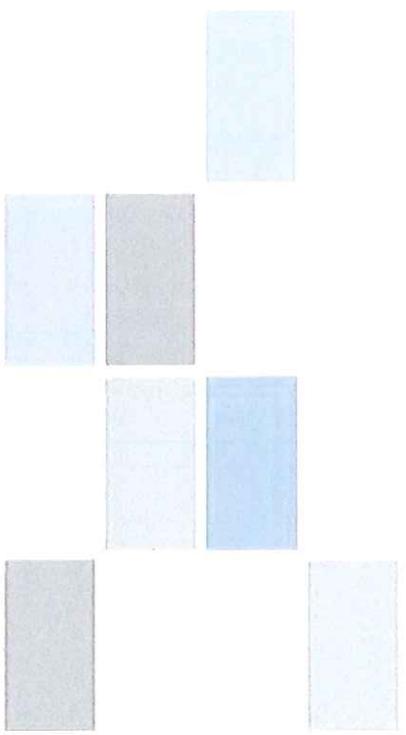
The following table lists electric appliance saturation rates for the 1994, 2004 and 2010 studies.

Although the survey instruments have changed somewhat from year to year, the saturation rates shown the following table were calculated similarly across studies.

- For example, in 2004, the question “How many evaporate swamp coolers do you have?” was asked of everyone. In 2010, the question was asked only among customers who indicated in a preceding question that they have air conditioning at their residence. Therefore, the 2010 saturation rate for swamp coolers is based on the total number of customers answering the question “Do you have air conditioning?” rather than only among those customers who have air conditioning. A table describing how each saturation rate was calculated is included in the Appendix.

	1994	2004	2010
	%	%	%
Heat Source - Elect.	37.3	34.8	31.1
Resistance	28.1	27.3	23.6
Electric Heat Pump	8.6	9.8	5.5
Portable Heaters <sup>1</sup>	na	36.9	29.7
Central A/C	33.8	59.5	69.0
Evaporative Swamp Coolers	10.3	9.2	4.0
Room A/C Units <sup>1</sup>	24.4	31.5	20.9
Water Heater	72.3	56.1	49.3
Range	91.4	82.9	83.3
Refrigerators <sup>1</sup>	122.0	125.0	133.1
Freezer (% with 1+)	56.4	53.2	56.1
Microwave Oven	90.5	96.3	96.4
Dishwasher	62.1	77.3	81.7
Clothes Washer	89.3	92.4	94.7
Clothes Dryer	85.2	86.6	88.1

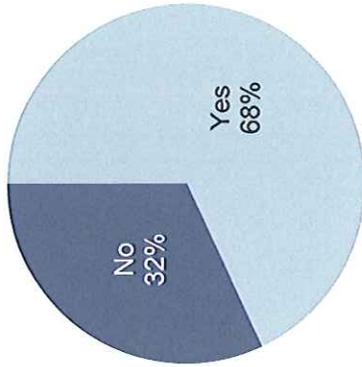
<sup>1</sup> Average number of units per 100 residences.



# Home Heating

# Availability of Natural Gas

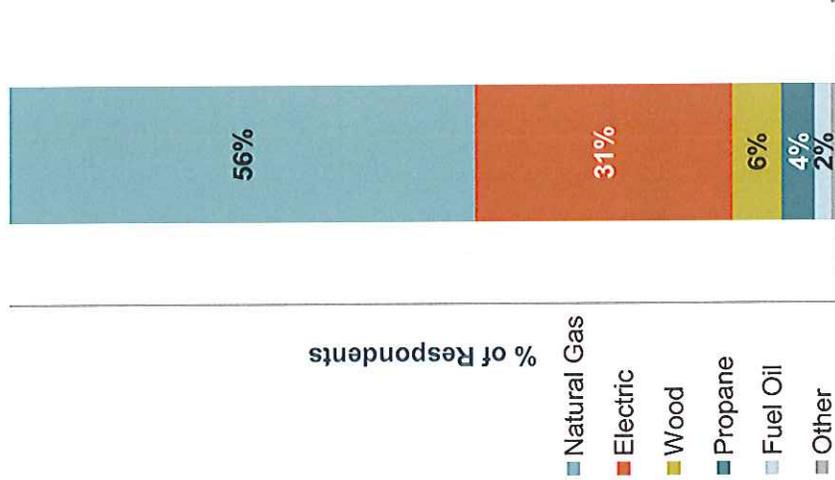
## Natural Gas Available At Residence



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Natural Gas Available At Residence</b>								
Yes	68%	65% (d)	83% (a,c,d,e)	68%	29%	61%	69% (g)	43%
No	32%	35% (b)	17%	32% (b)	71% (a,b,c,e)	39% (b)	31%	57% (f)
Base (unweighted)	1627	257	631	202	244	293	1577	166
Base (weighted)	1629	--	--	--	--	--	1589	--

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B1. Is natural gas available at this residence?

# Primary Heating Fuel



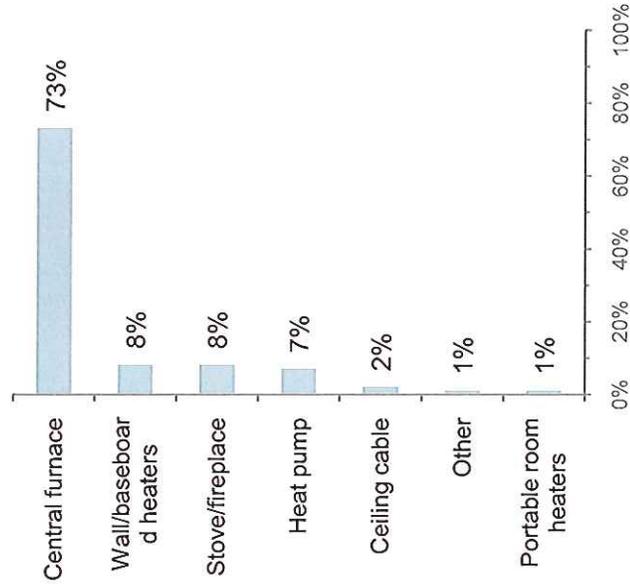
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Primary Heating Fuel</b>								
Natural Gas	56%	54% (d)	72% (a,c,d,e)	56% (d,e)	17%	46% (d)	57% (g)	29%
Electric	31%	31% (b)	23%	31% (b)	50% (a,b,c,e)	40% (a,b,c)	30%	44% (f)
Wood	6%	5%	3%	3%	19% (a,b,c,e)	7% (b)	6%	10%
Propane	4%	5% (b)	1%	7% (b)	11% (a,b,e)	3% (b)	4%	6%
Fuel Oil	2%	3% (b)	<1%	2% (b)	3% (b)	3% (b)	2%	11% (f)
Other	1%	2% (b,d)	1%	1%	<1%	1%	1%	0%
Base (unweighted)	1673	266	649	207	248	303	1618	176
Base (weighted)	1676	--	--	--	--	--	1631	176

## Primary Heating Fuel

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B2. What one fuel is most often used to heat this residence?

# Heating System Used Most Often

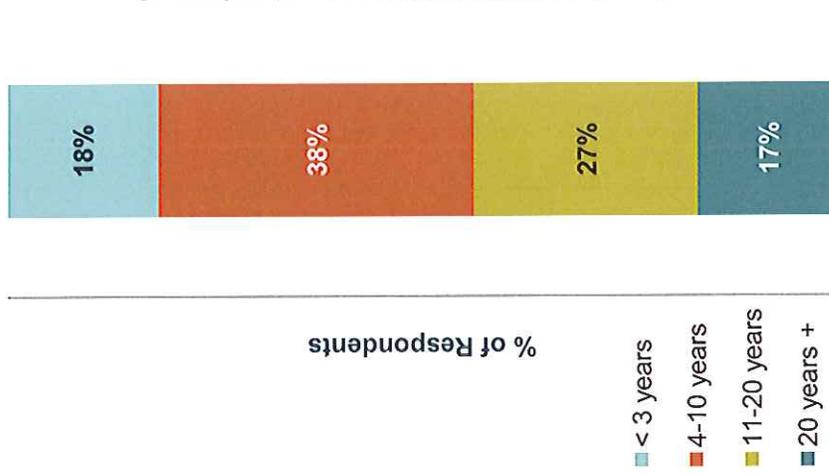
**Heating System Used Most Often**



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Heating System Used Most Often</b>								
Central furnace	73%	80% (c,d,e)	85% (c,d,e)	67% (d,e)	49%	58% (d)	74% (g)	56%
Wall or baseboard heaters	8%	4%	5%	12% (a,b)	12% (a,b)	16% (a,b)	8%	10%
Stove or fireplace	8%	6%	4%	10% (b)	19% (a,b,c,e)	9% (b)	8%	14% (f)
Heat pump	7%	7%	4%	4%	12% (b,c)	11% (b,c)	6%	12% (f)
Ceiling cable	2%	2%	1%	5% (a,b)	3% (b)	3%	2%	3%
Other	1%	0%	1% (a)	2% (a)	2% (a)	2% (a)	1%	1%
Portable room heaters	1%	1%	<1%	<1%	3% (b,c)	1%	1%	4% (f)
Base (unwgt)	1658	264	644	203	247	300	1601	175
Base (wgt)	1661	--	--	--	--	--	1614	175

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B3. What type of heating system is used most often at this residence?

# Age of Primary Heating System



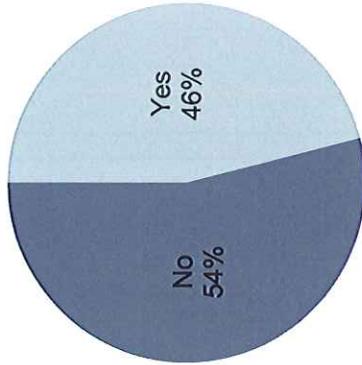
**Age of Primary Heating System**

	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Age of Primary Heating System</b>								
< 3 years	18%	16%	20% (d)	21% (d)	12%	19% (d)	19%	16%
4-10 years	38%	48% (b,c,d,e)	39% (c)	30%	35%	34%	38%	40%
11-20 years	27%	21%	29% (a)	27%	27%	26%	27%	26%
20 years +	17%	15%	12%	22% (b)	26% (a,b)	21% (b)	16%	18%
Base (unweighted)	1500	239	583	174	233	271	1457	148
Base (weighted)	1501	--	--	--	--	--	1466	--

Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B4. Approximately what is the age of the primary heating system at this residence?

# Additional Heating System

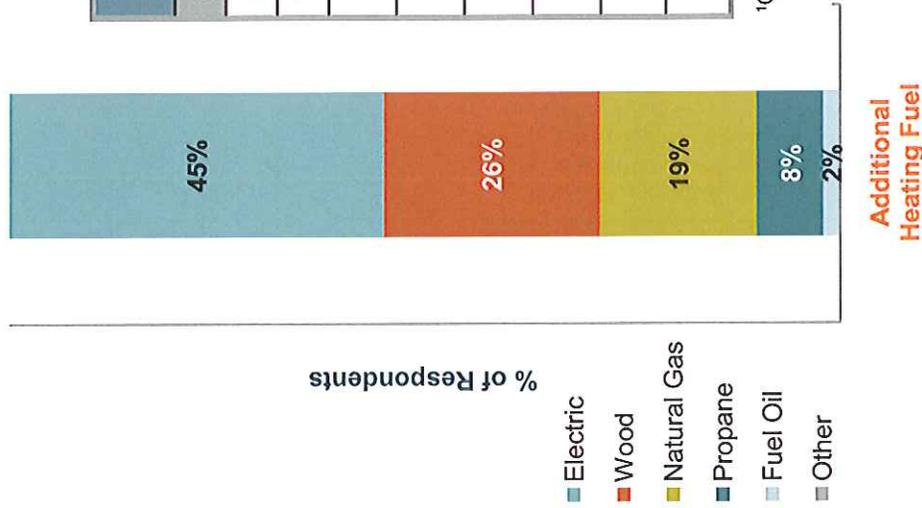
## Use Additional Heating System



		Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Use Additional Heating System</b>									
Yes	46%	44%	37%	55% (a,b)	65% (a,b,c,e)	53% (a,b)	46%	58% (f)	
No	54%	56% (c,d,e)	63% (c,d,e)	45% (d)	35%	47% (d)	54% (g)	42%	
Base (unweighted)	1686	262	648	208	263	306	1630	179	
Base (weighted)	1685	--	--	--	--	--	1640	--	

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B5. Do you use an additional heating system or equipment at this residence?

# Additional Heating System Fuel (among customers with an additional heating system)



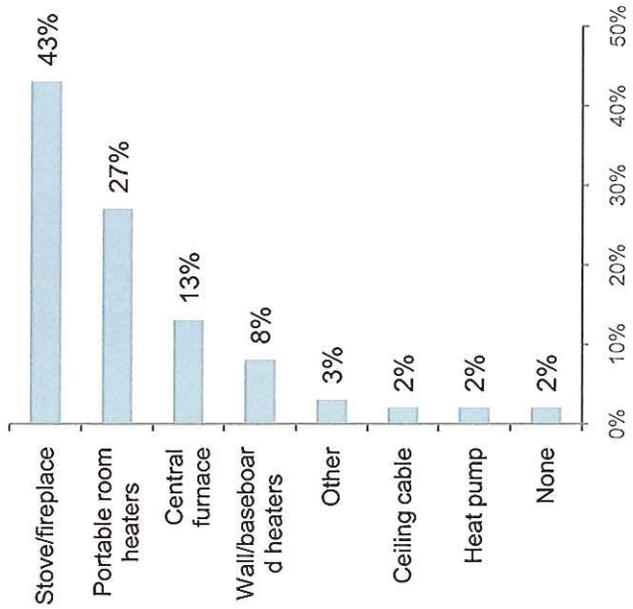
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Additional Heating Fuel</b>								
Electric	45%	53%	43%	51%	40%	43%	45%	48%
Wood	26%	25%	24%	20%	33% (c)	28%	25%	36% (f)
Natural Gas	19%	16% (d)	29% (a,d,e)	19% (d)	5%	18% (d)	20% (g)	8%
Propane	8%	5%	2%	9% (b)	18% (a,b,e)	8% (b)	8%	6%
Fuel Oil	2%	1%	1%	1%	3% (b)	3%	2%	2%
Other	<1%	0%	1%	0%	1%	0%	<1%	0%
Base (unweighted) <sup>1</sup>	701	97	212	100	152	140	671	94
Base (weighted)	684	--	--	--	--	--	659	94

<sup>1</sup>Caution: small base size.

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B6. What one fuel is used in the additional heating system?

# Additional Heating System Used (among customers with an additional heating system)

**Additional Heating System Used**

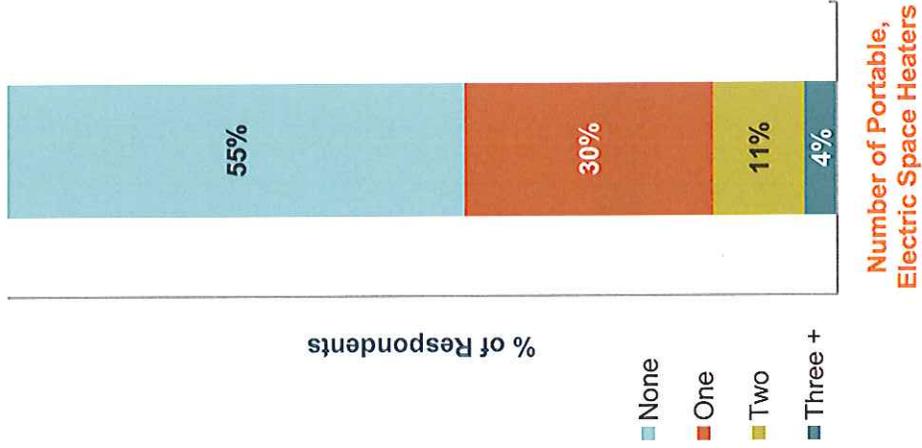


	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Additional Heating System Used</b>								
Stove or fireplace	43%	38%	44%	38%	47%	46%	43%	40%
Portable room heaters	27%	35% (d,e)	31% (d)	26%	17%	22%	27%	30%
Central furnace	13%	14%	16%	11%	11%	11%	13%	8%
Wall or baseboard heaters	8%	5%	4%	15% (a,b)	16% (a,b,e)	8%	9%	10%
Other	3%	3%	1%	4%	3%	4%	2%	7% (f)
Ceiling Cable	2%	1%	1%	4%	2%	4%	2%	2%
Heat Pump	2%	1%	2%	2%	3%	1%	2%	3%
None	2%	3%	1%	0%	1%	4% (c)	2%	0%
Base (unwgt) <sup>1</sup>	700	99	214	99	144	144	674	88
Base (wgt)	684	--	--	--	--	--	663	--

<sup>1</sup>Caution: small base size.

Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B7. What type of additional heating system is used at this residence?

# Number of Portable Electric Space Heaters (among customers with an additional heating system)

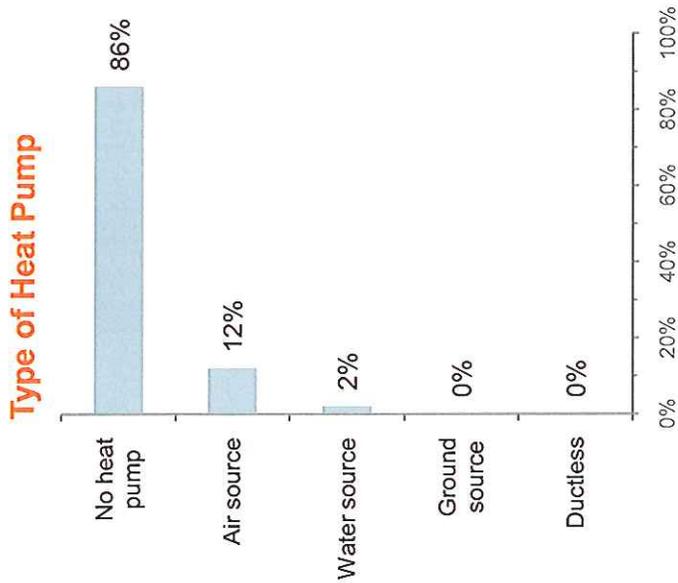


	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Number of Portable, Electric Space Heaters</b>								
None	55%	53%	53%	56%	58%	56%	56% (g)	37%
One	30%	31%	33%	27%	25%	31%	29%	38%
Two	11%	12%	12%	10%	11%	8%	11%	15%
Three+	4%	4%	2%	7% (b)	6% (b)	5%	4%	10% (f)
Base (unweighted) <sup>1</sup>	780	110	234	111	167	158	746	101
Base (weighted)	761	--	--	--	--	--	733	--

<sup>1</sup>Caution: small base size.

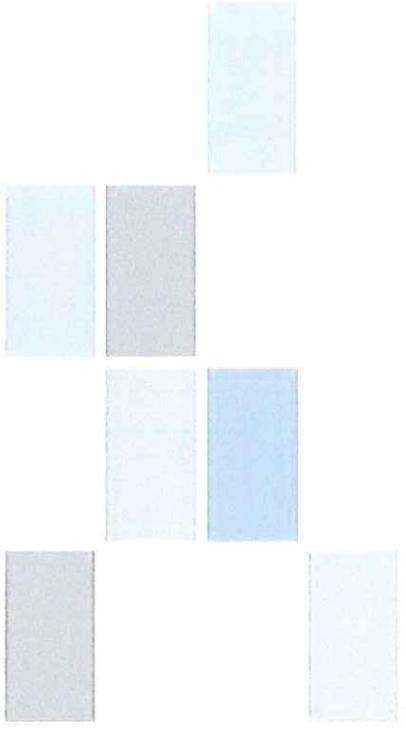
Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B8. How many portable, electric space heaters do you use at this residence?

# Type of Heat Pump



Type of Heat Pump	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
No heat pump	86%	86%	87% (d,e)	93% (b,d,e)	79%	81%	86%	83%
Air source	12%	11%	11%	5%	16% (b,c)	16% (c)	11%	14%
Water source	2%	2%	2%	2%	2%	2%	2%	2%
Ground source	<1%	1%	<1%	0%	2%	<1%	1%	0%
Ductless	<1%	0%	<1%	0%	1%	1%	<1%	1%
Base (unwgt)	1020	157	358	137	176	192	980	126
Base (wgt)	1012	--	--	--	--	--	979	126

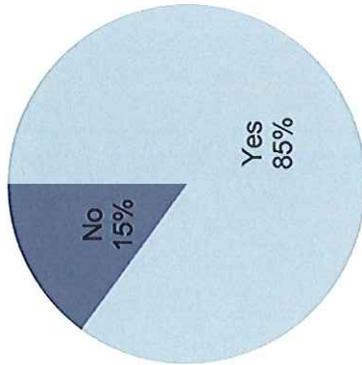
Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B9. If this residence has a heat pump, what kind of heat pump is it?



# Home Cooling

# Air Conditioning Availability

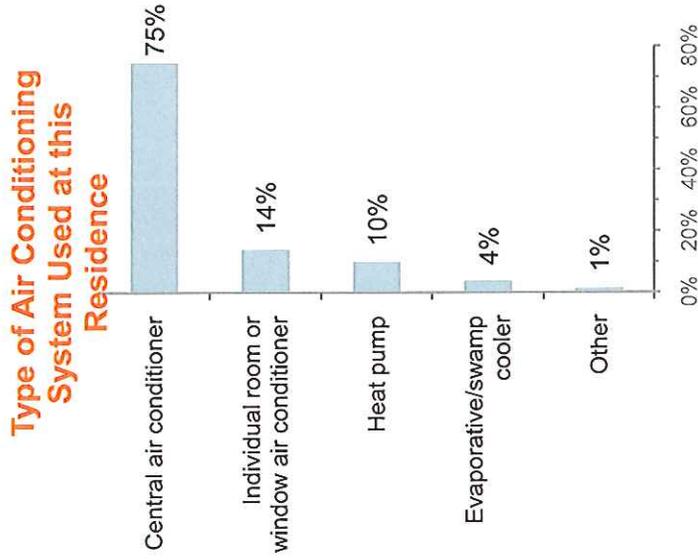
## Air Conditioning Available at Residence



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Air Conditioning Available at Residence</b>								
Yes	85%	95% (c,d,e)	96% (c,d,e)	67%	69%	70%	85%	86%
No	15%	5%	4%	33% (a,b)	31% (a,b)	30% (a,b)	15%	14%
Base (unweighted)	1708	268	658	209	261	312	1652	179
Base (weighted)	1708	--	--	--	--	--	1663	--

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B10. Does this residence have air conditioning?

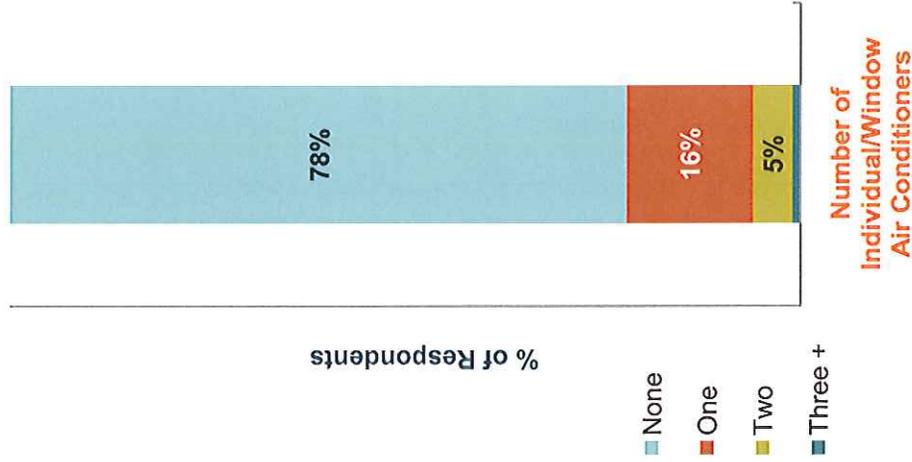
# Type of Air Conditioning System (among customers with air conditioning)



Type of Air Conditioning System Used at this Residence									
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)	
Central air conditioner	75%	79% (c,d,e)	85% (a,c,d,e)	57%	53%	60%	75% (g)	54%	
Individual room or window air conditioner	14%	13%	9%	23% (a,b)	25% (a,b)	20% (a,b)	14%	30% (f)	
Heat pump	10%	8%	6%	11% (b)	22% (a,b,c)	19% (a,b,c)	10%	18% (f)	
Evaporative/swamp cooler	4%	2%	2%	8% (a,b)	6% (a,b)	7% (a,b)	4%	8% (f)	
Other	1%	2% (e)	1% (e)	4% (e)	1%	<1%	1%	1%	
Base (unwgt)	1364	248	615	129	167	205	1318	146	
Base (wgt)	1391	--	--	--	--	--	1354	--	

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B11. What type of air conditioning system is used at this residence?

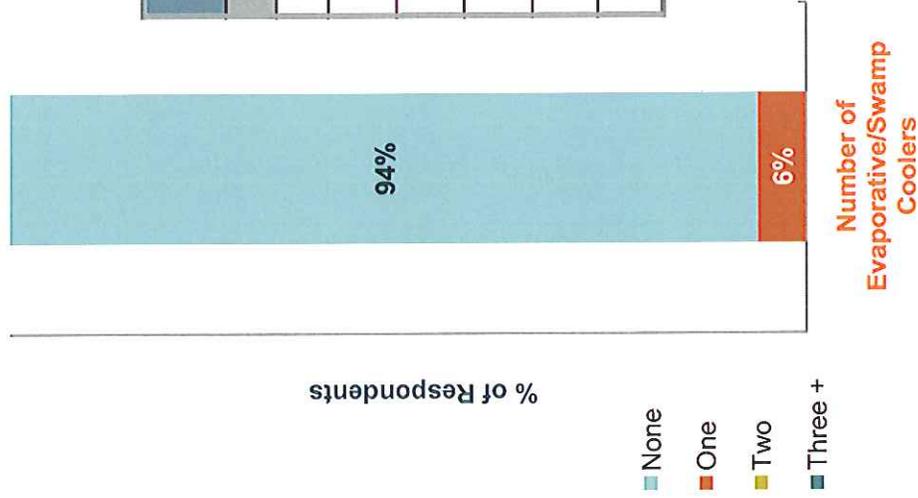
# Number of Individual/Window Air Conditioners (among customers with air conditioning)



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Number of Individual/Window Air Conditioners</b>								
None	78%	78%	82% (c,d,e)	71%	73%	72%	78% (g)	67%
One	16%	16%	13%	18%	19%	21% (b)	16%	24% (f)
Two	5%	4%	3%	9% (b)	6%	5%	5%	7%
Three+	1%	2%	2%	2%	2%	2%	1%	2%
Base (unweighted)	1182	217	484	124	166	191	1135	139
Base (weighted)	1195	--	--	--	--	--	1157	--

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B12. How many individual electric room or window air conditioners do you use at this residence? (Do not count evaporative/swamp coolers).

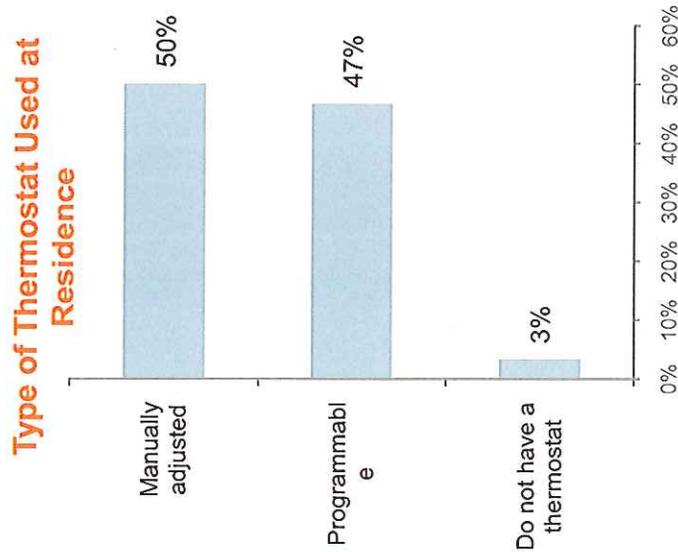
# Number of Evaporative/Swamp Coolers (among customers with air conditioning)



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Number of Evaporative/Swamp Coolers</b>								
None	94%	96%	95%	91%	93%	93%	94%	90%
One	6%	3%	5%	9% (a)	7%	7%	5%	10% (f)
Two	<1%	1%	<1%	0%	<1%	0%	1%	0%
Three+	0%	0%	0%	0%	0%	0%	0%	0%
Base (unweighted)	1167	213	478	121	164	191	1120	139
Base (weighted)	1179	--	--	--	--	--	1141	--

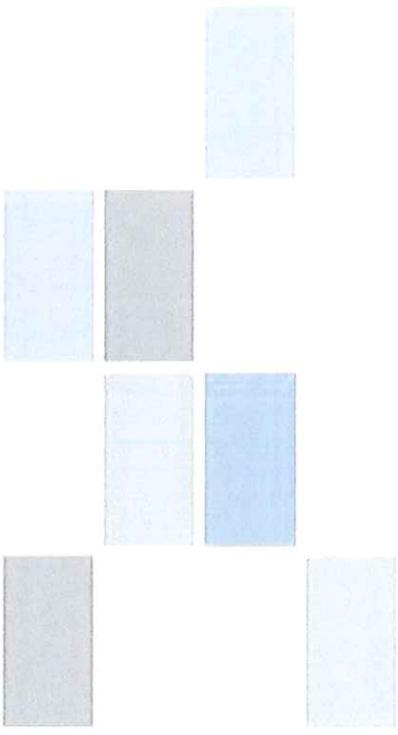
Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B13. How many evaporative/swamp coolers do you use at this residence?

# Type of Thermostat Used



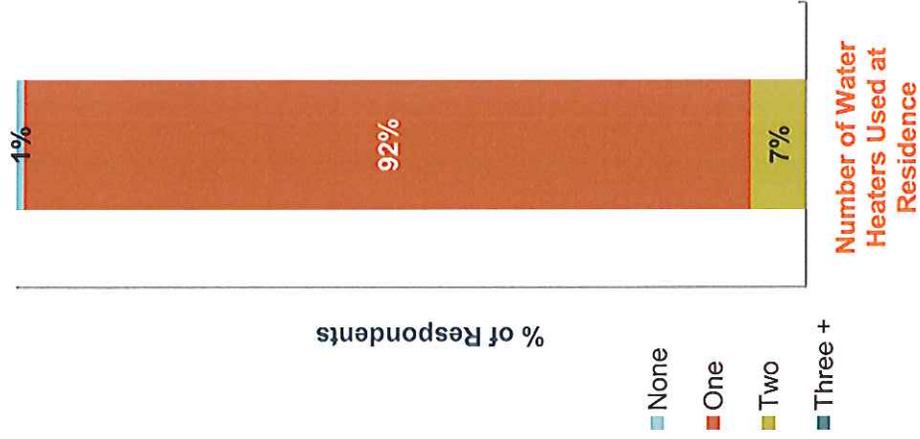
Type of Thermostat Used at Residence										
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)		
Manually adjusted	50%	48%	43%	60% (a,b)	58% (a,b)	59% (a,b)	50%	59% (f)		
Programmable	47%	50% (c,d,e)	55% (c,d,e)	34%	34%	39%	47% (g)	30%		
Do not have a thermostat	3%	2%	2%	6% (a,b,e)	8% (a,b,e)	2%	3%	11% (f)		
Base (unwgt)	1659	257	650	201	251	300	1604	175		
Base (wgt)	1661	--	--	--	--	--	1616	--		

Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. B14. What best describes the heating and cooling thermostat at this residence?



# Water Heater

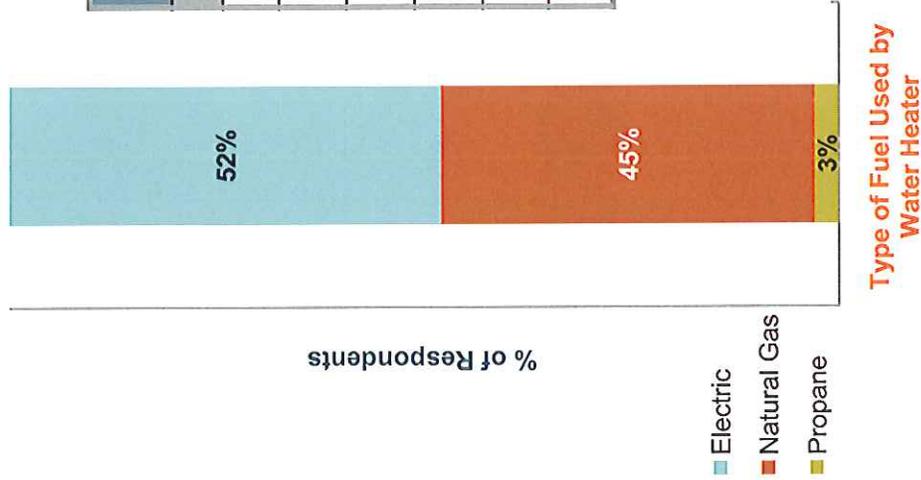
# Number of Water Heaters Used



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Number of Water Heaters Used at Residence</b>								
None	1%	1%	1%	1%	2%	1%	1%	2%
One	92%	91% (e)	95% (d,e)	92%	89%	86%	92%	89%
Two	7%	8% (b)	4%	7%	9% (b)	13% (a,b,c)	7%	9%
Three+	<1%	<1%	<1%	<1%	<1%	<1%	<1%	0%
Base (unweighted)	1699	266	653	211	261	308	1643	178
Base (weighted)	1699	--	--	--	--	--	1654	--

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C1. How many water heaters are used at this residence?

# Type of Water Heater Fuel (among customers with a water heater)

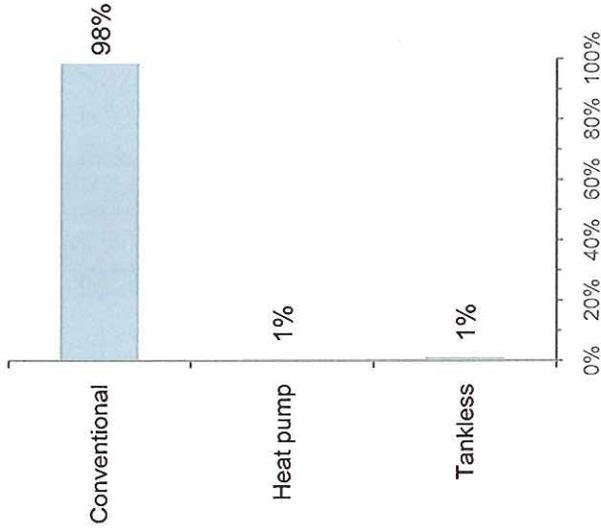


Type of Fuel Used by Water Heater	Type of Fuel Used by Water Heater							
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
Electric	52%	53% (b)	34%	60% (b)	82% (a,b,c,e)	68% (a,b)	51%	87% (f)
Natural Gas	45%	43% (d,e)	65% (a,c,d,e)	38% (d)	9%	30% (d)	46% (g)	11%
Propane	3%	4% (b)	1%	2%	9% (a,b,c,e)	2%	3%	2%
Other	<1%	0%	0%	0%	<1%	0%	<1%	0%
Base (unweighted)	1607	253	615	200	244	295	1557	167
Base (weighted)	1607	--	--	--	--	--	1566	--

Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C2. What type of fuel does the primary water heater at this residence use?

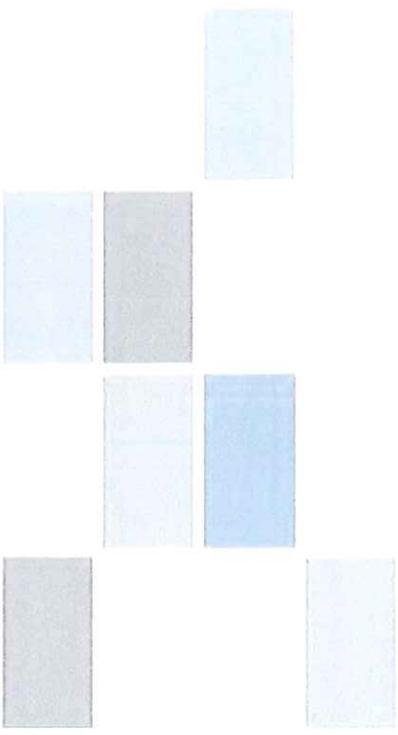
# Type of Water Heater Used (among customers with a water heater)

Type of Water Heater Used at this Residence



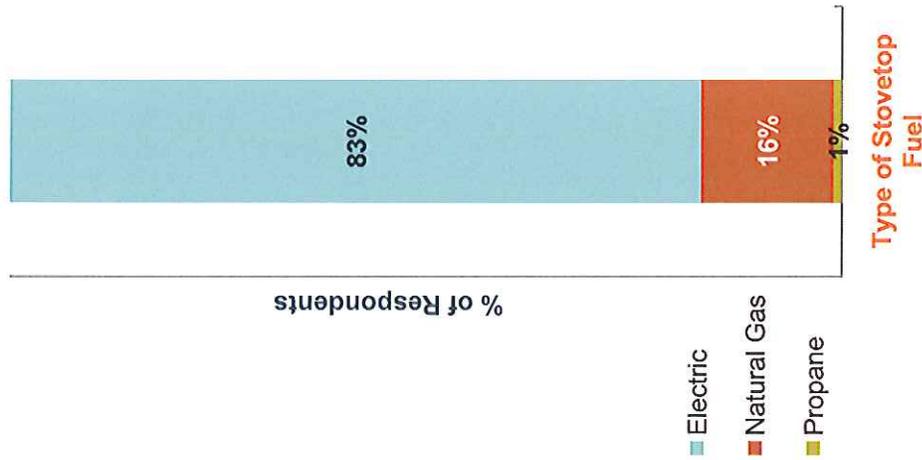
Type of Water Heater Used at this Residence								
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
Conventional	98%	100%	98%	97%	99%	99%	98%	99%
Heat pump	1%	<1%	1%	1%	1%	<1%	1%	1%
Tankless	1%	0%	1%	2% (a,d)	0%	1%	1%	0%
Base (unwgt)	1501	232	579	188	237	265	1453	151
Base (wgt)	1500	--	--	--	--	--	1461	--

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C3. Which of the following best describes the primary water heater used at this residence?



