IDAHO POWER
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Idaho Power Company's SO_2 Emissions Allowance Energy Education Program

Developed and Administered by
Idaho Power Customer Relations &
Energy Efficiency

An Energy Efficiency Education Program
Targeting Elementary and Secondary Students

August 2011

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EXECUTIVE SUMMARY

Idaho Power Company (IPC) has a long history of educating elementary, junior high and senior high students in the topics of energy and energy efficiency. As a neighbor and community partner, and in response to a directive from the Idaho Public Utilities Commission, IPC developed an elementary and secondary program to educate and promote energy efficiency for Idaho students in the IPC service area. The program allows the students to use their skills in science and math to evaluate where energy consumption improvements can and should be made. The program, consisting of an elementary component and high school component, was developed and implemented for two consecutive academic school years.

Energy Wise Program—Elementary Students

The program targeting elementary school students is a fully implemented, multi-resource efficiency/education program designed to facilitate installation of efficiency measures in homes and build knowledge of energy issues. The pre-packaged program, known as "Energy Wise," yields a variety of measurable energy savings results using the best messengers—students. The program delivered a proven blend of teacher-designed classroom activities with hands-on home projects to install energy efficiency devices and introduce resource-conscious behavior to students and their families.

Students for Energy Efficiency Program—Junior and Senior High Students

This secondary program targeting junior and senior high students is a hands-on learning lab that provides the following opportunities for secondary-school students:

- Awareness of energy flow/use in a building
- Competency in the use of specific energy efficiency equipment
- Processes to collect data and assess energy usage in a building
- Individual report gathering and team collaboration on findings and recommendations
- Preparation of a written report detailing the assessment findings and recommendations
- Presentation of the report to school boards, principals, administrators, faculty, staff, business owners, and other interested groups

SUMMARY

Energy Wise Program

	Total	2009–2010	2010–2011
Students	7,192	1,008	6,184
Teachers	247	37	210
Schools	99	32	67

Projected Annual Savings (Combined for Both Years)

Electricity Savings 1,749,884 kilowatt-hours (kWh)

Natural Gas Savings 39,124 therms

Projected Average Annual Savings per Home (Combined for Both Years)

Electricity Savings 475 kWh

Natural Gas Savings 9 therms

Students for Energy Efficiency Program

	Total	2009–2010	2010–2011
Students	423	155	268
Teachers	33	17	16
Schools	30	16	14

Potential Electricity Savings (Combined for Both Years)

Electricity Savings 2,200,137 kWh

*Potential Savings differs from Projected Savings as follows: Potential Savings are savings identified and recommended by students but not yet implemented; Projected Savings is based upon actual replacement of incandescent bulbs, use of LED night lights, etc.

HISTORY

On November 9, 2007, IPC filed a report disclosing that it sold 35,000 sulfur dioxide (SO_2) emission allowances in 2007. The after-tax proceeds approximated $10 million.

The Idaho Public Utilities Commission (IPUC) issued Order 30478 convening a public workshop to decide proper disposition of the funds. An initial public workshop was held in January 2008; because workshop participants were unable to reach a consensus, public comment was sought. Several participants and groups proposed suggested uses of the funds, including development of an energy education program submitted by the Idaho Energy Education Project. On March 27, 2009, the IPUC ordered $500,000 in SO_2 proceeds, plus accrued interest, be used to develop and implement an energy education project proposed by IPC (IPC-E-08-11 Order 30760).

IPC's Energy Education Program

In 2009, David Thornton of IPC began development of IPC's Energy Education Program with assistance from Bill Chisholm of the Idaho Energy Education Project (Buhl, Idaho) and Dave Beck from Sawtooth Technical Services (Meridian, Idaho).

It was decided to offer two, grade-specific programs:

1. Energy Wise program
   Providing at-home energy conservation activities targeting students in elementary grades

2. Students for Energy Efficiency (SEE) program
   Promoting the use of specialized equipment to gather energy usage data and education on energy reduction strategies targeting secondary school students

Students for Energy Efficiency Community Advisory Group

As directed by the IPUC, Idaho Power established the Students for Energy Efficiency Community Advisory Group (SEECAG) to facilitate the disbursement of funds for the development and implementation of an energy education project. SEECAG members were invited to participate by IPC, with input from the IPUC, Office of Energy Resources (OER), and the Idaho Department of Education.

