



School Waste Management Education and Assistance School Energy Efficiency (SEE) Program

The School Energy Efficiency (SEE) Program provided a variety of [energy education resources](#) and facility improvement services free of charge to school districts located in the counties of Fresno, Kern, Kings, Tulare, Madera, Merced, San Joaquin, Stanislaus, Yolo, El Dorado, and Mariposa. The program components included:



- Classroom, professional development, and project-based learning activities designed to educate students, teachers, and school officials about energy efficiency.
- School facility improvement services designed to provide facility operators and administrators with technical assistance, demonstration technology, and operation and maintenance training.
- Resources and activities that integrate the delivery of education and facility improvement services to promote the concept of the "school site as a teaching tool."

SEE Program services were customized to fit the school districts' needs, budget, and long-term strategic plans. To make this possible and keep track of services provided to each district, the SEE Program staff developed a district participation plan for each participating school district. These plans served as a record of each district's involvement in the SEE Program.

The California Public Utilities Commission (CPUC) awarded the California State and Consumer Services Agency (SCSA) a \$4.5 million grant to implement the SEE Program. Upon approval of the CPUC, this grant program was transferred from SCSA to the California Integrated Waste Management Board (CIWMB--now CalRecycle), which concluded its administration of the SEE Program in December 2004.

In January 2005, D&R International received a follow-up grant from the CPUC to continue SEE Program activities.

Program Goals

The SEE program focuses on students, teachers, and facilities. The [goals of the program](#) are as follows:

Educate Students

- Teach students about energy efficiency through classroom activities, energy audits, and project-based learning.
- Provide opportunities to apply what the students are learning in the classroom to help their families and communities reduce energy consumption.
- Link classroom activities to school site energy-related facility improvements.

Support Teachers

- Train teachers through professional development workshops on energy and environmental education.
- Support State efforts to implement the School Diversion and Environmental Education Law.
- Provide standards-based energy education resources that complement the district's curriculum plan, needs, and budget.

Improve School Facilities

- Train facility staff on energy efficient technologies and building practices.
- Benchmark and track the energy use of district buildings to reduce energy consumption and prioritize energy-efficient investments.
- Provide comprehensive energy audits and technical assistance.
- Develop demonstration projects to showcase the installation, operation, and maintenance of energy-efficient technologies.

Partners

To fulfill its goals, the SEE Program is built on an [extensive network of partnerships](#) with public, private, and nonprofit entities, which provide a broad range of services to school districts in the SEE Program area. These entities include:

- [SEE Program Implementation Team](#)
- California Department of Education
- California Integrated Waste Management Board
- California Energy Commission
- California Arts Council
- Department of Conservation
- California Conservation Corps
- Collaborative for High Performance Schools
- California Department of Forestry and Fire Protection

California Department of Education

The SEE Program established a partnership with the California Department of Education (CDE), and its California Regional Environmental Education Community Network.

California Regional Environmental Education Community Network

The goal of the [California Regional Environmental Education Community](#) (CREEC) Network is to enhance the environmental literacy of California K-12 students. To accomplish this mission, the CREEC Network works collaboratively with the regional education community, local governments, and environmental agency representatives to identify and provide environmental education resources to teachers and students.

Through the SEE Program, the CREEC Network:

- Outreaches to schools and school districts on environmental education, particularly as it relates to energy.
- Coordinates regional energy education meetings, professional development trainings, and events.
- Establishes new public and private partnerships that further the SEE Program mission.
- Facilitate teachers' access to energy education materials.
- Work with other CDE divisions to integrate the SEE Program into their activities.

California Integrated Waste Management Board

The School Diversion and Environmental Education Law ([School DEEL](#), Chapter 926, Statutes of 2001, SB 373, Torlaksen) establishes a number of landmark changes in the way California's education system views the area of environmental education. Among other things, the law requires the development of a unified strategy to integrate environmental education into standards based K-12 curriculum. As a result, energy, water, waste, and air issues will become an integral part of how students are taught math, science, language arts, and other traditional subjects. The School DEEL process will ultimately integrate a standards-based curriculum that incorporates environmental education into every 6th grade classroom statewide.