# Kitchen Appliances

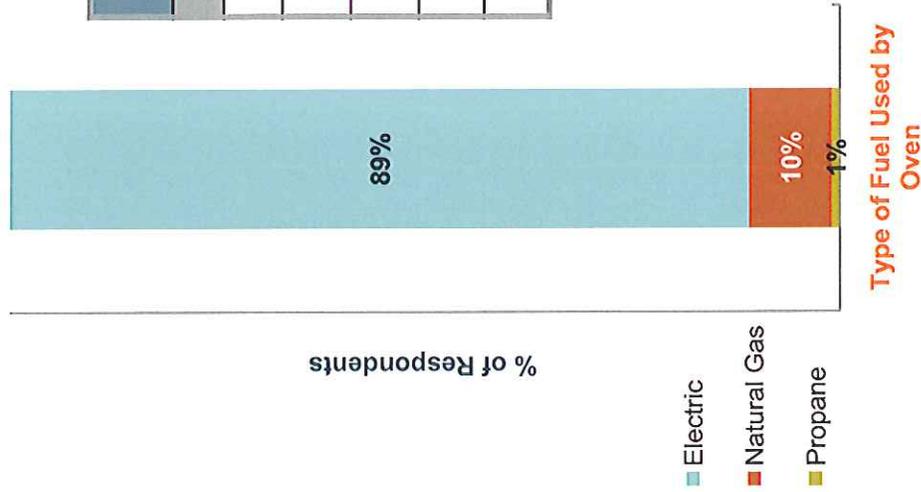
# Stovetop Fuel Type



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Type of Fuel Used by Stovetop</b>								
Electric	83%	84%	80%	88% (b,e)	94% (a,b,c,e)	80%	83%	95% (f)
Natural Gas	16%	14% (d)	20% (a,c,d)	12% (d)	4%	19% (c,d)	16% (g)	3%
Propane	1%	2% (b)	<1%	<1%	2% (b)	1%	1%	2%
Base (unweighted)	1638	261	648	205	229	295	1586	171
Base (weighted)	1645	--	--	--	--	--	1603	--

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C4. What type of fuel does the kitchen stovetop at this residence use?

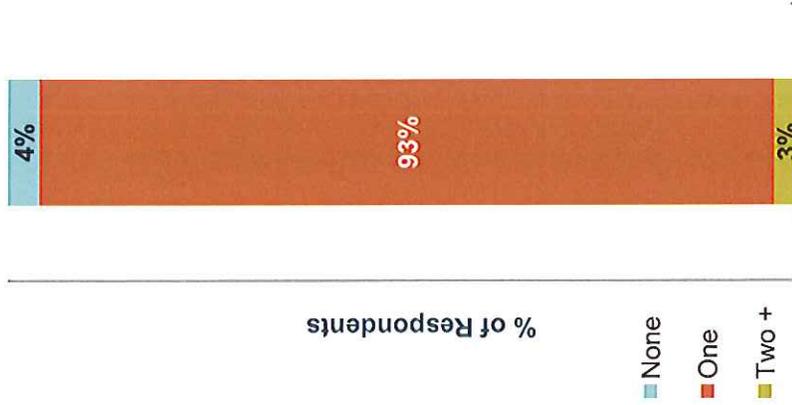
# Oven Fuel Type



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Type of Fuel Used by Oven</b>								
Electric	89%	88%	87%	91%	96% (a,b,c,e)	90%	89%	97% (f)
Natural Gas	10%	11% (d)	13% (d)	9% (d)	3%	10% (d)	10% (g)	2%
Propane	1%	1%	<1%	<1%	1%	<1%	1%	1%
Base (unweighted)	1655	263	651	206	237	298	1603	172
Base (weighted)	1660	--	--	--	--	--	1618	--

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C5. What type of fuel does the kitchen oven at this residence use? (Do not include the microwave oven)

# Number of Microwaves Used

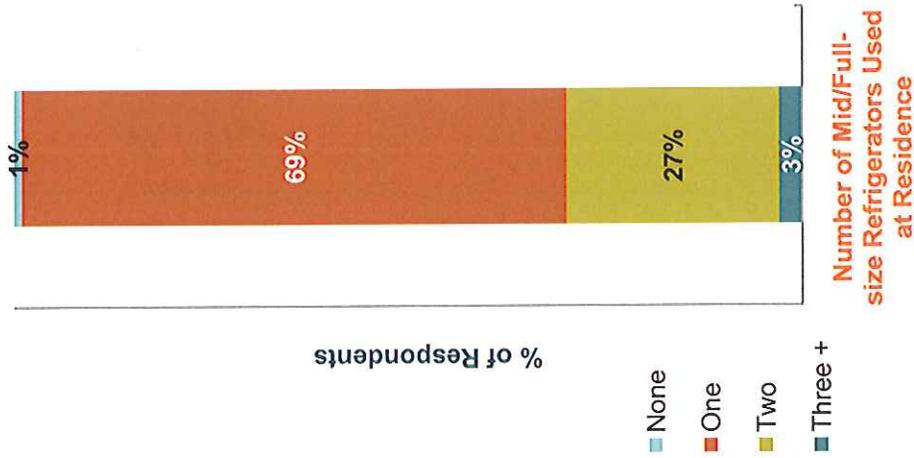


**Number of Microwaves Used at Residence**

	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Number of Microwaves Used at Residence</b>								
None	4%	4%	3%	5%	6% (b)	3%	3%	6%
One	93%	92%	94%	92%	92%	92%	94%	92%
Two+	3%	4%	3%	3%	2%	5%	3%	2%
Base (unweighted)	1695	266	651	210	258	310	1639	179
Base (weighted)	1695	--	--	--	--	--	1650	--

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C6. How many microwave ovens do you use at this residence?

# Number of Mid/Full-size Refrigerators Used



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Number of Mid/Full-size Refrigerators Used at Residence</b>								
None	1%	1%	<1%	0%	1%	<1%	1%	1%
One	69%	69%	68%	73%	68%	71%	69%	64%
Two	27%	26%	28%	23%	29%	26%	27%	32%
Three+	3%	4%	4%	4%	2%	3%	3%	3%
Base (unweighted)	1705	267	655	211	261	311	1649	177
Base (weighted)	1705	--	--	--	--	--	1659	--

Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C7. How many mid- and/or full-size refrigerators do you use at this residence?

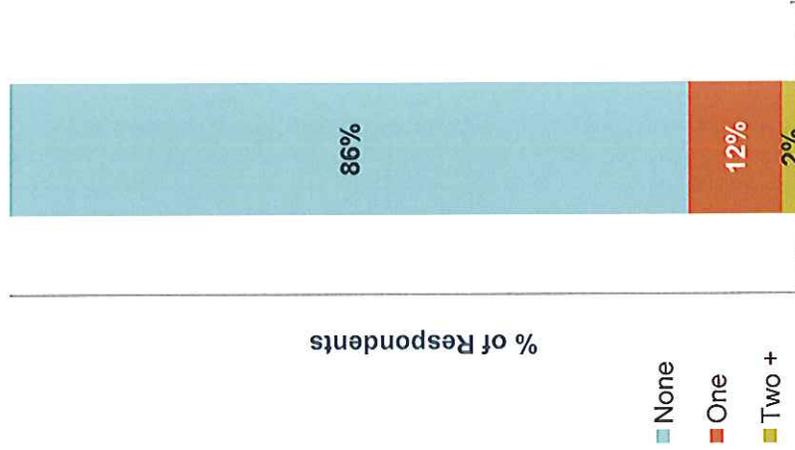
# Age of Refrigerator(s) (among customers with one or more mid/full-size refrigerators)

	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Age of Refrigerator (#1)</b>								
< 3 years	23%	20%	24%	25%	23%	22%	23%	22%
4-10 years	51%	56% (d)	49%	55% (d)	43%	49%	51% (g)	42%
11-20 years	22%	21%	23%	18%	25%	24%	22%	30% (f)
20 years +	4%	3%	4%	2%	9% (a,b,c)	5%	4%	6%
Base (unweighted) <sup>1</sup>	1560	246	598	194	235	287	1510	167
Base (weighted)	1561	--	--	--	--	--	1520	--
<b>Age of Refrigerator (#2)</b>								
< 3 years	12%	19% (d)	13%	8%	8%	10%	12%	9%
4-10 years	36%	36%	32%	38%	38%	45% (b)	36%	37%
11-20 years	38%	35%	39%	42%	40%	33%	38%	42%
20 years +	14%	10%	16%	12%	14%	12%	14%	12%
Base (unweighted) <sup>1</sup>	480	74	195	52	77	82	469	57
Base (weighted)	481	--	--	--	--	--	472	--
<b>Age of Refrigerator (#3)</b>								
< 3 years	5%	0%	5%	14%	0%	0%	5%	0%
4-10 years	32%	25%	39%	29%	40%	17%	32%	50%
11-20 years	31%	50%	17%	29%	40%	50%	30%	25%
20 years +	32%	25%	39%	28%	20%	33%	33%	25%
Base (unweighted) <sup>1</sup>	44	8	18	7	5	6	43	4
Base (weighted)	45	--	--	--	--	--	44	--

<sup>1</sup>Caution: small base size.

Among customers answering the question.  
 A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter.  
 C8. How old is each mid- or full-size refrigerator at this residence?

# Number of Mini-fridges/Beverage Coolers Used



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Number of Mini-fridges/Beverage Coolers Used at Residence</b>								
None	86%	88%	86%	87%	89%	84%	87%	92% (f)
One	12%	12%	13%	12%	9%	12%	12% (g)	6%
Two+	2%	<1%	1%	1%	2%	4% (a,b)	1%	2%
Base (unweighted)	1678	262	648	208	254	306	1623	173
Base (weighted)	1679	--	--	--	--	--	1634	--

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C9. How many mini-fridges/beverage coolers do you use at this residence?

\*includes Oregon oversample. Oregon oversample data is not included in the Total or Region results.

# Number of Stand-alone Freezers Used



Number of Stand-alone Freezers Used at Residence

	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Number of Stand-alone Freezers Used at Residence</b>								
None	44%	41%	51% (a,c,d,e)	37%	37%	40%	44% (g)	24%
One	45%	49%	42%	50% (b)	43%	45%	44%	53% (f)
Two	9%	8%	6%	12% (b)	17% (a,b)	12% (b)	10%	20% (f)
Three+	2%	2%	1%	1%	3%	3%	2%	3%
Base (unweighted)	1694	268	649	208	258	311	1638	177
Base (weighted)	1694	--	--	--	--	--	1649	--

Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C10. How many stand-alone freezers (either chest or upright) do you use at this residence?

# Age of Freezer(s) (among customers with one or more stand-alone freezers)

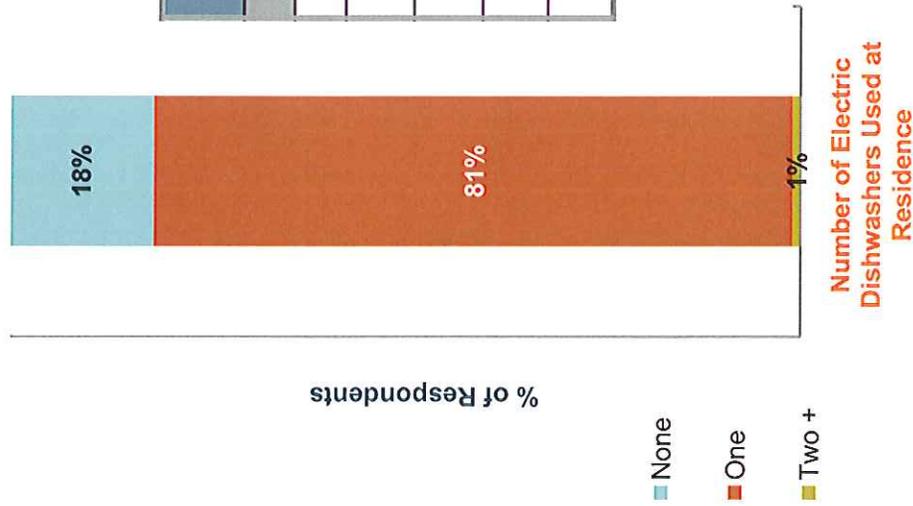
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Age of Freezer (#1)</b>								
< 3 years	17%	22% (c)	16%	11%	17%	21% (c)	17%	16%
4-10 years	36%	32%	35%	34%	38%	40%	36%	32%
11-20 years	29%	22%	33% (a)	33%	30%	24%	29%	34%
20 years +	18%	24% (d,e)	16%	22%	15%	15%	18%	18%
Base (unweighted) <sup>1</sup>	911	148	304	123	156	180	871	132
Base (weighted)	902	--	--	--	--	--	870	--
<b>Age of Freezer (#2)</b>								
< 3 years	18%	19%	7%	29%	15%	26% (b)	19%	10%
4-10 years	31%	50%	30%	25%	26%	29%	32%	28%
11-20 years	28%	12%	35%	38%	28%	24%	27%	36%
20 years +	23%	19%	28%	8%	31%	21%	22%	26%
Base (unweighted) <sup>1</sup>	181	26	43	24	46	42	171	39
Base (weighted)	174	--	--	--	--	--	166	--
<b>Age of Freezer (#3)</b>								
< 3 years	15%	25%	20%	0%	0%	17%	17%	0%
4-10 years	41%	50%	60%	100%	0%	33%	46%	0%
11-20 years	36%	25%	20%	0%	80%	33%	32%	75%
20 years +	8%	0%	0%	0%	20%	17%	5%	25%
Base (unweighted) <sup>1</sup>	21	4	5	1	5	6	18	4
Base (weighted)	20	--	--	--	--	--	18	--

<sup>1</sup>Caution: small base size.

Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C11. How old is each stand-alone freezer at this residence?

\*includes Oregon oversample. Oregon oversample data is not included in the Total or Region results.

# Number of Electric Dishwashers Used



Number of Electric Dishwashers Used at Residence								
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
None	18%	21% (b)	11%	28% (b)	26% (b)	21% (b)	18%	37% (f)
One	81%	78%	88% (a,c,d,e)	71%	72%	77%	81% (g)	63%
Two +	1%	1%	1%	1%	2%	2%	1%	0%
Base (unweighted)	1691	266	650	211	258	306	1636	178
Base (weighted)	1694	--	--	--	--	--	1649	178

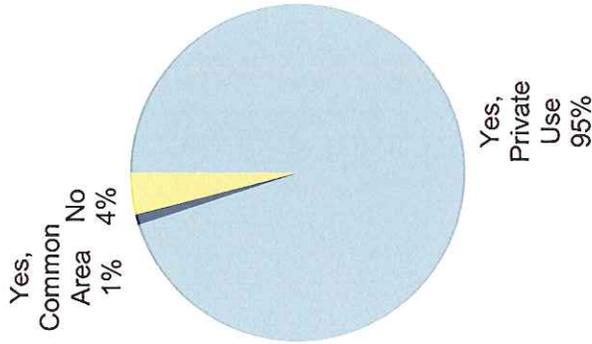
Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C12. How many electric dishwashers do you use at this residence?



# Laundry Appliances

# Clothes Washer Used

## Clothes Washer Used at Residence



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Clothes Washer Used at Residence</b>								
Yes, in residence for private use	95%	95%	96%	95%	94%	93%	95%	93%
Yes, in a common area for use by more than one household	1%	1%	1%	2%	<1%	2%	1%	1%
No	4%	4%	3%	3%	6%	5%	4%	6%
Base (unweighted)	1703	268	653	210	260	312	1647	180
Base (weighted)	1703	--	--	--	--	--	1657	--

Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C13. Do you have a clothes washer that is used at this residence?

# Age of Clothes Washer (Among Those With Washer For Personal Use)



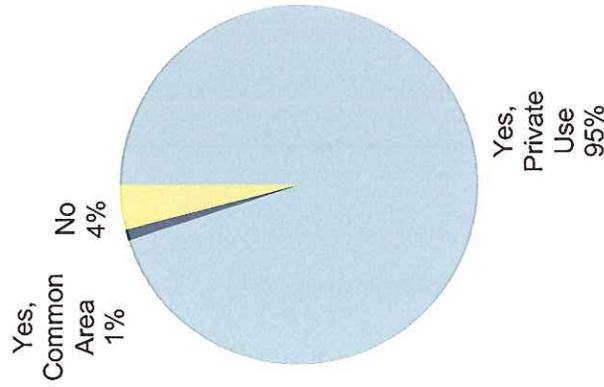
Age of Washer	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
	< 3 years	28%	26%	29%	33%	25%	28%	28%
4-10 years	50%	56% (c)	49%	44%	49%	51%	50%	48%
11-20 years	18%	14%	17%	19%	21%	18%	18%	20%
20 years +	4%	4%	5%	4%	5%	3%	4%	1%
Base (unweighted)	1536	243	594	189	229	281	1489	160
Base (weighted)	1538	--	--	--	--	--	1499	--

Age of Washer

Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C14. Approximately how old is the clothes washer used at this residence?

# Clothes Dryer Used

## Clothes Dryer Used at Residence

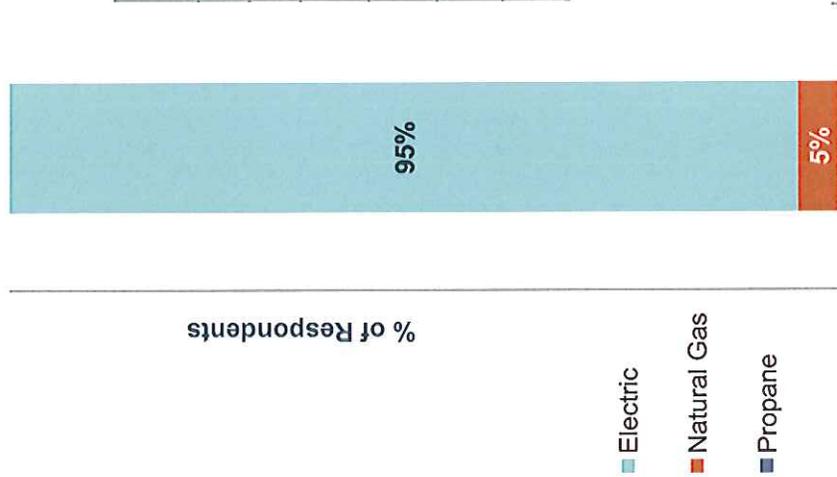


Clothes Dryer Used at Residence									
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)	
Yes, in residence for private use	95%	95%	96% (c,d,e)	93%	91%	92%	95%	93%	
Yes, in a common area for use by more than one household	1%	1%	1%	3% (b)	<1%	2%	1%	1%	
No	4%	4%	3%	4%	9% (a,b)	6% (b)	4%	6%	
Base (unweighted) <sup>1</sup>	1496	232	585	184	229	266	1449	157	
Base (weighted)	1498	--	--	--	--	--	1459	--	

<sup>1</sup> Several respondents who were qualified to answer the two clothes dryer questions C15-C16 did not. This may be due to the layout of that survey page (page 4). On the previous pages, the questions were in 2 columns, and the respondent would complete the questions in the first column and then back up to the top to fill out the second column. On page 4, however, the intention was for the respondent to go to the top of the second column before they went on to answer D1 and E1 located on the bottom half of the page. We hypothesize that respondents continued straight down the page to the next page, skipping past C15-C16.

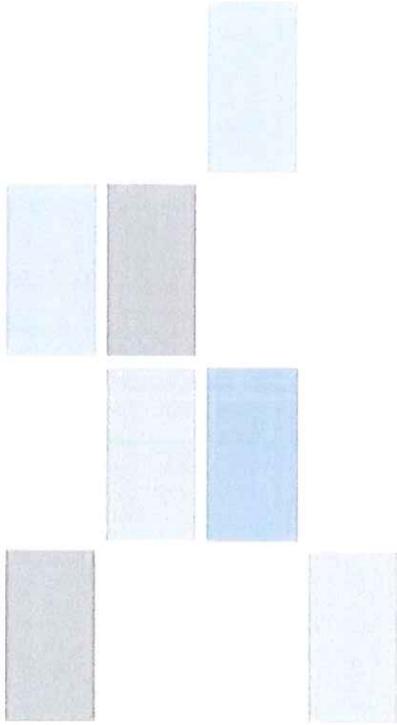
Among customers answering the question.  
 A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter.  
 C15. Do you have a clothes dryer that is used at this residence?

# Clothes Dryer Fuel (Among Those With Dryer For Personal Use)



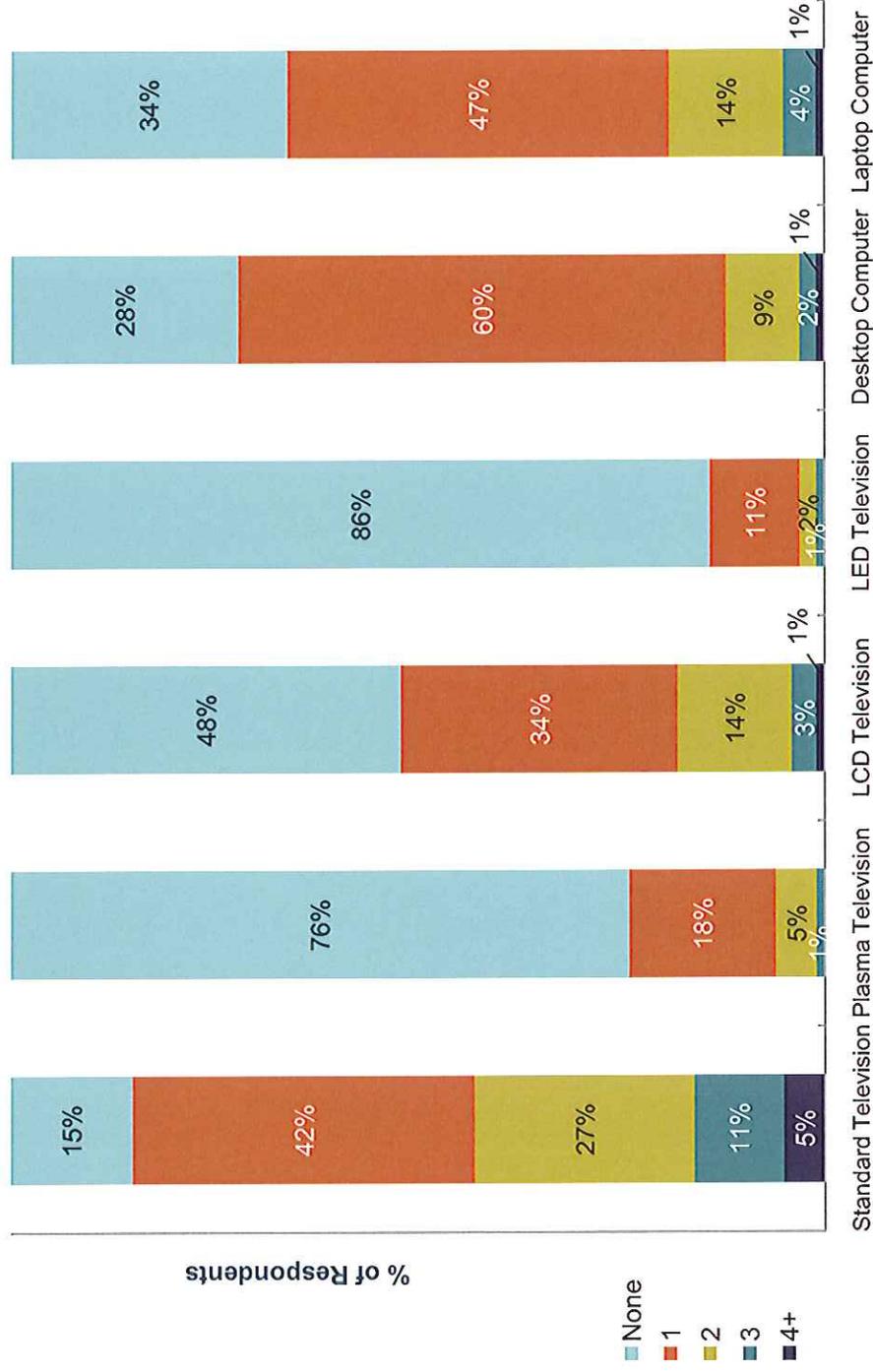
		Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Type of Fuel Used by Dryer</b>									
Electric	95%	96%	93%	97%	98% (b,e)	93%	94%	99% (f)	
Natural Gas	5%	4%	7% (c,d)	2%	1%	6% (d)	5% (g)	1%	
Propane	<1%	<1%	<1%	1%	1% (b)	1%	1%	0%	
Base (unweighted)	1392	217	555	168	206	246	1352	143	
Base (weighted)	1396	--	--	--	--	--	1364	--	

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. C-16. What type of fuel does the clothes dryer at this residence use?



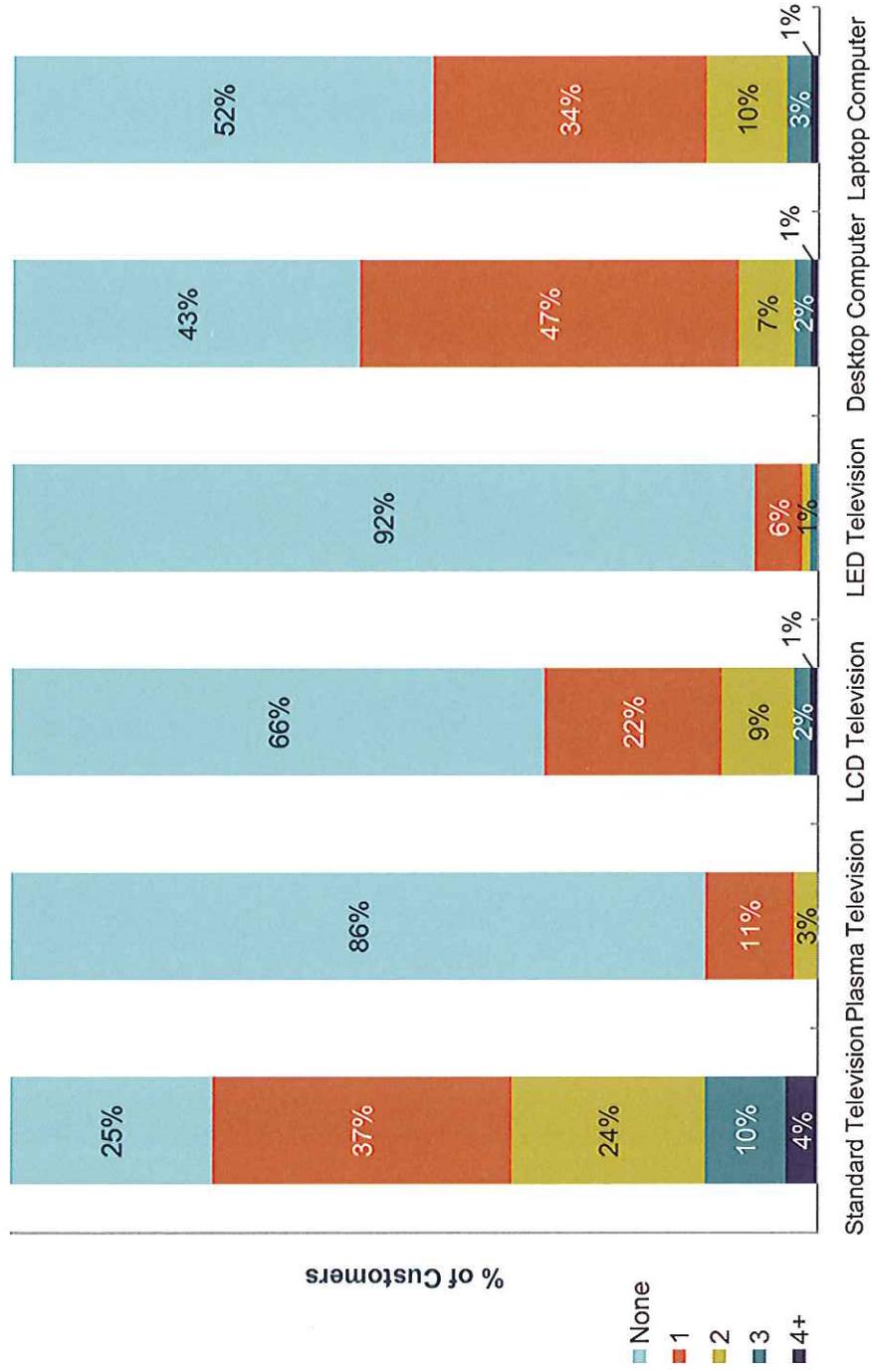
# Consumer Electronics

# Consumer Electronics



Among customers answering the question. D1A-F. For each of the following types of electronic equipment listed, indicate the number used at this residence. Base: Standard Television: 1525, Plasma Television: 1146, LED Television: 945, Desktop Computer: 1347, Laptop Computer: 1247

# Consumer Electronics (among all customers)\*



\* "Missing" responses are recoded to "none."

D1A-F: For each of the following types of electronic equipment listed, indicate the number used at this residence.  
Base: 1721

## Consumer Electronics: Total Number of TVs and Computers (among all customers)\*

	TVs – Percent Customers	Computers – Percent of Customers
<b>Number of TVs / Computers</b>		
None	6%	25%
1	29%	37%
2	31%	25%
3	20%	9%
4	11%	3%
5	2%	1%
6+	1%	0%
Base	1721	1721

\* "Missing" responses are recoded to "none."

D1A-F: For each of the following types of electronic equipment listed, indicate the number used at this residence.

# Consumer Electronics

	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Standard Television</b>								
None	15%	11%	17%	16%	17%	14%	15%	10%
1	42%	43%	39%	42%	47%	43%	42%	43%
2	27%	26%	29%	26%	24%	25%	27%	31%
3	11%	14%	10%	8%	9%	12%	11%	11%
4+	5%	6%	5%	8% (d)	3%	6%	5%	5%
Base (unweighted)	1525	240	592	193	224	276	1476	157
Base (weighted)	1528	--	--	--	--	--	1488	--
<b>Plasma television</b>								
None	76%	72%	76%	77%	85% (a,b,e)	75%	76%	84%
1	18%	20%	17%	17%	14%	20%	18%	14%
2	5%	8% (d)	6% (d)	5%	1%	4%	5%	2%
3	1%	0%	1%	1%	0%	1%	1%	0%
4+	0%	0%	0%	0%	0%	0%	0%	0%
Base (unweighted)	1022	163	421	119	136	183	997	89
Base (weighted)	1030	--	--	--	--	--	1009	--

Among customers answering the question, a lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. D1A-B. For each of the following types of electronic equipment listed, indicate the number used at this residence.

# Consumer Electronics

	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>LCD Television</b>								
None	48%	46%	45%	53%	54% (b)	52%	49%	50%
1	34%	38% (c)	34%	25%	32%	35% (c)	33%	35%
2	14%	13%	16%	15%	11%	11%	14%	10%
3	3%	1%	4% (e)	6% (a,e)	3%	1%	3%	5%
4+	1%	2% (d)	1%	1%	0%	1%	1%	0%
Base (unweighted)	1146	173	463	136	167	207	1112	115
Base (weighted)	1149	--	--	--	--	--	1122	--
<b>LED Television</b>								
None	86%	89%	85%	87%	86%	81%	85%	94% (f)
1	11%	9%	12%	10%	10%	15%	12% (g)	3%
2	2%	1%	2%	3%	4%	2%	2%	2%
3	1%	1%	1%	0%	0%	1%	1%	0%
4+	<1%	0%	<1%	0%	0%	1%	<1%	1%
Base (unweighted) <sup>1</sup>	945	139	386	114	135	171	922	82
Base (weighted)	948	--	--	--	--	--	929	--

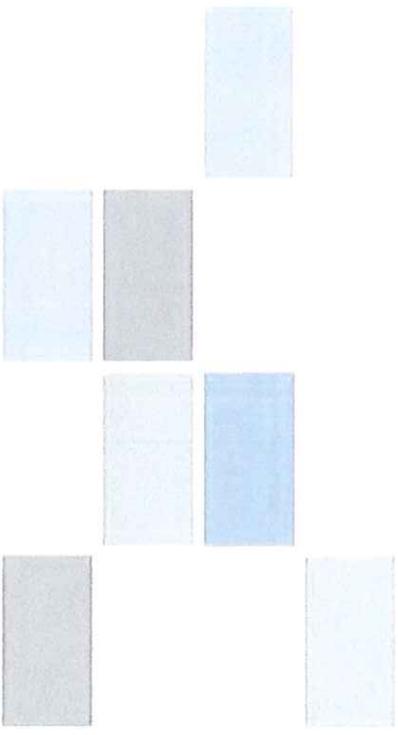
<sup>1</sup>Caution: small base size.

Among customers answering the question.  
A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter.  
D1C-D: For each of the following types of electronic equipment listed, indicate the number used at this residence

# Consumer Electronics

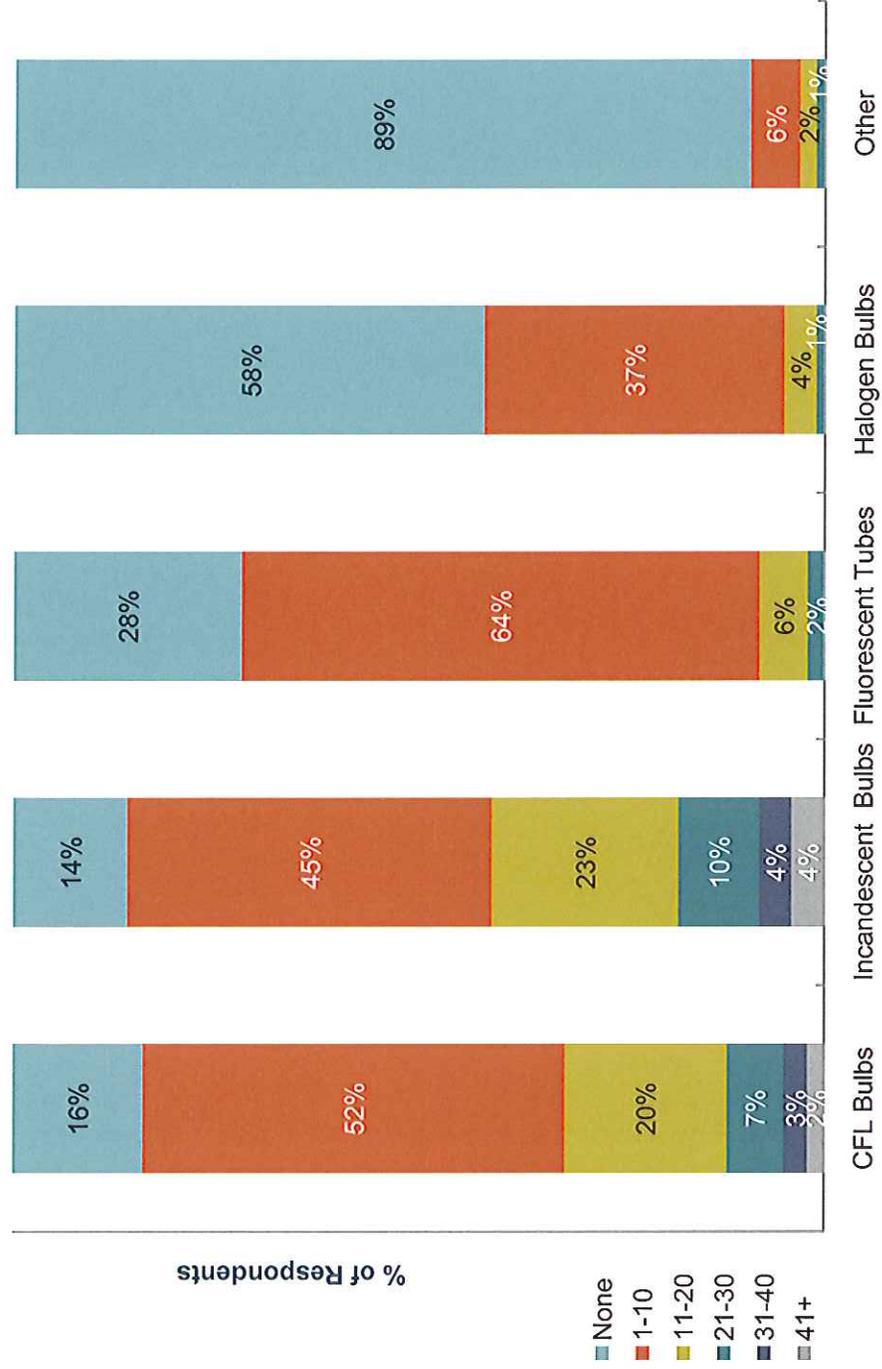
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Desktop Computer</b>								
None	28%	27%	25%	29%	37% (a,b)	31%	28%	26%
1	60%	61%	61%	57%	59%	60%	60%	66%
2	9%	10% (d)	10% (d)	12% (d)	3%	8%	9%	6%
3	2%	2%	3% (d,e)	2%	<1%	<1%	2%	2%
4+	1%	<1%	1%	0%	1%	1%	1%	0%
Base (unweighted)	1347	211	547	166	180	243	1311	131
Base (weighted)	1355	--	--	--	--	--	1326	--
<b>Laptop Computer</b>								
None	34%	37%	30%	33%	46% (b,c)	40% (b)	34%	43%
1	47%	44%	48%	50%	46%	46%	47%	42%
2	14%	14% (d)	16% (d)	14% (d)	6%	13% (d)	14%	11%
3	4%	5% (e)	5% (e)	2%	2%	1%	4%	3%
4+	1%	<1%	1%	1%	0%	0%	1%	1%
Base (unweighted)	1247	195	506	150	168	228	1213	110
Base (weighted)	1254	--	--	--	--	--	1226	--

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. D1E-F: For each of the following types of electronic equipment listed, indicate the number used at this residence



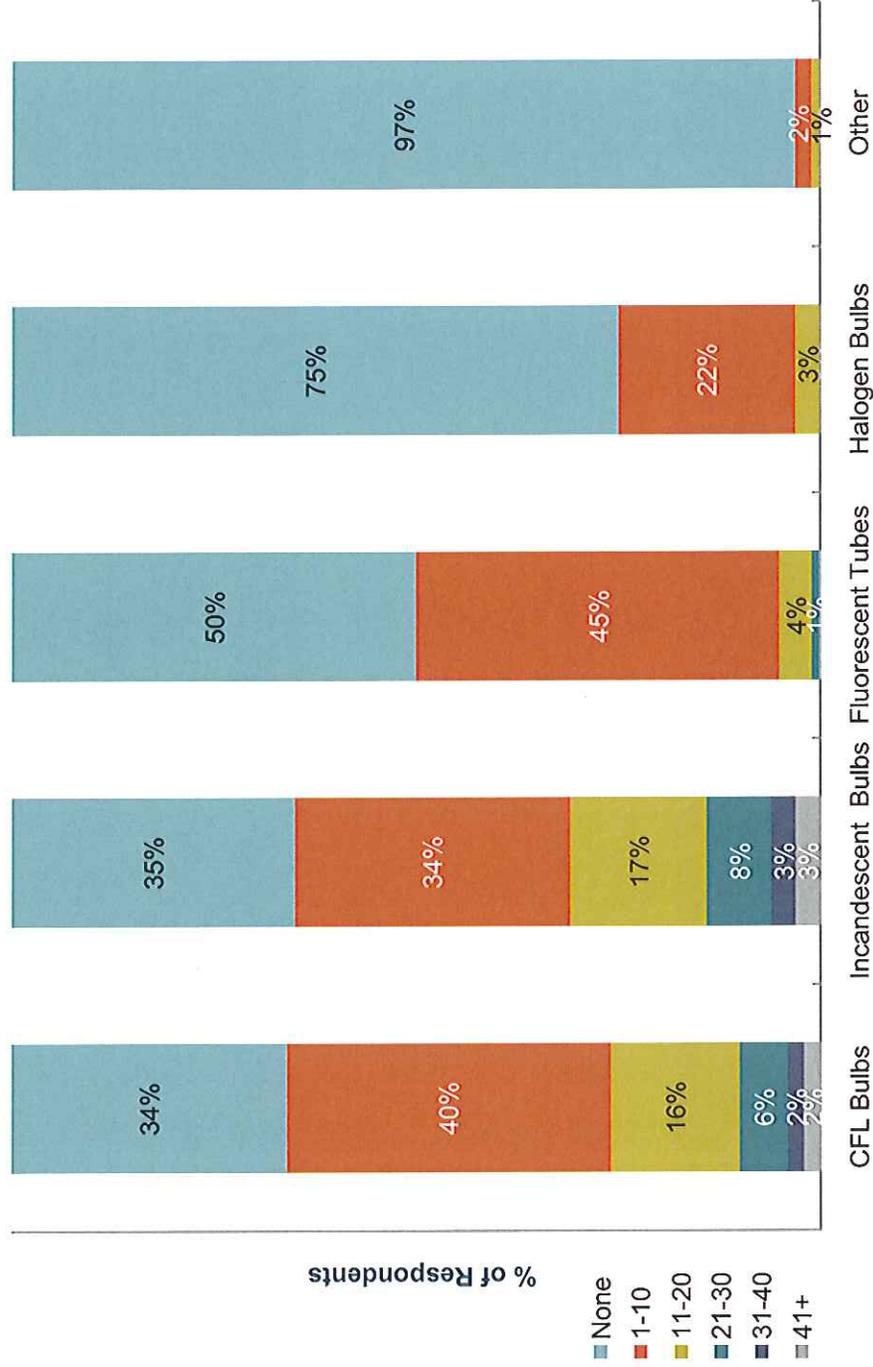
# Lighting

# Lighting



Among customers answering the question, E1A-E: Approximately how many of the following types of light bulbs are used in fixtures (including lamps) at this residence?  
 Base: CFL Bulbs: 1346, Incandescent Bulbs: 1191, Fluorescent Tubes: 1000, Other: 561

# Lighting (among all customers)\*



\* "Missing" responses are recoded to "none."