Member	Affiliation	City
Tracy Blenker	Horizon Elementary	Boise
Bill Block	JUB Engineering	Twin Falls
Bill Chisholm	ID Energy Education Project	Buhl
Sheryl Howe	Capital High School	Boise
Kristen Jensen	William Thomas Middle School	American Falls
Billie Johnson	ON Semiconductor	Pocatello

Member	Affiliation	City
Alla Langston	Community Member	Boise
Bryan Lanspery	IPUC	Boise
Dan Richards	Meadows Valley School	New Meadows
Hannah Sanger	ID Environmental Education Association	Pocatello
Sue Seifert	OER	Boise
Scott Smith	ID Department of Education	Boise
Russ Weedon	IPC	Boise
Mike Youngblood	IPC	Boise

SEECAG Meetings

The IPUC IPC-E-08-11 Order 30760 directed IPC to ensure expenses related to conducting SEECAG meetings were not to exceed the interest earned on the original $500,000. The total amount of interest earned at the time of this writing is $32,553, and total expenses spent on conducting SEECAG meetings came in under $7,000.

FIRST YEAR OF PROGRAM IMPLEMENTATION 2009–2010 SCHOOL YEAR

Energy Wise Program

The first SEECAG meeting was held on July 21, 2009. Because time was limited for developing separate curricula, and due to the intensity of developing and implementing the SEE program for high school students, IPC staff recommended to the SEECAG the use of an existing, proven classroom kit for the elementary portion of the program. During spring 2010, 34 elementary schools were approached and received Student Energy Wise Home Savings Kits developed and distributed by the Resource Action Program. The program is a fully implemented, multi-resource efficiency/education program designed to facilitate installation of efficiency measures in homes and build knowledge of environmental issues. The program delivers a proven blend of teacher-designed classroom activities with hands-on home projects to install high-efficiency devices and introduce resource-conscious behavior to students and their families.

Program Description

The school-based Energy Wise program is fully implemented and designed to generate immediate and long-term savings by bringing interactive, "real-world" education home with motivated students. The Resource Action Program staff identified and enrolled students and teachers within IPC's Idaho service area. Enrolled participants received educational materials designed to build knowledge and demonstrate simple ways to save by not only changing habits, but also changing devices. Materials support state and national educational standards, which allow the program to easily fit into teachers' existing schedules and requirements.

Each participant received classroom materials and an Energy Wise Activity Kit containing efficiency measures for their homes to perform the hands-on activities. Modifications were made to select materials that incorporated IPC's logo and brand guidelines.

Materials Each Student Received

Student Guide

Student Workbook

Parent introduction letter*

Home Audit Form

Pre & Post Surveys

Certificate of Achievement

Energy Wise Activity Kit containing:

- 13-Watt (W) Compact Fluorescent Lamp (CFL)
- 18-W CFL
- 23-W CFL

- FilterTone® alarm*
- LimeLite® night light
- Natural Resources Fact Chart
- Air temperature ruler
- Reminder stickers and magnet pack*
- Parent comment card
- "GetWise" wristbands

Additional Resources

Interactive program website

Toll-free telephone support

Supplemental activities*

***Materials/installation instructions provided in English and Spanish**

Materials Each Teacher/Classroom Received

Teacher Book

Step-by-step program checklist

Lesson plans

Teacher program evaluation

Supplemental activities*

ID State Education Standards Correlation Chart

Pre & post survey answer keys

Classroom electricity poster

Self-addressed postage paid envelope

Teacher gift card

***Materials/installation instructions provided in English and Spanish**

Total Outreach to Elementary Schools in the IPC Service Area

Schools	32
Teachers	37
Students/Homes	1,008

Elementary School Program Survey

Surveys conducted by Resource Action Program revealed the following:

- One-hundred (100) percent of participating teachers indicated that parents supported the program.
- One-hundred (100) percent of participating teachers indicated they would recommend this program to other colleagues.
- Eighty-one (81) percent of participating students gave the program a rating of good or great.

Knowledge Gained

Identical surveys (tests) were taken by students prior to the program and again upon program completion to measure knowledge gained. Scores and subject knowledge improved from 77 percent to 86 percent.

Energy Savings Results

In addition to educating students and their parents, the primary program goal for utility sponsors is to generate cost-effective energy savings. Student reporting activities not only provided the data used in savings projections, but also reinforced the learning benefits.

The following projections are based on the actions taken by students in their homes:

Projected Annual Savings:

Electricity Savings	251,989 kWh
Natural Gas Savings	4,524 therms

Projected Average Annual Savings per Home:

Electricity Savings	241 kWh
Natural Gas Savings	4 therms

See the IPC Energy Wise Program Summary Report 2009–2010 for a complete program description.

