

**Final Report to the Department of Energy
Green Schools Project DE-FC01-99EE10685
Schools for the 21st Century: Transferring the Green Schools Experience**

The Alliance to Save Energy received continued funding from the Department of Energy (DOE) to implement a second year of activities to advance its program providing energy efficiency tools and expertise to schools. The Alliance's activities supported and complemented DOE's EnergySmarts Schools Partnership.

The major four major tasks under this project were to:

- Promote the School Efficiency Peer Exchange Program for school personnel.
- Develop the Earth Apple Awards program and disseminate the best award-winning ideas.
- Link Green Schools with Rebuild with at least one metropolitan area such as Philadelphia or Buffalo.
- Support Rebuild/Energy Smart Schools through working at the state level to develop business, state, and local government and through making presentations in support of school efficiency.

At the request of DOE's EnergySmarts Schools Partnership, we added a fifth task, which was to:

- Update the curriculum search the Alliance originally conducted for the Green Schools program in 1995.

This report describes the Alliance's activities for the year 2000.

In the first task, the Alliance developed a Peer Exchange Program that brought together experienced practitioners with school staff interested in implementing efficiency programs in their schools. The lessons that come directly from a peer's direct experience were especially valuable and often an important factor in winning approval for the program. The Peer Advisor's network included 20-30 individuals who have directly planned and implemented school efficiency programs in their districts and are willing to share their knowledge with others interested in started similar programs. A list of Peer Advisors is provided in Attachment A.

The Alliance facilitated two peer exchanges this year. The first was an exchange between the Facility Manager at the Iroquois Central School District and the Facility Manager and staff at the Broome-Tioga Board of Cooperative of Cooperative Educational Services (BOCES) in Binghamton, New York. Mr. Larry Bishop, who had been a part of the Green Schools Program, spent the day. Mr. Bishop had discussions with BOCES staff on the Green Schools program at Iroquois, including project start-up, energy savings, and division of team responsibilities. Although the Broome-Tioga school system is very different from the Iroquois Central School District, Mr. Bishop felt his visit was very

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important because it allowed the two school systems to exchange valuable information on how to implement successful Green Schools programs.

The second peer exchange took place in the Marion County Public Schools District in Florida in January 2001. Mr. Robert Van Der Like, an Energy Management Specialist from the school district, Mr. Rick Monaco, a peer mentor in the Alliance's Peer Mentoring Program, and Ms. Jennifer Carver, a representative from the Florida Energy Office who is also the spokesperson for Rebuild America/Energy Smart Schools for the State of Florida, actively participated in this peer exchange. The exchange participants mainly discussed what kind of energy education and awareness program ideas can be implemented in Marion County Public Schools. The discussions ranged from how to get schools more involved in energy awareness to actually conducting school energy audits and developing retrofit project procurement actions.

Both Mr. Monaco and Ms. Carver provided presentations on their respective programs and met with School Board Member, Mr. Jim Kelly, and select Energy Management Committee members. The peer exchange also included a presentation to the newly appointed Superintendent, Mr. Jim Warford, and his staff to introduce them to their energy management team.

The Marion County Public School peer exchange improved the cooperation between this county's public schools and the Alliance's Green School program. As a result of this exchange, Mr. Van Der Like, based on Mr. Monaco's advice, developed a website for the Marion County Public Schools. This website, describing the Project Green Machine (see <http://www.eemaf.org>), offers a comprehensive environmental and energy resource guide that not only augments the school's classroom curriculum, but also allows the school to support the district's local and community environmental compliance. Mr. Monaco also urged the Marion County Public Schools teachers to contact teachers in the Iroquois and Brownville school districts via email to discuss their energy management programs.

In addition to peer exchanges, participants in the Peer Match network have volunteered to share advice and information on school energy efficiency issues with school districts that request assistance. These information exchanges may take place by telephone, e-mail or correspondence, and are expected to facilitate the implementation of energy efficiency programs in schools.