E1A-E: Approximately how many of the following types of light bulbs are used in fixtures (including lamps) at this residence?  
 Base: 1721

# Lighting

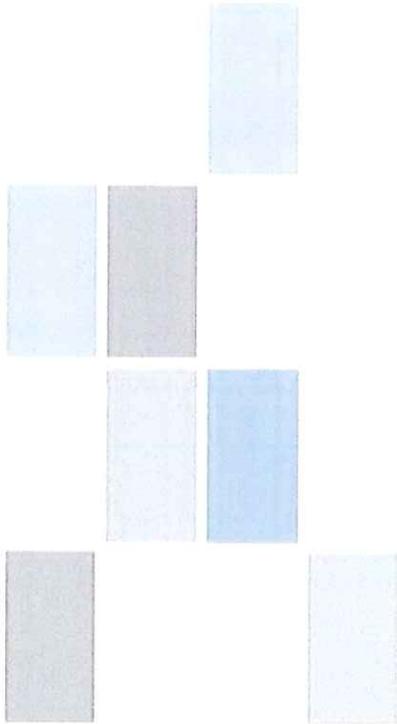
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>CFL Bulbs</b>								
None	16%	18%	14%	15%	14%	22% (b,d)	16%	20%
1-10	52%	51%	53%	50%	51%	51%	52%	52%
11-20	20%	17%	21%	23%	22%	16%	20%	16%
21-30	7%	8%	7%	8%	8%	7%	7%	8%
31-40	3%	4%	3%	3%	3%	2%	3%	2%
41+	2%	2%	2%	1%	2%	2%	2%	2%
<b>Base (unweighted)</b>	<b>1346</b>	<b>210</b>	<b>540</b>	<b>160</b>	<b>192</b>	<b>244</b>	<b>1303</b>	<b>133</b>
<b>Base (weighted)</b>	<b>1351</b>	--	--	--	--	--	<b>1316</b>	--
<b>Incandescent Bulbs</b>								
None	14%	19% (d)	15%	12%	10%	13%	15% (g)	8%
1-10	45%	43%	45%	42%	49%	45%	44%	45%
11-20	23%	20%	22%	25%	25%	24%	23%	30% (f)
21-30	10%	10%	9%	13%	8%	11%	10%	12%
31-40	4%	5%	4%	6%	5%	3%	4%	4%
41+	4%	3%	5%	2%	3%	4%	4%	1%
<b>Base (unweighted)</b>	<b>1301</b>	<b>204</b>	<b>521</b>	<b>166</b>	<b>180</b>	<b>230</b>	<b>1263</b>	<b>127</b>
<b>Base (weighted)</b>	<b>1307</b>	--	--	--	--	--	<b>1276</b>	--

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. E1A-B. Approximately how many of the following types of light bulbs are used in fixtures (including lamps) at this residence?

# Lighting

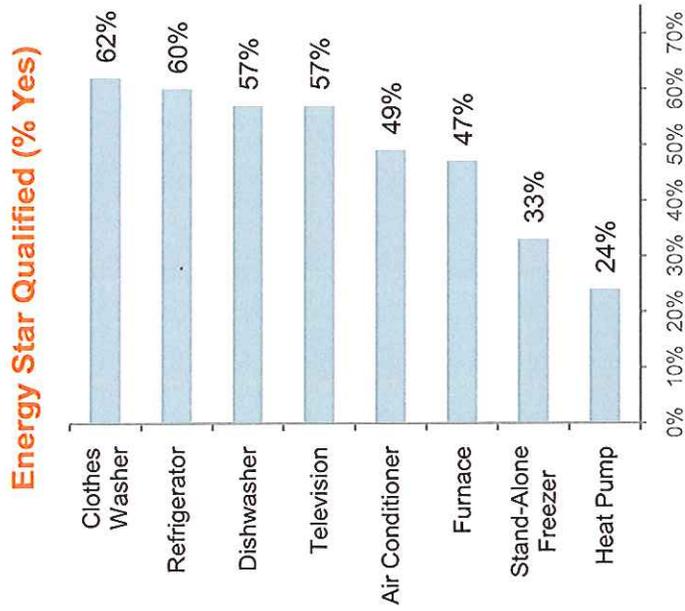
	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Fluorescent Bulbs</b>								
None	28%	37% (b,c,d,e)	29% (c,d)	20%	18%	25%	28%	23%
1-10	64%	55%	64% (a)	66% (a)	72% (a,b)	66% (a)	64%	66%
11-20	6%	6%	5%	9%	8%	5%	6%	8%
21-30	2%	1%	1%	4% (b)	1%	3% (b)	2%	2%
31-40	<1%	1%	1%	0%	0%	<1%	<1%	0%
41+	<1%	0%	<1%	1%	1%	1%	<1%	1%
Base (unweighted)	1191	177	488	147	168	211	1152	120
Base (weighted)	1196	--	--	--	--	--	1165	--
<b>Halogen Bulbs</b>								
None	58%	61%	56%	61%	55%	56%	58%	54%
1-10	37%	34%	39%	37%	36%	35%	37%	37%
11-20	4%	3%	4%	1%	7% (c)	7% (c)	4%	7%
21-30	1%	1%	1%	1%	0%	1%	1%	0%
31-40	<1%	1%	<1%	0%	1%	1%	<1%	0%
41+	<1%	<1%	0%	0%	1%	0%	<1%	2% (f)
Base (unweighted)	1000	165	412	120	126	177	974	86
Base (weighted)	1010	--	--	--	--	--	989	--

Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. E1C-D: Approximately how many of the following types of light bulbs are used in fixtures (including lamps) at this residence?



# Energy Efficiency

# Energy Star Appliances Used



Energy Star Qualified (% Yes)	Total	Base (weighted)	Base (unweighted)
Clothes Washer	62%	1051	1048
Refrigerator	60%	1089	1083
Dishwasher	57%	963 <sup>1</sup>	955 <sup>1</sup>
Television	57%	921 <sup>1</sup>	916 <sup>1</sup>
AC	49%	849 <sup>1</sup>	835 <sup>1</sup>
Furnace	47%	868 <sup>1</sup>	859 <sup>1</sup>
Stand-Alone Freezer	33%	760 <sup>1</sup>	764 <sup>1</sup>
Heat pump	24%	477 <sup>1</sup>	482 <sup>1</sup>

<sup>1</sup>Caution: small base size.

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. F/A-H: Which of the following appliances or equipment that you have at this residence are ENERGY STAR qualified? ?

# Energy Star Appliances Used

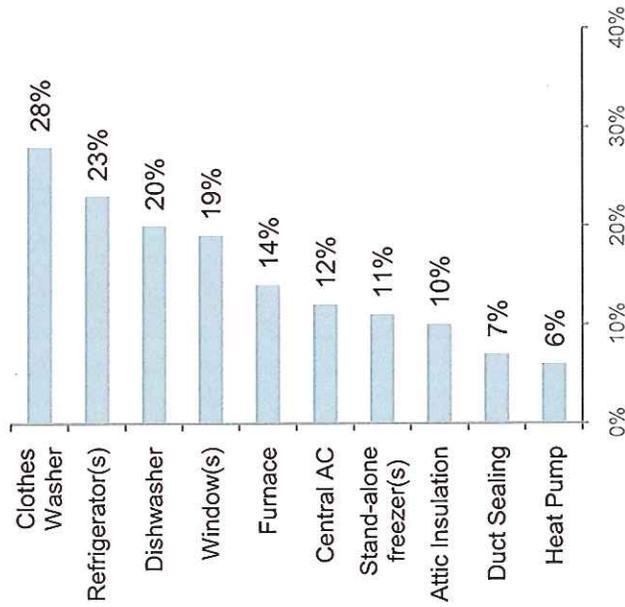
	Canyon (a)		Capital (b)		Eastern (c)		Western (d)		Southern (e)		Idaho (f)		Oregon* (g)		
	%	Base (unwtd) <sup>1</sup>	%	Base (unwtd) <sup>1</sup>	%	Base (unwtd) <sup>1</sup>	%	Base (unwtd) <sup>1</sup>	%	Base (unwtd) <sup>1</sup>	%	Base (wtd)	Base (unwtd) <sup>1</sup>	%	Base (unwtd) <sup>1</sup>
<b>Energy Star Qualified (% Yes)</b>															
Clothes Washer	64%	166	59%	425	68% (d)	113	56%	163	68% (b,d)	181	62%	1027	1018	62%	101
Refrigerator	58%	183	58%	439	70% (a,b,d)	114	59%	169	65%	178	61%	1063	151	62%	112
Dishwasher	60%	155	54%	406	64%	98	53%	144	59%	152	57%	939	926	52%	92
Television	65% (b,d)	142	54%	377	64% (d)	104	46%	132	58% (d)	161	57%	903	894	51%	88
AC	57% (d)	150	48% (d)	374	51%	75	37%	115	50%	121	49%	833	815	51%	84
Furnace	50% (d)	143	45% (d)	369	57% (b,d)	89	33%	125	53% (d)	133	47%	852	840	42%	88
Stand-Alone Freezer	27%	123	30%	284	31%	81	36%	138	49% (a,b,c,d)	138	34%	741	741	36%	93
Heat pump	28% (b)	78	16%	174	25%	44	22%	96	40% (b,d)	90	24%	466	468	21%	57

<sup>1</sup>Caution: small base size.

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. F1A-H: Which of the following appliances or equipment that you have at this residence are ENERGY STAR qualified? \*

# Appliances Installed/Replaced

Installed/Replaced (% Yes)



	Total	Base (weighted)	Base (unweighted)
<b>Installed/Replaced (% Yes)</b>			
Clothes washer	28%	1477	1473
Refrigerator(s)	23%	1444	1442
Dishwasher	20%	1424	1420
Window(s)	19%	1449	1448
Furnace	14%	1413	1407
Central AC	12%	1363	1355
Stand-alone freezer(s)	11%	1354	1352
Attic insulation	10%	1401	1398
Duct sealing	7%	1365	1363
Heat pump	6%	1254	1250

Among customers answering the question:  
 A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter.  
 F2A-J: In the past three years, have you installed or replaced any of the following at this residence?

# Appliances Installed/Replaced

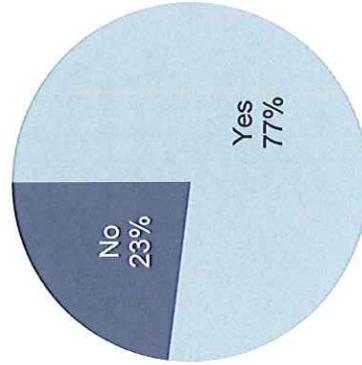
	Canyon (a)		Capital (b)		Eastern (c)		Western (d)		Southern (e)		Idaho (f)		Oregon* (g)	
	%	Base (unwtd) <sup>1</sup>	%	Base (unwtd) <sup>1</sup>	%	Base (unwtd) <sup>1</sup>	%	Base (unwtd) <sup>1</sup>	%	Base (unwtd) <sup>1</sup>	%	Base (wtd)	%	Base (unwtd) <sup>1</sup>
Installed/Replaced (% Yes)														
Clothes washer	26%	234	30%	581	29%	174	26%	222	29%	262	28%	1439	32%	156
Refrigerator(s)	20%	233	23%	560	27%	169	25%	225	21%	255	23%	1407	25%	153
Dishwasher	19%	223	21%	563	24%	171	19%	213	17%	250	20%	1390	18%	142
Window(s)	14%	225	18%	565	24% (a)	177	17%	220	24% (a,b)	261	19%	1414	19%	148
Furnace	14% (d)	226	17% (d)	561	14% (d)	168	7%	206	13% (d)	246	14%	1379	11%	143
Central AC	13% (d)	221	13% (d)	549	11%	155	7%	198	10%	232	12%	1329	9%	144
Stand-alone freezer(s)	9%	213	10%	530	9%	161	14%	205	14%	243	11%	1320	12%	144
Attic insulation	5%	219	11% (a)	551	13% (a)	174	10% (a)	211	11% (a)	243	10%	1367	7%	140
Duct sealing	6%	214	6%	537	10%	162	9%	210	8%	240	7%	1332	6%	138
Heat pump	7%	199	6%	497	4%	149	6%	187	10% (b,c)	218	6%	1226	5%	129

<sup>1</sup>Caution: small base size.

Among customers answering the question, A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. F2A-J: In the past three years, have you installed or replaced any of the following at this residence?

# Awareness of Idaho Power Rebates

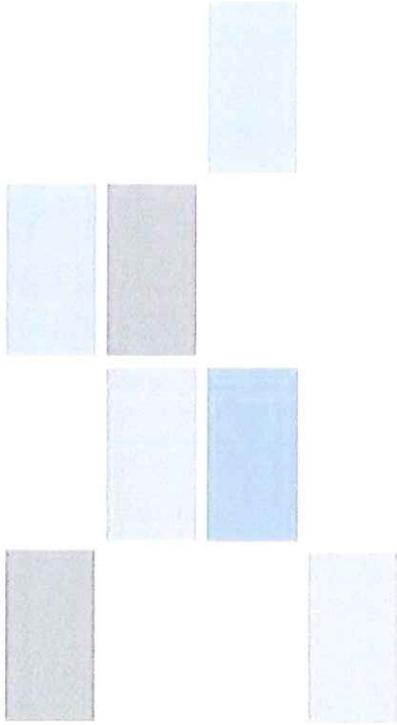
## Idaho Power Offers Rebates on Energy Efficient Products



	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Idaho Power Offers Rebates on Energy Efficient Products<sup>1</sup></b>								
Yes	77%	67%	82% (a,d,e)	82% (a)	72%	69%	77% (g)	60%
No	23%	33% (b,c)	18%	18%	28% (b)	31% (b)	23%	40% (f)
Base (unweighted) <sup>1</sup>	643	96	280	67	97	103	626	53
Base (weighted)	648	--	--	--	--	--	634	--

<sup>1</sup>Caution: small base size. Base is among customers answering the question (i.e., "missing" responses are not included in the "not aware" response category).

Among customers answering the question. A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter. F3: Does Idaho Power offer any rebates on energy efficiency products or appliances?



# Demographics

# Demographics

	Total	Canyon (a)	Capital (b)	Eastern (c)	Western (d)	Southern (e)	Idaho (f)	Oregon* (g)
<b>Gender</b>								
Male	44%	39%	44%	43%	45%	50% (a)	44%	44%
Female	56%	61% (e)	56%	57%	55%	50%	56%	56%
Base (unweighted)	1627	256	633	196	245	297	1574	170
Base (weighted)	1629	--	--	--	--	--	1586	--
<b>Age</b>								
Under 35	13%	13% (d)	14% (d)	15% (d)	5%	14% (d)	13% (g)	8%
35-54	30%	31%	36% (c,d,e)	23%	25%	23%	30%	24%
55-74	41%	38%	36%	46% (b)	53% (a,b)	46% (b)	41%	49% (f)
75+	16%	18%	14%	16%	17%	17%	16%	19%
Base (unweighted)	1670	262	642	203	256	307	1615	178
Base (weighted)	1670	--	--	--	--	--	1625	--
<b>Education</b>								
High school grad or less	27%	39% (b,c,d,e)	21%	29% (b)	30% (b)	26%	27%	31%
Trade/Tech/Some College	38%	40%	34%	40%	39%	40%	37%	45%
College Grad+	35%	21%	45% (a,c,d,e)	31% (a)	31% (a)	34% (a)	36% (g)	24%
Base (unweighted)	1658	263	638	201	252	304	1604	176
Base (weighted)	1659	--	--	--	--	--	1615	--

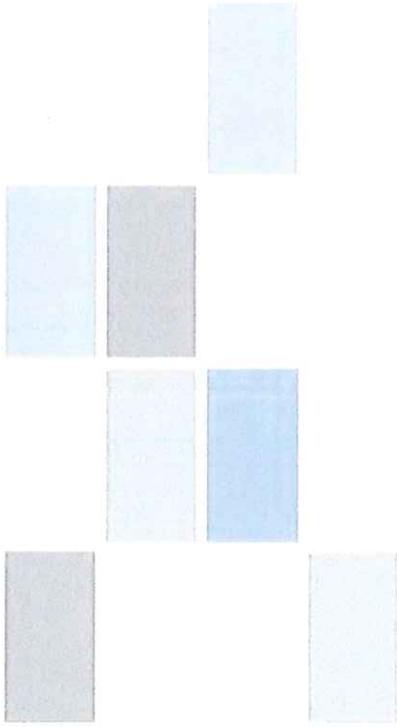
Among customers answering the question.  
 A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter.  
 G1: Are you...?  
 G2: Which of the following categories best describes your age?  
 G3: What is the highest level of education you completed?

# Demographics (cont'd)

	Total	Web (a)	Mail (b)
<b>Gender</b>			
Male	44%	52% (b)	43%
Female	56%	48%	57%
Base (unweighted)	1627	270	1357
Base (weighted)	1629	278	1351
<b>Age</b>			
Under 35	13%	21% (b)	12%
35-54	30%	46% (b)	27%
55-74	41%	30%	43% (a)
75+	16%	3%	18% (a)
Base (unweighted)	1670	270	1400
Base (weighted)	1670	278	1392
<b>Education</b>			
High school grad or less	27%	8%	31% (a)
Trade/Tech/Some College	38%	42%	37%
College Grad+	35%	50%	32% (a)
Base (unweighted)	1658	262	1396
Base (weighted)	1659	270	1389
<b>Region (unweighted)</b>			
Canyon	16%	13%	16%
Capital	38%	55% (b)	35%
Eastern	12%	9%	13% (a)
Payette	15%	9%	17% (a)
Southern	18%	14%	19% (a)
Base (unweighted)	1721	279	1442

Among customers answering the question.  
 A lower-case letter indicates a significant difference in proportions at the 5% risk level between the current column and the column indicated by the letter.  
 G1: Are you...?  
 G2: Which of the following categories best describes your age?  
 G3: What is the highest level of education you completed?

C



C

C

## Appendix A: End-Use Survey Methods “Cookbook”

# Research Methodology

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- Idaho Power and Market Strategies collaborated on the survey design. The survey includes a total of 71 questions. The questions were organized around 7 categories:
  - Section A: Residence Characteristics (8 questions)
  - Section B: Heating & Cooling Equipment (14 questions)
  - Section C: Appliances (16 questions)
  - Section D: Consumer Electronics (6 questions)
  - Section E: Lighting (5 questions)
  - Section F: Energy Star and Energy Efficiency (19 questions)
  - Section G: Demographics (3 questions)
- The survey materials are shown on the following five pages.

# Survey



## 2010 Home Energy Survey

Please complete this survey for the residence at the service location address listed on the back of this survey.

You also have the option to complete the survey online. Refer to the back of the survey for the website address and your PIN.

### Section A: Your Residence

A1. Which of the following best describes this residence?

- Mobile Home
- Manufactured Home
- Single-Family Home—Detached
- Apartment, Condo, Townhouse, or Multi-Family with 2-3 Units
- Apartment, Condo, Townhouse, or Multi-Family with 4 or More Units
- Other—Specify \_\_\_\_\_

A2. In this residence occupied year-round or for only part of the year?

- All or most of the year
- As a seasonal home or vacation home (SKIP TO A4)
- Other—Specify \_\_\_\_\_

A3. If this is your primary residence, how many people live here?

- 1
- 2
- 3
- 4
- 5
- 6 or more

A4. Do you own or rent this residence?

- Own
- Rent

A5. When was this residence originally built? (Select when the building was originally constructed, not when it was remodeled, added to, or converted.)

- Before 1960
- 1960-1979
- 1980-1989
- 1990-1999
- 2000-2005
- 2007-2010
- Don't know

A6. What is the approximate overall square footage of this residence? Include basement or garage ONLY if it is regularly heated or cooled by your heating or cooling system.

- Less than 1,000 sq ft
- 1,000-1,999 sq ft
- 2,000-2,999 sq ft
- 3,000-3,999 sq ft
- 4,000-4,999 sq ft
- 5,000-5,999 sq ft
- 6,000-6,999 sq ft
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- 389,

# Survey

- B14. What best describes the heating and cooling thermostat at this residence?  
 Manually adjusted  
 Programmable  
 Do not have a thermostat  
 Don't know

## Section C: Appliances

### Water Heater

- C1. How many water heaters are used at this residence?  
 None (SKIP TO C4)  
 One  
 Two  
 Three or more
- C2. What type of fuel does the primary water heater at this residence use?  
 Electricity  
 Propane  
 Natural gas  
 Don't know  
 Other—Specify \_\_\_\_\_

- C3. Which of the following best describes the primary water heater used at this residence?  
 Conventional  
 Tankless  
 Heat pump  
 Don't know  
 Other—Specify \_\_\_\_\_

### KITCHEN APPLIANCES

- C4. What type of fuel does the kitchen stovetop at this residence use?  
 Electricity  
 Propane  
 Natural gas  
 Don't know  
 Do not have a stovetop  
 Other—Specify \_\_\_\_\_

- C5. What type of fuel does the kitchen oven at this residence use? (Do not include the microwave oven.)  
 Electricity  
 Propane  
 Natural Gas  
 Don't know  
 Do not have an oven  
 Other—Specify \_\_\_\_\_

- C6. How many microwave ovens do you use at this residence?  
 None  
 One  
 Two or more

- C7. How many mid- and/or full-size refrigerators do you use at this residence?  
 None (SKIP TO C9)  
 One  
 Two  
 Three or more

- C8. How old is each mid- or full-size refrigerator at this residence?

#### Refrigerator #1

- 3 years or less  
 4-10 years  
 11-20 years

#### Refrigerator #2

- 3 years or less  
 4-10 years  
 11-20 years

#### Refrigerator #3

- 3 years or less  
 4-10 years  
 11-20 years

- C9. How many mini-fridges/beverage coolers do you use at this residence?  
 None  
 One  
 Two or more

- C10. How many stand-alone freezers (either chest or upright) do you use at this residence?  
 None (SKIP TO C12)  
 Two  
 Three or more

- C11. How old is each stand-alone freezer at this residence?

#### Freezer #1

- 3 years or less  
 4-10 years  
 11-20 years

#### Freezer #2

- 3 years or less  
 4-10 years  
 11-20 years

#### Freezer #3

- 3 years or less  
 4-10 years  
 11-20 years

- C12. How many electric dishwashers do you have at this residence?  
 None  
 One  
 Two or more

### Laundry Appliances

- C13. Do you have a clothes washer that is used at this residence?

- Yes, in residence for private use  
 Yes, in a common area for use by more than one household (SKIP TO D1)  
 No (SKIP TO D1)

- C15. Do you have a clothes dryer that is used at this residence?  
 Yes, in residence for private use  
 Yes, in a common area for use by more than one household (SKIP TO D1)  
 No (SKIP TO D1)

- C16. What type of fuel does the clothes dryer at this residence use?  
 Electricity  
 Natural gas  
 Don't know  
 Other—Specify \_\_\_\_\_

- C14. Approximately how old is the clothes washer used at this residence?  
 3 years or less  
 4-10 years  
 11-20 years

## Section D: Consumer Electronics

- D1. For each of the following types of electronic equipment listed, indicate the number used at this residence.

Equipment	None	One	Two	Three	Four or more
Standard television (CRT or tube)	<input type="radio"/>				
Plasma television	<input type="radio"/>				
LCD television	<input type="radio"/>				
LED television	<input type="radio"/>				
Desktop computer	<input type="radio"/>				
Laptop computer	<input type="radio"/>				

## Section E: Lighting

- E1. Approximately how many of the following types of light bulbs are used in fixtures (including lamps) at this residence?

Bulb Type	None	1-10	11-20	21-30	31-40	More than 40
Compact fluorescent (CFL) bulbs	<input type="radio"/>					
Incandescent bulbs	<input type="radio"/>					
Fluorescent tubes	<input type="radio"/>					
Halogen bulbs	<input type="radio"/>					
Other—Specify _____	<input type="radio"/>					



# Cover Letter: 1st and 2nd Mailing



[Insert Date]

[NAME]  
[ADDRESS 1] [ ADDRESS 2]  
[ADDRESS 3]  
[CITY] [STATE], [ZIPCODE]

SERVICE LOCATION:  
[STD\_FORM\_ADDR1]  
[STD\_FORM\_ADDR2]  
[STD\_FORM\_ZIPCODE]

Dear [NAME]:

At Idaho Power we like to hear from our customers and would like to hear from you by asking you to complete a survey about your energy usage.

An important part of our business is listening to customers and gaining a better understanding of how you use energy. The input you provide is extremely valuable and helps us plan for the future and develop services and programs to meet your energy needs.

There are two easy ways to complete the survey; choose one of the following options:

- **OPTION I – By Internet:** Launch your Web browser, go to <http://www.msisurvey.com/E10222> and enter your survey PIN: ePINs.

Or

- **OPTION II – By Mail:** Complete the enclosed mail survey and return it using the enclosed postage-paid envelope.

This survey is concerning [STD\_FORM\_ADDR1], [STD\_FORM\_ADDR2], [STD\_FORM\_ZIPCODE] and how you and your household use electricity at that location. All individual survey results are confidential and are only used to help Idaho Power make planning decisions around programs and services in the future. If you have any questions, please give us a call at 1-208-388-2323 in the Treasure Valley calling area or 1-800-488-6151 outside of the Treasure Valley calling area.

We appreciate the opportunity to serve you and thank you for taking the time to complete this survey.

Sincerely,

Dan B. Minor  
Executive Vice President, Operations

1221 W. Idaho St. (B3702)  
P.O. Box 70  
Boise, ID 83707



[Insert Date]

[Insert Recipient Name]  
[Insert Recipient Street Address]  
[Insert City, State Zip]

SERVICE LOCATION:  
[PREMISE LOCATION HERE]

Dear [Insert Recipient]:

A couple of weeks ago, Idaho Power mailed out the 2010 Home Energy Survey to some of our residential customers. If you have already completed it, thank you and please ignore this letter. We know your time is valuable, and if you have not had a chance to complete the survey, we would still like to hear from you about your energy usage. If you would like to have your responses included in our study, please complete the survey by Friday, November 19, 2010.

There are two easy ways to complete the survey; choose one of the following options:

- **OPTION I – By Internet:** Launch your Web browser, go to <http://www.msisurvey.com/E10222> and enter your survey PIN: ePINs.

Or

- **OPTION II – By Mail:** Complete the enclosed mail survey and use the postage-paid envelope.

This survey is concerning (Premise location here) and how you and your household use electricity at that location. All individual survey results are confidential and are only used to help Idaho Power make planning decisions around programs and services in the future. If you have any questions, please give us a call at 1-208-388-2323 in the Treasure Valley calling area or 1-800-488-6151 outside of the Treasure Valley calling area.

We appreciate the opportunity to serve you and thank you for taking the time to complete this survey.

Sincerely,

Dan B. Minor  
Executive Vice President, Operations

1221 W. Idaho St. (B3702)  
P.O. Box 70  
Boise, ID 83707

# Reminder Postcard



Dear <name>

You should have recently received the 2010 Idaho Power Home Energy Survey. If you have already returned the survey, thank you and please disregard this postcard.

If you have not had a chance to complete the survey, it is not too late. We do like hearing from our customers and would love to hear from you. And for your convenience, we are offering the option to complete the survey online. We've created a pin number for you to access if you choose:

[http://www.msisurvey.com/job\\_number](http://www.msisurvey.com/job_number)  
Survey ID: «pin».

Please return completed surveys by [date], 2010. If you need another copy of the survey mailed to you, please call Idaho Power at 1-800-488-6151 or e-mail your questions to [survey@idahopower.com](mailto:survey@idahopower.com). Thank you in advance for your support.

Best Wishes,

Dan B. Minor  
Executive Vice President, Operations

# Sample Design

- As noted in the methodology section of this report, the targeted population of this study is Idaho Power's base of residential customers across the entire service territory.
- Idaho Power provided three sample lists including customer name and address:
  - Main sample: A random sample of residential customers to be used for the overall analysis. The list included five operating regions (Canyon, Capital, Eastern, Payette, Southern).
  - Oregon oversample: A random sample of Oregon customers to be combined with the Oregon customer results from the random sample
  - Load Research sample: List of Load Research customers to be collected and cleaned but not analyzed
- Sample was pulled proportional to the distribution sample in the Main and Supplement sample pulls.
- Sample cleaning involved removing duplicate individual names. However, all duplicate businesses/property management companies were kept in the sample.
- Sample record addresses were cleaned and updated prior based on USPS information to the first survey mail out. The updated address information was provided to Idaho Power for its records.
- PIN numbers were provided by Idaho Power. All PINs were six digits. The first 2 digits of each PIN corresponds to that record's sample file (Main sample: 11xxxx, Oregon oversample: 66xxxx, Load Research sample: 77xxxx).

Sample Variables
Region
std_format_name
std_format_addr_txt
zip_code_5_nbr
ZIP_CODE_4_NBR
city_nm
county_nm
jurisdiction_desc
premise_type_desc
MAIL_STATE
CUR_MAIL_ADDR_LN1
CUR_MAIL_ADDR_LN2
CUR_MAIL_ADDR_LN3
CUR_MAIL_ADDR_LN4
CUR_MAIL_ADDR_LN5
CUR_MAIL_ADDR_LN6
CUR_MAIL_ADDR_LN7
CUR_MAIL_ADDR_LN8
USAAge
Phys_mail_not_matched
PIN

## Changes in Study Design: 2004 vs. 2010

---

### 2004

- Mail only, administered by Idaho Power
    - Survey mailed to 4,000 randomly selected customers
    - Of the 4,000 mailed surveys, 2,126 were returned.
- 

- Design included an initial survey mailing, a follow up postcard, and a second survey mailing.
- 

- Pure random sample
- 

- No data weighting

### 2010

- Mail and web, administered by Market Strategies
    - Survey mailed to 5,407 customers across the five regions, an oversample of Oregon customers, and Load Research customers
    - Of the 5,407 surveys, 1943 were returned.
- 

- Design included an initial survey mailing, a follow up postcard, and a second survey mailing.
- 

- Sample was stratified by region
- 

- Data weighted by region
  - Distribution by region provided by Idaho Power

# Survey Differences: 2004 vs. 2010

2004

*The following list of questions were either asked in 2004 but not in 2010 or were worded differently compared to the 2010 survey*

## Residence

- Two questions to determine residence type
- Question regarding number of rooms in the home

## Heating

- One combined question to determine heating system type, fuel type and multiple systems
- Questions regarding primary heat system replacement, maintenance, use of heat pump and type of supplementary heating system used with heat pump

## Cooling

- One question regarding AC (have and type combined)
- Question regarding cooling system maintenance

## Water Heater

- Specify shared vs. private use
- Question regarding water heater replacement within the last two years

## Appliances

- Question regarding type of clothes washer
- Questions regarding number of: stoves, ovens, cook tops, portable propane heaters, wood stoves, wood fireplaces, gas fireplaces, heated waterbeds, portable fans, ceiling fans, attic fans, whole house fans, well pump, sump pump, pool pump, electric generator, and uninterruptible power supply.
- Questions regarding hot and swimming pool at home for private use

## Electronics

- Questions regarding number of TVs and computers

## Lighting

- Questions regarding number of CFL bulbs and dedicated CFL lamps or fixtures

## Energy Efficiency

- Question regarding awareness of the Energy Star label and steps taken to save energy

2010

*The following list of questions were either new in 2010 or worded differently compared to the 2004 survey*

## Residence

- One question to determine residence type
- Questions regarding types of windows and window frames

## Heating

- Separate questions for heating system type and fuel type
- Simplified code list for heating system type
- Separate questions for primary and secondary heating systems
- Question regarding age of primary heating system

## Cooling

- Two questions regarding AC (have and type)

## Appliances

- Questions regarding oven fuel type and number of mini-fridges/beverage coolers
- Question regarding age of secondary mid/full-size refrigerators and stand-alone freezers and clothes washer
- Separate questions regarding dryer in residence and dryer fuel type

## Electronics

- Questions regarding number of TVs (Standard, Plasma, LCD and LED) and computers (laptop vs. desktop)

## Lighting

- Questions regarding number of CFL bulbs, Incandescent bulbs, Fluorescent tubes and Halogen bulbs

## Energy Efficiency

- Simplified list of energy star appliances in the home
- Question regarding items installed/replaced in the last three years
- Question regarding awareness of rebates on energy efficiency products or appliances

## Demographics

- Questions regarding gender, age and education

## Project Task Responsibilities

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- As noted earlier, Idaho Power and Market Strategies worked together to draft the survey instrument. The graphic design of the survey was completed by Idaho Power.
- Idaho Power was responsible for drafting the cover letter, reminder postcard, and follow-up letter. Idaho Power also provided the outbound envelopes (window #10) for both mail outs.
- Market Strategies was responsible for printing the surveys, cover letters, and reminder postcards and provided return envelopes with postage.
  - An outside vendor (Allegra Print & Imaging) was selected by Market Strategies to provide printing and mailing services.
- Survey returns were sent directly to Market Strategies. The PIN for each survey was logged the day it arrived in the mail. Completed surveys were then sent to an outside vendor (Data Directions) for data entry.
- Undeliverable surveys were returned to Idaho Power.

# Data Cleaning

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- Data cleaning included the following steps:
  - A “no response” code (-9) was added to all questions where a respondent was qualified to answer the question but did not (i.e. the question blank was left blank).
  - Applied data cleaning on filtered questions A3, B6, B7, B8, B11, B12, B13, C2, C3, C8, C11, C14 and C16 based on questionnaire skip patterns.
    - For example using A2, in the questionnaire the filter is: IF A2=“all or most of the year” or “other”, go to A3. Anyone who answers “a seasonal home” skips to A4. Therefore, in the mail data, if A2 is “a seasonal home” but there are responses in A3, A3 is set to missing (as if the respondent had followed the skip pattern correctly).
  - Applied “upcoding” to several questions – B5, B10, C7, C10, C13 and C15.
  - For example using B5, in the questionnaire the filter is: IF B5=1 ask B6, B7, and B8, otherwise go to B9. Therefore, in the mail data, if B5 is was left blank but there are responses in any of B6, B7 or B8, set B5=1.

