

# Integrated School-Based Program

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>5,003,583</b>
<b>2. Projected Program Impacts</b>		
MWh		3,093
MW (Summer Peak)		0.99
<b>3. Program Cost Effectiveness</b>		
TRC		0.30
PAC		0.31

## 4. Program Descriptors

Market Sector:	Residential / Nonresidential
Program Classification:	Local
Program Status:	Revised Existing

## 5. Program Statement

Energy costs for schools can be an enormous expense. They are the second largest expense for schools after employee salaries. Declines in school funding over the last 20 years have left little or no room in school budgets for incorporating high performance measures during major repairs or renovation of existing buildings. There is a drastic need for additional classrooms owing to increased enrollments and reduced class sizes. Failure to take advantage of energy efficiency options when renovating existing facilities or building/adding new facilities represents a significant missed opportunity.

The U.S. Department of Energy estimates that schools could save about 25% of their energy costs by improving energy efficiency. Additional funds are needed before schools will seriously consider the more energy efficient options.

According to the 2001 evaluation of SCE's school programs, other barriers facing the schools market segment include information-search costs, performance uncertainty and organizational practices. In the schools market, schools often do not have information about the benefits of energy efficiency and there is little enthusiasm for adopting more efficient technologies since administrators are uncertain about

### What's New for 2006-08?

- Innovation
  - Combines three distinct education products to impact energy use in schools, universities and homes
  - Collaborates with SCG and regional and local water agencies to offer gas and water-saving components
- Integration
  - Links education/information program components to hardware installations that result in firm energy savings
  - Combines energy efficiency, demand response, renewable energy and water conservation to address the barriers faced by the schools market

their performance. In additions, schools have little practice incorporating efficient technologies in educational or building specifications, since they have traditionally opted only for standard equipment and designs.

Energy education is critical to assuring a stable and reliable supply of electricity in California. Educating students will create a new generation of Californians who understand the significance of energy in their lives and their role in its efficient use.

SCE's new local Integrated School-Based Program (ISBP) is an education and information program that effectively integrates energy efficiency, demand response renewable energy, and water conservation to address the barriers faced by the schools market. ISBP leads homes and schools to programs that directly produce verifiable energy savings. The program also produces energy savings through school and community activities that result in the installation of energy efficient measures.

## **6. Program Rationale**

The program is designed to address all aspects of the schools market through an integrated approach that promotes energy efficiency, demand response, renewable energy and water

conservation

opportunities to

decision makers. The

program will address

lost opportunities in

the schools market by implementing a comprehensive, innovative approach that involves incorporating:

- Three of the nation's leading energy education programs to impact energy use in schools, universities and the community;
- Natural gas- and water-saving components by collaborating with SCG and regional and local water agencies; and
- Utility and water programs and services to encourage the adoption of energy efficiency, demand response and water conservation options.

**Educating students will create a new generation of Californians who understand the significance of energy in their lives and their role in its efficient use.**

SCE will implement three successful energy education programs to educate the schools market to achieve energy efficiency retrofits. The program provides K-12 and university

students with a unique

opportunity to create a

new generation of

energy smart citizens.

The program

effectively combines

classroom learning

with hands-on activities.

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knowledge. ISBP will teach them essential information about energy efficiency and water conservation and what each individual can do to make a difference. School-aged children are receptive to energy education and can motivate their parents to take actions at home to reduce energy and water consumption. University students can conduct valuable research and effectively educate their peers about energy efficiency.

The partnership between energy and water is an innovative aspect of the program. Water conservation lowers energy use and energy bills, particularly when hot water use can be reduced. The utilities and water agencies will extend the reach of their programs and services and promote integrated solutions. Whitepapers submitted by the Program Advisory Group (PAG) recommended that the utilities consider collaborating with water agencies to promote energy and water efficiency.

SCE's program employs a proven program format to achieve tangible educational and behavioral results as well as measurable, verifiable energy savings. The program offers beneficial and cost-effective results for electric, natural gas, and water sponsors.

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The program is effective, adaptable and versatile, which makes it attractive to both utilities and schools to build awareness and participation in all available programs and services.

Combining the concepts used in each energy education component will allow SCE to successfully address the full range of educational opportunities through in-school instruction of students; hands-on activities to promote energy saving behavior change; team building between students, teachers and administrators; and expanding these opportunities to the community to reduce the environmental impact associated with the state's energy and water consumption and strengthen California's economy for the future.

## 7. Program Outcomes

The desired outcomes of the program are to improve public education facilities and inform facility operators and administrators about the benefits of energy efficient equipment and operation practices, inform K-12 and college students about energy and water efficiency and how to apply what they learn at home and in their communities.