The second major task this year was to develop the Earth Apple Awards. The purpose of the Earth Apple Awards is to publicly recognize student, teacher, and school efforts to save energy and to give teachers a way to assess an ongoing student program. All schools (K-12) that want to make an impact on their building energy consumption are eligible to compete for the Earth Apple Awards. Students outside the U.S. who are implementing energy efficiency projects in their schools or homes may also compete for these Awards. Overall winners of the Earth Apple awards receive prizes such as laptop computers, camcorders, and digital cameras. Activity winner receive prizes such as apple trees, apple pies, apple blossoms, and apple seeds.

The Alliance prepared an initial solicitation and entry form for the Earth Apple Awards program and made these available on the Alliance website (<http://www.ase.org>) The Alliance has received about five applications for the Awards programs, and we expect to hand out several awards during the upcoming Northeast Sustainable Energy Association (NESEA) conference in October 2001. We will present the overall Golden Apple Award to the East San Gabriel Valley Regional Occupation Program and Technical Center in Covina, California. This California ROP program won the Earth Apple contest because they not only received the highest total points for all their activities, but also calculated their energy savings successfully. A proud achievement of this program was that 12 of its students successfully completed the rigorous Saving Through Energy Management (STEM) program.

The Alliance has also been actively soliciting businesses to help sponsor the Earth Apple Awards program, and several major corporations have shown a strong interest in this effort.

The Alliance's third task in this project was to link the Green Schools program with the Rebuild program at least one metropolitan area. In this task, the Alliance built partnerships with Rebuild in the Los Angeles Metropolitan area as well as in the city of Philadelphia.

In the Los Angeles Metropolitan area, the Alliance facilitated a partnership with Rebuild and four school districts in the Los Angeles area. As a result of this partnership, there were four specific outcomes/activities. These included:

- A one-day workshop in Los Angeles in June that brought together 50 school administrators, 10 business partners.
- A commitment of the part of businesses to create model classrooms in two high schools to highlight appropriate technologies.
- A commitment from the school district to pursue school efficiency as they implement building improvement projects.
- A commitment from the Superintendent of the Regional Occupational Program, Mr. Ken Manning, to be the lead partner in the effort to build the coalition between the Alliance, Rebuild, and the Los Angeles area school districts.

The Alliance strengthened its partnership with Rebuild America, the DOE program whose mission is to build partnerships among communities, states, and the private sector to improve building performance and connect people, resources, ideas, and practices to provide energy solutions to community needs. As a commitment to this partnership, the Alliance and Rebuild Philadelphia submitted a joint proposal to support an Energy-Smart Green Schools program that will result in improved environmental and energy building performance for participating Philadelphia schools, energy efficiency and management instruction for students, and support for the Pennsylvania Department of Protection's energy efficient schools initiative and overall high-performance building guidelines. The project will help nine new Green Schools and 17 existing Green Schools to use energy

efficiency as an integrating theme for learning new disciplines, creating energy-saving behaviors, and carrying information and experience into the community.

The fourth and final task was to make presentations at regional and national school energy conferences, including Rebuild meetings, to support school energy programs.

The Alliance participated in three major meetings this year. The first meeting was in January 2000 when Ms. Merrilee Harrigan, Alliance Senior Program Manager, attended a regional Peer Exchange meeting in Baltimore. The meeting included representatives from the Alliance and the school district of Philadelphia and focused on specific community opportunities and challenges such as local Rebuild partnerships. In this meeting, Ms. Harrigan spoke about the Philadelphia Green Schools program as an example of a Green Schools-Rebuild partnership.

In March 2000, Ms. Harrigan participated in a National Rebuild Meeting in Atlanta. The meeting concentrated on the implementing environmental and energy programs in Georgia's schools, and Ms. Harrigan made a presentation on a comprehensive approach to school energy.