# Saturation Rate Calculation Definitions

	1994	2004	2010
Heat Source - Elect.	% using electricity as primary heat source	% using electricity as primary heat source (pg. 35)	% using electricity as primary heat source (B2)
Resistance	elec forced air, wall, baseboard, ceiling (does not include portable electric heaters or heat pumps)	Primary electric: central furnace, baseboards, ceiling cables, wall heaters (p 39)	Electric central furnace, baseboard, ceiling cables, wall heaters, radiant heat, other (B2/B3)
Heat Pump	% using an electric heat pump (primary heating)	% with electric heat pump (Question reads: do you have an electric heat pump) (pg. 46)	% with a heat pump / % electric heat pump
Portable Heaters	na	Average number of portable electric heaters (pg. 28)	Average number of portable electric heaters (B8)
Central A/C	% with central air or heat pump	% with central air or heat pump (pg. 52)	% with central air or heat pump (B10/B11)
Evaporative Swamp Coolers	% with one or more swamp coolers	% with one or more swamp coolers (pg. 54)	% with one or more swamp coolers (B10/B13)
Room A/C Units	Avg number of room A/C units	Avg number of room A/C units (pg. 54)	Avg number of room A/C units (B10/B12)
Water Heater	% with electric water heater	% with electric water heater (pg 56)	% with electric water heater (C1/C2)
Range	% with electric range	% with electric range	% with electric range (C4)
Refrigerators	Avg number of refrig.	Avg number of refrig.	Avg number of refrig. (C7)
Freezer	% with one or more freezers	% with one or more freezers	% with one or more freezers (C10)
Microwave Oven	% with one or more	% with one or more	% with one or more (C6)
Dishwasher	% with one or more	% with one or more	% with one or more (C12)
Clothes Washer	% with one	% with one	% with one (C13)
Clothes Dryer	% with electric dryer	% with electric dryer	% with electric dryer (C15/C16)

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1. Overall how satisfied were you with the Students for Energy Efficiency program?

	Response Percent	Response Count
Very satisfied 	92.9%	13
Somewhat Satisfied 	7.1%	1
Somewhat dissatisfied	0.0%	0
Very dissatisfied	0.0%	0
	answered question	14
	skipped question	0

2. What did you like the most about the Students for Energy Efficiency program?

	Response Count
	14
	answered question
	14
	skipped question
	0

3. What about the program led to your dissatisfaction?

	Response Count
	0
	answered question
	0
	skipped question
	14

**4. How well did the Students for Energy Efficiency program meet your expectations?**

		Response Percent	Response Count
Exceeded expectations		71.4%	10
Met expectations		28.6%	4
Did not meet expectations		0.0%	0
		answered question	14
		skipped question	0

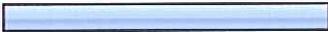
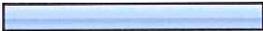
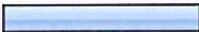
**5. What was it about the program that exceeded your expectations?**

		Response Count
		10
	answered question	10
	skipped question	4

**6. What was it about the program that did not meet your expectations?**

		Response Count
		0
	answered question	0
	skipped question	14

**7. How did you first hear about the Students for Energy Efficiency program? (check all that apply)**

		Response Percent	Response Count
Brochure		50.0%	5
School Principal		10.0%	1
Conference or meeting		30.0%	3
Other teacher		40.0%	4
Idaho Power employee		30.0%	3
	Other (please specify)		5
	<b>answered question</b>		<b>10</b>
	<b>skipped question</b>		<b>4</b>

**8. How would you rate Idaho Power's communication with you regarding the Students for Energy Efficiency program?**

		Response Percent	Response Count
Excellent		85.7%	12
Adequate		14.3%	2
Poor		0.0%	0
	<b>answered question</b>		<b>14</b>
	<b>skipped question</b>		<b>0</b>

**9. How could Idaho Power improve its communications with regard to the Students for Energy Efficiency program?**

	Response Count
	0
<b>answered question</b>	<b>0</b>
<b>skipped question</b>	<b>14</b>

**10. How useful was each of the following to your students in doing their evaluations? (check all that apply)**

	Very useful	Somewhat useful	Not very useful	Not useful at all	Response Count
Kill-A-Watt Meter	100.0% (14)	0.0% (0)	0.0% (0)	0.0% (0)	14
Lumen Light Level Meter	100.0% (14)	0.0% (0)	0.0% (0)	0.0% (0)	14
Ballast Discriminator	78.6% (11)	21.4% (3)	0.0% (0)	0.0% (0)	14
Power Strip	46.2% (6)	38.5% (5)	15.4% (2)	0.0% (0)	13
Tapeless Tape Measure	50.0% (7)	50.0% (7)	0.0% (0)	0.0% (0)	14
HoBo Lighting Device	57.1% (8)	28.6% (4)	7.1% (1)	7.1% (1)	14
HoBo Temperature Device	57.1% (8)	28.6% (4)	7.1% (1)	7.1% (1)	14
			Other (please specify)		0
			<b>answered question</b>		<b>14</b>
			<b>skipped question</b>		<b>0</b>

11. If you feel your students would have benefited from having more than one of any of the previously listed items, how many of each item you think should be included in the Students for Energy Efficiency kit.

preferred number

	1	2	3	4	5
Kill-A-Watt Meter	50.0% (4)	25.0% (2)	12.5% (1)	12.5% (1)	0.0% (0)
Lumen Light Level Meter	62.5% (5)	12.5% (1)	25.0% (2)	0.0% (0)	0.0% (0)
Ballast Discriminator	75.0% (6)	25.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)
Power Strip	62.5% (5)	0.0% (0)	12.5% (1)	25.0% (2)	0.0% (0)
Tapeless Tape Measure	87.5% (7)	0.0% (0)	0.0% (0)	12.5% (1)	0.0% (0)
HoBo Lighting Device	37.5% (3)	37.5% (3)	0.0% (0)	0.0% (0)	25.0% (2)
HoBo Temperature Device	37.5% (3)	37.5% (3)	0.0% (0)	0.0% (0)	25.0% (2)
					answered question
					skipped question

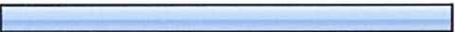
12. Please indicate whether any of the following equipment additions would have been helpful to your students in conducting their evaluations:

	Yes	No	Don't Know	Response Count
Infrared Heat Detector	85.7% (12)	7.1% (1)	7.1% (1)	14
Regular tape measure	53.8% (7)	38.5% (5)	7.7% (1)	13
Computer software to download and print data collected by HoBo devices	85.7% (12)	14.3% (2)	0.0% (0)	14
				answered question
				skipped question

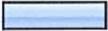
**13. How likely is it that your school will implement any of the recommendations from the student evaluations?**

		Response Percent	Response Count
Very likely		71.4%	10
Somewhat likely		21.4%	3
Somewhat unlikely		7.1%	1
Very unlikely		0.0%	0
<b>answered question</b>			<b>14</b>
<b>skipped question</b>			<b>0</b>

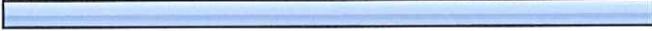
**14. What recommendations will your school be implementing? (check all that apply)**

		Response Percent	Response Count
Installation of motion/occupancy sensors		92.3%	12
Replacement of T-12 fluorescent lamps with T-8 fluorescent lamps		69.2%	9
Replacement of incandescent lamps with CFLs		23.1%	3
Delamping of light fixtures		76.9%	10
Signage reminding students and teachers to shut off the lights when a room is not in use		61.5%	8
Installation of multiple-outlet power strips to reduce plug and phantom load in computer labs		61.5%	8
Other (please specify)			4
<b>answered question</b>			<b>13</b>
<b>skipped question</b>			<b>1</b>

15. Would your school have implemented any of the energy efficiency improvements noted above even if you and your students had not participated in the Students for Energy Efficiency program?

		Response Percent	Response Count
Definitely yes		23.1%	3
Probably yes		15.4%	2
Probably no		53.8%	7
Definitely no		7.7%	1
		answered question	13
		skipped question	1

16. Why is your school not going to implement any of the recommendations identified in the student evaluations? (check all that apply)

		Response Percent	Response Count
Lack of financial funding		100.0%	1
Lack of administrative support		0.0%	0
Lack of understanding benefits of recommendations		0.0%	0
		Other (please specify)	0
		answered question	1
		skipped question	13

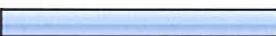
**17. Is there anything Idaho Power can do to assist you in getting student recommendations implemented?**

	Response Count
	1
answered question	1
skipped question	13

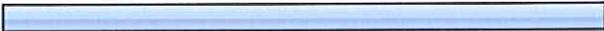
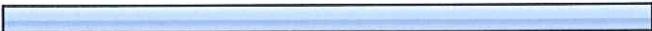
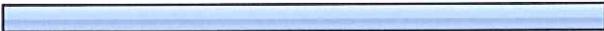
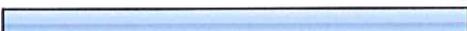
**18. How likely is it you would recommend the Students for Energy Efficiency program to a fellow teacher?**

	Response Percent	Response Count
Definitely would 	85.7%	12
Probably would 	14.3%	2
Probably would not	0.0%	0
Definitely would not	0.0%	0
answered question		14
skipped question		0

**19. How likely is it you will participate in the Students for Energy Efficiency program again during the 2010-2011 school year?**

	Response Percent	Response Count
Definitely will 	50.0%	7
Probably will 	42.9%	6
Probably will not 	7.1%	1
Definitely will not	0.0%	0
answered question		14
skipped question		0

**20. What would you say were the most significant benefits to your students in participating in the Students for Energy Efficiency program? (check all that apply)**

		Response Percent	Response Count
Awareness of how students can reduce energy usage at their school		92.9%	13
<b>Awareness and understanding of how lighting, building design and plug-in devices impact energy usage and costs</b>		100.0%	14
Awareness of the relationship between energy usage and operating costs		92.9%	13
Career opportunities in the fields of energy and energy conservation		71.4%	10
<b>Experience in conducting an assessment, writing a report with recommendations, and making oral presentations</b>		100.0%	14
How the assessment they performed and recommendations they made are regarded by school administration		71.4%	10
	Other (please specify)		4
	<b>answered question</b>		<b>14</b>
	<b>skipped question</b>		<b>0</b>

21. How likely is it your students will use the skills they learned as part of the Students for Energy Efficiency program beyond your classroom?

		Response Percent	Response Count
Definitely will		71.4%	10
Probably will		21.4%	3
Probably will not		7.1%	1
Definitely will not		0.0%	0
answered question			14
skipped question			0

22. How could Idaho Power make the Students for Energy Efficiency Program more beneficial to your students?

		Response Count
		10
answered question		10
skipped question		4

23. Would you allow us to share your name with your comments about the Students for Energy Efficiency Program?

		Response Percent	Response Count
Yes		100.0%	14
No		0.0%	0
answered question			14
skipped question			0



# 2010 Students for Energy Efficiency Program Survey Results

Becky Andersohn  
Customer Relations  
Research Coordinator

June 11, 2010

## Summary of findings

- In general educators involved with the Students for Energy Efficiency (SEE) program were satisfied with the program
- All of the educators involved with the program indicated that the program "exceeded" (71%) or "met" (29%) their expectations.
- Most of the educators involved with the program in the 2009-2010 school year heard about the program through a brochure or another teacher.
- The majority (86%) of the educators said that Idaho Power communicated with them excellently regarding the program.
- The Kill-A-Watt meter and the lumen light level meter were the two pieces of equipment judged most useful to the students in completing their evaluations.
- Approximately half the teachers felt the students would have benefitted from at least one more of each of the tools included in the Energy Scene Investigation Kit.
- A majority of the educators indicated that an infrared heat detector, computer software to interact with the HoBo devices and a regular tape measure would be beneficial tools for the Energy Scene Investigation Kit.
- Most of the educators (93%) said they thought their school is likely to implement recommendations from the student evaluations.
- Of these recommendations to be implemented, the most commonly cited were motion/occupancy sensors and delamping light fixtures.
- Over half of the respondents indicated they did not think their school would have implemented any of the energy efficiency improvements if their students had not participated in the SEE program.
- All of the sponsoring educators from the 2009-2010 school year said they "definitely would" (86%) or "probably would" (14%) recommend the SEE program to a fellow teacher.
- Half of the participants in the 2009-2010 SEE program said they "definitely will" participate in the program again next year and forty-three percent said they "probably will."
- All the educators felt their student participants gained an awareness and understanding of how lighting, building design and plug-in devices impact energy usage and costs. They also felt the experience in conducting an assessment, writing a report with recommendations and making oral presentations was of benefit to the student participants.
- Most of the teachers felt their student participants would use the skills they learned participating in the SEE program outside the classroom.

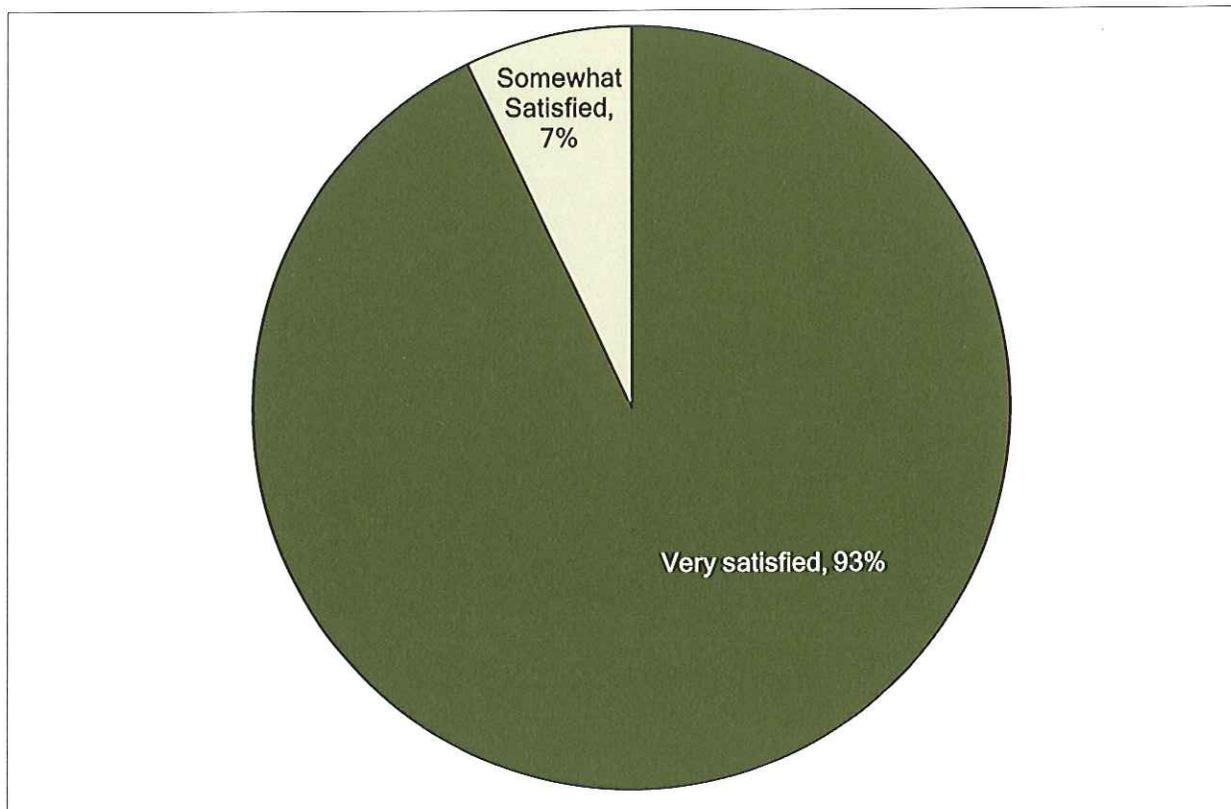
## **Study background**

During the 2009-2010 school year, Idaho Power personnel worked with teachers and other school officials in sixteen schools across Idaho Power's service territory to implement the Students for Energy Efficiency (SEE) program. Idaho Power personnel provided all the schools with training and education about the program as well as an Energy Scene Investigation kit for every four to five students participating in the program. Upon completion of the program, the sponsoring educators were asked via an email message to participate in an online survey. The survey consisted of twenty-three questions. Fourteen of the sixteen educators completed the survey for an 87.5% response rate.

### Study results

Overall, the educators involved with the SEE Program were satisfied with the program (93% “very satisfied”, 7% “somewhat satisfied”).

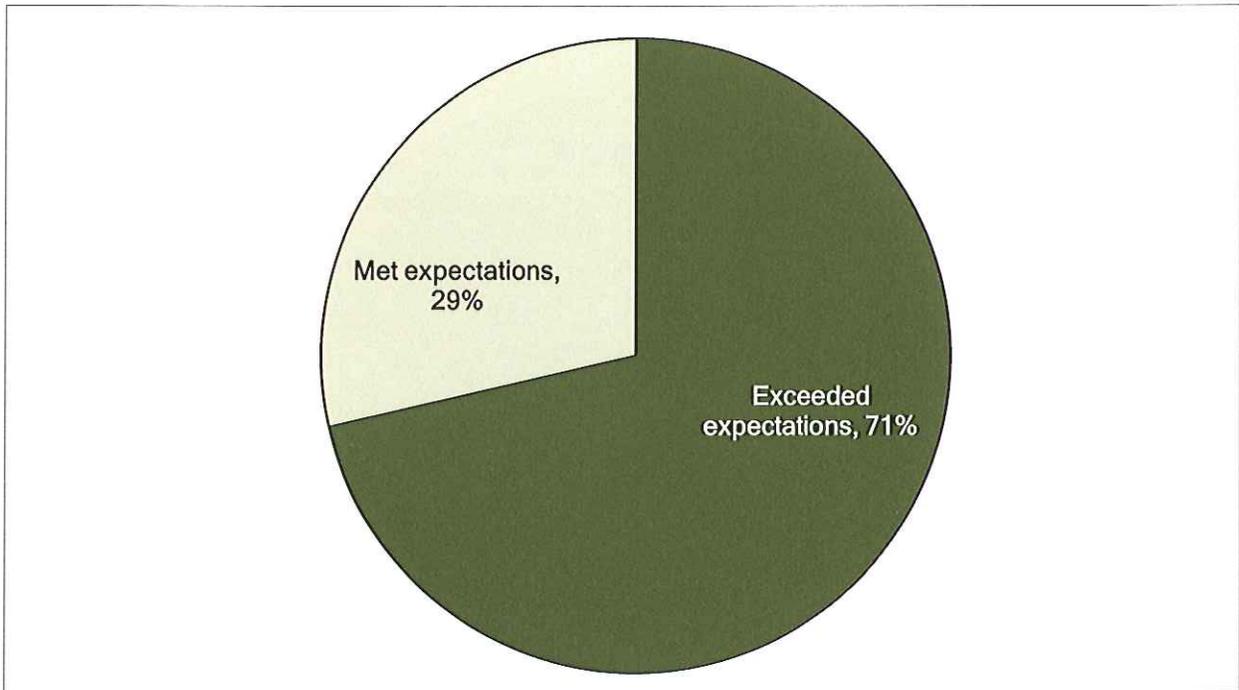
**Exhibit 1: Overall satisfaction with SEE Program**



When asked what they liked the most about the SEE program, many of the educators' comments related to the hands-on educational experience the program provided for the students. A number of the teachers also commented on the level of support they received from Idaho Power personnel in implementing this program.

All of the educators involved with the SEE program said the program either met or exceeded their expectations (71% "exceeded", 29% "met").

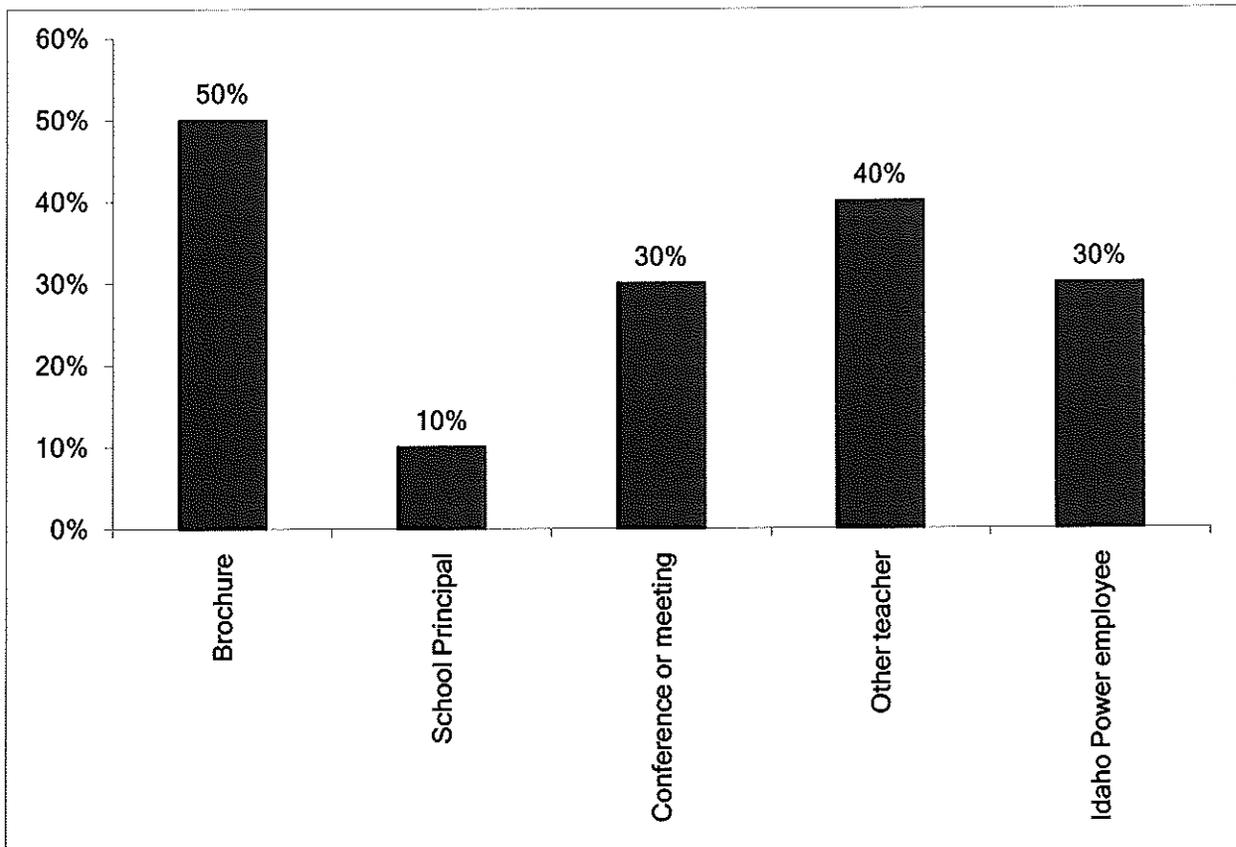
**Exhibit 2: How well did SEE program meet expectations?**



When asked what about the program exceeded their expectations, many of the teachers commented on the support provided for the program by Idaho Power personnel. One teacher commented that they had a student that stayed in school and will graduate because of the challenge presented by the program and the support the student received from Idaho Power personnel. Several teachers also commented on the level of responsibility their students took in completing this program.

Sponsoring educators were asked how they first heard about the SEE program. Half the respondents said they heard about the program through a brochure, others indicated another teacher, an Idaho Power employee or at a conference or meeting.

**Exhibit 3: How did you hear about the SEE Program?**



Other (please specify) responses included:

**How did you first hear about the Students for Energy Efficiency program?**

I had contacted Idaho Power and through Scott Gates

Professional Technical District Supervisor

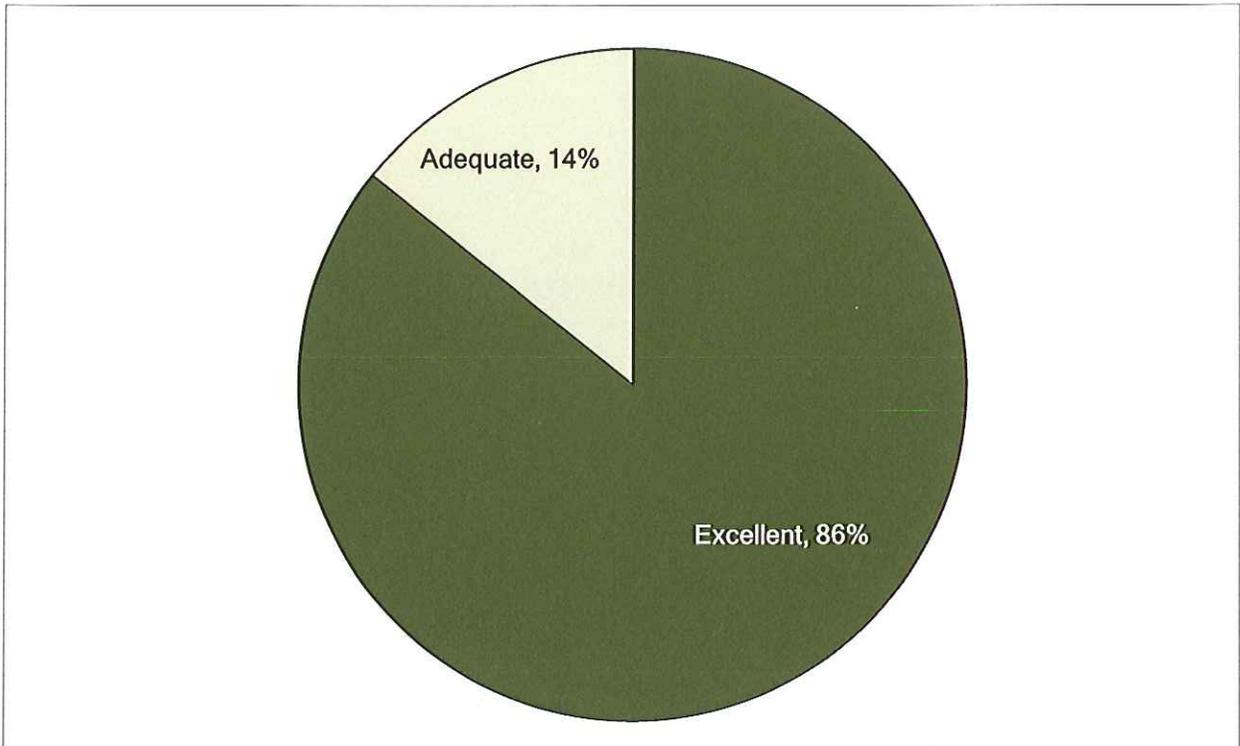
Claudia Tremelling (ID Power) let me know about it. I had applied for a Solar 4R Schools so she knew I had an interest in energy issues.

Bill Chilsolm contacted me.

I honestly cannot remember but assume it was because I was on the board

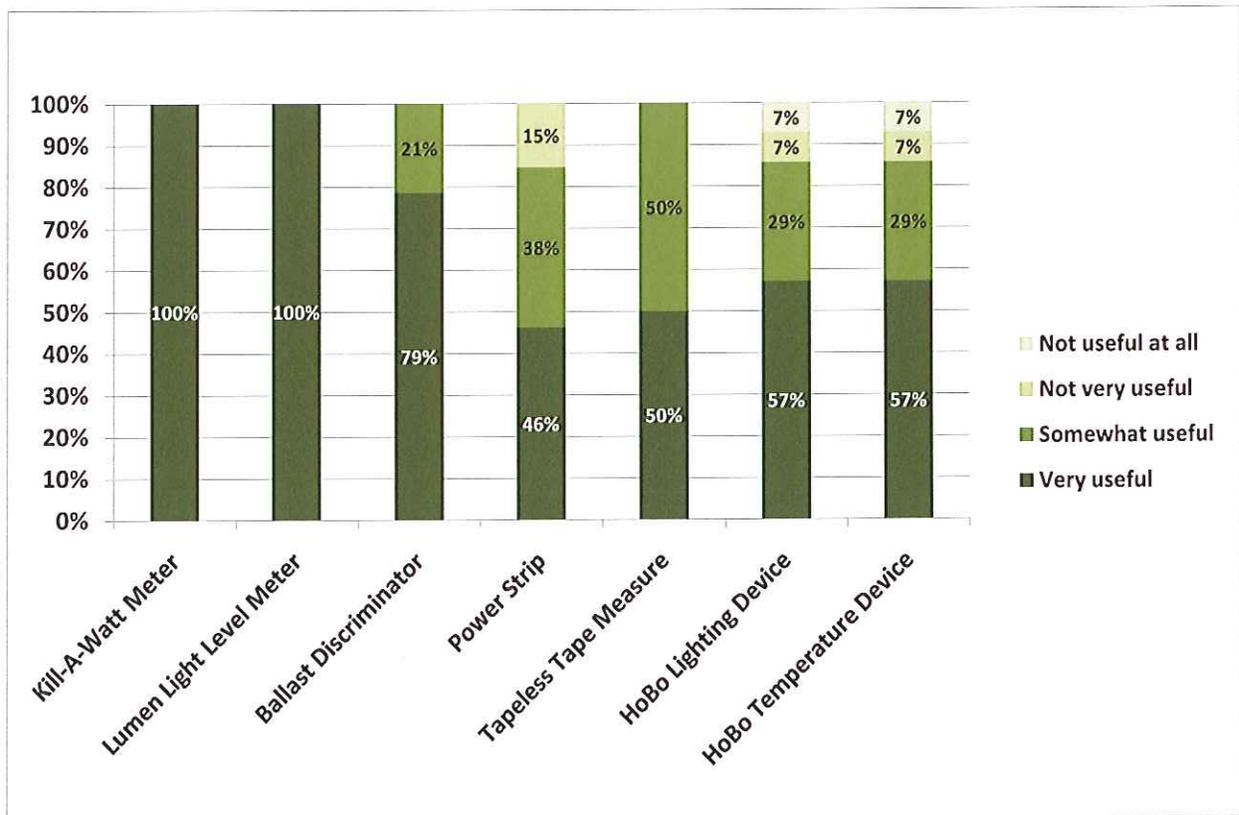
Sponsoring educators were asked how well Idaho power did with communicating with them about the SEE Program. The majority (86%) said that Idaho Power did an excellent job communicating about the program.

**Exhibit 4: Idaho Power communication regarding SEE Program**



At least one Energy Scene Investigation kit was provided by Idaho Power to each sponsoring educator. Included in the kit was, a lumen light level meter, a magnetic/electronic ballast detector, a Kill-A-Watt meter, a surge protector power strip a tapeless tape measure, a HoBo lighting device sensor, and a HoBo temperature device sensor. The educators were asked to identify how useful each of these items was to their students in completing their evaluations. The Kill-A-Watt meter and the lumen light level meter were judged the most useful tools to the students.

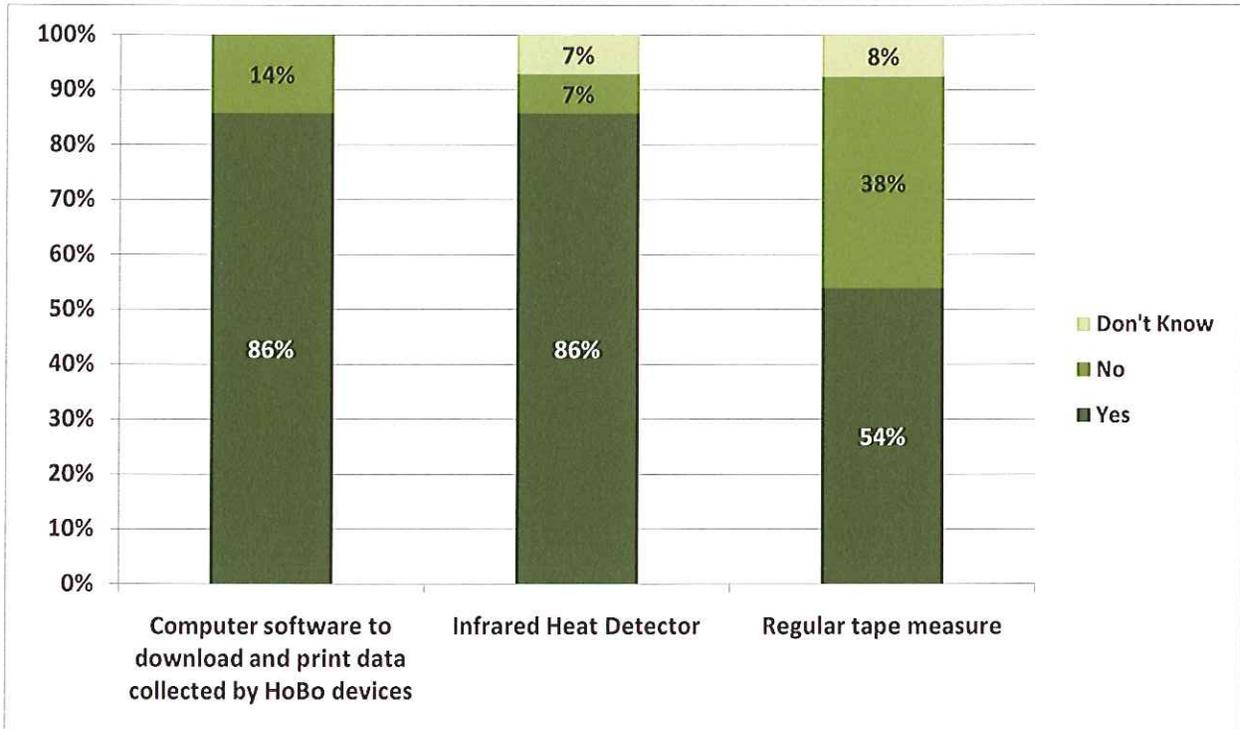
**Exhibit 5: Usefulness of tools in Energy Scene Investigation kit**



Educators were also asked if their students would have benefited from having more than one of any of the tools provided in the Energy Scene Investigation kit. Most of the educators indicated they could have benefitted from at least one more of each of the tools with several indicating they would have benefitted from having two or more additional Kill-A-Watt meters, lumen light level meters, power strips, and HoBo lighting and temperature devices. Two of the teachers indicated they would have benefitted from as many as 5 of the HoBo lighting and temperature devices.

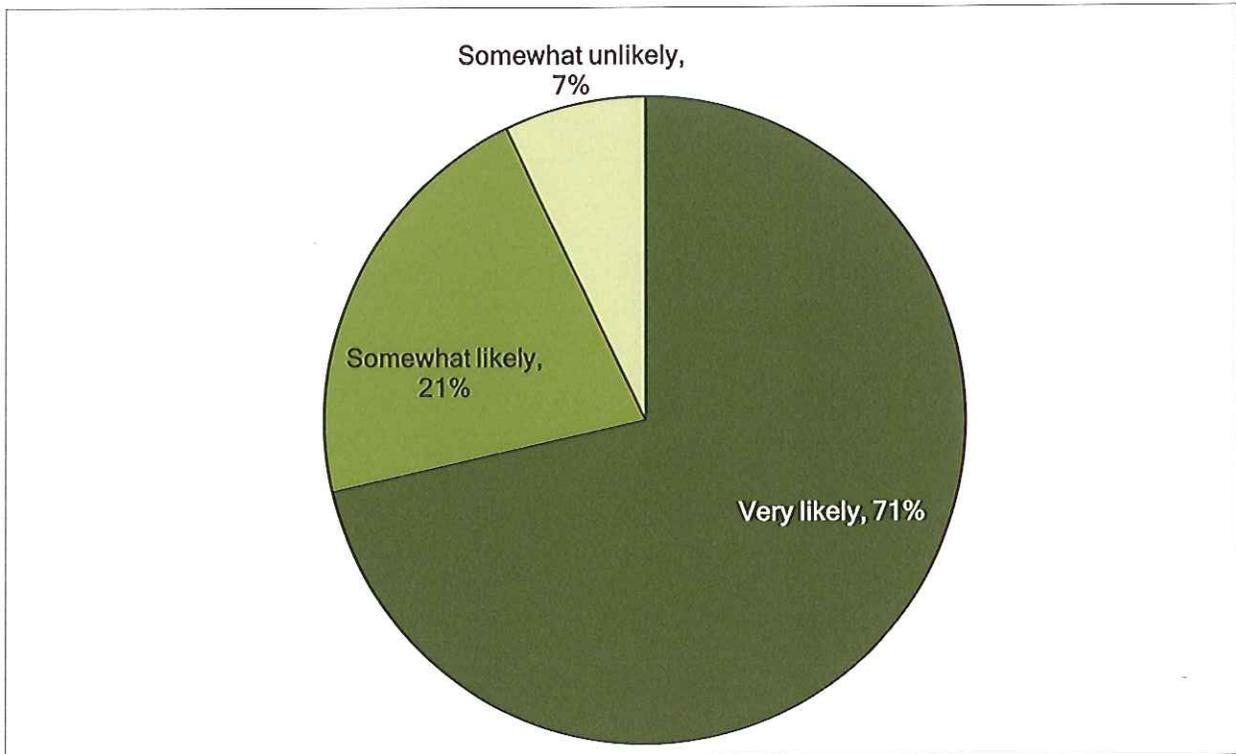
Educators were asked about the value of additional tools that could be included in the Energy Scene Investigation kit. Most said there would be value in having computer software to download and print data collected by the HoBo temperature and lighting devices as well as having an infrared heat detector.

**Exhibit 6: Value of additional tools for Energy Scene Investigation kit**



When asked how likely it is that their school will implement any of the recommendations from the student evaluations, most of the educators (71%) indicated they thought the school is “very likely” to implement some of the recommendations.