The basis of the program theory is that increased

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awareness will result in increased levels of energy and water efficiency measure adoption, and conservation efforts at schools, universities and home. The performance

basis for the program is comprised of educational outcomes that include knowledge gains and attitudinal changes with respect to energy and water efficiency.

## **8. Program Strategy**

The program will be delivered through three coordinated program strategies to effectively address the barriers faced by the schools market. Each program component will leverage existing incentives, available through energy efficiency and demand response, to achieve immediate and long-term energy savings and demand reduction in the schools, universities and homes.

SCE will “mainstream” the three education programs into its 2006-08 program portfolio. By using the concepts and materials established in the existing programs, SCE has the greatest opportunity for recruiting new schools and school districts. The methods used in these programs have already made inroads into a number of school districts and have been well received.

### **LivingWise®**

The LivingWise® is implemented by the Resource Action Programs® (RAP) and provides classroom learning activities and take-home kits to elementary and middle school classes. The kit contains energy and water-saving products such as a compact fluorescent lamp and high efficiency showerhead, and a CD game to introduce energy efficiency and water conservation to children and their parents. The program features a blend of classroom learning activities and hands-on energy survey and installation projects which students complete in their homes with parental assistance. Key components of LivingWise® are:

- Interactive school-to-home program for students
- Teacher-designed classroom activities that reinforce student work on critical State Standards for core subject areas
- Hands-on projects that utilize kits containing energy and water efficiency technologies that students directly install in their homes, thus reinforcing education results
- Involvement of parents to shape family habits and awareness of the benefits of energy and water efficiency

SCE and SCG offered LivingWise® in 2000-01 as a third-party initiative. In 2004-05, SCE successfully piloted LivingWise® in SCE’s South Bay region. The program targets about 3,000 6<sup>th</sup> grade students and involves collaborating with the Southern California Water Company and the City of Torrance Public Works Department to fund the water-saving component.

### **Green Schools**

Implemented by the Alliance to Save Energy (ASE), Green Schools reduces energy costs in schools and educates students and their families about energy and the link between efficiency, the environment and finances. It is a comprehensive and long-term approach to school efficiency, bringing together the facilities, instructional and administrative staff

in a cooperative effort to improve education using energy as a tool. Its unique approach integrates school facility energy-savings with energy savings action and instruction in school, homes and the community.

Green Schools achieves energy efficiency by inducing behavioral changes, operational changes and product retrofits. The program will be implemented by teams of teachers, custodians, administrators and students at each school. A local project leader visits schools monthly to assist and encourage school teams. The program provides a baseline of energy use and energy tracking, professional development to teachers, training for students to conduct energy surveys of their schools, homes and small businesses, and convenes school teams three times during the year to celebrate successes and learn from their challenges.

Green Schools' instructional materials are correlated to the California Department of Education standards, making it easier for teachers to integrate into their curriculum and strengthen student academic learning. Students learn about ways they can help the environment, a compelling issue for many young people, and will involve their schools and families in energy lessons and energy efficiency practices.

### **Green Campus**

Modeled after the Green Schools, Green Campus realizes immediate energy savings on campus, particularly in dorms; educates the campus community on the importance and methods of saving energy and other resources and integrates resource efficiency into

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students' academic learning. The program uses student interns, who recruit and work with an advisory committee of administrators, faculty, and staff to plan and carry out activities, such as energy-saving competitions, or "decathlons." For example, the program will sponsor "Energy Savings in Dorms," where campus residents compete to reduce energy savings after interns establish energy usage baselines in their residence halls. Results will be tracked and winners announced every month. Input from members of the PAG recommended that schools have energy efficiency decathlons.

In addition to energy savings competitions in the dorms, Green Campus interns will work with faculty, administration and staff to off-set information gathering costs associated with identifying potential energy savings throughout campus; interns will work closely with the faculty and administration to promote energy efficiency and conservation within the campus community through events and meetings.

## **9. Program Objectives**

All program components will promote available energy efficiency and demand response programs, such as SCE's Residential Energy Efficiency Incentive Program, Business Incentive Programs and Summer Discount Plan, and services and lead schools and homes to retrofits.

### **LivingWise**

- Target 40,000 students and their households in the 2006-08 program years: 10,000 students in 2006; 13,000 students in 2007 and 17,000 students in 2008
- Increase awareness and adoption of energy and water efficiency measures at home and at school through the education component

### **Green Schools**

- Train and support teams of teachers, custodians, and administrators at 25 new schools per year, in addition to up to 25 second year schools to implement energy efficiency activities
- Provide energy audit training to 5 high schools (approximately 100 students) per year
- Train college students to assist high school students in conducting approximately 250 small business energy audits per year
- Exchange incandescent bulbs with compact fluorescent lamps in schools for a total of 12,000 bulbs in 2006-2008 program years

### **Green Campus**

- Implement program at 3 campuses in the SCE service area during 2006-08
- Conduct annual light bulb exchanges focusing on off-campus housing in each university
- Conduct energy savings competitions on each campus each year
- Exchange incandescent bulbs with compact fluorescent lamps in campuses for a total of 1,250 bulbs per year
- Identify potential energy savings on each campus and make policy recommendations to capture these savings

## **10. Program Implementation**

Program implementation involves implementing the following three program components to provide education and achieve energy savings.