Students for Energy Efficiency Program

Marketing

The SEE program was marketed to high school teachers as follows:

- Development of IPC website: http://www.idahopower.com/EnergyEfficiency/educationalResources/default.cfm
- Dissemination of a tri-fold, color brochure
- Email distribution via the State Department of Education, Association of School Superintendents, and the OER
- Outreach by IPC Community Education representatives
- Outreach by members of the SEECAG

Dave Beck of Sawtooth Technical Services (Meridian, Idaho) was contracted to assist in development and implementation of the SEE program curriculum. John Bernardo, a part-time project manager with a masters degree in education, was hired in September 2009 to continue development and manage implementation of the SEE program.

High school teams and their sponsoring teacher were identified, registered, and contacted to arrange a training date in October and November 2009. When possible, multiple schools were trained at a single school site. For example, students from Leadore High School traveled to Salmon to receive training with students from Salmon High School.

Frequent follow-up conversations were conducted via telephone and email to monitor assessment progress and address questions or concerns from teachers and their students. In several cases, IPC employees performed additional site visits to provide continued assistance.

Upon completion of the school assessments, students developed a report that provided their findings and recommendations for energy improvements. In many cases, the report included the IPC Easy Upgrades Lighting Calculator spreadsheet, accessible on the IPC website, which detailed recommended changes in lighting and installation of lighting controls. (Easy Upgrades is a prescriptive energy efficiency program offered by Idaho Power.) Additionally, the calculator spreadsheet detailed kWh savings, projected cost savings, return on investment (ROI) for project implementation, and payments of IPC incentives. School report formats took the form of Word documents, PowerPoint presentations, and, in one case, a high school website.

IPC employees reviewed and revised the draft reports and returned them to the students for development of a final report. Their report was presented a minimum of two times by the student groups, often to the school board and principals, classmates, teachers, janitors, or local service organizations. The presentations to school boards included a formal request for funding of the recommended projects. All reports were submitted to the OER for funding consideration using federal American Recovery and Reinvestment Act (ARRA) monies.

Participating teachers whose students completed the program requirements received a stipend of $250 and one continuing education credit from Boise State University.

First Year: 2009–2010 School Year

Program Details

For the 2009–2010 school year, a total of 155 students (78 males and 77 females) participated in the training sessions.

A total of 16 schools completed the program:

American Falls High School
Buhl High School
Capital High School (Boise)
Dennis Professional Technical Center (Boise)
Emmett High School
Hansen Junior–Senior High School
Horseshoe Bend High School
Jerome High School
Kuna High School
Leadore High School
Magic Valley Christian School (Jerome)
Meadows Valley School (New Meadows)
Mountain View High School (Meridian)
Pocatello High School
Salmon High School
Timberline High School (Boise)

Four schools did not complete the program:

Centennial High School (Boise)
Riverstone International School (Boise)
Treasure Valley Math & Science School (Boise)
Twin Falls High School

Note: Schools may not have been able to complete the SEE program due to the difficulty in incorporating an extracurricular activity into the classroom regimen.

Training Sessions

Training sessions were performed at the schools with multiple school teams participating. The sessions usually lasted three hours. An example training session is as follows:

1:00—3:00 Presentation of the PowerPoint slide deck

Review of the SEE program curriculum

Introduction of the Energy Scene Investigation (ESI) equipment kit

Kit contents:

- Electronic/magnetic ballast discriminator
- Kill-A-Watt meter
- Lumen light meter
- Tapeless measuring device
- Switchable power outlet strip
- HoBo Light Sensor Data Logger
- HoBo Temperature Sensor Data Logger

3:00–4:00 Hands-on training in use of ESI equipment

Walk-through assessment of school to determine and familiarize students with lighting, use of sensors, exit sign lighting, opportunities for installation of occupancy sensors and Vendingmisers, etc.