Through the SEE Program, the California Integrated Waste Management Board (CIWMB):

- Implements an Environmental Ambassador Pilot Program in Fresno Unified School District (FUSD). This program provides FUSD with professional development and ongoing technical support for teachers, administrators and school district business officials to allow them to effectively integrate environmental management with California's educational standards and adopted textbooks. The outcome of this pilot program will be used throughout the State as a model for the development of K-12 environmental education programs.

California Energy Commission

The SEE Program established a partnership with the California Energy Commission's (CEC) Bright Schools Program and Energy Quest Program.

Whether you are building a new school, modernizing an existing one, or just plain wondering how your school can save money on energy bills, the Bright Schools Program can help. This program offers specific services to help school districts become more energy wise (e.g. identifying cost-effective energy-efficient systems and/or providing design and implementation assistance).

Through the SEE Program, CEC:

- Marketed an extended Bright Schools Program to reach school districts in the Central Valley area.
- Coordinated the implementation of energy audits and feasibility studies in participating SEE school districts.

[Energy Quest](#) is an award winning educational website, designed to promote and teach energy efficiency and conservation to California students. Energy Quest features a host of energy-related materials for K-12 students and teachers. Through web based lessons entitled, "Devoured by the Dark," "The Energy Story," "Let's Get Energized," "Energy Trail," and "Conserve and Renew," Energy Quest provides instructional materials on energy use and efficiency; science projects and energy experiments; and interactive games and puzzles.

Through the SEE Program, CEC:

- Developed an energy education video available on its Energy Quest website.

California Arts Council

The "Energy Education Through the Arts Grant Program" expands the California Arts Council's (CAC) art program activities in schools and communities. The program presents an opportunity for artists in various disciplines (i.e., visual arts, theatre, dance, music, literature, media arts) to develop creative approaches to teach students about energy efficiency. Grant amounts range up to \$5,000 per recipient, depending on the type of artistic media, level of project complexity, and community outreach potential. Projects involve the production of murals, posters, theatrical pieces, songs, and various other artistic forms, as a means of expressing what students are learning about energy use and efficiency.

Through the SEE Program, CAC:

- Awarded 18 "Energy Education Through The Arts" grants in nine SEE Program counties.
- Implemented community energy education art projects in two SEE Program counties, involving students, teachers, and members of the community.
- Coordinates the implementation of arts programs at sites designated for SEE Demonstration Projects, as well as four Migrant Housing Centers in the SEE Program area.

Department of Conservation

The Department of Conservation's (DOC) "Recycle Rex School Assembly Program" travels throughout the State educating students about recycling and energy use, conservation, and efficiency. The school assembly is conducted in a game show format, features the other purple dinosaur "Recycle Rex," and engages K-3 students in an active learning experience. Through this partnership, SEE Program funding extended the school assembly program seasons, and provided additional educational support materials to teachers and premiums to students.

Through the SEE Program, DOC:

- Visited all 11 SEE Program counties and conduct school assemblies in roughly 70 schools.
- Provided energy education curriculum materials and premiums to participating schools.
- Coordinated special events (e.g. demonstration project workshops, museum and science center exhibits, county fairs) in SEE Program areas.

California Conservation Corps

As the oldest, largest and longest-running youth conservation corps in the world, the California Conservation Corps (CCC) engages nearly 90,000 young men and women in meaningful work, public service and educational activities that assist them in becoming more responsible citizens, while protecting and enhancing California's environment, human resources and communities. Through its involvement in numerous statewide education programs, CCC developed an expertise in presenting information about various conservation issues (e.g. recycling, energy efficiency and conservation) to schools and community-based organizations.

With SEE Program funding, CCC corps members will travel throughout the Central Valley to circulate mobile energy labs--produced with SEE funding--to school districts, migrant centers and American Indian Centers, teaching students and teachers about energy efficiency and conservation based on these labs and associated curriculum.

Through the SEE Program, CCC will:

- Visit approximately 140 classrooms in SEE participating school districts to provide energy efficiency educational activities

based on the mobile energy labs.

