IOWA energy BULLETIN

Department of Natural Resources
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Iowa's Stars of Excellence

1999 Iowa Energy Leadership Award Winners

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Iowa Energy Leadership Awards

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1999 Iowa Energy Leadership Award Winners

Article by Jessica Free
Photos by Clay Smith

The Department of Natural Resources proudly presents the 1999 Iowa Energy Leadership Awards, recognizing outstanding innovations in energy efficiency and renewable energy in the state.

This year's winners share a strong commitment to teaching and demonstrating energy efficiency and renewable energy through hands-on applications. In other words, these organizations practice what they preach.

These three organizations believe not only in the economic and environmental benefits of their programs, but also in making them easy for the general public to adopt. Their dedication and hard work are helping Iowans move toward a more sustainable future, proving them to be stars of excellence in the energy industry.

To each of the 1999 Iowa Energy Leadership Award winners, congratulations and thank you.

Iowa Energy Leadership Awards

Leading By Example

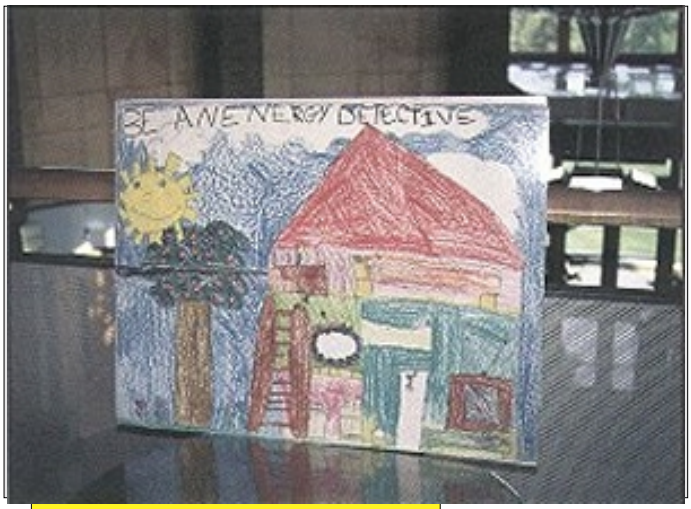
The Center for Energy and Environmental Education

Built in 1994, the building housing CEEE is 40 percent more energy efficient than comparable facilities.

Think globally and act locally. At the Center for Energy and Environmental Education (CEEE), that is not only what they teach, but also what they do.

"Good environmental stewardship locally makes us good stewards of the world environment as well," said Professor Bill Stigliani, director of CEEE. "There are so many possibilities through energy and the environment. We should embrace these new technologies."

CEEE was established to promote greater understanding and awareness about issues related to energy and the environment. The center's various



The Iowa Energy Poster Contest attracts about 1,000 first- through sixth-graders every year.

programs work together to solve global problems on a local level. According to Stigliani, CEEE's strategy is to focus on: 1) energy use, 2) land use, and 3) consumption of materials. All CEEE projects focus on a combination of these concepts and their relationships to one another.

Located at the University of Northern Iowa (UNI) in Cedar Falls, CEEE is leading by example. The center opened its doors in 1994, housed in a uniquely designed passive solar building that uses about 40 percent less energy than a modern building of comparable size. Stigliani said the facility inspires students to learn more about renewable energy and energy efficiency. "The building itself is a teaching tool," he said. And that's just the beginning.

Active Education

As a service and outreach center, CEEE has developed educational tools and events that incorporate renewable energy in student learning. Among these activities are environmental curricula for K-12 teachers; the Iowa Energy Poster Contest for elementary students; the Iowa Electrathon; and the Iowa Energy Summit. CEEE has also developed coursework on energy and environmental studies at UNI.

The Electrathon, started with the Iowa Renewable Energy Association in 1997, is one of CEEE's most fun and effective education initiatives. Over the course of an academic year, students design, build and race electric vehicles with guidance and information from CEEE. The cars then publicly demonstrate the potential that exists for zero-emissions vehicles. "The Electrathon has played a large role in Iowa's transportation education," Stigliani said.

Another major CEEE educational effort is the Iowa Energy Summit. Co-sponsored by the Iowa DNR, with funding from MidAmerican Energy and Pella Corporation, the Summit brings together teams from Iowa high schools annually to discuss the future of energy in the state. The teams research specific energy issues in the months prior to the Summit, then present resolutions in a United Nations format at the event.

CEEE also has a full-time energy educator whose pay is in part provided by Cedar Falls Utilities. The energy educator travels to schools across the state to teach students about renewable energy and energy efficiency. Excited students then share what they have learned with their parents, passing on CEEE's message.

Reaching Further

CEEE has been instrumental in many local and statewide energy initiatives, including the greening of the UNI campus, promoting efficiency to Iowa's churches, and teaching student interns to conduct energy audits in Cedar Falls through a program called Conservation City.