Schools Assessed for Energy Efficiency Opportunities

A total of 21 schools were assessed by the student teams:

School	Sponsoring Teacher	Student Team
American Falls High School	Todd Winters	American Falls HS
Buhl Middle School[1]	Susie Jones	Buhl HS
Buhl High School	Susie Jones	Buhl HS
Popplewell Elementary School[1]	Susie Jones	Buhl HS
Capital High School	Sheryl Howe	Capital HS
Fairmont Junior High	Sheryl Howe	Capital HS
Valley View Elementary School	Sheryl Howe	Capital HS

School	Sponsoring Teacher	Student Team
Mountain View Elementary School	Sheryl Howe	Capital HS
Dennis Professional Technical Center	James Cupps	Dennis Prof TC
Emmett High School	Sandy Powell	Emmett HS
Hansen Junior–Senior High School	Shirley Mikota	Hansen Jr–Sr HS
Horseshoe Bend High School[1]	Chris Ball	Horseshoe Bend HS
Jerome High School	Steve Bruns	Jerome HS
Kuna High School	DaNel Huggins	Kuna HS
Leadore High School	Shane Matson	Leadore HS
Magic Valley Christian School	Dale Quesnell	Magic Valley CS
Meadows Valley School	Loretta McConnor	Meadows Valley School
Mountain View High School	Gina Lockwood	Mountain View HS
Pocatello High School	Sharie Ellis	Pocatello HS
Salmon High School[2]	Arlene Wolf	Salmon HS
Timberline High School	Dick Jordan	Timberline HS

[1]These schools are scheduled for a full lighting upgrade replacing all T-12 lamps with T-8 lamps through the OER. This lighting upgrade was one of the recommendations made by SEE program participating students.

[2]This school participated in the SEE program. Participating student teams made recommendations that mirrored improvements implemented by their respective school districts through IPC's Easy Upgrades program.

Total Potential kWh Savings from Student Recommendations

As a result of the total energy assessments performed by students, the estimated potential energy savings for all projects exceeds 1,480,000 kWh. At an average cost of $0.06/kWh, the estimated potential savings exceeds $88,000.

Known Energy Efficiency Implementation Projects

As a result of the SEE program report and presentations, several schools implemented lighting retrofits and installation of lighting controls. While the retrofits and installations may have been previously considered by the respective school districts, there is no doubt that the student recommendations either echoed the recommendations from energy professionals or, in some cases, exceeded the professional recommendations, providing school boards and facility maintenance managers with additional opportunities for energy reductions and cost savings.

It was evident to IPC employees and sponsoring teachers that the education imparted on the students through this program had an impact beyond the classroom. Many students discussed taking the information home to inform (in some cases prod) their families to practice energy conservation measures, such as unplugging cell phone chargers when not in use, turning off computers and monitors, and unplugging or using switchable power strips to eliminate phantom (continual electrical draw) load from major appliances.

The following are descriptions of some of the findings and impacts from the student assessments.

Dennis Professional Technical Center

Boise School District Facilities & Operations Administrator Chris Wendrowski began implementing projects in May 2010. According to Wendrowski, the projects were scheduled to be performed prior to the development and presentation of the SEE program report to the school board. However, he did confirm that the students identified many of the energy efficiency opportunities previously identified by a school district audit conducted by energy efficiency professionals. The overlap included the following:

- Recommissioning of occupancy sensors and installation of new occupancy sensors throughout the facility
- Delamping of overlit areas
- Resetting of thermostats, especially in summer months

Emmett High School

The school board was very interested in the findings and recommendations presented in the SEE program report; however, funding was not available. Mike Fisher, head of maintenance for the high school, is pursuing bids for the purchase and installation of motion sensors as recommended in the SEE program report. He is particularly interested in this recommendation because of the potentially attractive ROI using the IPC Easy Upgrades incentive money.

Horseshoe Bend High School

In June 2010, the Horseshoe Bend school district submitted a pre-application for an IPC Easy Upgrades incentive payment. The project entailed lighting retrofits, including installation of T-8 fluorescent fixtures, T-5 high output (HO) fixtures and CFLs, and delamping of 92 lamps. All of these upgrades reflected recommendations described in the SEE program report developed by Horseshoe Bend High School students.

Salmon High School

The Salmon school board had previously approved money to perform energy efficiency upgrades at the high school. The improvements were previously identified in an energy efficiency audit performed by the McKinstry Engineering Company. Many of the improvements recommended by the SEE program report mimicked the McKinstry audit findings. It is important to note that the students did not have access to the McKinstry report while conducting their assessment of the high school or preparing their SEE program report.

Arlene Wolf, the SEE program sponsoring teacher, indicated that one of the findings in the SEE program report, purchase and installation of power outlet strips to reduce plug and phantom loads, was not part of the McKinstry recommendations. Arlene indicated plans to identify funding and source the strips during the 2010–2011 school year.