### **LivingWise**

Initial implementation includes program customization to promote utility energy efficiency programs as well as water conservation programs, teacher outreach and enrollment, materials production, kit assembly and materials shipment.

- Enrollment data and teacher information will be gathered for eligible schools in the target area(s) approved by SCE. Teachers will be contacted via mail, email, fax and phone to introduce the program. Individual participation commitments will be collected.
- RAP will assemble and ship LivingWise® activity kits for each participant. The kits may include, but are not limited to, high efficiency showerhead, compact

- fluorescent lamp, LimeLite® Night Light, FilterTone® Alarm, kitchen aerator, water temp check card, air ruler, bathroom aerator, mini tape measure, flow rate test bag, resource fact wheel, toilet leak detector tablets, drip gauge, Adventures in Green Valley® CD-ROM, installation instructions, and order form.
- Additional customization of teacher, student and family instructions, and website will be ongoing.
  - Coordination and delivery of individual shipments, by school, will be conducted using common carrier to participating schools.

Throughout program implementation, RAP provides ongoing teacher support, results collection, and results tracking and reporting.

- RAP contacts participating teachers via phone and email to answer implementation questions and to monitor program progress.
- Participating teachers gather completed student program materials and forward them to the RAP Program Center for processing. RAP provides ongoing support to participating teachers to ensure maximum response.
- RAP collects, stores, and summarizes results for the program.

### **Green Schools**

Program implementation requires identifying school districts to participate, recruiting school sites and providing school support. A Statement of Intention (SOI) will be developed, in a non-legal format, for each participating school district outlining the roles and responsibilities of the school district and the program. The SOI encourages districts to return a percentage of savings back to the schools that achieve them. Each school will complete a brief application describing their desire to participate and identifying a team of teachers, custodians, administrators to champion the program at their school.

Program implementation also requires the following activities:

- Conduct two-day Professional Development Workshops for teams of teachers, custodians, administrators, and other participants from each school. At the professional development workshop, program participants receive energy-related instructional resources and learn how to integrate hands-on, inquiry-based learning activities into their instruction. Each team works together to formulate a customized plan for how teachers will integrate energy into instruction, how teams will save energy at school, how the whole school will become involved in saving energy, and how the information will be taken home and into the community.
- Train college interns to work with teams. College interns will make monthly visits to schools and provide overall support for school teams. The program will train, manage, and supervise the college interns. Interns will also lead teams in implementing activities with measurable savings, such as light bulb exchanges and small business energy audits, as well as providing energy information and advice.
- Establish baselines of electricity and gas usage for each participating school and provide monthly tracking reports to school teams. All schools will receive historical baselines as well as monthly energy data to track their energy usage.

- Provide the following hands-on learning opportunities to interested school teams:
  - High school students will be trained to become energy auditors through the program's Student Energy Audit Training program (SEAT). These students will conduct energy surveys of their schools and present their findings and recommendations to district administration and school boards.
  - College students in SCE's service area will be trained to mentor and assist high school students who have completed the program's SEAT training in performing energy surveys on small businesses and encouraging those businesses to install efficiency retrofits.
- Provide information to teams on low-cost school retrofits. The program will funnel incentives available through energy efficiency, demand response and renewable energy programs to schools. .
- Conduct Mid-Year meetings of school teams and distribute stipends to successful participants. The mid-year meeting brings teams together to discuss successes and challenges, network with other participating schools in the area, and plan activities for the second half of the school year. Each team member is given a stipend for documented participation in the program.
- Convene Advisory Council meetings. The program will continue to convene the California Green Schools Advisory Council, a group of leaders in the California energy and education fields that meet twice a year, to discuss potential improvements to the California Green Schools program. These meetings provide valuable guidance and insight into the integration of energy efficiency into the California educational structure and make the program more useful to California teachers and administrators.
- Conduct end-of-year meeting/celebration of school teams. The end-of-year meeting brings all Green Schools teams together to celebrate successes, recognize outstanding accomplishments, and plan summer activities.

### **Green Campus**

Program implementation involves facilitating a planning meeting with student organizers and key administrators, facility staff, and faculty at each campus. The purpose of this meeting will be to introduce the program, discuss the role of energy efficiency and demand response on campus, and engage participants in a planning process that will result in identifying the overall goals for the program. Participants will set goals for:

- Saving energy on campus
- Integrating program activities into academic learning
- Influencing the larger campus population and the community. The outcome of the meeting will be an agreement on goals and priorities for the program and identification of the research, information and partners needed for a successful project.