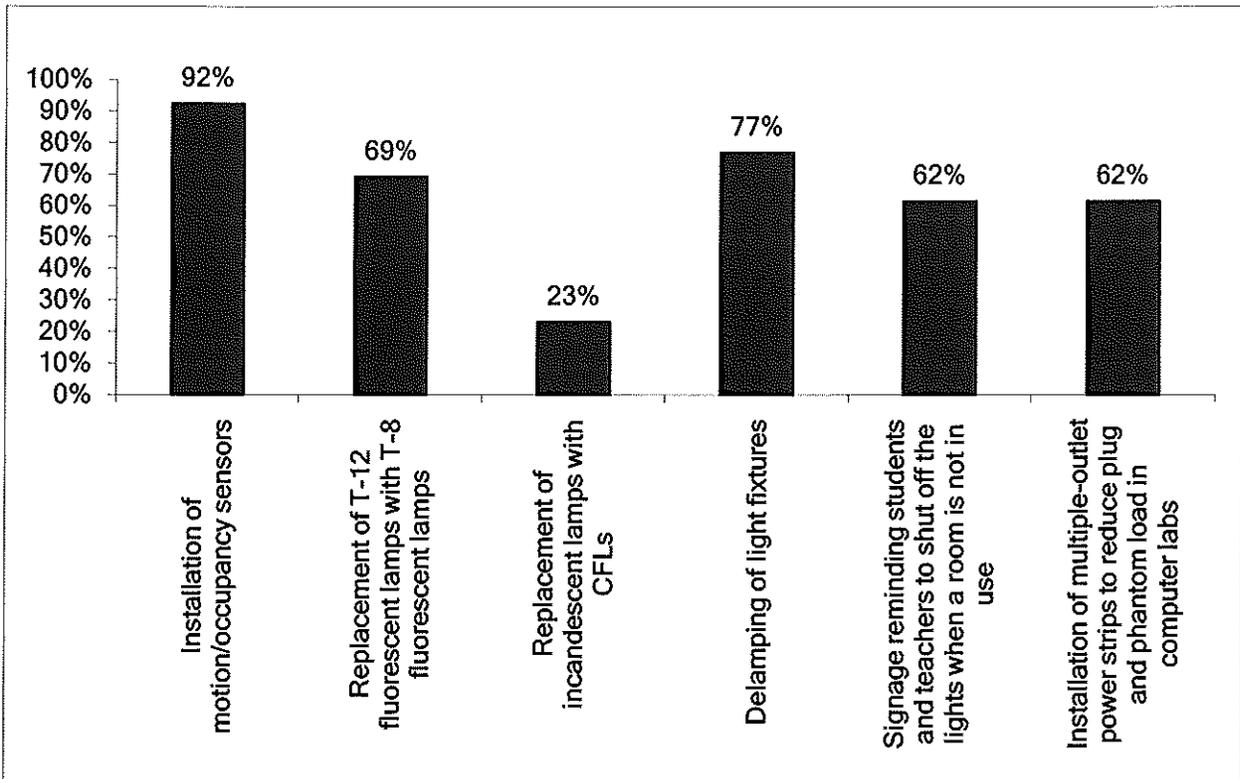
**Exhibit 7: Likelihood that student recommendations will be implemented**



The one educator that indicated their school would not be implementing any of the recommendations from the students’ evaluations said it was due to lack of funding. When asked if there is anything Idaho Power could do to assist in getting the student recommendations implemented, the educator indicated that they and their school board recognize the long-term benefits of implementing the recommendations; they just don’t have the money available to make the improvements.

Those educators that indicated their school is likely to implement some of the recommendations from student evaluations were asked what recommendations they thought the school would implement. The largest percentage indicated the school would implement the installation of motion or occupancy sensors. The next most likely recommendation to be implemented was delamping of light fixtures.

**Exhibit 8: Recommendations most likely to be implemented**



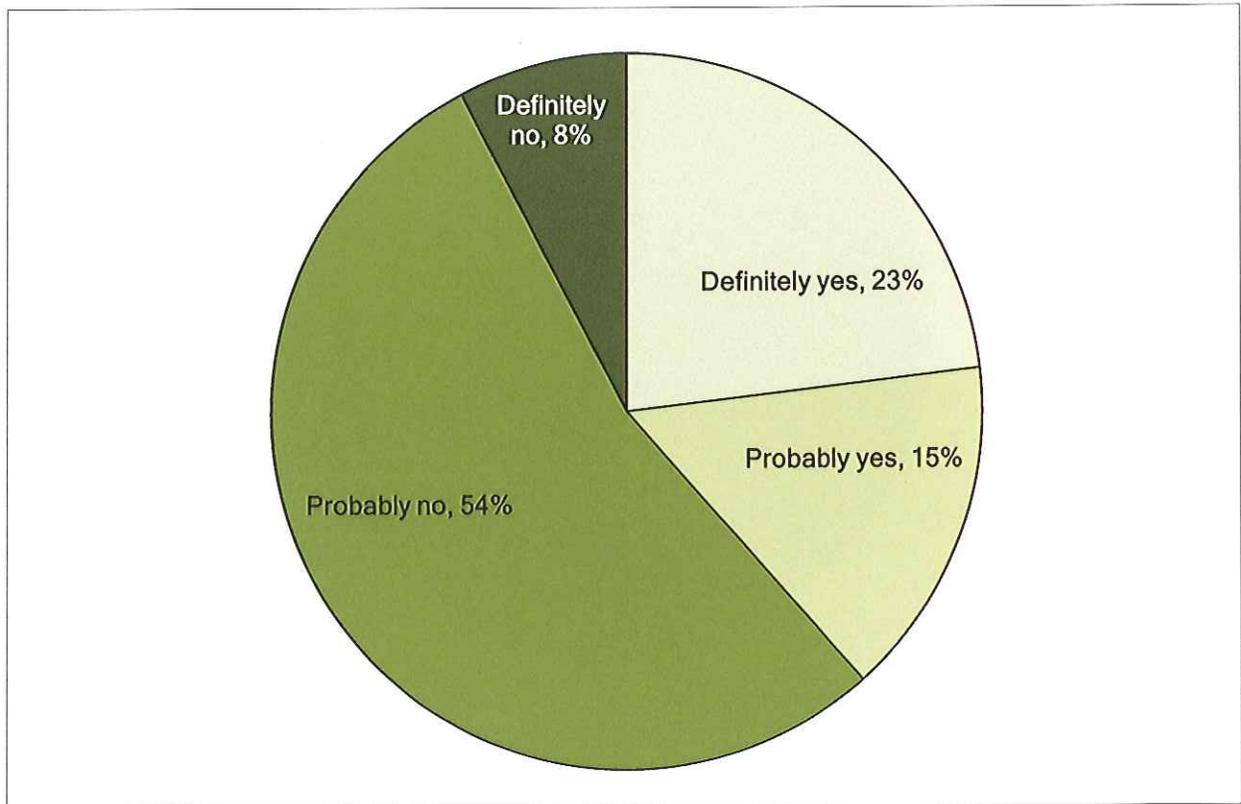
Other (please specify) responses included:

**What recommendations will your school be implementing?**

- We had already done this but EE helped us speed up the process
- Our school board has not met to decide yet but they were impressed with these recommendations
- Our school is implementing a major pre-planned energy update this summer: new heat pumps, T-12, etc.
- Replacement of large incandescent lamps with T-8 fluorescent lamps

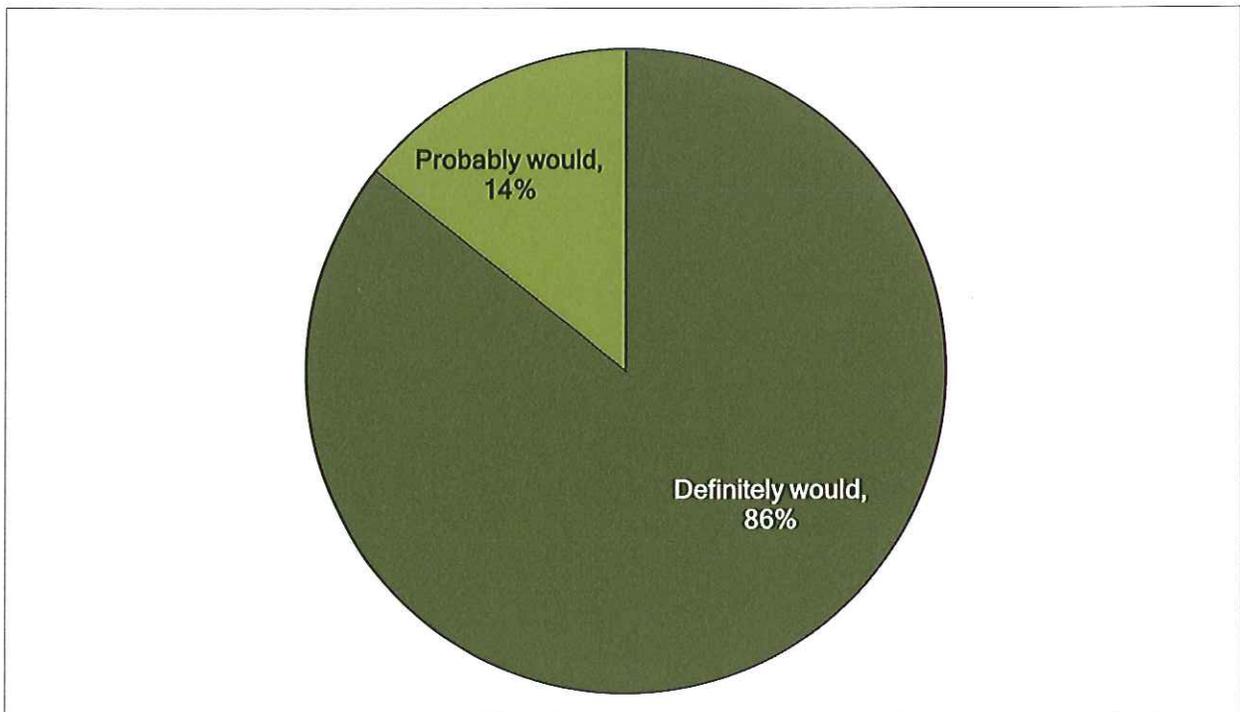
When asked if their school would have implemented any of the energy efficiency improvements regardless of participation in the SEE program, over half of the educators said no (54% "probably no", 8% "definitely no").

**Exhibit 9: Likelihood of implementing energy efficiency measures without SEE program participation**



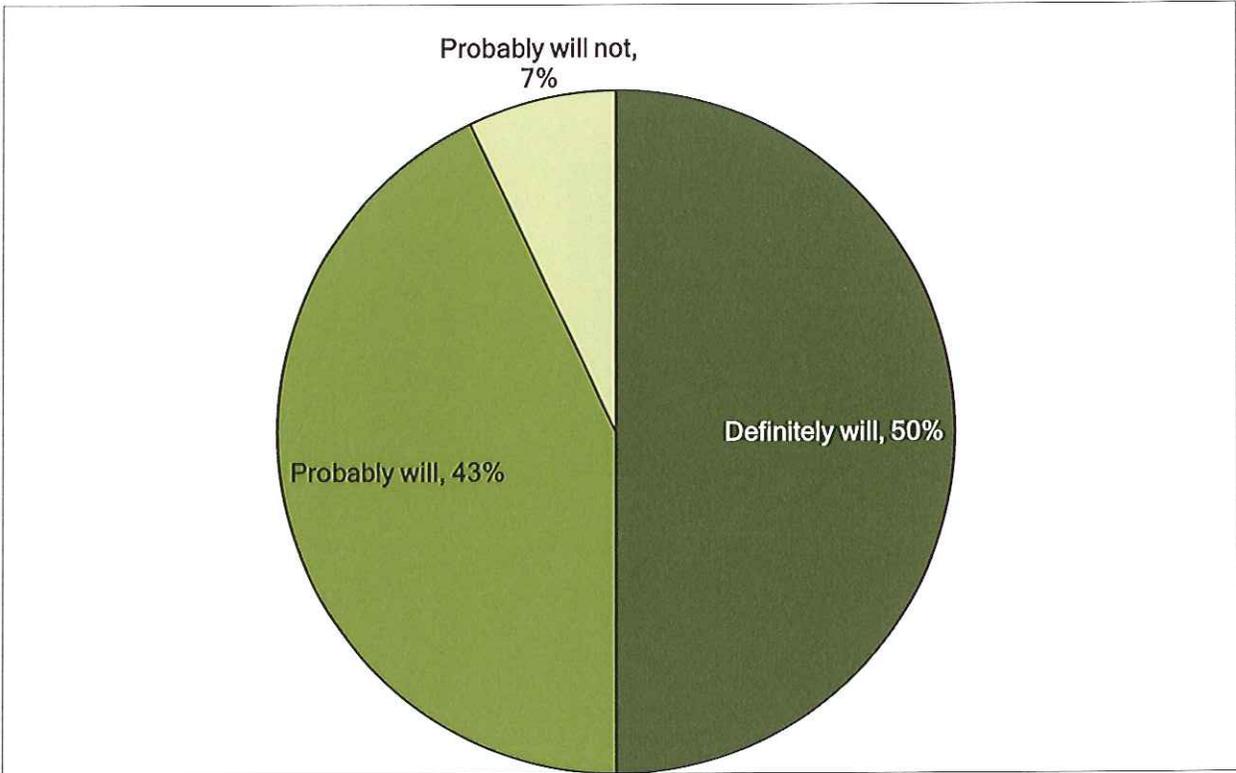
When asked if they would recommend the SEE program to a fellow teacher, all the responding educators indicated they would (86% “definitely would”, 14% “probably would”).

**Exhibit 10: Likelihood to recommend SEE program**



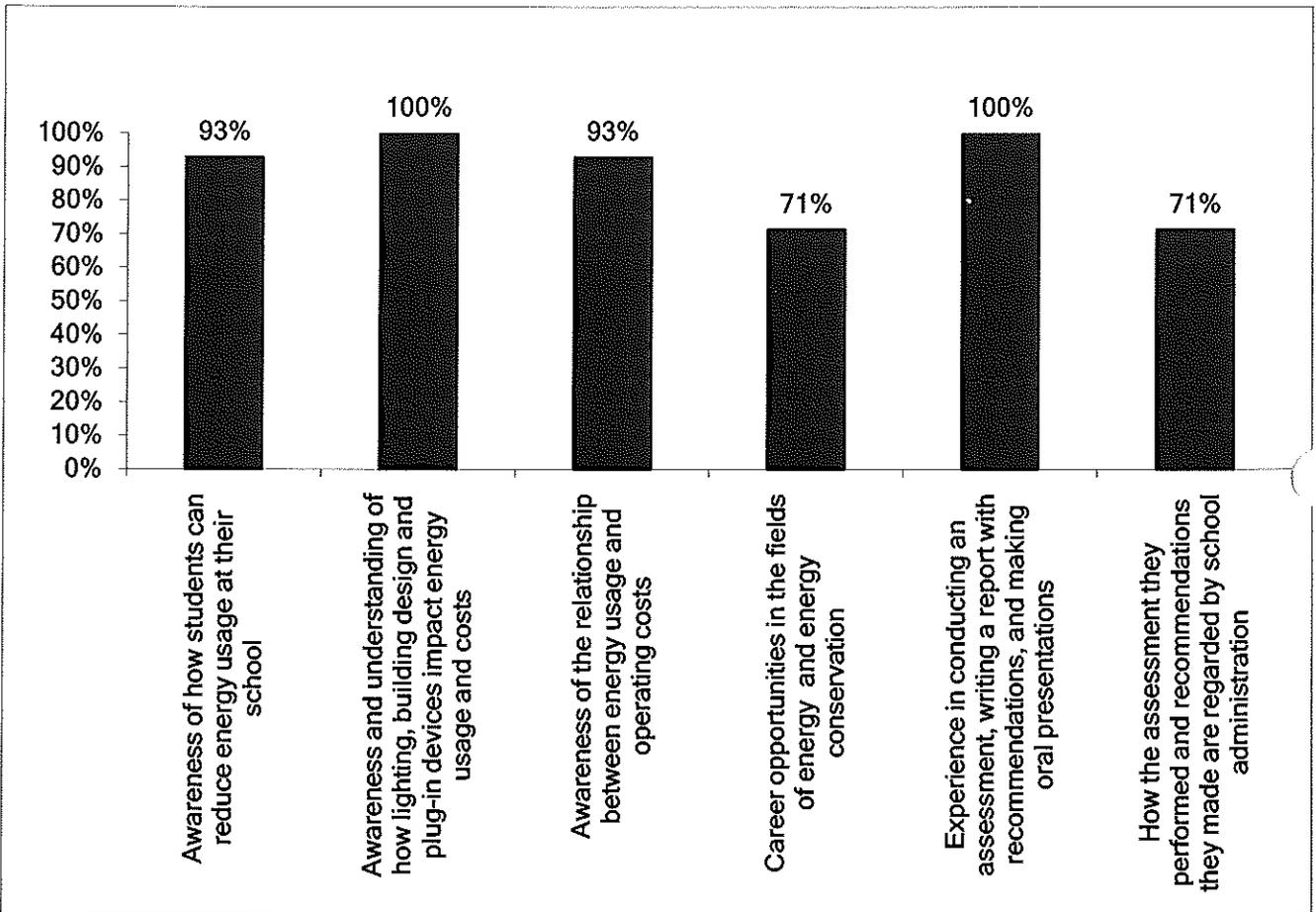
When asked how likely it is that they will participate in the SEE program in the 2010-2011 school year, almost all the educators indicated they will likely participate in the program again.

**Exhibit 11: Likelihood to participate in SEE program 2010-2011 school year**



Sponsoring educators were asked to identify the most significant benefits to their students in participating in the SEE program. The most significant benefits identified were: awareness and understanding of how lighting, building design and plug-in devices impact energy usage and costs ; and experience in conducting an assessment, writing a report with recommendations, and making oral presentations.

**Exhibit 12: Benefits to students participating in SEE program**



Other (please specify) responses included:

**Most significant benefits to students participating in the SEE program?**

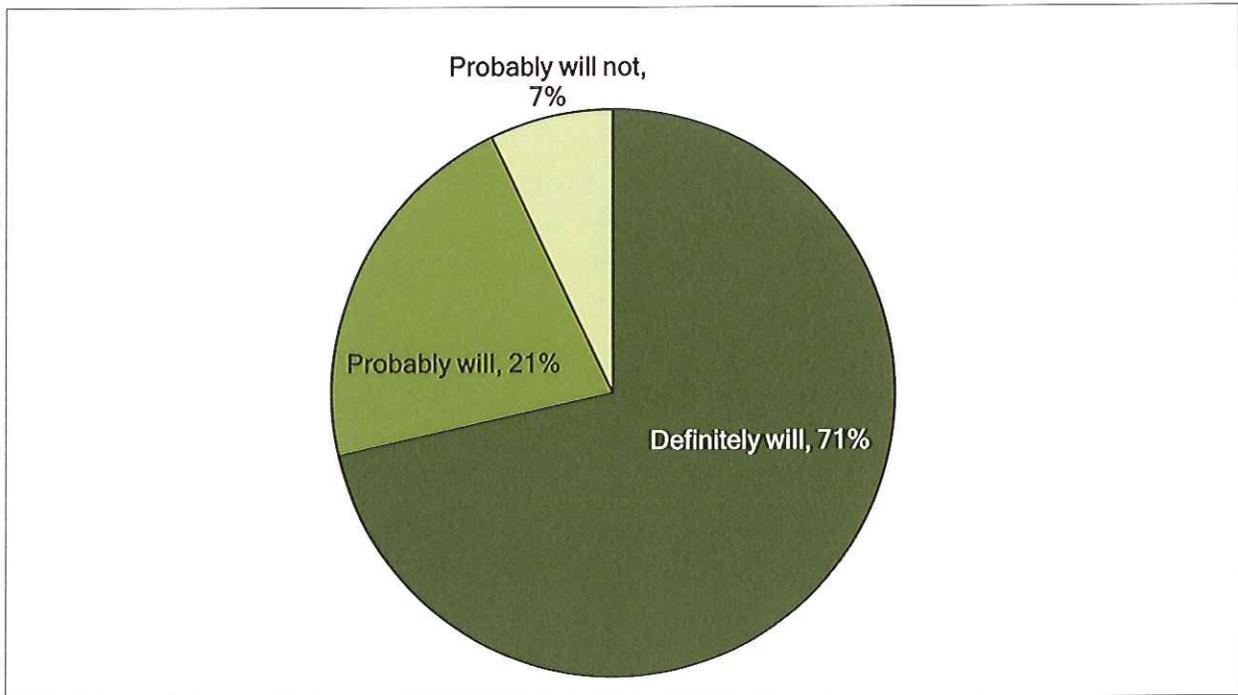
Being in charge of a crew of students and learning to work together as a team and know that the school and Idaho Power were counting on your results. This was a great self esteem builder for my team leader  
 Awareness of how simple energy conservation can be.....

Group dynamics - some kids skunked out on us and others stepped up to the plate!

The opportunity to work with a "large" company such as Idaho Power in a real world application.

The majority of the educators indicated they thought their students would use the skills learned as part of the SEE program beyond their classroom. Only one educator indicated they thought their students probably would not use those skills beyond their classroom.

**Exhibit 13: Likelihood of students using SEE program skills beyond classroom**



When asked how Idaho Power could make the SEE program more beneficial to students some of the educators indicated that starting the program earlier in the year would be helpful. More training on the HoBo devices as well as the collection software were also identified as ways Idaho Power could make the program more beneficial. One teacher indicated that perhaps the program should be a little more structured with a defined schedule with goals, check points and due dates.

**Recommendations:**

1. Begin working with the sponsoring educators earlier in the school year. As indicated by several of the educators, starting the program earlier in the year would give them as the sponsor as well as their student participants more time to do their assessments and prepare their recommendations.
2. Provide more than one of each of the tools in the Energy Scene Investigation Kit. During the 2009-2010 school year, one kit with one of each tool was provided by Idaho Power for each four or five students involved with the program. The educators would like to see at least one additional of each of the tools in the kits.
3. Provide more training to the students on how to use the HoBo devices and the collection software.
4. Include an infrared heat detector, computer software to interact with the HoBo devices and a regular tape measure in the Energy Scene Investigation Kits.
5. Continue to communicate regularly with the teachers during the course of the program and provide technical support.
6. Assist teachers, especially those new to the program, with defining goals check points and due dates for the program.

**Verbatim Comments**



**What did you like the most about the Students for Energy Efficiency program?**

It was hands on the students actually made a difference at our school, Timberline High. I had already laid the groundwork with previous semester projects in AP Environmental Science but this allowed me take it further.

The opportunity for my students to do real analysis, measurements and critical thinking.

All the support we received from Idaho Power such as the equipment and tools and the hands on training and encouragement

The hands-on involvement of the students and the fact that they were learning something new and relevant to their lives; they came away from the program much more aware of energy use

1. The support you gave us also, Leo was great in helping us.
2. Having an awards ceremony for students and teacher
3. College credit for the teacher.
4. Realizing how much energy we use and waste each day
5. Coming up with a plan to use energy more efficiently
6. Equipment donated
7. No cost to school for the program

It was very educational for my students and I think they learned a lot about energy use and misuse!

Giving constructive feedback to the district and school where energy changes could be made

The equipment that students were able to learn to use and the fact that we were given the equipment so access was not an issue. My students becoming aware of how they can help was really important.

The wonderful support from John.

The students were well trained to complete the survey on their own. And the wonderful support along the way that we received from Mr. Bernardo. It was very nice when he came and talked to our students after they had collected data and began working on their final report.

It is a very engaging, real-world activity for the students and they can take the information gained from the study and use it in their lives.

Students were working on real problems in real time. They were gathering data and striving to interpret that data and then present their findings.

I felt that the program got the students excited about the possibilities of saving energy in their buildings as well as their own homes. I appreciated how Idaho Power representatives were strong advocates for the project and helped to get some of the changes implemented in our school district. This is what really made the students see that they can make a difference and someone is listening to them.

We liked how well we could see, using the equipment, where we needed to make improvements. Also, the fact that students were the ones doing the audit.

**What was it about the program that exceeded your expectations?**

workshop and follow-up was great

The students learned a great deal from this program. Guillermo actually stayed in school and will graduate because of the challenge of this program and the extra support and encouragement from John Bernardo. He also helped other students with their senior projects because of what he learned doing the Energy Efficiency Program.

How the students took over the program without being told. The interest they showed was amazing. I was unsure of what to expect. We all feel much wiser about ways we use electricity and ways we can conserve electricity.

the quality of the work that the students did

The support from all the folks at Idaho Power as well as the support we found within our own district. This helped validate the students' efforts.

The support and follow-up. It was great to have John attend the school board presentation.

Again the continued support throughout the whole program.

The support from John was the key to making the program - and the kids - successful. The student's would not have received that level of guidance/instruction from me as I do not have the knowledge base nor the time during a school year. The training for the students was also much more than I had anticipated and I really appreciated the information prior to their starting their work

We could see where changes needed to be made and even though we had already done what we thought was major delamping, we saw that there could still be more done in several rooms and hallways.

**Is there anything Idaho Power can do to assist you in getting student recommendations implemented?**

It is a hard sell right now. I see the benefit longer term and so does the board but it is difficult to get them to let loose of any money right now. I think some follow-up on our students' part and also some follow-up with Idaho Power to the board asking them if they have implemented any of the changes would be good to bring it back to the front of their consciousness. Just you guys asking them if they have implemented any of the suggestions and if so which ones might bring them back to thinking about it.

How could Idaho Power make the Students for Energy Efficiency Program more beneficial to your students?

The project can become just overwhelming with a large school and multiply buildings. The project could just concentrate on one or two energy issues instead of multiple issues.

We needed more time to work with the Hobo light meters. If they could have seen the results the next day I believe they would have followed through better.

Upgrade the Hobo system: to check the Hobos before they were distributed to make sure they were programmed correctly OR have on-site download of data available so that we could see the problems right away and get them corrected.

For some reason, many of the emails from me to John B. were lost in cyberspace and so the communication at times was slow! I ended up using his private email to get in touch with him.

Great program, no improvements that I can see

As part of the program, make the students start with an energy audit of their own home. Start even earlier in the year!

The program is great - I just need to be better at getting more students involved.

These are my overall project goals for next year and I do not necessarily need help from Idaho Power. I would like to start no more than two groups of students on this project much earlier in the year.

September would be ideal with all data collected by the end of October so the report compilation phase can start. I would like a my students to have at least 2 class periods to work with John on the report and they would then give a trial presentation of their findings to my AP class on the same day, preferably before Christmas break. I would like the presentation audiences identified and scheduled for late January or early February. I want my students to give two presentations (after they present to the class) and this is one area where assistance from Idaho Power would be appreciated. I will have more ideas later, right now the bell is about to ring and my cherubs are going to arrive.

It's hard to tell. We had very good support and just had to work our way through difficult situations and questions we encountered. I felt this was where the education was really happening. I would like to think using the Hobos could be made a little more beneficial in the data gathering portion of the program.

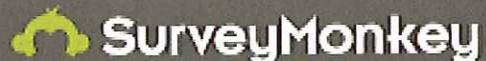
Please have a well defined schedule of events. This should include goals, check points, and due dates. Do not make any changes to this once the project is started.

Remember that this is just a small portion of most classes and the students are studying many things.

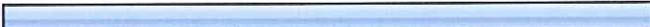
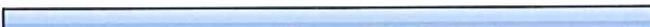
The Excel document they used for recording their info was difficult to use. Possibly a little more training in the use of this program will help it go more smoothly.



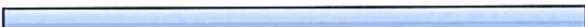
# 2010 Idaho Power Heating and Cooling Efficiency Program Survey



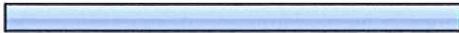
1. 1. Please enter the following information that will help us evaluate the overall program.

	Response Percent	Response Count
Name of heating and cooling company you used: 	100.0%	66
City you live in: 	100.0%	66
	answered question	66
	skipped question	0

2. 2. Please indicate which of the following describes the new equipment you installed:

	Response Percent	Response Count
Air source heat pump 	89.4%	59
Open loop water source heat pump 	10.6%	7
	answered question	66
	skipped question	0

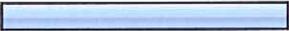
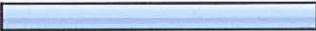
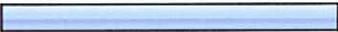
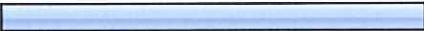
**3. 3. Were you aware of Idaho Power offering an incentive for the purchase of a heat pump prior to your purchase?**

		Response Percent	Response Count
Yes		69.8%	44
No		30.2%	19
answered question			63
skipped question			3

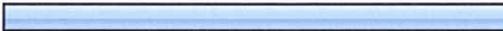
**4. 4. How much did the Idaho Power incentive influence your purchasing decision?**

		Response Percent	Response Count
A lot		12.7%	8
Some		68.3%	43
Not at all		19.0%	12
answered question			63
skipped question			3

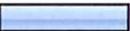
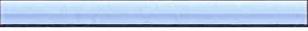
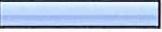
**5. 5. What were your reasons for participating in Idaho Power's Heating and Cooling Efficiency Program? (Check all that apply)**

		<b>Response Percent</b>	<b>Response Count</b>
Ensure heat pump sized and installed to best practices		43.9%	29
Contractor suggested participation		48.5%	32
Optimize energy efficiency of equipment		51.5%	34
<b>Reduce electric bill</b>		<b>65.2%</b>	<b>43</b>
Receive incentive		59.1%	39
Other (please specify)		15.2%	10
		<b>answered question</b>	<b>66</b>
		<b>skipped question</b>	<b>0</b>

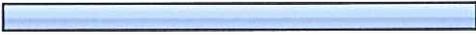
**6. 6. How did you hear about Idaho Power's Heating and Cooling Efficiency program? (check all that apply)**

		Response Percent	Response Count
Heating and cooling contractor		77.3%	51
Idaho Power Web site		12.1%	8
Friend or relative		0.0%	0
Bill insert		25.8%	17
Community event		0.0%	0
Idaho Power employee		4.5%	3
Other (please specify)		7.6%	5
		<b>answered question</b>	<b>66</b>
		<b>skipped question</b>	<b>0</b>

**7. 7. What factors influenced your decision to hire the contractor you did for this project: (Check all that apply)**

		Response Percent	Response Count
Contractor on Idaho Power's list of participating companies		19.7%	13
Recommendation from friend or relative		19.7%	13
<b>Familiarity</b>		<b>47.0%</b>	<b>31</b>
Price		24.2%	16
Other (please specify)		34.8%	23
		<b>answered question</b>	<b>66</b>
		<b>skipped question</b>	<b>0</b>

**8. 8. Overall, how would you rate the contractor's knowledge of Idaho Power's Heating and Cooling Efficiency Program?**

		<b>Response Percent</b>	<b>Response Count</b>
<b>Very knowledgeable</b>		<b>72.7%</b>	<b>48</b>
<b>Somewhat knowledgeable</b>		<b>15.2%</b>	<b>10</b>
<b>Neutral</b>		<b>4.5%</b>	<b>3</b>
<b>Not very knowledgeable</b>		<b>4.5%</b>	<b>3</b>
<b>Not knowledgeable at all</b>		<b>3.0%</b>	<b>2</b>
		<b>answered question</b>	<b>66</b>
		<b>skipped question</b>	<b>0</b>

9. 9. Please rate the contractor on the following questions using a scale of 1 to 5 where "1" means you Strongly Disagree with the statement and "5" means you Strongly Agree with the statement:

	Strongly Agree 5	4	Neutral 3	2	Strongly Disagree 1	N/A	Response Count
Contractor arrived at scheduled time	80.0% (52)	13.8% (9)	4.6% (3)	0.0% (0)	1.5% (1)	0.0% (0)	65
Contractor was courteous	86.4% (57)	13.6% (9)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	66
Contractor was thorough	80.0% (52)	12.3% (8)	6.2% (4)	0.0% (0)	1.5% (1)	0.0% (0)	65
Contractor explained how to get the most efficiency out of new equipment	70.8% (46)	12.3% (8)	13.8% (9)	1.5% (1)	1.5% (1)	0.0% (0)	65
Contractor offered options to help in making purchase decision of new equipment	71.2% (47)	10.6% (7)	12.1% (8)	3.0% (2)	1.5% (1)	1.5% (1)	66
						<b>answered question</b>	<b>66</b>
						<b>skipped question</b>	<b>0</b>

**10. 10. How likely would you be to recommend this contractor to a friend or relative?**

		Response Percent	Response Count
Definitely would		70.8%	46
Probably would		18.5%	12
May or may not		6.2%	4
Probably would not		1.5%	1
Definitely would not		3.1%	2
<b>answered question</b>			<b>65</b>
<b>skipped question</b>			<b>1</b>

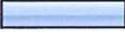
**11. 11. Please explain why you would OR would not recommend the contractor you used.**

	Response Count
	38
<b>answered question</b>	<b>38</b>
<b>skipped question</b>	<b>28</b>

12. 12. Overall, how easy was it for you to participate in Idaho Power's Heating and Cooling Efficiency Program?

		Response Percent	Response Count
Very easy		72.3%	47
Somewhat easy		16.9%	11
Neutral		6.2%	4
Somewhat difficult		3.1%	2
Very difficult		1.5%	1
<b>answered question</b>			<b>65</b>
<b>skipped question</b>			<b>1</b>

13. 13. Overall, how satisfied are you with Idaho Power's Heating and Cooling Efficiency program?