In June 2000, Ms. Harrigan, Ms. Karen Anderson, Alliance Program Manager, Ms. Jennifer Adams, Alliance Research Assistant, and Ms. Janet Castellini, an energy education consultant to the Alliance, participated in the Empowerment 2000 (E2K) conference in Wisconsin. E2K is a national forum to showcase energy education initiatives that provide innovative, hands-on opportunities for K-12 students. The E2K conference was held at the same time as the Midwest Renewable Energy Fair and the American Solar Energy Society Conference. The timing of these three major energy events provided a unique opportunity for all kinds of educators, including K-12 classroom teachers, curriculum developers, school administrators, facilities operators, and community outreach specialists, to meet and exchange ideas. Unlike lecture-oriented conferences, E2K was structured to encourage active participation and exchange. The bulk of the conference focused on three breakout sessions, including: Energy in the Classroom; Building Statewide Capacity for Energy Education; and Schools as Learning Laboratories.

With generous funding from DOE, the Alliance organized this conference with the Energy Center of Wisconsin. Ms. Anderson coordinated the Alliance's activities. All Alliance staff members actively participated in these break out sessions and attended the evening receptions, which allowed them to network with their peers. Ms. Harrigan spoke on the Green School Program at a special broadcast held at the Midwest REF on Talk of the Nation- Science.

The fifth and final task was to update the curriculum search that the Alliance originally prepared for the Green Schools program in 1995. In the summer of 2000, at the request of the DOE EnergySmart Schools, the Alliance prepared an updated curriculum search that included teaching resource materials developed since 1995. These materials also supplemented the instructional materials compiled by the Alliance for its *Green Schools*

Guide to Instructional Resources, which were prepared with funding from the Pew Charitable Trusts.

The *2000 Instructional Materials Review* includes 29 lessons that cover materials recently published as well as materials on environmental education topics that were not included in the original selection of instructional materials. These topics include: Environmental effects of fossil fuels; relationship between energy consumption and environmental degradation; new and renewable technologies, such as solar technologies, and material published in the last five years.

The Alliance used two evaluation tools to review these materials. The first was the key characteristics of excellent environmental education materials identified by the North America Association of Environmental Education (NAAEE)'s *National Project for Excellence in Environmental Education* (1996). The second was the rating scale used by the *Environmental Education Compendium for Energy Resources*, published by the California Department of Education, the California Energy Extension Service in the Governor's Office of Planning and Research, and Sonoma University. The Alliance synthesized these two tools to develop a scale appropriate to the project. The ratings consisted of two scores: one was the average of the score on five different parameters, and the other was a score for overall quality that represents those five parameters as well as the lesson's greatest strengths and weaknesses.

After we developed these ratings, we conducted an electronic search and found 50 lessons that fit the above parameters. Of those 50, we selected 29 lessons for review based on their ability to be used as stand-alone lessons that could be integrated with curriculum requirements. Finally, four highly respected teachers who participated in the Green School for at least two years reviewed the lessons and provided ratings for the lesson. The Alliance has prepared an electronic version of the 2000 Instructional Materials Review, and we can make it available to any DOE staff member that requests a copy.

Attachment A
Suggested Peer Match Contacts for Green Schools

Peer Match Contact	Affiliation
Bob Kalka	BOCES, Broome Tioga
John Sole	Philadelphia (M. Sender Project based education)
Carolyn Fitchett	Philadelphia (Middle school educator)
Robin Bauerer	Philadelphia
Dennis Womack	Facilities area coordinator for the School District of Philadelphia
Matt Melady	Facilities area coordinator for the School District of Philadelphia
Ken Manning	Regional Occupation Program (ROP)
Lil Walker	Regional Occupation Program (ROP)
Cathy Doub	Workman High School, Hacienda La Puente
Brad Manning	Workman High School, Hacienda La Puente
Phil Merchant	Workman High School, Hacienda La Puente
Pat Foy	Charter Oak High School
Lucielle Wright	Charter Oak High School
Susan Van Eyck	Royal Oak
Bobbie Banderas	Royal Oak