Energy Star Congregations has been one of CEEE's most successful outreach programs. Since 1996, CEEE has encouraged faith communities of all religious denominations to improve the energy efficiency of their facilities. "If a pastor is excited about energy efficiency, there is a ripple effect throughout the congregation," Stigliani said. It is CEEE's hope that parishioners will be inspired to adopt energy-efficiency measures in their homes.

CEEE is a co-sponsor of the Iowa Electrathon, an annual event teaching kids across the state how to build and race electric cars.

The Conservation City program is

CEEE cont'd on page 5

Building A New Future

Habitat for Humanity of North Central Iowa

Hammers, nails, hard work and ingenuity build more than a house – they can build a home so efficient it saves money.

Habitat for Humanity International has built and rehabilitated more than 80,000 houses for families in need since its inception in 1976. Habitat for Humanity of North Central Iowa (Habitat) is going one step further in its effort to create affordable housing for low-income families.

The organization has built the first Habitat house in Iowa to meet Energy Star standards, demonstrating the benefits of energy efficiency. A family of four is now living comfortably and saving money in the newly constructed home in Mason City, Iowa. It is expected to save 50 percent of typical energy expenses.

"We're just putting some common sense to the way we build things," said Earl Mason, Habitat board member and volunteer.

Nuts and Bolts

When Habitat began planning for its newest project last year, Mason discovered energy-efficient house plans on a website for the National Affordable Housing Network. The plans called for simple energy-saving measures that didn't greatly affect the building cost.

The house was built with a crawl space to avoid basement heating and subsequent heat losses through foundation walls. Two exterior walls were filled with insulation, eliminating conductivity between the interior and exterior walls. The house also has a 100-percent vapor barrier.

Interior construction varied greatly from normal methods. Drywall was applied to the entire ceiling and inside perimeter walls before any interior walls were erected, preventing air leaks. Special roof trusses provide insulation over the entire ceiling.

Additional energy-efficiency features include the use of a 25,000 BTU closed-combustion space heater instead of a furnace, and whole-house ventilation to bring in fresh air continually.

Family Matters

Since moving into the house in November 1998, Kai and Sue Kral, along with their sons, Jake and Nathan, have reaped the benefits of Habitat's energy-efficiency efforts.

"Our utility bills have been running between $70 and $90," said Sue Kral. "They used to be $120 in a house the same size as this one."

Mason said, "Habitat works with people whose incomes are not high. We pay close attention to keeping the

Construction included high-performance windows and doors, which minimize air leaks.

Habitat for Humanity constructed this three-bedroom home for the Sue and Kai Kral family in Mason City. The house was built to Energy Star standards.

Energy-efficient equipment such as this sealed-combustion water heater help cut the home's energy use by 50 percent.

utilities low." He said energy costs will continue to decrease as the Krals learn how to properly adjust the ventilator.

"The house is also very quiet because of the extra insulation," Kral said. That insulation and carefully sealed seams make temperature regulation easier as well.

Follow the Leader

At a recent regional Habitat for Humanity meeting, the Krals' home was presented as an example of innovation and leadership. Millard Fuller, founder and president of Habitat for Humanity International, said the energy-efficient design information will be made available to all 1,800 active Habitat affiliates.

"This is turning out to be a great success. We intend to build all our homes to Energy Star standards from here on out," Mason said.

In fact, the organization is forging ahead in its energy efforts. It is now working with the Iowa Renewable Energy Association to build a photovoltaic solar home in 2000. The home is hoped to be completely unconnected to the electricity grid.

"Saving energy is simple to do," said Mason. "You just need to learn how and make a commitment to it."

The Kral family, Jake, Nathan, Sue and Kai, is pleased with the home built by Habitat for Humanity.

CEEE Leading by Example *cont'd from page 3*

Students learn about energy and environmental studies through coursework at CEEE.

dedicated to increasing energy efficiency and demonstrating its benefits in Cedar Falls. Among these benefits are increased disposable income, new jobs, improved air quality, and reduced carbon dioxide emissions. Participants include schools, businesses, churches and local residents.

"We're the only ones that go house to house, church to church, school to school with energy audits in our hands," Stigliani said. "We're not just disseminating information - we're trying to get people involved!"

Sources of Inspiration

The inception of CEEE began in the mind of former UNI president Constantine Curris who worked to strengthen the university's environmental programs. With a grant of nearly $4 million from the U.S. Department of Energy, that vision became the Center for Energy and Environmental Education. CEEE now operates on funding from sources such as the Iowa Energy Center, the Environmental Protection Agency, Cedar Falls Utilities, the Resource Enhancement and Protection Program, UNI, and several foundations.

Looking Ahead

"I want people to think about living sustainably, and I want people to think of future generations," Stigliani said. With increasingly successful programs, a global vision, and a dedication to leading by example, CEEE is on its way to attaining that goal.

Will Power to Renewable Power

The Iowa Renewable Energy Association

Solar panels powered a stage at the 1999 Iowa State Fair.