Student Reports

The following is a link to the IPC website containing the student reports:
www.idahopower.com/EnergyEfficiency/educationalResources/studentsForEE/keyFindings.cfm

Survey Summaries

During the 2009–2010 school year, IPC employees worked with teachers and other school officials in 16 schools across IPC's Idaho service area to implement the SEE program. IPC employees provided all the schools with training and education about the program as well as an ESI kit for every four to five students participating in the program. Upon completion of the program, sponsoring educators were asked via an email message to participate in an online survey. The survey, developed and administered by Becky Andersohn, Customer Relations Research Coordinator for IPC, consisted of 23 questions. Fourteen of the 16 educators completed the survey for an 87.5 percent response rate. The following summarizes the response:

- In general, educators involved with the SEE program were satisfied with the program.
- All of the educators involved with the program indicated that the program "exceeded" (71 percent) or "met" (29 percent) 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 percent) of the educators said that IPC 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 50 percent of the teachers felt the students would have benefited from at least one more of each of the tools included in the ESI 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 ESI kit.
- Most of the educators (93 percent) 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 50 percent 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 percent) or "probably would" (14 percent) 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 43 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.

SECOND YEAR OF PROGRAM IMPLEMENTATION 2010–2011 SCHOOL YEAR

Energy Wise Program

Based on the success and interest in participation of the program during the initial year, IPC solicited interest and participation from area-wide elementary school classrooms.

Program Description

The program was revised during the summer of 2010 as follows:

- Specific graphic changes were incorporated into the educational materials provided by Resource Partners to emphasize IPC's involvement.
- Instructions regarding the replacement of incandescent lamps (light bulbs) with the three CFLs in each kit were enhanced to promote replacement of appropriate incandescent lamps with the proper wattage CFL. For instance, instructions targeted replacement of a standard 75-W incandescent lamp with the kit's 18-W CFL, which provides similar lumen output with a vast reduction in power usage.

Otherwise the kit contents and materials provided to each student and classroom teacher remained the same.

Total Outreach to Elementary Schools in the IPC Service Area

Schools	67
Teachers	210
Students/Homes	6,184

Elementary School Program Survey

Surveys conducted by Resource Action Program revealed the following:

- Ninety-nine (99) percent of participating teachers indicated that parents supported the program.
- Ninety-eight (98) percent of participating teachers indicated they would recommend this program to other colleagues.

- Ninety-eight (98) percent of participating teachers indicated they would conduct the program again.

Knowledge Gained

Identical surveys (tests) were taken by students prior to the program and again upon program completion to measure knowledge gained. Scores and subject knowledge improved from 71 percent to 82 percent.

Energy Savings Results

In addition to educating students and their parents, the primary program goal for utility sponsors is to generate cost-effective energy savings. Student reporting activities not only provided the data used in savings projections, but also reinforced the learning benefits.

The following projections are based on the actions taken by students in their homes:

Projected Annual Savings:

Electricity Savings	1,497,895 kWh
Natural Gas Savings	34,600 therms

Projected Average Annual Savings per Home:

Electricity Savings	234 kWh
Natural Gas Savings	5 therms

See IPC's Energy Wise Program Summary Report 2010–2011 for a complete program description.

Students for Energy Efficiency Program

2010–2011 Curriculum

Based on the comments received from participating teachers, students, and the SEECAG, IPC revised the SEE program curriculum for the 2010–2011 program year. The revised curriculum contained significant additional information and reference tabs, modified graphics, and a link to the 21 reports produced by the students from the 2009–2010 program year. Copies of both versions of the curriculum are included for reference.

Additionally the HoBo data loggers were coupled with software donated by the manufacturer and distributed to each teacher so students could immediately download and graph lighting and temperature data.

Marketing

The SEE program was once again marketed to high school teachers as follows:

- Expansion of IPC website: http://www.idahopower.com/EnergyEfficiency/educationalResources/default.cfm
- Dissemination of a tri-fold, color brochure
- Email distribution via the State Department of Education, Association of School Superintendents, and the OER
- Outreach by teacher participants from first year
- Outreach by IPC Community Education representatives
- Outreach by members of the SEECAG
- Outreach by IPC employees

Additional marketing efforts included the following participation in Chartwell's Webinar on Children as Social Change Agents: Educating Kids about Energy Efficiency. October, 2010. www.chartwellinc.com.

Second Year: 2010–2011 School Year

Program Details

A total of 268 students (108 males and 160 females) participated in the training sessions.

A total of 15 schools participated in the trainings.