		Response Percent	Response Count
Very satisfied		76.6%	49
Somewhat satisfied		18.8%	12
Neither satisfied nor dissatisfied		3.1%	2
Somewhat dissatisfied		0.0%	0
Very dissatisfied		1.6%	1
<b>answered question</b>			<b>64</b>
<b>skipped question</b>			<b>2</b>

**14. 14. How likely would you be to recommend Idaho Power's Heating and Cooling Efficiency program to a friend or relative?**

		Response Percent	Response Count
Definitely would		83.1%	54
Probably would		15.4%	10
May or may not		0.0%	0
Probably would not		0.0%	0
Definitely would not		1.5%	1
		<b>answered question</b>	<b>65</b>
		<b>skipped question</b>	<b>1</b>

**15. 15. If you have other comments about the Heating and Cooling Efficiency Program, please enter them below:**

	Response Count
	14
	<b>answered question</b> 14
	<b>skipped question</b> 52

**16. The following information is optional:**

		Response Percent	Response Count
Name:	<input type="text"/>	100.0%	42
Address:	<input type="text"/>	61.9%	26
Phone #:	<input type="text"/>	42.9%	18
<b>answered question</b>			<b>42</b>
<b>skipped question</b>			<b>24</b>

**1. 1. Please enter the following information that will help us evaluate the overall**

**Name of heating and cooling company you used:**

1	Comfort Zone	May 18, 2010 12:04 AM
2	A-1 Heating & Cooling	May 18, 2010 12:08 AM
3	Advanced Heating & Cooling	May 18, 2010 12:09 AM
4	Premier Heating & Air Conditioning	May 18, 2010 12:11 AM
5	HVAC Services	May 18, 2010 12:13 AM
6	Heating Equipment Company	May 18, 2010 12:15 AM
7	Heating Equipment Company	Jun 2, 2010 12:34 AM
8	Owyhee Sheet Metal	Jun 2, 2010 12:36 AM
9	Quigley Heating	Jun 2, 2010 12:38 AM
10	Ashley Heating	Jun 2, 2010 12:40 AM
11	First Call Jewel	Jun 2, 2010 12:41 AM
12	Quigley Heating	Jun 2, 2010 12:47 AM
13	Western Refrigeration	Jun 2, 2010 12:50 AM
14	First Call Jewel	Jun 2, 2010 12:52 AM
15	Bunch Sheet Metal	Jun 2, 2010 12:56 AM
16	Home Heating & Air Conditioning	Jun 2, 2010 12:56 AM
17	Quigley Heating	Jun 2, 2010 12:59 AM
18	Idaho Geothermal	Jun 2, 2010 1:00 AM
19	A-1 Heating & Cooling	Jun 2, 2010 1:02 AM
20	A-1 Heating	Jun 2, 2010 1:06 AM
21	Right Now Heating & Air Conditioning	Jun 2, 2010 1:07 AM
22	Greens Heating	Jun 2, 2010 1:10 AM
23	Terry's Heating & Air Conditioning	Jun 2, 2010 1:13 AM
24	Terry's Heating & Air Conditioning	Jun 2, 2010 1:17 AM
25	Quigley's	Jun 2, 2010 1:20 AM

# 1. 1. Please enter the following information that will help us evaluate the overall

## Name of heating and cooling company you used:

26	Owyhee Sheet Metal	Jun 2, 2010 1:23 AM
27	Terry's Heating	Jun 2, 2010 1:25 AM
28	A-1 Heating & Air Conditioning	Jun 2, 2010 1:26 AM
29	Terry's Heating	Jun 2, 2010 1:27 AM
30	Owyhee Sheet Metal	Jun 2, 2010 1:29 AM
31	Brizee	Sep 8, 2010 2:20 AM
32	Premier Heating	Sep 8, 2010 2:22 AM
33	HVAC Services	Sep 12, 2010 12:38 AM
34	Quigley's Heating	Sep 12, 2010 12:39 AM
35	Quigley's Heating & AC	Sep 12, 2010 12:41 AM
36	Ashley Heating & Cooling	Sep 12, 2010 12:43 AM
37	Arctic Air	Sep 12, 2010 12:44 AM
38	Green's Heating Cooling	Sep 12, 2010 12:45 AM
39	Quigley's	Sep 12, 2010 12:47 AM
40	Terry's Heating and Air Conditioning	Sep 12, 2010 12:47 AM
41	Quigley Heating	Sep 12, 2010 12:49 AM
42	Right Now Heating and Air Conditioning	Sep 12, 2010 12:51 AM
43	Heating Equipment Company	Sep 12, 2010 12:53 AM
44	Terry's Heating and Air Conditioning	Sep 12, 2010 12:54 AM
45	A-1 Heating & Air Conditioning	Sep 12, 2010 12:55 AM
46	Ramsey Heating & Electric	Sep 12, 2010 12:57 AM
47	Heating Equipment Company	Sep 12, 2010 12:58 AM
48	Terry's Heating & Air Conditioning	Sep 12, 2010 1:00 AM
49	Terry's Heating & Air Conditioning	Sep 12, 2010 1:01 AM
50	Terry's Home Heating	Sep 12, 2010 1:02 AM
51	Jim's Heating & Cooling	Sep 12, 2010 1:04 AM
52	Premier Heating/AC	Sep 12, 2010 1:06 AM
53	TML Heating & Cooling	Sep 12, 2010 1:08 AM
54	Comfort Zone	Sep 12, 2010 1:13 AM
55	Quigley Heating	Sep 12, 2010 1:14 AM
56	Terry's Heating & Air Conditioning	Sep 12, 2010 1:15 AM
57	Terry's Heating & Air	Sep 12, 2010 1:21 AM
58	HVAC Services	Sep 12, 2010 1:22 AM
59	Premier Heating & Cooling	Sep 12, 2010 1:24 AM
60	Terry's Heating	Sep 12, 2010 1:26 AM
61	Right Now Heating & AC	Feb 8, 2011 6:19 PM
62	Terry's Heating & Cooling	Feb 8, 2011 6:23 PM
63	Terry's Heating & Electric	Feb 8, 2011 6:24 PM
64	Terry's Heating	Feb 8, 2011 6:25 PM
65	Quigley's	Feb 8, 2011 6:27 PM
66	Quigley's Heating	Feb 8, 2011 6:28 PM

**1. 1. Please enter the following information that will help us evaluate the overall**

City you live in:		
1	Midvale, ID	May 18, 2010 12:04 AM
2	Nampa	May 18, 2010 12:08 AM
3	Emmett	May 18, 2010 12:09 AM
4	Kuna, ID	May 18, 2010 12:11 AM
5	Twin Falls	May 18, 2010 12:13 AM
6	New Plymouth	May 18, 2010 12:15 AM
7	Nampa	Jun 2, 2010 12:34 AM
8	Nampa	Jun 2, 2010 12:36 AM
9	Buhl	Jun 2, 2010 12:38 AM
10	Boise	Jun 2, 2010 12:40 AM
11	Pingree	Jun 2, 2010 12:41 AM
12	Castleford Area	Jun 2, 2010 12:47 AM
13	Twin Falls	Jun 2, 2010 12:50 AM
14	Blackfoot	Jun 2, 2010 12:52 AM
15	Boise	Jun 2, 2010 12:56 AM
16	Twin Falls	Jun 2, 2010 12:56 AM
17	Hazelton	Jun 2, 2010 12:59 AM
18	Emmett	Jun 2, 2010 1:00 AM
19	Boise	Jun 2, 2010 1:02 AM
20	Ontario	Jun 2, 2010 1:06 AM
21	Buhl	Jun 2, 2010 1:07 AM
22	Nampa	Jun 2, 2010 1:10 AM
23	Kimberly	Jun 2, 2010 1:13 AM
24	Twin Falls	Jun 2, 2010 1:17 AM
25	Filer	Jun 2, 2010 1:20 AM
26	Nampa	Jun 2, 2010 1:23 AM
27	Twin Falls	Jun 2, 2010 1:25 AM
28	Boise	Jun 2, 2010 1:26 AM
29	Twin Falls	Jun 2, 2010 1:27 AM
30	Nampa	Jun 2, 2010 1:29 AM
31	Murtaugh	Sep 8, 2010 2:20 AM
32	Meridian	Sep 8, 2010 2:22 AM
33	Twin Falls	Sep 12, 2010 12:38 AM
34	Buhl	Sep 12, 2010 12:39 AM
35	Buhl	Sep 12, 2010 12:41 AM
36	Nampa	Sep 12, 2010 12:43 AM
37	Parma	Sep 12, 2010 12:44 AM
38	Nampa	Sep 12, 2010 12:45 AM
39	Buhl	Sep 12, 2010 12:47 AM
40	Jerome	Sep 12, 2010 12:47 AM
41	Twin Falls (outside of)	Sep 12, 2010 12:49 AM
42	Buhl	Sep 12, 2010 12:51 AM
43	Parma	Sep 12, 2010 12:53 AM

### 1. 1. Please enter the following information that will help us evaluate the overall

#### City you live in:

44	Jerome	Sep 12, 2010 12:54 AM
45	Ola	Sep 12, 2010 12:55 AM
46	American Falls	Sep 12, 2010 12:57 AM
47	Parma	Sep 12, 2010 12:58 AM
48	Kimberly	Sep 12, 2010 1:00 AM
49	Gooding	Sep 12, 2010 1:01 AM
50	Twin Falls	Sep 12, 2010 1:02 AM
51	Meridian	Sep 12, 2010 1:04 AM
52	Nampa	Sep 12, 2010 1:06 AM
53	Meridian	Sep 12, 2010 1:08 AM
54	Fruitland	Sep 12, 2010 1:13 AM
55	Buhl	Sep 12, 2010 1:14 AM
56	Twin Falls	Sep 12, 2010 1:15 AM
57	Filer	Sep 12, 2010 1:21 AM
58	Jerome	Sep 12, 2010 1:22 AM
59	Boise	Sep 12, 2010 1:24 AM
60	Twin Falls	Sep 12, 2010 1:26 AM
61	Twin Falls	Feb 8, 2011 6:19 PM
62	Twin Falls	Feb 8, 2011 6:23 PM
63	Kimberly	Feb 8, 2011 6:24 PM
64	Hagerman	Feb 8, 2011 6:25 PM
65	Buhl	Feb 8, 2011 6:27 PM
66	Buhl	Feb 8, 2011 6:28 PM

### 3. 5. What were your reasons for participating in Idaho Power's Heating and

#### Other (please specify)

1	Replace swamp cooler on roof	Jun 2, 2010 12:42 AM
2	Needed new furnace	Jun 2, 2010 12:56 AM
3	Remodeled home	Sep 12, 2010 12:42 AM
4	Old one did not work anymore	Sep 12, 2010 12:52 AM
5	Did not like system in house	Sep 12, 2010 12:54 AM
6	Get rid of 38 yr old oil furnace	Sep 12, 2010 1:04 AM
7	I had no choice - my old one quit and was worn out.	Sep 12, 2010 1:13 AM
8	Old heater went out	Sep 12, 2010 1:21 AM
9	Needed new system	Sep 12, 2010 1:22 AM
10	0% financing for 3 years from company	Sep 12, 2010 1:27 AM

#### 4. 6. How did you hear about Idaho Power's Heating and Cooling Efficiency

Other (please specify)		
1	A different heating company (not Right Now)	Jun 2, 2010 1:08 AM
2	Internet	Jun 2, 2010 1:10 AM
3	Trane Brand Website Suggestion	Sep 8, 2010 2:22 AM
4	Didn't know	Sep 12, 2010 12:42 AM
5	Lowes	Feb 8, 2011 6:23 PM

#### 1. 7. What factors influenced your decision to hire the contractor you did for this

Other (please specify)		
1	They had serviced my previous furnace.	May 18, 2010 12:05 AM
2	Expertise.	May 18, 2010 12:16 AM
3	Only contractor that did a computerized assessment for heat loss/gain on my house.	Jun 2, 2010 12:36 AM
4	Brand name	Jun 2, 2010 12:37 AM
5	Comfort with sales rep.	Jun 2, 2010 12:40 AM
6	Contractor advertised	Jun 2, 2010 12:43 AM
7	Personally know them to be competent and trustworthy.	Jun 2, 2010 12:48 AM
8	General contractor recommended	Jun 2, 2010 12:51 AM
9	Received a letter from Idaho Power	Jun 2, 2010 1:09 AM
10	The company's attitude and helpfulness.	Jun 2, 2010 1:11 AM
11	Had equipment I wanted.	Jun 2, 2010 1:14 AM
12	Locally owned company/long time in business.	Jun 2, 2010 1:19 AM
13	Good reputation	Jun 2, 2010 1:23 AM
14	Used before - always courteous and on time.	Sep 8, 2010 2:24 AM
15	Mailed out ad from contractor	Sep 12, 2010 12:52 AM
16	I liked the owner (he's honest)	Sep 12, 2010 12:54 AM
17	Personal research and proposals and assessments	Sep 12, 2010 12:56 AM
18	Return customer	Sep 12, 2010 1:00 AM
19	We had several quotes	Sep 12, 2010 1:03 AM
20	Prompt return of calls, good service & knowledgeable	Sep 12, 2010 1:07 AM
21	Long standing relationship	Sep 12, 2010 1:15 AM
22	Met contractor on job site.	Sep 12, 2010 1:25 AM
23	Letters in mail	Feb 8, 2011 6:21 PM

#### 5. 11. Please explain why you would OR would not recommend the contractor

Response Text		
1	I would because of things noted in question #9.	May 18, 2010 12:12 AM

## 5. 11. Please explain why you would OR would not recommend the contractor

	Response Text	
2	Contractor (and his crew) was prompt, explained all my questions, took care to protect my property and cleaned up at conclusion.	May 18, 2010 12:14 AM
3	Very professional; easy to work with; stand by their product; cleaned up after themselves; courteous.	May 18, 2010 12:16 AM
4	Very thorough. Follows up all questions by phone or email.	Jun 2, 2010 12:36 AM
5	When Idaho Power was back pedaling on sending incentive claiming wrong sized unit was installed. Contractor finally convinced Idaho Power it was the right size. I have no problem recommending Jewel.	Jun 2, 2010 12:43 AM
6	Competency, honest, thorough with technical work, excellent service at all times.	Jun 2, 2010 12:48 AM
7	Excellent contractor, very knowledgeable. Excellent equipment.	Jun 2, 2010 1:01 AM
8	They were great to work with, came back every time we had more questions and helped in knowledge to make our decision and worked with us on the price and payment method.	Jun 2, 2010 1:11 AM
9	Overall good to work with and happy with them. Just had some issues with the person who designed the duct work. Again still happy with them.	Jun 2, 2010 1:14 AM
10	Very dependable, fast, did excellent work in a timely manner, very informative about product, explained everything very well. Installers were neat, quick, good quality work. Had to redo duct work did a very excellent nice looking job on that.	Jun 2, 2010 1:19 AM
11	Knowledgeable, home town business, good equipment, good pricing.	Jun 2, 2010 1:21 AM
12	They know their equipment and what to recommend.	Jun 2, 2010 1:23 AM
13	Very efficient, courteous, knowledgeable, and technically very competent.	Jun 2, 2010 1:28 AM
14	Very knowledgeable, polite, courteous, on-time. Their work is excellent, service is remarkable, and knows their product. They even suggested other ways we might conserve energy - currently considering adding more insulation to our attic when we can afford!	Sep 8, 2010 2:24 AM
15	Very nice and courteous - fast and friendly. Cleaned up their mess when they were done, hauled old unit off. Local company, home town people.	Sep 12, 2010 12:41 AM
16	Clean work. Worked with me on everything.	Sep 12, 2010 12:42 AM
17	Ashley Heating was great. Very professional and clean!	Sep 12, 2010 12:43 AM
18	Arctic Air has been very helpful and always answered all our questions even after installation. We have been satisfied.	Sep 12, 2010 12:45 AM
19	Green's are the best in our opinion.	Sep 12, 2010 12:46 AM
20	The people at Terry's were very helpful with all of our questions and concerns. They worked with us while we were waiting for insurance to come through and were very understanding with our situation. Thanks Terry's!	Sep 12, 2010 12:48 AM
21	They did a very good job.	Sep 12, 2010 12:52 AM
22	He was honest, did what he said he would, when he said. Friendly, courteous, thorough.	Sep 12, 2010 12:54 AM
23	See above answers to your questions!	Sep 12, 2010 12:55 AM
24	Experience and reliability	Sep 12, 2010 12:56 AM
25	Very knowledgeable.	Sep 12, 2010 12:58 AM
26	Great company and their product is very reliable.	Sep 12, 2010 1:00 AM
27	They were thorough and good at working with other contractors I had here at the same time. They did a good job and were courteous and have a good product.	Sep 12, 2010 1:01 AM
28	They were easy to work with. Arrived when they were supposed to and finished on time. Cleaned up all of the mess before leaving the job site.	Sep 12, 2010 1:05 AM

## 5. 11. Please explain why you would OR would not recommend the contractor

	Response Text	
29	I called several AC companies when I purchased home. This company called back quickest, kept all scheduled appts. and was VERY courteous and knowledgeable of product as well as rebates.	Sep 12, 2010 1:07 AM
30	1. In Nov '09 they installed new heater and heat pump. I paid in full only to later find out there wasn't enough air circulating. 2. Revised heater in Jan. '10 - but wouldn't attach thermometer to heat pump so outside temp showed up on thermostat. 3. Finally finished sometime in March and Idaho Power approved in April. Many times TML wouldn't call back for weeks at a time or they said they would be here and be a no show. If it hadn't been for the Honeywell man checking the work, they never would have completed the job correctly. My thanks to him!	Sep 12, 2010 1:11 AM
31	My answers of #9 should tell you I would.	Sep 12, 2010 1:14 AM
32	Trust	Sep 12, 2010 1:15 AM
33	The work was done great, but they sure didn't do my financing right. Bad.	Sep 12, 2010 1:22 AM
34	Kelly has done work for me before.	Sep 12, 2010 1:23 AM
35	Don and Clint were very knowledgeable of the HVAC system and were very thorough and efficient.	Sep 12, 2010 1:25 AM
36	They had to come back numerous times to make adjustments on units - repaired by Idaho Power	Feb 8, 2011 6:21 PM
37	The crew's knowledge, courteous, clean up of area made one know that they care about the results of services.	Feb 8, 2011 6:26 PM
38	Very nice and courteous fast and friendly. Cleaned up their mess when they were done. Hauled old unit off - local company	Feb 8, 2011 6:29 PM

## 4. 15. If you have other comments about the Heating and Cooling Efficiency

	Response Text	
1	I appreciated the \$400 incentive check, as it was very expensive to convert from oil to electricity. My first electric bill scared me to death, but now isn't too bad.	May 18, 2010 12:06 AM
2	All was ok.	Jun 2, 2010 12:39 AM
3	We are very happy with the unit and I am glad I don't rely on the swamp cooler anymore as it was becoming high maintenance.	Jun 2, 2010 12:44 AM
4	It took over a year to get incentive check. Chris Bell from Idaho Power was the key to my success. Don't know what I would have done without him.	Jun 2, 2010 12:51 AM
5	Thank you very much.	Jun 2, 2010 1:01 AM
6	Great for customer. Super for environment. Very good - cost/energy reduction for others to share.	Jun 2, 2010 1:04 AM
7	Took forever to get a check.	Jun 2, 2010 1:11 AM
8	Was a very nice bonus to the whole replacement process.	Jun 2, 2010 1:19 AM
9	Getting a cash rebate on the purchase price was very useful.	Jun 2, 2010 1:28 AM
10	Filling out the information and applying on-line was easy.	Sep 12, 2010 1:04 AM

#### 4. 15. If you have other comments about the Heating and Cooling Efficiency

	Response Text	
11	I also had to wait for TML to finally fill out the papers so I could receive my check from you, but did receive in May. I should have made TML wait 6 months to receive their check. My comments to you is keep double checking the contractors. They will do whatever to stall you and make you wait (after they were paid) or not do all the work necessary.	Sep 12, 2010 1:12 AM
12	I purchased the hightest rated Bryant system. I was told Idaho Power incentive was \$400. I received \$250.	Sep 12, 2010 1:23 AM
13	I would rather have had a check for the rebate than the VISA gift card. It was hard to keep track of the remaining balance and when you get to the end, there will a small amount that you can't use. Is that why they do it?	Sep 12, 2010 1:26 AM
14	The units have cut operating costs by a lot. I am very pleased with the performance and efficiency of heating & AC.	Feb 8, 2011 6:22 PM

#### 1. The following information is <u>optional</u>:

	Name:	
1	Claudia Holmes	May 18, 2010 12:06 AM
2	Daniel Tiller	May 18, 2010 12:09 AM
3	Kathy Mezin	May 18, 2010 12:12 AM
4	Loren Whitney	May 18, 2010 12:14 AM
5	Ron Welch	Jun 2, 2010 12:38 AM
6	Robyn Mattison	Jun 2, 2010 12:41 AM
7	Jerry Overdorf	Jun 2, 2010 12:44 AM
8	Jonathan Wells	Jun 2, 2010 12:49 AM
9	Dan DeBoer	Jun 2, 2010 12:51 AM
10	Betty Bothwell	Jun 2, 2010 12:56 AM
11	Randal V. Coates	Jun 2, 2010 12:58 AM
12	Leland F. Gotcher	Jun 2, 2010 1:02 AM
13	James (Tom) Johnston	Jun 2, 2010 1:06 AM
14	Nancy Bacon	Jun 2, 2010 1:09 AM
15	Cox	Jun 2, 2010 1:12 AM
16	Theron Walker	Jun 2, 2010 1:17 AM
17	Lana Hill	Jun 2, 2010 1:20 AM
18	Glenn Meyer	Jun 2, 2010 1:22 AM
19	Tom Clough	Jun 2, 2010 1:24 AM
20	William Beale	Jun 2, 2010 1:29 AM
21	Michelle Weitz	Jun 2, 2010 1:30 AM
22	Marci Love	Sep 8, 2010 2:25 AM
23	Willard Fritz	Sep 12, 2010 12:41 AM
24	Joseph Thompson	Sep 12, 2010 12:43 AM
25	Helen Hancock	Sep 12, 2010 12:45 AM
26	Richard and LaVawn Whitted	Sep 12, 2010 12:46 AM
27	Tamie Eacker	Sep 12, 2010 12:49 AM

**1. The following information is <u>optional</u>:**

Name:		
28	Donald Rahe	Sep 12, 2010 12:50 AM
29	Dennis Koehn	Sep 12, 2010 12:52 AM
30	Dr. Lawrence Fiorentino	Sep 12, 2010 12:56 AM
31	Jaime Mackrill & Deena Bay	Sep 12, 2010 12:58 AM
32	Tim James	Sep 12, 2010 1:00 AM
33	Glenna Grover	Sep 12, 2010 1:02 AM
34	Arvel D. King	Sep 12, 2010 1:05 AM
35	Betty Gull	Sep 12, 2010 1:12 AM
36	Gloria Ready	Sep 12, 2010 1:14 AM
37	Pamela Petersen	Sep 12, 2010 1:20 AM
38	Betty Dooley	Sep 12, 2010 1:22 AM
39	Bill F. Mobley	Sep 12, 2010 1:24 AM
40	Paul Morgan	Sep 12, 2010 1:26 AM
41	Gale Briggs	Feb 8, 2011 6:22 PM
42	Willard Fritz	Feb 8, 2011 6:30 PM

**1. The following information is <u>optional</u>:**

Address:		
1	450 S. Weiser St, Midvale, ID 83645	May 18, 2010 12:06 AM
2	324 Mountain View Dr, Nampa, ID 83686	May 18, 2010 12:09 AM
3	11325 S. Cloverdale Rd, Kuna	May 18, 2010 12:12 AM
4	2154 Woodriver Cir, Twin Falls	May 18, 2010 12:14 AM
5	170 N. Ada Place	Jun 2, 2010 12:38 AM
6	2121 Parkside Dr. Boise, ID 83712	Jun 2, 2010 12:41 AM
7	1583 W. Highway 39, Pingree	Jun 2, 2010 12:44 AM
8	3788 N 800 E Buhl, ID 83316	Jun 2, 2010 12:49 AM
9	216 Gulch Ln	Jun 2, 2010 12:51 AM
10	Boise	Jun 2, 2010 12:56 AM
11	3176 N 2100 E TF	Jun 2, 2010 12:58 AM
12	2751 N. Plaza Rd	Jun 2, 2010 1:02 AM
13	3322 E. Anemone Ct	Jun 2, 2010 1:06 AM
14	4239 N 1400 E Buhl, ID	Jun 2, 2010 1:09 AM
15	1923 S. Elder St. Nampa, ID	Jun 2, 2010 1:12 AM
16	3562 N. 3700 E. Kimberly, ID 83341	Jun 2, 2010 1:17 AM
17	896 Harmony Rd Twin Falls, ID 83301	Jun 2, 2010 1:20 AM
18	3719 N 2000 E	Jun 2, 2010 1:22 AM
19	1037 Sweetwood Cir, Nampa, ID 83651	Jun 2, 2010 1:24 AM
20	125 Borah Ave West, Twin Falls	Jun 2, 2010 1:29 AM
21	2317 Pisces Dr Nampa, ID	Jun 2, 2010 1:30 AM
22	2190 N Turnberry, Meridian 83646	Sep 8, 2010 2:25 AM
23	4185 N 1566 E Buhl	Sep 12, 2010 12:41 AM

**1. The following information is <u>optional</u>:**

**Address:**

24	4091 N 1100 E	Sep 12, 2010 12:43 AM
25		Sep 12, 2010 12:45 AM
26		Sep 12, 2010 12:46 AM
27		Sep 12, 2010 12:49 AM
28		Sep 12, 2010 12:50 AM
29		Sep 12, 2010 12:52 AM
30		Sep 12, 2010 12:56 AM
31		Sep 12, 2010 12:58 AM
32		Sep 12, 2010 1:00 AM
33		Sep 12, 2010 1:02 AM
34		Sep 12, 2010 1:05 AM
35		Sep 12, 2010 1:12 AM
36		Sep 12, 2010 1:14 AM
37		Sep 12, 2010 1:20 AM
38		Sep 12, 2010 1:22 AM
39		Sep 12, 2010 1:24 AM
40		Sep 12, 2010 1:26 AM
41	192 Caswell Ave W Twin Falls, ID	Feb 8, 2011 6:22 PM
42	4185 N 1566 E Buhl	Feb 8, 2011 6:30 PM

**1. The following information is <u>optional</u>:**

**Phone #:**

1	208-355-2288	May 18, 2010 12:06 AM
2		May 18, 2010 12:09 AM
3	562-1503	May 18, 2010 12:12 AM
4	734-9548	May 18, 2010 12:14 AM
5	208-463-9121	Jun 2, 2010 12:38 AM
6	208-794-8652	Jun 2, 2010 12:41 AM
7	208-684-5099	Jun 2, 2010 12:44 AM
8		Jun 2, 2010 12:49 AM
9	208-536-2255 (w) 734-1212 (hm)	Jun 2, 2010 12:51 AM
10	853-1561	Jun 2, 2010 12:56 AM
11		Jun 2, 2010 12:58 AM
12	208-344-4006	Jun 2, 2010 1:02 AM
13	Boise, ID 83716	Jun 2, 2010 1:06 AM
14	208-543-2980	Jun 2, 2010 1:09 AM
15	208-467-2369	Jun 2, 2010 1:12 AM
16	208-731-4851	Jun 2, 2010 1:17 AM
17		Jun 2, 2010 1:20 AM
18	208-326-4113	Jun 2, 2010 1:22 AM
19	208-467-1883	Jun 2, 2010 1:24 AM

1. The following information is <u>optional</u>:

Phone #:

20		Jun 2, 2010 1:29 AM
21	989-2053	Jun 2, 2010 1:30 AM
22		Sep 8, 2010 2:25 AM
23	543-6537	Sep 12, 2010 12:41 AM
24		Sep 12, 2010 12:43 AM
25		Sep 12, 2010 12:45 AM
26		Sep 12, 2010 12:46 AM
27		Sep 12, 2010 12:49 AM
28		Sep 12, 2010 12:50 AM
29		Sep 12, 2010 12:52 AM
30		Sep 12, 2010 12:56 AM
31		Sep 12, 2010 12:58 AM
32		Sep 12, 2010 1:00 AM
33		Sep 12, 2010 1:02 AM
34		Sep 12, 2010 1:05 AM
35		Sep 12, 2010 1:12 AM
36		Sep 12, 2010 1:14 AM
37		Sep 12, 2010 1:20 AM
38		Sep 12, 2010 1:22 AM
39		Sep 12, 2010 1:24 AM
40		Sep 12, 2010 1:26 AM
41		Feb 8, 2011 6:22 PM
42	208-543-6539	Feb 8, 2011 6:30 PM

1. How did you first learn about the *Easy Upgrades* program?

		Response Percent	Response Count
Contractor, supplier or vendor		61.3%	68
Idaho Power employee		17.1%	19
Business associate		7.2%	8
Mailing from Idaho Power		4.5%	5
Participation in other Idaho Power program		7.2%	8
Idaho Power web site		2.7%	3
	Other (please specify)		3
	<b>answered question</b>		<b>111</b>
	<b>skipped question</b>		<b>2</b>

**2. Please indicate which of the following types of equipment you received an *Easy Upgrades* incentive for. (check all that apply)**

		Response Percent	Response Count
Lighting/Controls		92.0%	104
HVAC/Controls		13.3%	15
Building Shell		7.1%	8
Plug Load		1.8%	2
Motors/Controls		5.3%	6
Grocery/Refrigeration		4.4%	5
<b>answered question</b>			<b>113</b>
<b>skipped question</b>			<b>0</b>

**3. For each of the following statements please indicate the level to which you agree or disagree.**

	Strongly Disagree				Strongly Agree		Response Count
	1	2	3	4	5	N/A	
Idaho Power staff provided you with accurate information.	3.6% (4)	0.0% (0)	1.8% (2)	22.5% (25)	60.4% (67)	11.7% (13)	111
Idaho Power staff was helpful.	3.6% (4)	0.0% (0)	2.7% (3)	17.1% (19)	65.8% (73)	10.8% (12)	111
Idaho Power incentive application forms were easy to follow.	4.5% (5)	0.9% (1)	3.6% (4)	29.7% (33)	53.2% (59)	8.1% (9)	111
Your application was processed in a timely manner.	5.4% (6)	0.0% (0)	5.4% (6)	19.8% (22)	63.1% (70)	6.3% (7)	111
Idaho Power's web site was informative.	3.6% (4)	0.9% (1)	9.1% (10)	20.9% (23)	32.7% (36)	32.7% (36)	110
<b>answered question</b>							<b>111</b>
<b>skipped question</b>							<b>2</b>

**4. Overall, how satisfied are you with the energy efficiency equipment you installed under the *Easy Upgrades* program?**

		Response Percent	Response Count
Very satisfied		91.1%	102
Somewhat satisfied		8.0%	9
Somewhat dissatisfied		0.0%	0
Very dissatisfied		0.9%	1
<b>answered question</b>			<b>112</b>
<b>skipped question</b>			<b>1</b>

**5. What is it about the equipment you installed that is dissatisfying?**

	Response Count
	0
<b>answered question</b>	<b>0</b>
<b>skipped question</b>	<b>113</b>

**6. How would your project have changed, if at all, if you had not participated in the *Easy Upgrades* program?  
Would you have.... (check all that apply)**

		Response Percent	Response Count
Postponed project more than 1 year		21.5%	23
Cancelled project altogether		27.1%	29
Repaired existing equipment		15.9%	17
<b>Kept using existing equipment</b>		<b>40.2%</b>	<b>43</b>
Purchased less expensive equipment		2.8%	3
Installed less energy efficient equipment		5.6%	6
Reduced project size or scope		15.0%	16
Not changed project at all		16.8%	18
	Other (please specify)		1
	<b>answered question</b>		<b>107</b>
	<b>skipped question</b>		<b>6</b>

**7. Could your budget have accomodated the full cost of your project without the *Easy Upgrades* incentive?**

		Response Percent	Response Count
Yes		21.3%	23
<b>No</b>		<b>65.7%</b>	<b>71</b>
Don't know		13.0%	14
	<b>answered question</b>		<b>108</b>
	<b>skipped question</b>		<b>5</b>

**8. How influential were the following elements in deciding whether or not to do this project?**

	Not at all influential 1	2	3	4	Very influential 5	Response Count
<i>Easy Upgrades</i> incentive	5.6% (6)	1.9% (2)	7.4% (8)	9.3% (10)	75.9% (82)	108
Installation contractor	21.0% (22)	2.9% (3)	11.4% (12)	22.9% (24)	41.9% (44)	105
Payback period on new equipment	12.6% (13)	1.9% (2)	14.6% (15)	29.1% (30)	41.7% (43)	103
Amount of energy savings potential	1.9% (2)	2.9% (3)	11.4% (12)	29.5% (31)	54.3% (57)	105
Needed to replace failed equipment	29.4% (30)	11.8% (12)	26.5% (27)	19.6% (20)	12.7% (13)	102
					answered question	108
					skipped question	5

**9. What factors influenced your decision to hire the contractor you did for your *Easy Upgrades* project? (check all that apply)**

		Response Percent	Response Count
Used for other projects		55.2%	48
Price		39.1%	34
Recommendation from others		26.4%	23
	Other (please specify)		19
	answered question		87
	skipped question		26

10. Please rate the contractor you used for your *Easy Upgrades* project in the following areas:

	Poor 1	2	3	4	Excellent 5	Response Count
Quality of work	0.0% (0)	0.0% (0)	4.1% (4)	15.5% (15)	80.4% (78)	97
Courteousness	0.0% (0)	0.0% (0)	4.1% (4)	18.4% (18)	77.6% (76)	98
Professionalism	0.0% (0)	0.0% (0)	3.1% (3)	21.4% (21)	75.5% (74)	98
Knowledge of equipment	0.0% (0)	0.0% (0)	4.1% (4)	13.4% (13)	82.5% (80)	97
Knowledgeable of Easy Upgrades program	1.0% (1)	2.1% (2)	5.2% (5)	14.4% (14)	77.3% (75)	97
Completing work in a timely manner	1.0% (1)	0.0% (0)	4.2% (4)	12.5% (12)	82.3% (79)	96
Explaining efficiency aspects of new equipment	0.0% (0)	3.2% (3)	3.2% (3)	20.4% (19)	73.1% (68)	93
					answered question	98
					skipped question	15

11. How likely would you be to recommend this contractor to a business associate?

	Response Percent	Response Count
Definitely would 	85.7%	84
Probably would 	11.2%	11
May or may not 	3.1%	3
Probably would not	0.0%	0
Definitely would not	0.0%	0
	answered question	98
	skipped question	15

12. Please explain why you would not recommend this contractor.

	Response Count
	2
answered question	2
skipped question	111

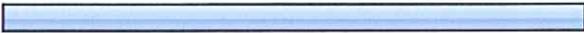
13. How likely would you be to participate in the *Easy Upgrades* program again?

	Response Percent	Response Count
Very likely 	89.9%	98
Somewhat likely 	8.3%	9
Neither likely nor unlikely 	1.8%	2
Somewhat unlikely	0.0%	0
Very unlikely	0.0%	0
answered question		109
skipped question		4

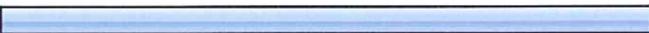
14. Why would you not participate in the *Easy Upgrades* program again?

	Response Count
	1
answered question	1
skipped question	112

15. How likely would you be to recommend the *Easy Upgrades* program to a business associate?

	Response Percent	Response Count
Very likely 	89.5%	94
Somewhat likely 	7.6%	8
Neither likely nor unlikely 	2.9%	3
Somewhat unlikely	0.0%	0
Very unlikely	0.0%	0
	answered question	105
	skipped question	8

16. Providing your name and organization is optional but would help us respond to any concerns you may have identified in your survey.

	Response Percent	Response Count
Contact Name: 	100.0%	71
Organization: 	100.0%	71
	answered question	71
	skipped question	42

17. If you have other comments about the *Easy Upgrades* program, please enter them below.

	Response Count
	19
	answered question
	19
	skipped question
	94

## SUCCESS STORIES

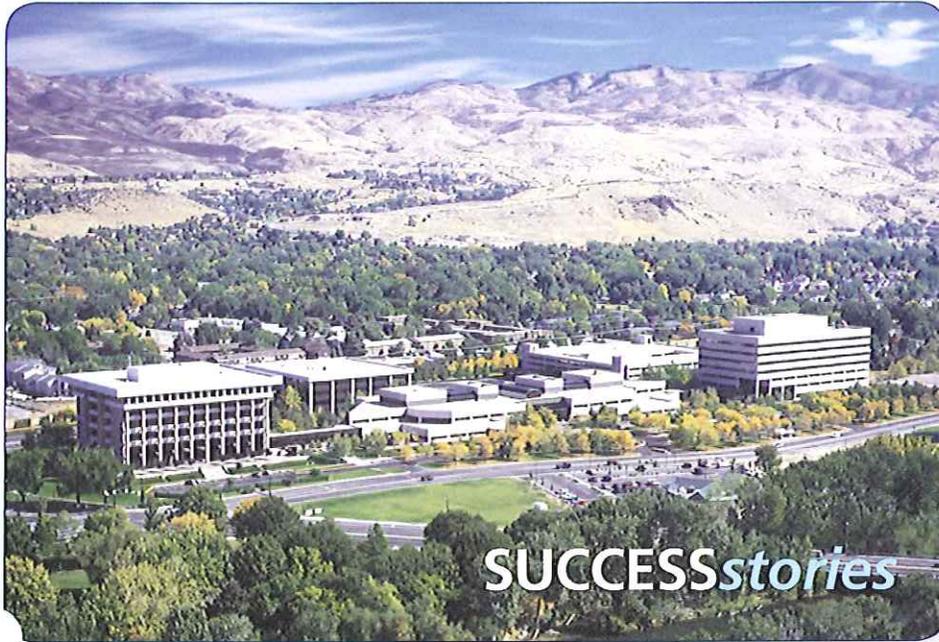
Table 5. 2010 Success Stories

Title	Program or Sector	Author
American Resurgens Management Corporation	Commercial	Idaho Power
Chicago Connection	Commercial	Idaho Power
Homestead Farms Restaurant	Industrial	Idaho Power
IdaCold Packaging, Inc.	Commercial	Idaho Power
Jerome Cheese Company	Industrial	Idaho Power
Magic Valley Growers	Commercial	Idaho Power
Motive Power	Industrial	Idaho Power
Murakami Produce Co.	Commercial	Idaho Power
Nampa Wastewater	Industrial	Idaho Power
Nunhems USA	Industrial	Idaho Power
Plexus Corp.	Commercial	Idaho Power
RC Bigelow	Industrial	Idaho Power
Roaring Springs Water Park	Industrial	Idaho Power
Swire Coca-Cola, USA	Commercial	Idaho Power

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## Custom Efficiency

for Complex Projects



### American Resurgens Management Corporation

720 E. Park Blvd., #100  
Boise, ID 83712  
208-333-2580

"This project was so successful that we are now involved in more energy-efficiency upgrades to our heating, ventilation and air conditioning systems."

—Tom Houston, ARM Project Manager

## ARM Manages Energy Efficiency Assets For The Long Term

### The Business

American Resurgens Management Corporation (ARM) provides portfolio management services, on-site management and leasing services, and development services for institutional and high-net-worth individual real estate owners.

From its Boise office, ARM provides the asset management and leasing services for the owner of the Washington Group Plaza, a 590,000-square-foot, class A, office complex.

### The Challenge

ARM wanted to improve the energy efficiency, sustainability, and occupant comfort throughout the complex in Boise. They began to address

these concerns in 2007 with help from Idaho Power.

### The Solution

ARM replaced nearly 8,000 light fixtures, many with occupancy sensors or other energy-saving controls.

The project also included:

- Installation of a new, fully-automated building operating system for the heating, ventilation
- An Air conditioning (HVAC) system
- Numerous variable frequency drives
- A new, energy efficient 800-ton chiller.

### The Outcome

"The savings has been very significant," ARM Project Manager Tom Houston said, "especially when you see how much

energy can be saved from changing one light bulb—and we changed thousands."

### The Savings

The energy efficient upgrades will reduce long-term energy costs and are expected to save more than 6,000,000 kilowatt-hours (kWh) per year—enough electricity to serve approximately 450 average-sized Idaho homes for one year.

The incandescent-to-compact fluorescent light (CFL) change-out alone will save about 510,611 kWh per year, the equivalent carbon dioxide emissions offset of planting nearly 97 acres of trees.

### The Bottom Line

Idaho Power's Custom Efficiency program provided incentives to ARM valued at approximately \$700,000.

“This is a great program,” Houston said, “especially when you consider it paid for itself within two years.”

If you are looking for similar energy saving success for your business, Idaho Power can help. Idaho Power offers a complete suite of energy efficiency programs for commercial and industrial businesses.

The Custom Efficiency program assists large commercial and industrial customers in identifying and paying for energy efficiency improvements.

Easy Upgrades offers incentives of up to \$100,000 for energy-saving retrofits within existing commercial and industrial buildings.

The Building Efficiency program offers incentives of up to \$100,000 per project to offset part of additional capital expenses for more efficient lighting designs, cooling systems, controls, and building shells in new commercial and industrial construction projects.

FlexPeak Management, a demand response program, offers commercial

and industrial customers recurring payments for reducing a set amount of electricity consumption in response to Idaho Power’s peak demand and other system needs.

Go to [www.idahopower.com/business](http://www.idahopower.com/business) or call 208-388-5624 for more information on how Idaho Power can help you save energy and money.

The above success story was produced in cooperation with, and approval from, Idaho Power customer American Resurgens Management Corporation.



# Custom Efficiency

For Complex Projects

## To reduce energy costs, Chicago Connection relied on its connections

Tom Kealey, co-managing member with his wife, Joy, of the Chicago Connection pizza restaurants, knows a good thing when he hears about one of Idaho Power's commercial energy efficiency programs. "We actually learned about it from FSA, Food Services of America," he said.

### With friends like these...

Like any good businessperson, Tom's always looking for new ways to make his stores more profitable, whether it's increasing revenues or decreasing costs. So, when FSA told him they'd received a check from Idaho Power for \$126,000 to help defray the costs of changing out their old freezers to more energy efficient ones, it got his attention.

Mike Ruffner, president of FSA, put him in touch with an energy efficiency expert at Idaho Power, who came to the Chicago Connection offices and made a presentation about the opportunities available to them through the Custom Efficiency program. "Then, by happenstance," Tom continues, "I bumped into a lawyer friend of mine who told me about a lighting contractor friend of his named Lloyd Betts, who'd been working on the same program over in Ketchum."