- Visit 4 migrant centers in the program area to provide energy efficiency educational activities based on mobile energy labs.
- Visit 2 American Indian Centers in the program area to provide energy efficiency educational activities based on mobile energy labs.
- Assist the California Department of Forestry and Fire Protection (see below) in the implementation of tree plantings at 4 migrant centers in the program area.
- Install energy efficient equipment at sites designated for SEE Demonstration Projects.
Collaborative for High Performance Schools.

Collaborative for High Performance Schools

The [Collaborative for High Performance Schools](#) (CHPS) is a partnership of federal, state, and local government agencies; investor-owned and municipal utilities; and nonprofit organizations formed under the unifying goal of improving the quality of educational facilities in California. CHPS membership includes, among others, the Pacific Gas and Electric Company, the California Energy Commission, the California Department of Education, Sacramento Municipal Utilities District, the State and Consumer Services Agency, the California Integrated Waste Management Board, the Division of the State Architect, and the Office of Public School Construction. CHPS developed a Best Practices Manual which consists of four volumes--Planning; Design; Criteria for Evaluation; and Operations and Maintenance. School districts throughout the state and the nation have adopted the CHPS criteria and use the manual as a reference guide.

Through the SEE Program, CHPS:

- Conducts training sessions for educators, the design community, facility operators, and students in SEE Program counties.
- Provides technical expertise on new construction, modernization, and SEE program demonstration projects.
- Completed Volume IV of the Best Practices Manual, "Maintenance and Operations Manual" to train and assist district facility operators.
- Developed and produced a series of twelve online videos.

California Department of Forestry and Fire Protection

The Department of Forestry and Fire Protection (CDF) protects the people of California from fires, responds to emergencies, and protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens.

Through the SEE Program, CDF:

- Assists in the design, planning, scheduling and facilitation of teacher training workshops for professional educators.
- Assists in SEE program outreach, workshop facilitation, analysis and evaluation of the workshops, and provides technical assistance to district personnel.
- Implements tree-planting demonstration projects in various migrant housing centers throughout the Central Valley and provides lessons on the benefits of those tree-plantings as it relates to energy efficiency and conservation.

California Department of Resources Recycling and Recovery (CalRecycle)



School Energy Efficiency (SEE) Program Resources and Services

The SEE Program also includes other energy education resources and facility improvement services such as:

- SEE Program Champion Grants
- After School Grants
- Web-Based Resources and On-line Video Tutorials from the Division of the State Architect
- Demonstration Projects



SEE Program Champion Grants

School district personnel (i.e., teachers, principals, district staff, facility operators) are a vital component of the School Energy Efficiency program delivery system. Their efforts may involve managing energy efficiency projects; attending SEE Program professional development trainings; marketing program resources to district personnel and other potential partners; and developing community energy education events. Through the SEE Program, two school district representatives will be identified as points of contact. These individuals are eligible for up to \$1,500 to assist them in their energy efficiency outreach, partnership development, training, and technical assistance efforts. In all, the program will award a maximum of 55 SEE Program Champion Grants to participating school districts.

After School Grants

The SEE Program awarded three grants (\$8,000/grant) to SEE Participating school districts to fund energy efficiency and conservation activities in existing after school programs aimed at providing expanded academic enrichment opportunities for children through project based learning activities.

Funding can be used for:

- The purchase of energy education instructional materials.
- Professional development for after school staff in the areas of energy conservation education.
- Creating after school activities related to energy efficiency/environmental education activities.
- Monitoring and evaluation.

Division of the State Architect

The [Division of the State Architect's \(DSA\)](#) newly upgraded website serves as a comprehensive resource for SEE Program participants. The website contains information on energy efficient technologies; procurement specifications; links to utility, education community, and other state agency websites; and a dense portfolio of technical assistance information.

Demonstration Projects

Demonstration projects are an integral and important component of the SEE Program. These projects provide opportunities to:

- Introduce energy efficient technologies to district administrators and facility staff.
- Integrate students and teachers into facility improvement discussions.
- Use the school site as a teaching tool.
- Work with utilities, Rebuild America partners, as well as other state and local partners.