Implementation also requires the following activities:

- Recruit and support interns at each campus in implementing program activities. The program will hire and support an intern to work on key facets of program development and implementation over the summer, including conducting

- research, developing partners, and coordinating outreach to incoming freshmen. The program will also hire and support additional interns to work on program implementation throughout the school year. The number of interns hired on a given campus will vary from school to school and will depend on the number of highly qualified applicants. The program will work closely with the newly hired interns as they identify their objectives and draft a detailed implementation plan.
- Conduct a training session for newly hired interns and provide ongoing support to interns in carrying out their Green Campus plans. The training session for newly hired interns will include an introduction to the components of the Green Campus Program and energy use on campus, as well as in-depth training on topics such as meeting facilitation, marketing, budgeting, etc. Alliance staff will facilitate strategy sessions and will work with the interns to capture ideas generated at the training session into their evolving implementation plans. The Alliance will provide ongoing support to interns, in the form of bimonthly conference calls and periodic campus visits, to assist the interns in carrying out their Green Campus plans and activities.
  - Conduct fall planning meetings of student organizers and key administrators, facility staff, and faculty at each campus. Interns will bring new participants up to speed on the program, report on activities conducted to date, unveil future plans, and solicit feed-back. Meeting participants will revisit program goals and finalize planning for the fall term. Following the fall planning meeting, the program will meet with interns and help them modify their implementation plans, incorporating meeting participants' suggestions and comments.
  - Convene mid-year meeting of all participating campuses. This event will bring interns together with administrators, faculty, and staff from various campuses. Meeting attendees will share successes, discuss challenges, and plan Green Campus activities for the remaining half of the academic year.
  - Integrate energy efficiency and conservation into course curricula. The program will work with interns and faculty of various disciplines to tie Green Campus activities into students' academic plans. Students will be encouraged to take many different approaches, such as developing a class based on the Green Campus or conducting a semester-long practicum or independent study based on an aspect of campus energy use. Interns will document the results of their research and, when appropriate, will be encouraged to make policy recommendations to administrators based on their findings.
  - Conduct outreach to K-12 Green Schools in the SCE's service territory. Interns will reach out to local K-12 school participants in the program. Activities may include visiting teams monthly to support them in carrying out their energy plans and activities, training high school students to conduct energy surveys in small businesses, residences, or community buildings, etc.
  - Convene end-of-year meeting of all participating campuses. The program will work with interns to review the year's progress, recognize group and individual accomplishments, and plan for the summer and following year.

## **11. Customer Description**

The program targets K-12 and college students and their families in SCE's rural and moderate-income areas or other locations as directed by SCE. The program also targets K-12 schools and universities, such as the University of California and California State University campuses, within SCE's service territory.

## **12. Customer Interface**

The program is designed to provide maximum ease for students, teachers and schools to join. Subcontractors will contact teachers and schools for program enrollment. All materials, training and program support are provided at "no cost" with easy access to participants.

## **13. Energy Measures and Program Activities**

### **13.1. Measures Information**

Measure information provided in corresponding portfolio workbook.

The LivingWise® activities kit contains retrofit devices and supplies. The kits will include a CFL, nightlight, air filter alarm, showerhead and faucet aerators. Students in the programs targeting school buildings and community outreach will receive at least one CFL for their home or dorm room.

### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information provided in corresponding portfolio workbook.

### **13.3. Non-energy Activities**

Non-energy activities include marketing and subcontractor activities such as educating, training, conducting workshops and supporting the schools market.

### **13.5. Quality Assurance and Evaluation Activities**

SCE will perform on-site inspections and telephone verifications on an ongoing basis to monitor and verify program participation.

#### **13.5.1. Expected Number/Percent of Inspections**

SCE will inspect five percent of the total participants each year.

### **13.6. Marketing Activities**

Marketing activities will be performed by SCE and the subcontractors to solicit and recruit participation of school superintendents, principals and teachers into the program and include the promotion of all available utility incentive programs and services.

## **14. Program Changes**

SCE has modified the number of targeted schools, students and activities downward under the school focused program strategies. Additionally, the retrofit projects activities originally planned under the school-focused strategies were removed from the program so there will be no duplication of efforts with the nonresidential energy efficiency programs activities.

The Alliance to Save Energy's Green Schools and Green Campus programs are based on the academic calendar year. All major program activities take place from September to June, with the summers being used for planning purposes. Consistent with the underlying goals of the program, SCE will reimburse the Alliance for costs through the end of June 2009 for the 2006-09 academic years, rather than the Alliance terminating all program activity at the end of 2008.