Lloyd came to Boise and did an economic analysis of Chicago Connection's lighting. "He counted every light fixture inside and outside all nine stores as well as the headquarters." Lloyd calculated the cost to retrofit the lights, the savings Chicago Connection could realize, and whether a conversion was a feasible investment. In the end, "It made economic sense for us," Tom noted.



### You can reduce your energy costs

Tom and his Chicago Connection team replaced the company's existing T12 lamps and ballasts with more energy efficient T8 fluorescent technology. Both lighting types fit into the same fixture, so it was a fairly simple retrofit.

Tom's team also replaced his restaurant's incandescent bulbs with new compact fluorescent lights (CFL), which use 75 percent less energy and last about 10 times longer; converted his metal halide bulbs to large CFLs; and installed light-emitting diode (LED) exit signs.



**Over its 10 locations,  
Chicago Connection replaced  
575 conventional lights with  
more efficient technologies.**

## Less than one year of payback time

The project took about a month and a half to retrofit 575 bulbs in almost 40,000 square feet of interior and exterior space, including dining rooms, kitchens, refrigerators, and offices. "It cost in excess of \$35,000 to do all the work," Tom said, "and Idaho Power paid 70 percent of it."

The energy savings were a welcome surprise, too. The original audit estimated the conversion would reduce Chicago Connection's energy use by 165,000 kilowatt-hours (kWh) per year. Actual savings are closer to 205,000 kWh per year, which is equivalent to the annual energy usage of 16 typical homes in the Idaho Power service area and equals an estimated annual savings of more than \$11,000.

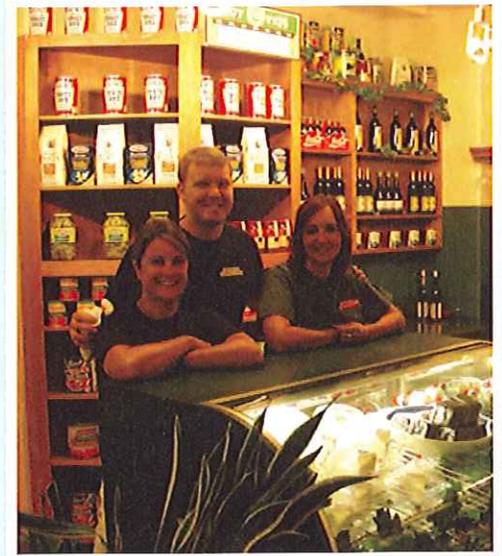
"We think it's about a one-year payback," Tom says. "And I don't even know how much it will save in terms of air conditioning, because those older lights generated a lot of heat." What Tom does know is Idaho Power's Custom Efficiency program is helping him keep a bigger slice of his pie.

## Uncommon savings are quite common

Saving energy has always been a smart business decision. Now, Idaho Power makes it attainable. Our complete suite of energy efficiency programs provides attractive incentives to commercial and industrial customers who want to reduce their utility costs.

- The **Custom Efficiency** program offers substantial rebates to large commercial and industrial customers who invest energy-saving improvements in their facilities.
- **Easy Upgrades** provides incentives of up to \$100,000 when companies retrofit their infrastructures with energy-saving upgrades.
- The **Building Efficiency** program pays up to \$100,000 *per project* to mitigate the additional capital costs when companies upgrade their lighting, cooling, controls, and building shells to more efficient components.
- **FlexPeak Management** offers commercial and industrial customers incentives in the form of recurring payments for reducing their power consumption during times of overall peak demand.

*The above success story was produced in cooperation with,  
and approval from, Chicago Connection pizza restaurants.*

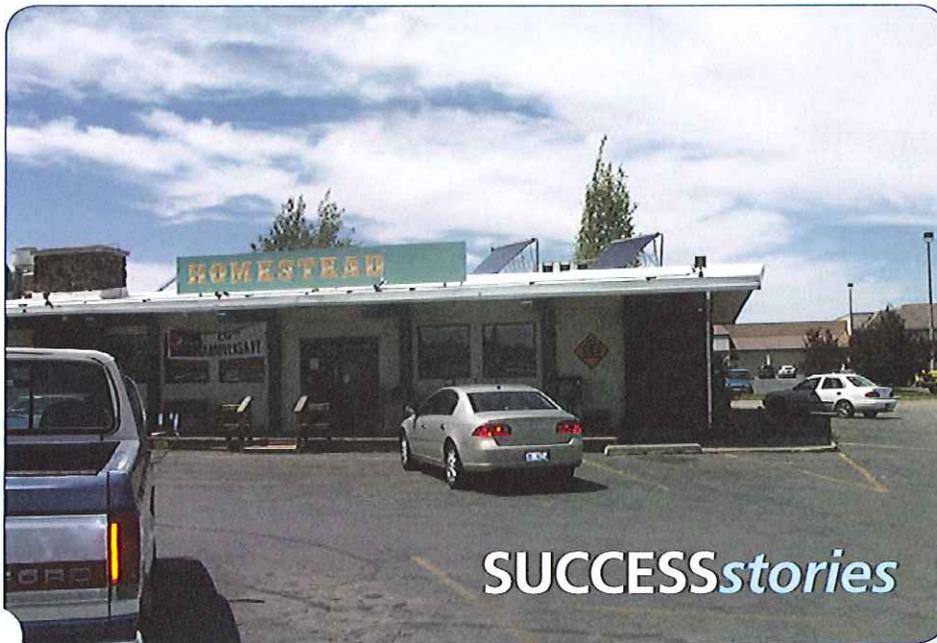


## How much can your company save?

For more information about Idaho Power's energy efficiency incentive programs, go to [www.idahopower.com/business](http://www.idahopower.com/business) or call us at 208-388-5624. We'll show how you can join smart companies like Chicago Connection, saving energy and money.

## Custom Efficiency

for Complex Projects



### Homestead Farms Restaurant Commercial

1355 Parkway Dr.  
Blackfoot, ID 83221  
208-785-0700

Owner: Bill Dishman

"We have a good relationship with Idaho Power. Before this current project, we had worked with them almost 40 years ago on checking the energy efficiency of our well system, so I know what they can do to help other people."

—Bill Dishman, Homestead Farms  
Restaurant Owner

## Homestead Farms Restaurant Cooks Up Energy Savings With Idaho Power

### The Business

Homestead Farms Restaurant is a family-style restaurant located in Blackfoot, Idaho. Owner Bill Dishman and his daughter, a partner in the business, employ many young people from the area.

### The Challenge

Dishman and his daughter were interested in making Homestead Farms Restaurant more energy efficient and examined the best possible ways to save energy.

### The Solution

Bill and his daughter decided to install a high-efficiency dishwasher and a solar hot water pre-heater.

Compared to the old unit, the new solar unit uses less than one-third of the water, significantly reducing the amount of electricity needed to heat water. The old dishwasher consumed 3.6 gallons of water per cycle. Multiply that amount of water by 116 cycles per day, on average,

and about 660 gallons were used each day.

The new dishwasher uses only 0.94 gallons per cycle, for a new usage total of about 386 gallons of water per day.

On an average day, the solar collector, manufactured by Solar Panels Plus, can provide 240 gallons of heated water for this business, leaving only 146 gallons (rather than the previous 660 gallons) per day to be heated by the existing system.

### The Outcome

The high-efficiency dishwasher and solar hot water pre-heater were installed by K-M Refrigeration at a project cost totaling \$24,155.



"We have saved at least 20 percent on our power bill," Dishman said.

## The Savings

The estimated total energy savings of the project was 38,773 kilowatt-hours per year. The project's energy savings are equivalent to the carbon offset of planting nearly seven-and-a-half acres of trees.

## The Bottom Line

Idaho Power's Custom Efficiency program provided Homestead Farms Restaurant with a \$4,653 incentive for the energy efficient upgrades.

"We saved \$250 per month on our electric bill," Dishman said. "In addition, because we are using fewer water cycles, we're also saving \$200 a month in chemicals."

If you are looking for similar energy-saving success for your business, Idaho Power can help. Idaho Power offers a complete suite of energy efficiency programs for commercial and industrial businesses.

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Easy Upgrades offers incentives of up to \$100,000 for energy-saving retrofits within existing commercial and industrial buildings.

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Go to [www.idahopower.com/business](http://www.idahopower.com/business) or call 208-388-5624 for more information on how Idaho Power can help you save energy and money.

The above success story was produced in cooperation with, and approval from, Idaho Power customer Homestead Farms Restaurant.



# Custom Efficiency

For Complex Projects

## IdaCold freezes its power use with tough, flexible warehouse doors and energy efficiency rebates from Idaho Power

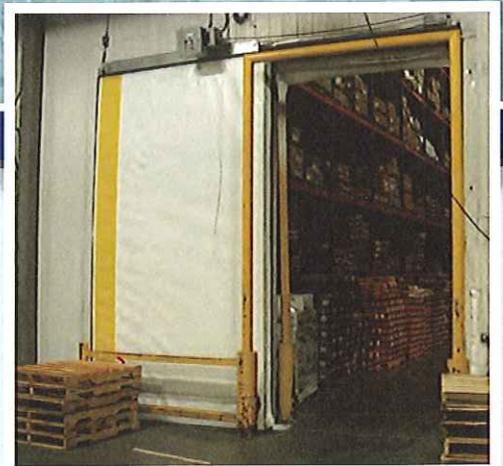
It was 95°Fahrenheit (F) outside on a hot August afternoon, but inside Cold's industrial frozen storage and packaging warehouse in Nampa, Idaho it was a bone-chilling 0°F. "Everyday is Christmas in here," IdaCold President Tim Viehweg said with a laugh. "At least, it feels like it."

Four companies share IdaCold's 2.5 million cubic feet of space, and keeping them merry is a big job. "It's all freezer in here," Tim said. "And all food. Diced onions, diced peppers, potato products, cheese, and a lot of beef. If the temperature in here goes up at all, spoilage becomes a big issue."

It's a busy operation, too, bordering on frantic sometimes. A fleet of forklifts scurries about the warehouse, loading trucks, unloading railcars, and whisking containers across the warehouse to their assigned areas. Sometimes, the forklifts collide with things, like the large, insulated doors that keep the cold air in and the hot air out.

"It's not a question of if the doors are going to get hit," Tim said, "but when they're going to get hit." He pointed to the 8-foot x 14-foot openings. "If a forklift runs into a standard metal door, the door buckles and loses its integrity. It won't seal properly."

When a door loses the seal around its perimeter, large amounts of warm, outside air can infiltrate the freezer. As a result, the refrigeration units must work harder and longer to maintain the 0°F temperature Tim's clients demand, and power requirements rise dramatically for the entire system.



### Doors that bend but don't break

"We were saying there's got to be a better way of doing this," Tim said. "Then we heard about a company in Boise that just developed a flexible panel door that can take some abuse."

IdaCold replaced seven of its original, rigid freezer doors with Flexible Panel™ Indestructible Doors by Cold Chain LLC. Unlike their steel counterparts, the panels on these doors absorb the impact of a forklift strike without incurring permanent damage. The bond to the frame remains secure, warm air stays outside where it belongs, and IdaCold's energy requirements remain stable.



**"Idaho Power's rebate program allowed us to reduce our payback time considerably."**

– Tim Viehweg  
President  
IdaCold Packaging, Inc.

## The savings

The cost of materials and labor for replacing the doors totaled \$25,517, of which Idaho Power rebated IdaCold \$10,568 through its Custom Efficiency program. The project reduces IdaCold's energy consumption by more than 88,000 kilowatt-hours (kWh) per year, or enough energy to run 10 deluxe side-by-side refrigerators for over 12 years.\*

"Idaho Power's rebate program allowed us to reduce our payback time considerably, which is pretty cool," Tim pointed out.

## Uncommon savings are quite common

Saving energy has always been a smart business decision. Now, Idaho Power makes it attainable. Our complete suite of energy efficiency programs provides attractive incentives to commercial and industrial customers who want to reduce their utility costs.

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- **FlexPeak Management** offers commercial and industrial customers incentives in the form of recurring payments for reducing their power consumption during times of overall peak demand.

\*Based on an ENERGY STAR®-rated, 21-cubic-foot, side-by-side refrigerator using 695 kWh per year.

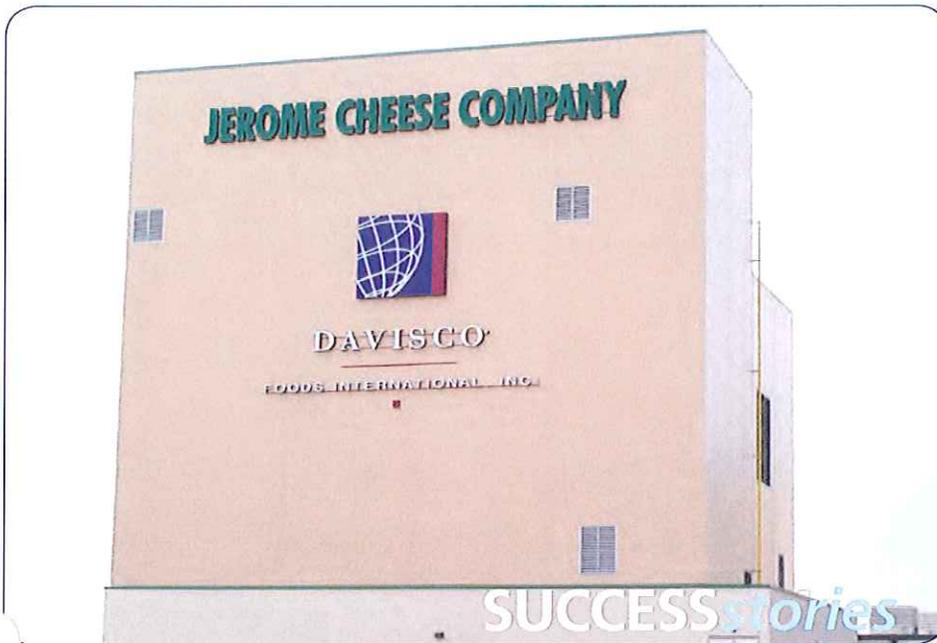


## How much can your company save?

For more information about Idaho Power's energy efficiency incentive programs, go to [www.idahopower.com/business](http://www.idahopower.com/business) or call us at 208-388-5624. We'll show how you can join smart companies like IdaCold, saving energy and money.

*The above success story was produced in cooperation with, and approval from, IdaCold Packaging, Inc.*

## Custom Efficiency for Complex Projects



### Jerome Cheese Company A Division of Davisco Foods International, Inc.

547 West Nez Perce Avenue  
Jerome, ID 83383  
208-324-8806

"It sounded like a small number in terms of savings, but when you look at it over time it added up to a big number in savings."

– David Bero, Energy Manager for Davisco Foods International, Inc.

## Jerome Cheese Company: Small Energy Efficiency Projects Produce Big Savings

### The Business

The Jerome Cheese Company is located in southwestern Idaho in the Magic Valley. The factory receives more than 90 truckloads of raw milk every day. From this raw material, 15 or more truckloads of cheese is manufactured, and an average of three truckloads of cream are shipped to butter and ice cream plants across the United States. More than 400,000 gallons (about 3,400,000 pounds) of useable water is used to process 5,200,000 pounds of milk and 520,000 pounds of cheese.

### The Challenge

The Jerome Cheese Company heavily uses air compressors during its manufacturing process.

Maintenance on the older compressed air system drains was expensive; the old mechanical air compressor drains clogged and had to continually be maintained. Previously, a timer opened a solenoid valve on these drains for three seconds every five minutes to drain any accumulated moisture in the lines. As these solenoids opened, compressed air was lost, along with drained moisture, and energy from the air compressor was wasted. Calculations showed that 67,644,720 cubic feet of air was lost through those 15 drains every year, with a corresponding energy use of 280,683 kilowatt-hours (kWh).

### The Solution

Installation of 15 zero-loss drains on the compressed air system saved

money on energy and reduced ongoing maintenance associated with the old system. Zero-loss drains allow moisture to automatically drain without the loss of any compressed air. The project was completed in December 2008.

### The Outcome

Labor and materials for the projects totaled \$9,909. Bero said, "A small opportunity to save money and reduce energy output resulted in a very big opportunity. We are now more 'green.'"

### The Savings

Energy savings for the project are 280,683 kWh per year, which is equivalent to the average energy use of 21 typical Idaho homes.

## The Bottom Line

Idaho Power provided the Jerome Cheese Company with a \$6,936 incentive for the zero-loss drain upgrades. This allowed for reduced energy consumption and monetary savings for the factory. In addition, Bero said the company receives ongoing help from Idaho Power as they provide guidance on other energy-saving projects the Jerome Cheese Company is working on. A new air compressor was recently installed that has a higher capacity and improved operating efficiency.

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This success story was produced in cooperation with, and approval from, Idaho Power Company customer Jerome Cheese Factory.



## Custom Efficiency

For Complex Projects

### The story of a long, happy, energy saving relationship

Magic Valley Growers (MVG) is an agricultural marketing company in Wendell, Idaho. "We're the largest supplier of pearl onions in the U.S.," Bob Rietveld, the company's president, said. "And we're probably among the top two or three in shallot production." MVG is also a big fan of Idaho Power's energy-efficiency programs.

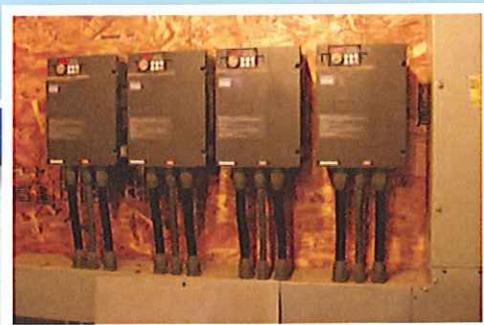
"Several years back we enrolled in Idaho Power's irrigation program," Bob said. MVG's first energy efficiency effort involved putting timers on its pumps. Then, MVG upgraded its entire irrigation system to use less pressure, and thus, less electricity. Finally, MVG installed frequency drives on its larger well pumps, which not only saved electricity, but also reduced wear on the equipment.

"Frankly, we thought we'd done everything we could," said Andy Hornbacher, MVG's storage manager. "Then Leo introduced us to the Custom Efficiency program." Leo Sanchez is a commercial customer representative in Idaho Power's Twin Falls office. "Right off the bat," Leo said with a smile, "Bob decided he wanted to be a part of the program."

#### Starting small, saving big

MVG's first Custom Efficiency project was a small lighting retrofit in one of its large storage facilities. "Bob liked the rebate and the energy savings so much," Leo noted, "he decided to upgrade the lights in the other buildings, as well. Then, when we were finished, he said, 'What else do you have?'"

Bob and Leo started looking at the refrigeration systems in MVG's storage sheds. MVG's potatoes must be stored in a very controlled environment: around 38°F and 95 percent humidity. Pearl onions are equally finicky. "We use a terrific amount of fan power," Andy pointed out, "because we have to move a lot of air through thousands of tons of very small product."



#### The math of energy efficiency

Bob pointed out, "It's about twice as efficient to run two fans at 50 percent frequency output than to turn one of them completely off. But you need a variable frequency drive (VFD) to do it."

Once the VFDs were installed in the first shed, Bob turned to his ventilation contractor and said, "What else can we do?"

The contractor introduced MVG to electronic expansion valves (EEV) to replace the thermal expansion valves (TXV) that controlled each shed's refrigeration system. EEVs not only are more energy efficient than TXVs but also protect the system from freezing.

**MVG annual energy savings total almost 368,000 kWh, or \$20,240—enough energy to serve 20 homes for one year**

## The savings

MVG recently completed installation of a VFD system and two EEV systems in three of its facilities. The table below shows the costs, rebates, and savings (in kilowatt-hours [kWh] and dollars) of the three projects. MVG spent \$37,665 on the upgrades, of which Idaho Power rebated the company \$26,366, resulting in an almost immediate return on investment.

Project	Project Cost	Rebate	Savings (kWh/year)	Savings
Santan East EEV project	\$4,979	\$3,485	30,000	\$1,650
Santan West EEV project	24,716	17,301	249,715	13,734
Tuttle ¾ VFD project	7,970	5,580	88,000	4,480
<b>Total</b>	<b>37,665</b>	<b>26,366</b>	<b>367,715</b>	<b>19,864</b>

## Uncommon savings are quite common

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## A valuable resource for your business

"It was Leo who came to us with these programs to begin with," Bob said. Like every Idaho Power customer representative, Leo Sanchez is a valuable resource for his commercial and industrial customers. His service area stretches from Bliss in the west to Kimberly in the east. In between are dozens of businesses like MVG who benefit from his knowledge and experience. After all, as Bob said, "It was really Leo who pushed it through."

## How much can your company save?

For more information about Idaho Power's energy efficiency incentive programs, go to [www.idahopower.com/business](http://www.idahopower.com/business) or call us at 208-388-5624. We'll show how you can join smart companies like MVG, saving energy and money.

*The above success story was produced in cooperation with, and approval from, Magic Valley Growers.*





# Custom Efficiency

For Complex Projects

## Motive Power doesn't have to raise the roof to save energy—it's already 55 feet high

It seems like the perfect job for the person with a active inner child. "We build new locomotives and refurbish old ones for the transit and freight industries," Ed Allen, fabrication shop and maintenance manager for Motive Power in Boise, Idaho. "Basically, we get to play with trains all day."

Motive Power has two facilities in Boise—a locomotive manufacturing and refurbishing complex and an annex for rebuilding semi-trucks and trailers. Together, they occupy more than 300,000 square feet in 13 buildings. Upgrading the lighting in just one building would have been an ambitious project. Motive Power opted to convert the lighting in the 10 structures of the locomotive complex, encompassing 268,838 square feet.

### A special kind of challenge

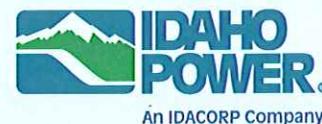
"I've worked on all the Boise School District lighting upgrades," said Steve Creswell, the plant electrician, "but this is the biggest upgrade I've ever done." Steve looked up at the new, high-efficiency lights high above him. "It's the tallest, too." Some of the ceilings over the side bays in Motive Power's locomotive assembly shop rise 45 feet above the floor. "And that's the lower side of the roof," noted Purchasing Agent Tamalla Hart. "It goes up to 55 feet in the center."

The ambitious project involved changing out or installing more than 6,000 lights. Existing T12, metal-halide, and high-pressure sodium fixtures were replaced with more efficient T8 and T5HO technology, and these new fixtures are not just ordinary lights. Because some of the ceilings are five stories high, Motive Power had to install special, high-bay bulbs that extend light far distances. "In the locomotive shop alone, we replaced ninety-six 1,000-watt mercury vapor lights," Steve pointed out. "And that was just above the tracks." "We upgraded everything," Tamalla added proudly. "Even the exit signs."



### More than one way

The Idaho Power Custom Efficiency incentive program is a valuable source of funding for commercial and industrial energy-saving projects. But it's not, as Motive Power demonstrated, the only one. Like Motive Power, many companies leverage state and federal government tax-incentive and grant programs that even can help give large endeavors enviable returns on investment (ROI). *Continued on back.*



**"That's a payback time of about six months. Not bad, in my book."**

– Steve Creswell  
Plant Electrician  
Motive Power

## The savings

Idaho Power estimated the lighting upgrade will save Motive Power 1,204,073 kilowatt-hours (kWh) annually. That's enough electricity to supply 90 average-sized homes in Idaho Power's service area for one year. For Motive Power, that's a financial savings of more than \$60,000 per year.

The total cost of the retrofit was \$330,951, of which Idaho Power contributed \$141,860 as part of its Custom Efficiency program. Motive Power also took advantage of energy-efficiency tax incentives from the federal government to help finance the project. "By the time you pencil it all out," Steve noted, "we paid about \$30,000 out-of-pocket. When you throw in what we're saving on our power bill, that's a payback time of about six months. Not bad, in my book."

Cost	Idaho Power Rebate	Savings (kWh/year)	Annual Savings	Customer out-of-pocket*	Payback in Months
\$330,951	\$141,860	1,204,073	\$66,244	\$30,000	6

\* Achieved by leveraging the Idaho Power Custom Efficiency rebate and federal tax incentives

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*The above success story was produced in cooperation with, and approval from, Motive Power, a Wabtec company.*



## More than one way (continued)

For example, Murakami Produce of Ontario, Oregon, used cash incentives and tax credits from Idaho Power, the U.S. Department of Agriculture's (USDA) Rural Energy for America Program (REAP), and the Oregon Department of Energy (DOE) to finance lighting and ventilation system improvements that totaled almost \$1 million.

"Investing in energy efficiency is a sound business practice," said Todd Schultz, Idaho Power's commercial energy-efficiency program leader.

## How much can your company save?

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# Custom Efficiency

For Complex Projects

## Murakami Produce brings a green philosophy to yellow onions

Working with 35 farmers in Malheur County in eastern Oregon, Murakami Produce Company stores, packs, and ships onions—primarily Spanish onions—as far as the east coast. “During the winter, this valley provides about 40 percent of the country’s onions,” Grant Kitamura, president of Murakami Produce, said proudly.

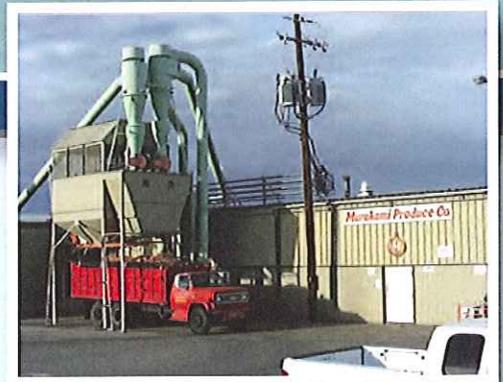
“It’s important in our business to be greener,” said Grant as he guided a visitor through one of the company’s 20,000-square-foot onion storage sheds. “Our customers want to do business with someone who’s environmentally conscious.”

Grant pointed to a bank of lights overhead that popped on automatically as he and his guest entered the building. “Just changing out our lights and adding motion sensors cut our power usage by almost 150,000 kilowatt-hours (kWh) a year. But that’s nothing compared to what we did with our fans.”

Recently, Murakami Produce undertook an ambitious plant-modernization and energy-saving program in conjunction with Idaho Power, Energy Industries, the U.S. Department of Agriculture’s (USDA) Rural Energy for America Program (REAP), and the Oregon Department of Energy (DOE).

In one phase of the project, Murakami Produce upgraded 871 lights that illuminate more than 225,000 square feet of storage space from conventional T12 technology to more efficient T8 technology. At the same time, Murakami Produce installed high-efficiency motors, variable frequency drives (VFDs), and automatic controls on the ventilation fans used to cool, cure, and ventilate the onions during storage.

“We drop the temperature, and the onions get close to dormancy,” Grant explained, “we need to reduce the airflow across them. Before, our fans only had one speed, so we had to turn some fans off and leave others on. The VFDs allow us to reduce the speed on each fan. That’s a lot more efficient from a power-usage standpoint.”



### The difference between T8 and T12 fluorescent light bulbs

As Murakami Produce demonstrated, one of the simplest, least expensive ways to reduce energy consumption is by replacing standard T12 technology-based fluorescent lighting with more efficient T8-based bulbs. The following chart illustrates the advantages of T8 bulbs. *Continued on back.*



**"We probably couldn't have justified the payback without the Idaho Power program."**

– Grant Kitamura  
President, Murakami Produce  
Ontario, Oregon

## The savings

Murakami achieved its goal of going greener—it reduced its electricity usage by more than 1,800,000 kWh annually, which can power 140 average-sized homes in Idaho Power's service territory. This cut Murakami Produce's annual power bill by more than \$100,000. Combined costs of the ventilation and lighting projects were \$974,000, of which Idaho Power covered \$225,000 through its Custom Efficiency incentive program. "We probably couldn't have justified the payback without the Idaho Power program," Grant noted.

Project	Project Cost	Idaho Power Rebate	Savings (kWh/year)	Annual Savings	Payback in Months*
Ventilation upgrade	\$875,852	\$207,200	1,726,669	\$94,967	approx. 24
Lighting upgrade	98,148	17,955	149,622	30,590	approx. 24
<b>Total</b>	<b>\$974,000</b>	<b>\$225,155</b>	<b>1,876,291</b>	<b>\$125,557</b>	<b>approx. 24</b>

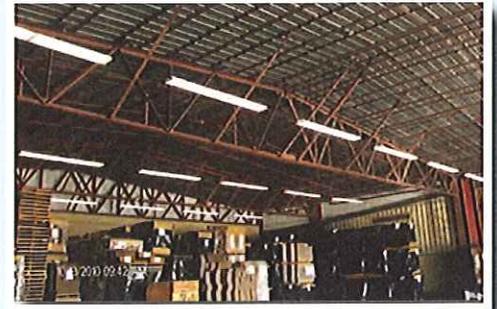
\*Calculated including cash incentives and tax credits received from Idaho Power, the USDA REAP, and the Oregon DOE.

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*The above success story was produced in cooperation with, and approval from, the Murakami Produce Company.*

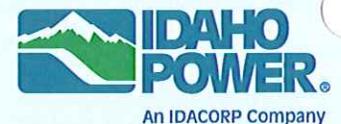


## The difference between T8 and T12 fluorescent light bulbs (continued)

Attribute	T8 Technology	T12 Technology
Size	1 inch in diameter	1½ inches in diameter
Energy usage	32 watts	40 watts
Light output	2,600 lumens	2,520 lumens
After 7,000 hours of use	10 percent of brightness lost	20 percent of brightness lost
Life span	Up to 50,000 hours	Up to 34,000 hours
Availability	Readily available	Being phased out in favor of more efficient T8 technology

## How much can your company save?

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## Custom Efficiency

for Complex Projects



### City of Nampa

411 3rd Street South  
Nampa, ID 83651  
208-468-4413

"It was great working with Idaho Power. They provided us with meaningful data that helped us look at and evaluate our energy usage before we did the project."

— Michael Fuss, City of Nampa  
Public Works Director

# Nampa Upgrades its Wastewater Treatment Facility and Discovers Improved Efficiency

## The Business

With a population of 81,000, Nampa is the second largest city in Idaho. Their recently upgraded wastewater treatment facility, which serves residents and industrial businesses within the area, is one of the most sophisticated plants of its kind.

## The Challenge

The existing jet-aeration system of Nampa's wastewater treatment facility was installed more than 20 years ago. It was considered a medium-efficiency oxygen-transfer system and included two treatment basins. Reliable operation procedures recommended that one treatment basin operate regularly, while the second basin would be used as backup. Due to

population growth, the jet-aeration system was providing insufficient oxygen for the process, creating the need for both basins to be operated, simultaneously, four to six months each year.

## The Solution

MWH, a Boise consulting company, worked with the City of Nampa for the new system design. Through this project, the jet-aeration system was replaced with a more efficient, fine-bubble aeration system. The new system includes additional treatment capacity aimed at allowing one basin to serve strictly as backup throughout the year. The fine-bubble aeration system does not have pumps in the treatment basins, like the jet-aeration process required, and the existing 350 horsepower (HP)

blowers were replaced with more efficient 500 HP blowers. The larger blowers were installed in anticipation of future loads.

## The Outcome

"Our new system improved the ammonia removal by approximately 50 percent. It also improved the reliability of services to all our customers in Nampa," said Michael Fuss, City of Nampa Public Works Director.

## The Savings

The final project energy savings was 2,279,891 kilowatt-hours (kWh) per year. The project's energy savings are the equivalent to the total average annual energy use of 172 typical Idaho homes.

## The Bottom Line

Idaho Power's Custom Efficiency program provided the City of Nampa with a \$228,000 incentive check for the energy efficiency upgrades. "We are evaluating conservation alternatives and how it fits into Idaho Power's program; the project was a tremendous success," Fuss said.

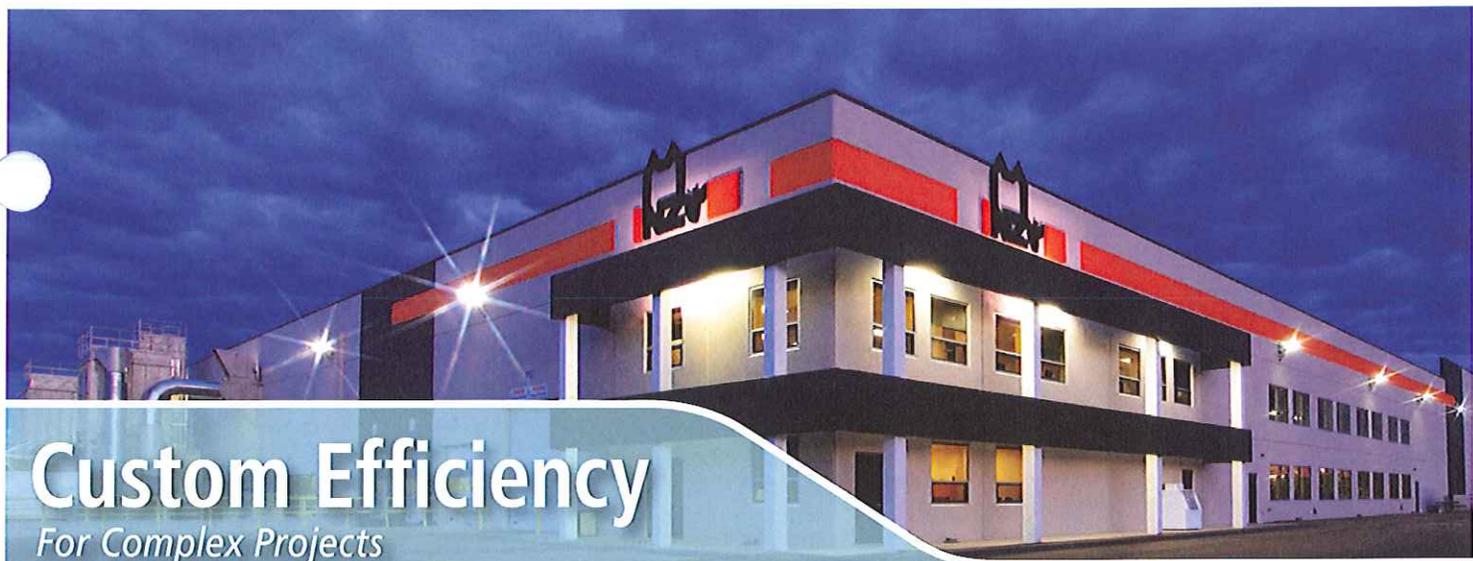
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This success story was produced in cooperation with, and approval from, Idaho Power Company customer, the City of Nampa.



# Custom Efficiency

For Complex Projects

## For Nunhems USA, doing it right the first time pays off big

Based in the Netherlands, Nunhems is one of the largest commercial vegetable-seed producers in the world. In October 2010, its chief executive officer (CEO) joined Idaho's governor and lieutenant governor to celebrate the completion of a \$30-million expansion at the company's headquarters in Parma, Idaho.

Idaho Power was there to recognize Nunhems for the ambitious energy efficiency improvements it incorporated into the centerpiece of its newest facility, a 100,000-square-foot seed-processing plant.

### Putting hot air to good use

Nunhems boasts an enviable history of energy conservation all over the world. The expansion in Parma continued that tradition by including a number of electricity-saving components. For example, Nunhems installed a compressed-air recovery system that captures heat produced by large air compressors that dry and clean the seeds. Normally expelled into the atmosphere, this hot air is then recirculated to heat the entire plant during the winter. As Nunhems' Facilities and Maintenance Manager Shane Roe points out, "It's basically free heat."

Nunhems also installed six 15-horsepower, high-efficiency ventilation fans equipped with variable frequency drives (VFDs). The fans are used for drying, curing, and storing the seeds. Adding the VFDs allows Nunhems to reduce the fan speed—which reduces the electricity each fan uses—to match the amount of seed in the facility while maintaining the correct air flow across the product.

"When you're building something from the ground up," Shane says, "sometimes it's not that much more expensive, and often less expensive when you factor in the payback, to go ahead and do things the smart way, rather than just the easy way. That's one of the things that Nunhems has always prided itself on. We try to do things right the first time."



### Saving the kilowatt

"Every kilowatt we save is one we don't have to produce," says Todd Schultz, Idaho Power's commercial energy-efficiency program leader.

Energy efficiency continues to be the least-costly power resource. When a residential customer turns off a light or a commercial customer takes part in one of Idaho Power's energy efficiency programs, it helps delay the need to build additional generating facilities; helps preserve natural resources; helps keep rates among the lowest in the nation; and allows Idaho Power to keep providing our customers with reliable, responsible, fairly priced energy.



**“... do things the smart way,  
rather than just the easy way.”**

*–Shane Roe, Facilities and Maintenance  
Manager, Nunhems USA*

## The savings

Together, the two projects in the new facility cost \$54,988, of which Nunhems earned an incentive of \$38,492 from Idaho Power as part of its Custom Efficiency program. This will reduce Nunhems electrical usage by almost 800,000 kilowatt-hours (kWh) per year, which will save the company about \$43,700 annually over using conventional technologies.\*

Project	Project Cost	Idaho Power Rebate	Customer's Out-Of-Pocket Cost	Dollar/Year Savings	Payback (in months)
Ventilation fans and VFDs	\$24,000	\$16,800	\$7,200	\$13,100	6.0
Heat recovery system	\$30,998	\$21,692	\$9,296	\$30,590	4.0
<b>Total</b>	<b>\$54,988</b>	<b>\$38,492</b>	<b>\$16,496</b>	<b>\$43,690</b>	<b>4.8</b>

\* Total annual energy savings of all projects associated with upgrading the company's lighting; heating, ventalating, and air conditioning (HVAC); and building-envelope systems at its USA headquarters is approximately 1.4 million kWhs, which saves approximately \$84,000 per year. That's enough electricity to serve 100 average-sized homes in Idaho Power's service area for one year.

## Uncommon savings are quite common

Saving energy has always been a smart business decision. Now, Idaho Power makes it attainable. Our complete suite of energy efficiency programs provides attractive incentives to commercial and industrial customers who want to reduce their utility costs.