The SEE Program seeks opportunities to showcase a variety of different energy efficient technologies, including, but not limited to, Energy Star equipment, solar tubes, occupancy sensors, lighting upgrades, vending misers, cool roofs, and high performance portable classrooms.



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School Energy Efficiency (SEE) Program

Partners: Implementation Team

To fulfill its goals, the SEE Program is built on an extensive network of partnerships with public, private, and nonprofit entities, which provide a broad range of services to school districts in the SEE Program area. These entities include the SEE Program Implementation Team as well as many other partners.

The SEE Program Implementation Team is primarily responsible for delivering energy education and facility improvement services to school districts. The team is composed of several partners.



- **ADM Associates** provides the facility improvement services. ADM Associates, Inc. is a nationally recognized full service energy consulting company with more than 20 years of experience in energy auditing, benchmarking, energy conservation training and education, as well as energy-efficient technology development.
- **The Alliance to Save Energy (ASE)** provides the educational and professional development services. ASE is a nonprofit coalition of prominent business, government, environmental, and consumer leaders who promote the efficient and clean use of energy worldwide to benefit the environment, the economy and national security. The Alliance's education, research, and advocacy programs are concentrated largely in the education, building, international policy, and communications areas.
- **Strategic Energy Innovations (SEI)** is a nonprofit organization that works in the areas of: energy use and efficiency, green buildings, economic development, and sustainable communities. SEI has significant experience assisting school districts improve the energy efficiency of their facilities and administering energy education programs. SEI also works closely with the Department of Energy's Rebuild Program to aid school districts and communities.

The following lists some of the SEE Program Implementation Team services.

Educational Resources. The SEE Program provides grade-specific instructional materials and activities correlated to California content standards in science, math, and language arts. Educational materials are compiled from such sources as the Alliance to Save Energy's Green Schools instructional resources binder, the U.S. Department of Energy's Energy Smart Schools program, the California Integrated Waste Management Board's SB 373 environmental education lessons, and much more.

Examples of educational materials include:

- **Hands-On Tools:** Energy Education Tool Kits, containing devices commonly used by energy professionals, allow students to collect data, analyze results and prepare recommendations for improving the efficiency of their school buildings.
- **Project-Based Learning Resources:** Teacher guides and student activities centered on implementing environmental education projects.
- **Films and Slide Shows:** A collection of free communication media on energy and sustainability issues.
- **Read, Read, Read:** Colorful dinosaur-themed "Big Books" for younger students and a nonfiction energy library for older students.
- **Professional Development:** An 8-part course professionally designed for elementary teachers on the science of energy. Through the workshops, teachers receive professional development credits.
- **Interactive Mobile Energy Efficiency Labs:** Through displays of various energy efficient technologies, these labs offer participating schools a fun, hands-on educational opportunity to learn more about energy-efficiency.

Facility Improvement Services. Facility improvement services are designed to provide comprehensive energy assessments of school district buildings, as well as operations and maintenance training opportunities.

Examples of such services include:

- **Detailed Energy Audit:** Low/no-cost energy efficient solutions are recommended through extensive on-site energy audits. Participating schools also receive assistance identifying rebate or other financial incentive programs to implement the recommended solutions.

- **Training School Facility Staff:** Facility staff receives training in re-commissioning and maintenance of existing equipment (e.g., how to check the refrigerant of HVAC units for proper charge, maintaining clean filters and coils).
- **Benchmarking:** The energy consumption of school district facilities is analyzed and evaluated against other similar facilities. As a result, each school will be able to compare its energy usage against other schools in the district, county or Central Valley.
- **Project-Based Learning Activities:** Participating schools are encouraged to promote the concept of the "school site as a teaching tool." For example, activities that foster collaborations between students and maintenance staff on lighting retrofits and HVAC system upgrades can be incorporated into classroom instruction.
- **Demonstration Technology:** Through partnerships with manufacturers, trade associations, state, and federal agencies, some schools will be provided demonstration technology to showcase the installation, operation and maintenance of energy-efficient equipment.