A total of 14 schools completed the program:

American Falls High School
Buhl High School
Capital High School (Boise)
Emmett High School
Homedale Middle School
Homedale High School
Kimberly High School
Kuna High School
Lewis & Clark Middle School (Meridian)
Meadows Valley School (New Meadows)
Pocatello Community Charter School
Salmon High School
Timberline High School (Boise)
Twin Falls High School

One school, Wings Charter Middle School, did not complete the program.

Note: Schools may not have been able to complete the SEE program due to the difficulty in incorporating an extracurricular activity into the classroom regimen.

Participating teachers whose students completed the program requirements received a stipend of $250 and one continuing education credit from Boise State University.

Training Sessions

Part of the revisions made to the SEE program was splitting the training sessions into two separate sessions. As was the case during the first year, training sessions were presented to multiple school team audiences. The first training lasted two hours, and the second lasted one hour.

First Training

Presentation of the PowerPoint slide deck (reduced in size and scope with more reference to the hard-copy curriculum and materials provided on a CD to each teacher)

Review of the SEE program curriculum

Introduction of the ESI equipment kit

Kit contents:

- Electronic/magnetic ballast discriminator
- Kill-A-Watt meter
- Lumen light meter
- Flexible tape measuring reel
- Switchable power outlet strip
- HoBo Light Sensor Data Logger
- HoBo Temperature Sensor Data Logger

Hands-on training in use of ESI equipment

Walk-through assessment of school to determine and familiarize students with lighting, use of sensors, exit sign lighting, opportunities for installation of occupancy sensors and Vendingmisers, etc.

Second Training

Review of energy assessments, graphic presentation of IPC Easy Upgrades Lighting Calculator, discussion of report format, Q&A.

Note: When necessary and as requested, additional visits to the schools were made or questions were addressed via email and telephone calls with students and teachers.

Schools Assessed for Energy Efficiency Opportunities

A total of 14 school buildings were assessed by the student teams:

School	Sponsoring Teacher	Student Team
William Thomas Middle School	Pat Patterson	American Falls HS
Emmett Middle School[1]	John Bernardo, IPC (mentor to senior student)	Emmett HS
Homedale Middle School	Jennifer Martin	Homedale MS
Homedale High School	Mark Thatcher	Homedale HS
Kimberly High School[3]	Mike Huttanus	Kimberly HS
Kuna Middle School[1,2]	DaNel Huggins	Kuna HS
Pocatello Community Charter School	Cara Sonnemann	PCCS
Salmon Alternative School[3]	Arlene Wolf	Salmon HS
Salmon Elementary School[3]	Arlene Wolf	Salmon HS
Salmon Middle School[3]	Arlene Wolf	Salmon HS
Salmon High School[3]	Arlene Wolf	Salmon HS
Salmon School District Office[3]	Arlene Wolf	Salmon HS
Timberline High School	Dick Jordan	Timberline HS
Twin Falls High School	Jo Dodds	Twin Falls HS

[1]These schools are scheduled for a full lighting upgrade replacing all T-12 lamps with T-8 lamps through the OER. This lighting upgrade was one of the recommendations made by SEE program participating students.

[2]This school participated in the SEE program. Participating student teams made recommendations that mirrored improvements implemented by their respective school districts through IPC's Easy Upgrades program.

[3]Student assessment reports detailing potential kWh savings are pending.

Businesses Assessed for Energy Efficiency Opportunities

Since several of the schools and sponsoring teachers returned for a second round, it was decided to assist the students in identifying area businesses for performance of the energy assessment. In many cases, the businesses provided this service have established ties of financial or other support to the school. A total of seven businesses were assessed by the student teams:

Business	Sponsoring Teacher	School
Don's Market in Buhl[1]	Susie Jones	Buhl HS
El Cazador Restaurant[1]	Susie Jones	Buhl HS
Garden City Boys & Girls Club	Sheryl Howe	Capital HS
Paul's Market	DaNel Huggins	Kuna HS
US Forest Service Office[1]	Loretta McConnor/Dan Richards	Meadows Valley School
C&M Lumber Company[1]	Loretta McConnor/Dan Richards	Meadows Valley School
Meadows Valley Market	Loretta McConnor/Dan Richards	Meadows Valley School

[1]Reports containing potential kWh savings are still pending.

Municipal Building Assessed for Energy Efficiency Opportunities

During summer 2010, Leah Resinkin of Emmett High School received a request from the mayor of Emmett to use the ESI equipment and assist Emmett Public Library staff in assessing the library for energy efficiency opportunities. Leah went on to assess Emmett Middle School for her senior project.