- The **Custom Efficiency** program offers substantial rebates to large commercial and industrial customers who invest energy-saving improvements in their facilities.
- **Easy Upgrades** provides incentives of up to \$100,000 when companies retrofit their infrastructures with energy-saving upgrades.
- The **Building Efficiency** program pays up to \$100,000 *per project* to mitigate the additional capital costs when companies upgrade their lighting, cooling, controls, and building shells to more efficient components.
- **FlexPeak Management** offers commercial and industrial customers incentives in the form of recurring payments for reducing their power consumption during times of overall peak demand.

*The above success story was produced in cooperation with,  
and approval from, Nunhems USA.*

## Saving the kilowatt *(continued)*

In 2009, Idaho Power customers increased the number of kilowatts they saved by 23 percent over 2008. That's enough electricity to serve the city of Jerome, Idaho.

"We're grateful to all of our customers who find ways to save electricity," Todd notes. "And we're proud to support their efforts through our energy efficiency incentive programs."

## How much can your company save?

For more information about Idaho Power's energy efficiency incentive programs, go to [www.idahopower.com/business](http://www.idahopower.com/business) or call us at 208-388-5624. We'll show how you can join smart companies like Nunhems USA, saving energy and money.



## Custom Efficiency for Complex Projects



### Plexus Corp. Manufacturing Facility

16399 North Franklin Boulevard  
Nampa, ID 83687  
208-898-2600

"Plexus' manufacturing facility in Nampa has been proactive to identify and leverage cost-savings initiatives to reduce power consumption within the site correlating to lowering energy costs. In conjunction with the Idaho Power incentive program, we have been able to partner and become more energy efficient and realize sustainable cost savings for facility improvements."

– Bill Blackburn, Plexus Facilities Manager

## Plexus Corp. Partners with Idaho Power to Reduce Energy Consumption

### The Business

Plexus Corp., together with its subsidiaries, provides contract electronic manufacturing services to original equipment manufacturers and other technology companies. Its services include product realization, including development and design; materials sourcing, procurement, and management; prototyping and new product introduction; testing; manufacturing; product configuration; logistics; and test/repair. The company provides contract manufacturing services on a turn-key basis, as well as on a consignment basis. Plexus Corp. serves wireline/networking, wireless infrastructure, medical, industrial/commercial, and defense/security/aerospace market sectors. It has operations in the United States, Asia,

Mexico, and Europe. The company was founded in 1979 and is headquartered in Neenah, Wisconsin.

### The Challenge

The Plexus facility in Nampa had several air handlers that were very inefficient due to mechanically controlled variable-inlet vanes that open or close to adjust airflow. Fan motors within the air handler were configured to run at full load, regardless of airflow requirements of the system or inlet vane position. Power factors were in the mid 80s, providing a significant opportunity for improvement.

### The Solution

The Plexus facility consulted with Siemens Building Technologies to provide an enhanced-system design that

would allow the system to remain within harmonics compliance associated with the Institute of Electrical and Electrical Engineers (IEEE) 519 standard. The scope of this project was to install 22 new, 75-horsepower (hp), variable-frequency drives (VFDs) on the existing heating, ventilating, and air conditioning (HVAC) supply and return fans. The new VFDs allow the fans to reduce system airflow more efficiently by slowing the fans down when full airflow is not needed, thereby drawing less power.

### The Outcome

Twenty-two VFDs were installed at a cost of \$159,637. "We are very happy with the results, and, without the Idaho Power incentive program, the return on investment (ROI) would have been more difficult. We are pleased to

be able to partner with Idaho Power on this program.” said Bill Blackburn, Plexus facilities manager.

## The Savings

The project is estimated to save 1,988,316 kilowatt-hours (kWh) per year. The energy savings is equivalent to the total average annual energy use of 150 typical Idaho homes. According to Blackburn, the project will save Plexus approximately \$90,000 annually on their power bill.

## The Bottom Line

Idaho Power’s Custom Efficiency program provided Plexus with an \$111,746 incentive for the energy efficiency upgrades, which was 70 percent of the project cost—the maximum available through the Custom Efficiency program. The net

project cost to Plexus was \$47,891. “It is an excellent incentive program, and we are now looking at a lighting project for additional energy savings,” said Blackburn.

If you are looking for similar energy-saving success for your business, Idaho Power can help. Idaho Power offers a complete suite of energy efficiency programs for commercial and industrial businesses. The **Custom Efficiency** program assists large commercial and industrial customers in identifying and paying for energy efficiency improvements. **Easy Upgrades** offers incentives of up to \$100,000 for energy-saving retrofits within existing commercial and industrial buildings. The **Building Efficiency** program offers incentives of up to \$100,000 per project to offset part of additional capital expenses for more efficient lighting

designs, cooling systems, controls, and building shells in new commercial and industrial construction projects. **FlexPeak Management**, a demand response program, offers commercial and industrial customers recurring payments for reducing a set amount of electricity consumption in response to Idaho Power’s peak demand and other system needs.

Go to [www.idahopower.com/business](http://www.idahopower.com/business) or call 208-388-5624 for more information on how Idaho Power can help you save energy and money.

This success story was produced in cooperation with, and approval from, Idaho Power Company customer Plexus Corp.

## Custom Efficiency

for Complex Projects



### RC Bigelow

Tea Packing Plant

315 North Benjamin Lane  
Boise, ID 83704  
208-322-1977

"The Idaho Power incentive program had hidden benefits. Not only did the energy project make the company more effective, it also had the end benefits of making our equipment last longer by using lower plant air pressure."

— Steve Holloway, RC Bigelow Boise Maintenance Manager

# RC Bigelow Upholds Core Value of Energy Efficiency through Idaho Power's Custom Efficiency Program

## The Business

RC Bigelow is a tea packing plant located in Boise, Idaho. Tea is sent in bulk from the Bigelow plant in Fairfield, Connecticut and then packed into tea bags at the Boise facility. RC Bigelow is a family-owned company and is the number one specialty tea company in the United States. As a whole, the company produces 1.3 billion tea bags per year. One of RC Bigelow's core values is to be environmentally friendly.

## The Challenge

Yearly company goals include environmental responsibility. In order to help RC Bigelow meet this goal, Cascade Energy Engineering was brought in under Idaho Power's

Scoping Audit program; they provided an energy analysis report on RC Bigelow's compressed air system that showed the company could save money with efficiency upgrades.

## The Solution

RC Bigelow planned to split the implementation of Cascade Engineering's audit findings into two fiscal years. In the first year, the company replaced a heatless desiccant dryer with an oversized refrigerated dryer and installed 500 gallons of receiver capacity. In the second year, RC Bigelow replaced an older compressor with new, variable-speed compressor and added 1,250 more gallons of receiver capacity. The variable-speed compressor adjusts to plant load demands and maintains a consistent line pressure.

## The Outcome

The compressed air system was upgraded at a cost of \$17,026. "We saved money and energy at the same time following our core value to continually be energy efficient and be a good steward to the environment," said Steve Holloway, RC Bigelow Boise Maintenance Manager.

## The Savings

The project is estimated to save 92,609 kilowatt-hours (kWh) per year. The energy savings are equivalent to the total average annual energy use of seven typical Idaho homes. The plant is currently seeing a reduction of 25 to 30 percent on their monthly electrical usage.

## The Bottom Line

The first year, Idaho Power's Custom Efficiency program provided RC Bigelow with an \$11,113 incentive for the energy efficiency upgrades—65 percent of the project cost. The net project cost to RC Bigelow was \$5,913. In the second year, Idaho Power's Custom Efficiency program provided RC Bigelow with a \$9,303 incentive for the energy efficiency upgrades—38 percent of the project cost. The net project cost to RC Bigelow was \$15,176. "The incentive provides an excellent return on investment. It made my job easy to cost-justify this project," Holloway said.

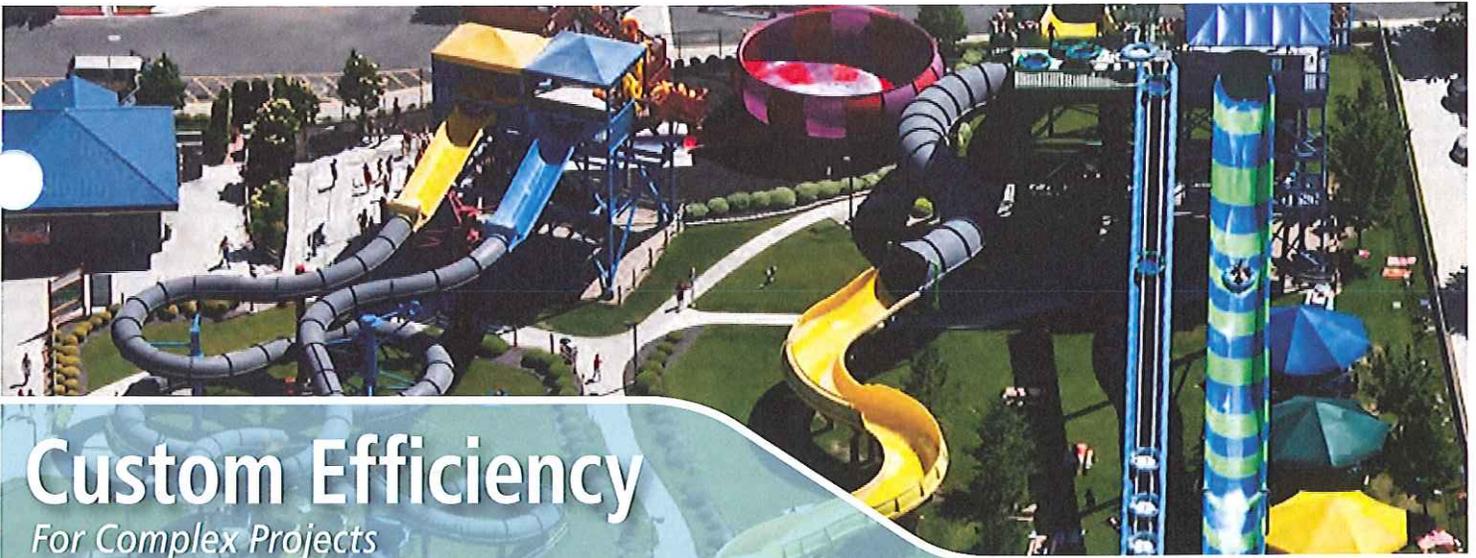
If you are looking for similar energy-saving success for your business, Idaho Power can help. Idaho Power

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Go to [www.idahopower.com/business](http://www.idahopower.com/business) or call 208-388-5624 for more information on how Idaho Power can help you save energy and money.

This success story was produced in cooperation with, and approval from, Idaho Power Company customer RC Bigelow Company.



## Custom Efficiency

For Complex Projects

### Roaring Springs cools off their electric bill

Roaring Springs in Meridian, Idaho, is the largest water park in the Northwest. Every hour, it pumps a half million gallons of water through 20 slides and pools, giving the park's 250,000 annual visitors the ride of their lives. In summer 2009, it took all of the park's 25 pumps to circulate water. One year later, with the help of Idaho Power's Custom Efficiency program, the park was able to turn off 7 pumps, reducing electricity use by 30 percent.

Pat Morandi, Roaring Springs' managing partner, was impressed with the effort Idaho Power put into the project. "They spent days out here," he marveled, "hooking up the flow meters and checking out the pumps on each individual ride."

#### Dialing back the pumps

Idaho Power found that each ride had two or three pumps that operated at only one speed: full throttle. However, these pumps also had flow valves, to regulate the water delivered to the rides, that kept the flow from reaching its maximum. In Idaho Power's view, this was not the most efficient use of electricity.

"Think of it this way," explained Chris Pollow, an Idaho Power project engineer in the Custom Efficiency program. "If a pump is running at 100 percent, but its flow valve only allows 50 percent of its maximum flow, that means 50 percent of the pump's capacity is wasted."

Idaho Power recommended opening the flow valves 100 percent, then using variable frequency drives (VFD), coupled with harmonic filters, to reduce electricity the pump receives. This slows the pumps, allows them to last longer, reduces the water flow, and saves energy in another way: "Installing the VFDs," said Morandi, "allowed us to shut some pumps down altogether and still get the required flows on the rides themselves."



#### Energy-efficient operation was only the beginning

The scope of the Roaring Springs Custom Efficiency project went beyond finding ways to save energy. "We also wanted to reduce their demand charge," noted Chris Pollow.

A demand charge requires commercial and industrial customers to pay for a maximum amount of power capacity, based on their highest use (peak demand), every month of the year. This ensures they have the power they need when they need it. However, Roaring Springs only operates during the warmest three or four months of the year. *Continued on back.*

**"The return on investment on this project is amazing."**

– Pat Morandi  
Managing Partner  
Roaring Springs Water Park

## The Savings

"I think we're saving about 40 percent more than Idaho Power estimated when they first looked at the project," Morandi said. The savings are actually 45 percent more.

Idaho Power initially projected a savings of 565,749 kilowatt-hours (kWh). Roaring Springs' actual savings during the first year totaled 822,825 kWh. "That saves us about \$65,000 on our annual power bill," Morandi pointed out. "That means we have more capital available to invest in improvements and new attractions. It's a big win for us and for our customers." From Idaho Power's standpoint, the energy saved at Roaring Springs can serve 63 average homes for a year.

The project cost \$108,093 to complete, of which Idaho Power rebated Roaring Springs \$75,665, or 70 percent. "When you consider what we're saving every year, the return on investment (ROI) on this project is amazing," Morandi said.

Roaring Springs was so impressed with their VFD project that they shared it in a presentation to 400 water park operators during the World Waterpark Association's annual conference in San Antonio, Texas.

## Uncommon savings are quite common

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*The above success story was produced in cooperation with, and approval from, Roaring Springs Water Park.*



## Energy-efficient operation was only the beginning (continued)

By reducing Roaring Springs' peak demand enough, it would drop them into a lower rate class and protect them from being charged for energy they do not use during the other eight or nine months of the year.

Idaho Power's recommended efficiencies allowed Roaring Springs to do exactly that. "I can't thank these guys at Idaho Power enough," Pat Morandi says. "They really went above and beyond."

## How much can your company save?

For more information about Idaho Power's energy efficiency incentive programs, go to [www.idahopower.com/business](http://www.idahopower.com/business) or call us at 208-388-5624. We'll show how you can join smart companies like Roaring Springs, saving energy and money.



## Custom Efficiency

for Complex Projects



### Swire Coca-Cola, USA, Twin Falls Sales Center

398 Victory Ave.  
Twin Falls, ID 83301  
208-733-3833

"I am very pleased with this project. Everything went according to schedule and everything Idaho Power said would happen, did happen."

— Brian Hagler, Swire Coca-Cola, USA  
Twin Falls Sales Center Manager

## Swire Coca-Cola, Twin Falls: Lighting Upgrade Project Illuminates Savings

Swire Coca-Cola, USA, is a franchised Coca-Cola bottler with operations in ten Western states. Swire purchased the Twin Falls franchise in 1988. There are currently 43 employees in the Twin Falls facility.

### The Challenge

Swire has completed numerous energy-saving and environmental initiatives in all of its facilities over the past five years, and was interested in improving the lighting quality in the Twin Falls building. More specifically, Swire wanted to upgrade the lighting fixtures to more energy-efficient models that consume less energy. The upgraded lighting would not only save energy, but would also reduce lighting maintenance costs

and improve the working conditions of the Twin Falls facility.

### The Solution

A total of 122 light fixtures of different types were upgraded. Lighting throughout the warehouse facility was upgraded from 400-watt (W) metal halide fixtures to T8 fluorescent technology. In addition, 100-W compact fluorescent lights (CFLs) replaced 400-W high pressure sodium (HPS) fixtures on exterior lighting and 150-W induction fixtures replaced existing 1,000-W HPS parking-lot lighting.

### The Outcome

Labor and materials for the project totaled \$35,464. "We now have better

lighting at night, light bulbs last longer, and we have reduced lighting inventory. I was surprised at the amount of savings from a small project," said Brian Hagler, Swire Coca-Cola Twin Falls facility manager.

### The Savings

The project's energy savings are equivalent to the reduction of tail-pipe emissions from 31 cars. The estimated total savings of the project was 261,597 kilowatt-hours (kWh) per year. This does not include additional savings for the heating, ventilation, and air-conditioning systems as a result of the heat load of the replaced fixtures.

## The Bottom Line

Idaho Power's Custom Efficiency program provided Swire Coca-Cola with a \$24,825 incentive for the energy efficiency upgrades, which covered 70 percent of the project costs—the maximum incentive available through the Custom Efficiency program. The net project cost was \$10,639. "Within the first month the new lights were installed, we saw a 50 percent savings on our electric bill," Hagler said.

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efficiency programs for commercial and industrial businesses. The **Custom Efficiency** program assists large commercial and industrial customers in identifying and paying for energy efficiency improvements. **Easy Upgrades** offers incentives of up to \$100,000 for energy-saving retrofits within existing commercial and industrial buildings. The **Building Efficiency** program offers incentives of up to \$100,000 per project to offset part of additional capital expenses for more efficient lighting designs, cooling systems, controls, and building shells in new commercial and industrial construction projects. **FlexPeak Management**, a demand response program, offers commercial

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Go to [www.idahopower.com/business](http://www.idahopower.com/business) or call 208-388-5624 for more information on how Idaho Power can help you save energy and money.

This success story was produced in cooperation with, and approval from, Idaho Power customer Swire Coca-Cola.

## **WEATHERIZATION ASSISTANCE FOR QUALIFIED CUSTOMERS 2009 ANNUAL REPORT**

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## *Weatherization Assistance for Qualified Customers*



**2009 Annual Report**  
**April 1, 2010**

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## DESCRIPTION

The Weatherization Assistance for Qualified Customers (WAQC) program provides financial assistance to regional Community Action Partnership (CAP) agencies in the Idaho Power service area. This assistance helps cover weatherization costs of electrically heated homes belonging to qualified customers with limited income. The WAQC program also provides a limited pool of funds for weatherization of buildings occupied by non-profit organizations serving primarily special-needs populations, regardless of heating source, with priority given to buildings with electric heat. Weatherization improvements enable residents to maintain a more comfortable, safe, and energy-efficient home while reducing their monthly electricity consumption. Improvements are available at no cost to qualifying applicants who own or rent their homes. These customers also receive educational materials and efficiency ideas for further reducing energy use in their homes. Local CAP agencies determine program eligibility according to federal and state guidelines.

## BACKGROUND

In 1989, Idaho Power began offering weatherization assistance in conjunction with the State of Idaho Weatherization Assistance Program. Oregon's weatherization program was expanded in 2005. Through the WAQC program, Idaho Power provides supplementary funding to state-designated CAP agencies for the weatherization of electrically heated homes occupied by qualified customers and buildings occupied by non-profit organizations that serve special-needs populations. Idaho Power enters into an agreement with each CAP agency that specifies the funding allotment, billing requirements, and program guidelines. Currently, Idaho Power administers the program in Idaho through five regional CAP agencies, including

Canyon County Organization on Aging, Weatherization, and Human Services (CCOA); Eastern Idaho Community Action Partnership (EICAP); El-Ada Community Action Partnership (El-Ada); South Central Community Action Partnership (SCCAP); and Southeastern Idaho Community Action Agency (SEICAA). In Baker County, Oregon, Community Connection of Northeast Oregon, Inc. (CCNO) serves Idaho Power customers. Harney County Senior and Community Services Center (HCSCSC) provided weatherization services for qualified customers in Malheur and Harney Counties.

*The Weatherization Assistance for Qualified Customers 2009 Annual Report* satisfies the reporting requirements set out in the Idaho Public Utilities Commission's (IPUC) Order No. 29505 with the inclusion of the following topics:

- Review of Weatherized Homes and Non-Profit Buildings by County
- Review of Measures Installed
- Overall Cost-Effectiveness
- Customer Education, Advocacy, and Satisfaction
- Plans for 2010

## **REVIEW OF WEATHERIZED HOMES AND NON-PROFIT BUILDINGS BY COUNTY**

In 2009, Idaho Power provided a total of \$1,214,511 to Idaho CAP agencies with \$1,057,156 directly funding audits, energy-efficient measures, and health and safety measures for qualified customers' homes (production costs), \$46,944 directly funding energy efficient measures and health and safety measures for non-profit buildings, and \$110,410 funding the administration

costs incurred by the Idaho CAP agencies. The total number of Idaho homes weatherized during the year was 423. Four non-profit buildings were also weatherized during 2009 in Idaho.

In Oregon, Idaho Power provided a total of \$31,497 to CAP agencies including \$28,634 in production costs of 10 homes and \$2,863 funding administrative costs. Table 1 reviews the number of homes and non-profit buildings weatherized, production costs, average cost-per-home or non-profit building served, administration payments, and total payments per county made by Idaho Power.

**Table 1**  
2009 WAQC Weatherization Activities and Idaho Power Expenditures by County

Agency	County	Number of Jobs	Production Costs	Average Cost	Administration Payment to Agency	Total Payment <sup>1</sup>
<b>Idaho</b>						
<b>CCOA</b>						
	Adams	5	\$11,435	\$2,287	\$1,144	\$12,579
	Boise	5	\$9,420	\$1,884	\$942	\$10,362
	Canyon	105	\$211,448	\$2,014	\$21,145	\$232,593
	Gem	10	\$17,344	\$1,734	\$1,734	\$19,078
	Payette	8	\$15,591	\$1,949	\$1,559	\$17,150
	Valley	2	\$4,864	\$2,432	\$486	\$5,350
	Washington	3	\$4,986	\$1,662	\$499	\$5,485
<b>EICAP</b>						
	Lemhi	5	\$11,625	\$2,325	\$1,163	\$12,788
<b>EI-Ada</b>						
	Ada	166	\$505,173	\$3,043	\$50,517	\$555,690
	Elmore	2	\$4,681	\$2,340	\$468	\$5,149
	Owyhee	2	\$6,945	\$3,472	\$694	\$7,639
<b>SCCAP</b>						
	Blaine	6	\$15,407	\$2,568	\$1,541	\$16,948
	Camas	1	\$3,046	\$3,046	\$305	\$3,351
	Cassia	1	\$771	\$771	\$77	\$848
	Gooding	7	\$16,006	\$2,287	\$1,601	\$17,607
	Jerome	16	\$25,363	\$1,585	\$2,536	\$27,899
	Lincoln	7	\$21,488	\$3,070	\$2,149	\$23,637
	Minidoka	2	\$5,766	\$2,883	\$577	\$6,343
	Twin Falls	23	\$64,340	\$2,797	\$6,434	\$70,774

<sup>1</sup> Rows may not sum exactly due to rounding.

**Table 1 (Continued)**  
2009 Weatherization Activities and Idaho Power Expenditures by County

Agency	County	Number of Jobs	Production Costs	Average Cost	Administration Payment to Agency	Total Payment <sup>1</sup>
<b>Idaho</b>						
<b>SEICCA</b>						
	Bannock	23	\$57,107	\$2,483	\$5,711	\$62,818
	Bingham	21	\$39,339	\$1,873	\$3,934	\$43,273
	Power	3	\$5,012	\$1,671	\$501	\$5,513
<b>Non-Profit Buildings</b>						
	Boise	1	\$14,566	\$14,566	\$1,457	\$16,023
	Twin Falls	2	\$25,681	\$12,841	\$2,568	\$28,249
	Washington	1	\$6,697	\$6,697	\$670	\$7,367
<b>Oregon</b>						
<b>CCNO</b>	Baker	2	\$5,613	\$2,806	\$561	\$6,174
<b>HCSCSC</b>	Harney	8	\$23,021	\$2,878	\$2,302	\$25,323

<sup>1</sup> Rows may not sum exactly due to rounding.

In an effort to help CAP agencies maximize the number of customers served under WAQC, Idaho Power's agreements with agencies includes a provision allowing a maximum annual average cost-per-home to an amount specified in the agreement. The average cost-per-home served is calculated by dividing the total annual Idaho Power production cost of homes weatherized per agency by the total number of homes weatherized that the CAP agency billed to Idaho Power during the year. The maximum annual average cost-per-home by CAP agency allowed under the 2009 agreement was \$3,055. Overall, in 2009, Idaho CAP agencies had a combined average cost-per-home served of \$2,499. Oregon CAP agencies averaged \$2,863. There is no average cost limit for weatherization of non-profit buildings.

During 2009, Idaho Power provided administrative payments totaling \$110,410 to Idaho CAP agencies and \$2,863 to Oregon CAP agencies to cover their program administration costs.

Administration fees are based on 10 percent of the Idaho Power production costs. The average administration cost-per-Idaho-home weatherized in 2009 was \$250, and the average

administration cost-per-Oregon-home weatherized during the same time period was \$286.

Administration costs for Idaho non-profit buildings weatherized averaged \$1,174. Additionally, Idaho Power staff labor, marketing, and support costs for the WAQC program totaled \$48,292 for the year. These expenses were paid in addition to the funding requirements of \$1,212,534 contained in IPUC Order No. 29505.

In compliance with the Idaho and Oregon commissions, weatherization assistance funds are tracked, and unspent funds are carried over and made available to CAP agencies in the following year. In 2009, a total of \$1,977 was carried forward from 2008 in Idaho. In Oregon, \$66,863 was carried forward from 2008 to 2009, due to a portion of Idaho Power's service area not having an operating state CAP agency weatherization department for a portion of the year. Table 2 details the funding base amount, any carryover funding, and the total amount of annual funding.

**Table 2**  
2009 WAQC Base and Carryover Funding

	Base	Carryover From 2008	Total 2009 Allotment	2009 Spending
<b>Idaho Agency</b>				
CCOA .....	\$302,259.00	\$337.77	\$302,596.77	\$302,596.77
EICAP .....	\$12,788.00	\$0.00	\$12,788.00	\$12,788.00
El-Ada .....	\$568,479.00	\$0.00	\$568,479.00	\$568,479.00
SCCAP .....	\$167,405.00	\$0.00	\$167,405.00	\$167,405.00
SEICAA.....	\$111,603.00	\$0.00	\$111,603.00	\$111,603.00
Non-Profit Buildings.....	\$50,000.00	\$1,639.04	\$51,639.04	\$51,638.93
<b>Idaho Total .....</b>	<b>\$1,212,534.00</b>	<b>\$1,976.81</b>	<b>\$1,214,510.81</b>	<b>\$1,214,510.70</b>
<b>Oregon Agency</b>				
CCNO .....	\$6,450.00	\$6,253.95	\$12,703.95	\$6,173.75
HCSCSC.....	\$36,550.00	\$54,608.77	\$91,158.77	\$25,323.36
Non-Profit Buildings.....	\$2,000.00	\$6,000.00	\$8,000.00	\$0.00
<b>Oregon Total .....</b>	<b>\$45,000.00</b>	<b>\$66,862.72</b>	<b>\$111,862.72</b>	<b>\$31,497.11</b>

## REVIEW OF MEASURES INSTALLED

Table 3 details home counts where Idaho Power paid a portion of measure costs, Idaho Power's portion of the production costs of those measures, and the Idaho Power portion of kilowatt-hour (kWh) savings by individual measure during 2009. The table also shows the life of each measure as defined in the EA4 energy audit, the software program approved for use by the State of Idaho Weatherization Assistance Program. The home counts column represents the number of times any percentage of that measure was billed to Idaho Power during the year. In reality, measure counts are higher when considering each home. In some homes, the measure was actually installed and billed at 100 percent to the state weatherization program and not to Idaho Power. In this case, Idaho Power would claim no savings for that measure. Consistent with the State of Idaho Weatherization Assistance Program, Idaho Power offers several measures that have costs, but do not save energy or savings cannot be measured. Included in this category are elements, such as health and safety, vents, furnace repair, and home energy audits. Health and safety measures are necessary to ensure weatherization activities do not cause unsafe situations in a client's home or compromise a household's existing indoor air quality. Other non-energy savings measures are allowed under this program because of the interaction between the non-energy saving measures and the energy saving measures.

**Table 3**  
2009 WAQC Review of Measures Installed

	Idaho Power Portion			Measure Life: Years	Levelized Costs <sup>1</sup> (\$/kWh)
	Home Counts	Production Costs	Annual kWh Savings:		
<b>Idaho Home Measures</b>					
Windows.....	316	\$450,173	2,520,795	15	\$0.018
Doors .....	204	\$120,899	585,913	15	\$0.020
Wall insulation.....	13	\$5,271	17,425	20	\$0.026
Ceiling insulation.....	136	\$68,919	171,433	20	\$0.034
Vents.....	15	\$1,578	0	n/a	n/a
Floor insulation .....	120	\$91,366	192,375	20	\$0.040
Infiltration.....	234	\$61,262	294,254	15	\$0.021
Ducts.....	47	\$9,772	41,081	20	\$0.020
Health & Safety.....	0	\$0	0	n/a	n/a
Water heater.....	27	\$1,343	9,702	10	\$0.018
Pipes.....	35	\$1,945	1,726	15	\$0.111
Furnace modify.....	2	\$2,737	6,303	3	\$0.149
Furnace repair .....	17	\$4,839	0	15	n/a
Furnace replace.....	101	\$212,055	542,826	20	\$0.033
Compact Florescent Light (CFL) bulbs.....	1	\$236	3,631	3	\$0.022
Audit investment .....	318	\$5,607	43,491	7	\$0.022
<b>Idaho Non-Profit Building Measures</b>					
Windows.....	3	\$4,612	42,322	15	\$0.011
Doors .....	2	\$4,918	19,814	15	\$0.025
Wall insulation.....	1	\$135	873	20	\$0.013
Ceiling insulation.....	4	\$17,761	39,978	20	\$0.038
Vents.....	1	\$334	0	n/a	n/a
Floor insulation .....	1	\$7,588	13,098	20	\$0.049
Infiltration.....	3	\$6,761	8,688	15	\$0.077
Ducts.....	1	\$2,639	3,821	20	\$0.059
Health & Safety.....	1	\$82	0	n/a	n/a
Water heater.....	2	\$48	3,207	10	\$0.002
Pipes.....	1	\$724	761	15	\$0.094
Furnace modify.....	0	\$0	0	3	n/a

<sup>1</sup> Levelized Costs are calculated using the 2009 IRP after-tax weighted average cost-of-capital discount factor of 6.98% and include line loss adjusted energy savings.

**Table 3 (Continued)**  
2009 WAQC Review of Measures Installed

	Idaho Power Portion			Measure Life: Years	Levelized Costs <sup>1</sup> (\$/kWh)
	Home Counts	Production Costs	Annual KWh Savings:		
<b>Idaho Non-Profit Building Measures</b>					
Furnace repair .....	1	\$493	0	15	n/a
Furnace replace .....	0	\$0	0	20	n/a
Furnace tune .....	0	\$0	0	3	n/a
CFL bulbs .....	1	\$88	316	7	\$0.047
Audit investment .....	4	\$762	0	n/a	n/a
<b>Oregon Home Measures</b>					
Windows .....	7	\$13,192	24,521	15	\$0.053
Doors .....	2	\$660	456	15	\$0.143
Wall insulation .....	0	\$0	0	20	n/a
Ceiling insulation .....	9	\$9,996	75,917	20	\$0.011
Vents .....	0	\$0	0	n/a	n/a
Floor insulation .....	2	\$2,360	4,647	20	\$0.043
Infiltration .....	4	\$1,190	7,384	15	\$0.016
Ducts .....	2	\$1,235	2,057	20	\$0.051

<sup>1</sup> Levelized Costs are calculated using the 2009 IRP after-tax weighted average cost-of-capital discount factor of 6.98% and include line loss adjusted energy savings.

The WAQC program realized savings from weatherizing homes and non-profit buildings in Idaho and Oregon. The overall savings from the program in 2009 was 4,678,814 kWh. Savings from weatherized homes yielded 4,545,936 kWh in Idaho and Oregon. Weatherization on non-profit buildings that housed non-profit agencies in Idaho saved 132,878 kWh. There were no buildings housing non-profit agencies weatherized in Oregon during 2009.

## OVERALL COST-EFFECTIVENESS

Idaho Power monitors overall cost-effectiveness by requiring each CAP agency to ensure that each project has a savings-to-investment ratio (SIR) equal to or greater than 1.0. The total project's SIR reflects all the measure costs associated with the project, including measure costs

that have no kWh savings, and compares that total cost to the benefit of the total kWh savings of the project. There are many factors incorporated into the SIR cost-effectiveness calculation in the EA4 program. Heating degree days, audit and labor hours, material costs, support hours, and energy costs are built into the formula. Square footage, housing age and type, and exposure factors are all considered in the program as well. Under this standard, projects with an SIR greater than 1.0 are considered to be cost-effective by the energy audit program.

**Figure 1**  
SIR Frequency Distribution

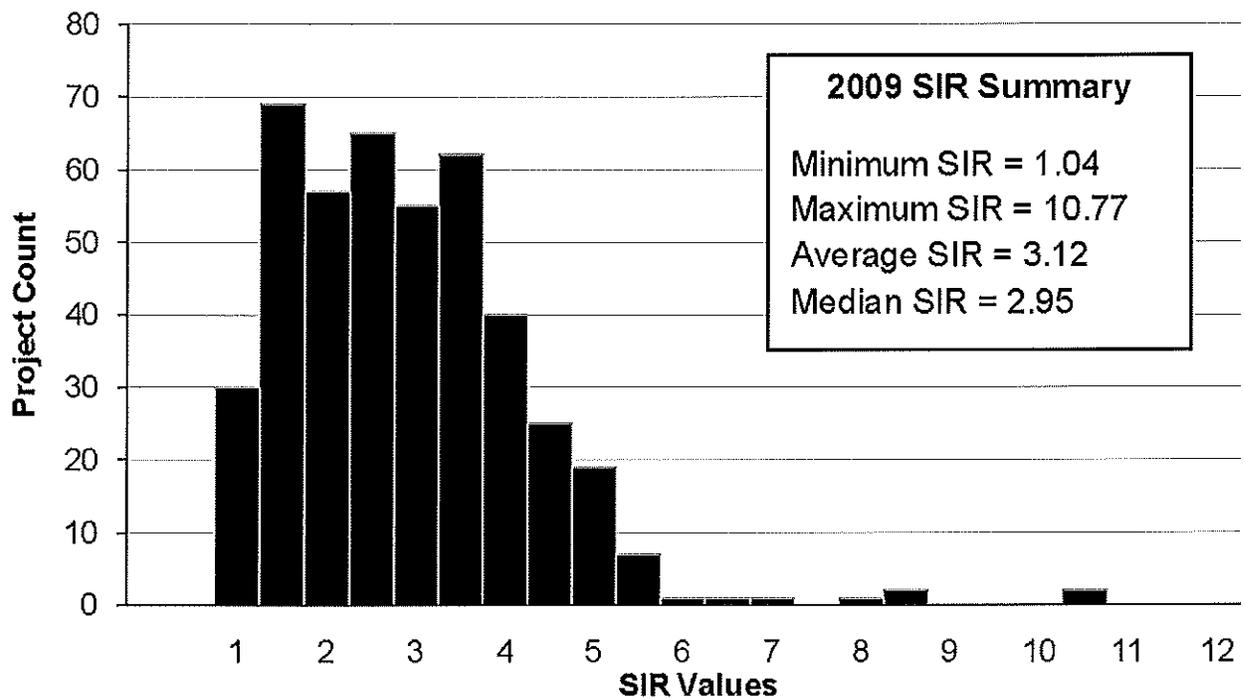


Figure 1 shows the SIR frequency distribution of the 2009 projects funded through WAQC. During 2009, SIR values ranged between 1.04 and a high project value of 10.77, with a mean SIR of 3.12. The levelized cost of saved energy in 2009 for the WAQC program is \$0.021/kWh from a utility cost perspective and \$0.035/kWh from a total resource cost perspective.

## CUSTOMER EDUCATION, ADVOCACY, AND SATISFACTION

Idaho Power provides materials to each CAP agency to help educate special needs customers who receive weatherization assistance. Included are the Idaho Power brochures *Practical Ways to Manage Your Electricity Bill* and *Energy Saving Tips* that describe energy conservation tips appropriate for both the heating and cooling seasons, and a two-sided card that describes the energy-saving benefits of using CFL bulbs and helpful hints about using the bulbs. In 2009, the book *30 Simple Things You Can Do To Save Energy* was included. In addition to the materials provided to CAP agency weatherization offices and energy assistance offices, each autumn Idaho Power distributes the *Energy Assistance* brochure to all residential customers. The brochure describes eligibility guidelines and application locations. Idaho Power also actively informs customers about the program through energy, resource, and senior fairs.

In order to stay current with new programs and services, the Idaho Power program specialist overseeing WAQC attends state and federal energy assistance/weatherization meetings and other weatherization-specific conferences, such as the National Energy and Utility Affordability Conference. Idaho Power is also active in the Policy Advisory Council, helping advise and direct Idaho's state weatherization application to the United States Department of Energy (DOE).

## PLANS FOR 2010

Idaho Power will continue working in partnership with the Idaho Department of Health and Welfare (IDHW), Oregon Housing and Community Services (OHCS), Community Action Partnership Association of Idaho (CAPAI), and individual CAP agency personnel to maintain the targets, guidelines, and cost-effectiveness of the WAQC program. In so doing, Idaho Power will provide a valuable service to its special-needs population throughout the company's service area.

Idaho Power estimates 258 homes and five non-profit buildings will be weatherized in Idaho in 2010, with an annual average cost of \$4,050 per home and \$9,000 per non-profit building. In Oregon, where agencies carried over a larger dollar amount from 2009, an estimate of 26 homes and one non-profit building will be weatherized. In 2010, Idaho Power expects to fund \$1,212,534 in weatherization measures and agency administration fees in Idaho, of which \$50,000 will be used to weatherize buildings housing non-profit agencies who serve primarily special needs customers. Through the WAQC program, Oregon CAP agencies have an allotment of \$125,366 to manage weatherization services for Idaho Power customers. In 2010, Community in Action (CIA) will replace HCSCSC in providing weatherization services for qualified customers in Malheur and Harney Counties. Idaho Power plans to evaluate the need for additional program changes continually. As in prior years, a minimum of 5 percent of all weatherized homes submitted for reimbursement will be audited for quality assurance.

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