Student Reports

The following is a link to the IPC website containing the student reports:
www.idahopower.com/EnergyEfficiency/educationalResources/studentsForEE/keyFindings.cfm

SEE Benefits

1. In the 2010–2011 program year, the SEE program had 268 students and 16 teachers participate. Each student and teacher received one, 19-W CFL, which replaces a 75-W incandescent, according to the product description.

   Estimated energy savings were derived from "deemed" savings estimates provided by the Regional Technical Forum (RTF). The RTF is a part of the Northwest Power Council and serves as an advisory committee to develop standards to verify and evaluate conservation savings. Utilities across the Northwest, including IPC, use the RTF format to estimate energy savings for many of their energy efficiency measures. Deemed values from the RTF take into consideration many factors, including calculated energy savings, operating hours, measure persistence, and direct install realization rates.

   The deemed value for replacement of a 75-W incandescent lamp with a19-W ENERGY STAR® CFL is 34 kWh per lamp per year. The total estimated savings of the direct install of 283 CFLs by students and teachers is 9,622 kWh per year. The calculation methodology is as follows:

   283 x 34 kWh/year = 9,622 kWh/year

2. The estimated total savings for schools whose student teams made recommendations that mirrored improvements implemented by their respective school districts through IPC's Easy Upgrades program equaled 662,834 kWh.

Survey Summaries

At the completion of the 2010–2011 SEE program, IPC employees engaged 16 teachers and other school officials to encourage the student participants to complete a survey about their experience with the SEE program. Once again, Becky Andersohn, Customers Relations Research coordinator for IPC, provided the instructors with an email and survey link to be forwarded to student participants. Eighty-seven students completed the survey for a 37-percent response rate.

The findings are as follows:

- Almost one-half of the student respondents said that they put more than 15 hours into their project for the SEE program.
- Only 10 percent of the respondents indicated they spent less than 5 hours on their project.
- Almost 60 percent of the respondents said they liked participating in the program "a lot".
- Only 2.3 percent (2 respondents) said they didn't like participating in the program at all.
- Most students (59.3 percent) said the program met their expectations; 22 percent said the program exceeded their expectations; and 18.6 percent said it met some of their expectations.
- The majority (52.9 percent) of the respondents said they are "very likely" to recommend the SEE program to other students. Another 37.9 percent said they are "somewhat likely" to recommend the program, and 9.2 percent said they would be "somewhat unlikely" to recommend the program to other students.
- Almost half (48.3 percent) of the students "strongly agree" they will be able to apply what they learned about energy efficiency after high school. Forty-six percent of the students "somewhat agree" they will be able to use what they learned about energy efficiency.
- When asked what tools and techniques they learned as part of the program they will use after high school, most students mentioned an overall awareness of energy usage and the costs associated with energy usage. Other students noted they are much more informed about phantom load and how leaving various electrical equipment plugged in still uses electricity. Other students mentioned the training they received on the various equipment used in the program for validating usage and savings.
- Those students who indicated they didn't think they would use what they learned in the program after high school said that it didn't match their interest or career choice or they anticipate they will forget much of what they learned if not used on a regular basis.
- Students were asked how confident they would feel using the equipment and procedures they learned in the program to conduct an energy audit in their home or business. The majority (57.1 percent) said they would be "very confident," and another 45.1 percent said they would be "somewhat confident" conducting an energy audit.
- Almost half (49.4 percent) of the students feel "very confident" their recommendations will be implemented at their school or the business where they conducted the audit, and 47 percent feel "somewhat confident" their recommendations will be implemented.

- For those students who were "not very confident" their recommendations would be implemented, the primary reasons were the building is already energy efficient, budget constraints, and inconclusive results of the audit.

- When asked what the students liked best about participating in the SEE program, responses included the following:

  - Learning about the tools and equipment

  - Understanding how their school (or the business they worked with) used energy and how the audit could help them know how to save energy

  - Working together as a team on a project

  - Collecting and analyzing data

  - Being given the responsibility for conducting the audit

- When asked what students like least about participating in the SEE program, responses included the following:

  - The volume of data and detail that needed to be recorded

  - Having to depend on other team members to complete their portion of the work and the fact that some students didn't seem to take the project seriously

  - Learning how to use the HoBo devices

  - The length of time it took to complete the entire project

  - The lecture portion of the program

- Students were asked to make suggestions of ways to enhance the SEE program for future participants. Some of the suggestions included the following:

  - Providing more information up front so participants have a better understanding of what the project will entail (i.e., how much time, activities they will be involved in, measurements and tools they will use)

  - Providing better explanation of how to use the tools and equipment

  - Making the program more youth oriented

- Over half the respondents (54.2 percent) were 7th graders; 21.7 percent were 8th graders; and the rest were distributed across grades 9–12 with smallest representation from both 9th and 12th graders.

Program Budget Details

	2009	2010	2011
Beginning Fund Balance	500,000	479,101	371,210
Labor	(17,973)	(46,063)	(30,350)
Other Expenses	(30,119)	(66,228)	(239,197)
Total Expenditures	(48,092)	(112,291)	(269,546)
Total Interest Earned	27,193	4,400	959
Ending Fund Balance	**479,101**	**371,210**	**102,622**

Recommendations for Future Use of Remaining Equipment and Funds, and Program Continuation

At the time of this writing, approximately $100,000 remains from the original $500,000 plus interest. At the final SEECAG meeting held June 28, 2011, it was recommended to use the remaining funds as follows:

- Purchase additional equipment to provide ESI kits to two Idaho Science, Technology, Engineering, and Mathematics (*i*STEM) lending libraries (in Meridian and Twin Falls) for use by teachers.
- Use the majority of funds to purchase additional Energy Wise kits for use during the 2011–2012 school year. IPC employees will coordinate with IPC Customer Education representatives for elementary classroom teacher participation throughout the IPC Idaho service area.
- Cover additional program expenses, including outstanding travel and labor costs.
- Encourage the Center for Advanced Energy Studies, Energy Efficiency Research Institute (CAES EERI), Idaho Science, Technology, Engineering, and Mathematics consortium (*i*STEM) or other entity to adopt the SEE Program for dissemination throughout the state of Idaho.

IPC concurs with the recommendations of the SEECAG and will use the remaining equipment and disburse the remaining funds as described above. IPC will also pursue adoption and dissemination of the program by CAES EERI, *i*STEM or other entity or investigate continuing the program along with the many other educational programs currently offered by the company.

CONCLUSION

While implementing the two-year program, IPC staff witnessed firsthand the enthusiasm and opportunity the SEE program provided to students. Most memorable is the "a-ha" moment when students used the equipment to investigate their school and discovered the phantom load and over-lit energy usage occurring around them. Many teachers reported their schools and students were highlighted in local newspaper articles and television reports. Several students used the SEE program as their senior project. In fact, one teacher described the SEE program as the catalyst which turned an at-risk student into an engaged student who graduated on schedule with his classmates.

Here are some observations and takeaways, presented in an abridged manner:

- Paraphrasing a student from the Dennis Professional Technical Center upon seeing school district personnel changing lights and activating occupancy sensors: "I never thought adults listened to me. I can't say that anymore."

- Learning that empowered students can politely but directly question teachers about the plug and phantom loads of the appliances and circulating fan in their offices/classrooms.

- "I enjoyed the program and learned which of my classmates are workers and which are slackers."

- "I just wanted to thank you and Idaho Power for the stipend and credit. This was the most fun and greatest continuing credit I have ever received."

- Witnessing the interaction between a school board member and a high school student as they discussed energy and cost savings opportunities in district buildings. This from a student who, 15 minutes earlier, was anxious about presenting in the first place.

- Being amazed at the involvement, over two years, of students at Buhl High School whose sponsoring teacher, the librarian, mentored the school's ecology club. These students spent hours on their projects without the incentive of earning a grade.

- Seeing heads nod in approval when IPC staff stated that some graduates return to their schools to view the winning team plaque on display in the trophy case, and some graduates walk the halls and see improved lighting, motion sensors, and programmable thermostats. Both important contributions that can have an effect on their futures.

- Feeling a sense of pride upon learning that, in multiple cases, the recommendations presented by participating students mirrored and even exceeded the recommendations made by professional companies contracted by the OER under ARRA funding.

- Initiating the SEE program training for a group of 80 seventh and eighth graders at the Pocatello Community Charter School (PCCS). This was by far the largest student contingent participating in the SEE program, to which IPC staff agreed only after meeting

with their teacher and determining her commitment to the program and its relevance to their Expeditionary Learning track on energy. Staff remained anxious yet confident this would work, all in the interest of energy efficiency education. And work it did. The students did a thorough assessment of their school building, which included consistent data from multiple student collections (which supports the scientific method), and confirmed findings and recommendations.