It has no building of its own, no town to call home. It moves from place to place – at the Iowa State Fair one week and putting on a workshop in eastern Iowa the next – promoting and educating Iowans on renewable energy and energy conservation. Its tremendous impact is felt across the state; its influence is widespread. It's the Iowa Renewable Energy Association (I-RENEW), and it aims to achieve long-term social, environmental, and economic sustainability.

The small grassroots organization burst into Iowa's energy community in 1992. Tom Snyder, a school teacher, and Tom Deves, an engineer with John Deere Works, were pushed ahead in their effort to form I-RENEW when the Iowa Sustainable Energy for Economic Development Coalition and the Iowa DNR funded the first Annual Energy Expo.

Since then, I-RENEW has grown rapidly and is now a leading educator in renewable energy. The non-profit organization has more than 400 members from across the country who take pride in working together to implement alternate energy ideas into mainstream public thinking.

"Total volunteer dedication is what makes this organization work," said Tom Snyder, co-founder and past president. "Every member has a commitment to the cause, a commitment to renewable energy."

Expo Exposé

I-RENEW presently sponsors about six major programs, the largest of which is the Annual Energy Expo. The original event (1992) was a one-day informational gathering with a few hundred attendees. Over the years, the Expo expanded to a two-day event with workshops, displays and working demonstrations on various renewable energy technologies, energy-efficient building

10th Anniversary of Energy Innovation

Iowa Energy Leadership Awards: 1989-1999

1999 marks the 10th anniversary of the Department of Natural Resources' Iowa Energy Leadership Awards. In the past decade, more than 50 organizations have been honored for their outstanding contributions in the fields of energy efficiency and renewable energy development.

Past award winners include schools, utilities, businesses, hospitals, nonprofit organizations and many others. All have taken Iowa to the forefront of technology and innovation, proving that smart energy use is important for the state's economy and environment. The DNR looks forward to continued leadership from Iowa's energy innovators.

If the the new century follows the same path as the past 10 years, Iowa has a very exciting and energy-wise future ahead.

techniques, alternative fuel vehicles, and legislative policy about energy issues.

More than 1,500 people attended the Energy Expo in 1998, and higher numbers are expected for the 1999 Iowa All-Energy Expo. Despite the increasing number of attendees, I-RENEW continues to strive for a "laid-back" atmosphere that is attractive to the general public.

"It's a place for people to come and exchange ideas," Snyder said. "We want to inform people about what we know about alternate energy, but we also want to hear what they know."

For the 1999 Iowa All-Energy Expo, I-RENEW has partnered with other energy and environmental organizations in the state to create a four-day event, giving attendees more opportunities to see all that is offered.

Let the Sunshine In

Solar power is involved in several of I-RENEW's major projects. In 1996, the organization received a gift of 116 photovoltaic (PV) solar panels from Brookhaven National Laboratory in Upton, New York. The panels, which were designated for educational projects, are used frequently for demonstrations and workshops.

In the summer of 1997, 1000 watts of the donated PV panels were installed at the Indian Creek Nature Center in Cedar Rapids. I-RENEW also built a PV trailer with some of the panels in 1998. The trailer has appeared at events across Iowa and the nation, including the Energy Expos, RAGBRAI, the Iowa State Fair, and the National Solar Music Fest in Taos, New Mexico.

I-RENEW also offered a workshop on PV electrical power systems during spring 1999. Workshop attendees learned about the theory and construction of solar-powered electrical systems.

A renewable energy display at one of I-RENEW's many demonstrations.

Top Priority

I-RENEW strives to reach kids, teachers, and everyday people with its message of sustainability. Besides the Energy Expo and solar workshop, I-RENEW has offered workshops on strawbale building construction. It also teams up with the Center for Energy and Environmental Education to co-sponsor the Iowa Electrathon. The Electrathon gives high school students an opportunity to learn about alternate energy by designing, building, and racing electric vehicles.

Snyder said: "Our primary purpose is education. We are working toward becoming an accredited educational institution." If that happens, people could receive continuing education or college credits for taking classes or attending workshops offered by I-RENEW.

Trusting the Teacher

"People trust our opinion," Snyder said. "We're honest about renewables and we're showing Iowans that alternate energy can work. We're *doing* alternate energy. People can come to our classes or to the Expo and learn by doing; it's all hands-on."

Snyder and I-RENEW want to teach Iowans common sense: "People seem to have forgotten that fossil fuels are finite. They're not going to last forever. Alternate energy has to become mainstream."

(Above left): An electric-powered ice cream truck on display at the annual Energy Expo.

(Right): Iowans learn about the Iowa Electrathon, an electric car race co-sponsored by I-RENEW.

Student Energy Leadership Awards

The DNR is pleased to honor two students with Iowa Energy Leadership Awards for their projects on effective energy management. The students were chosen from approximately 40 energy-related entries at the Iowa State University Science and Technology Fair March 26 and 27, 1999. Both students received their awards as part of the annual Iowa Energy Leadership Awards luncheon on Sept. 24 in Cedar Rapids.

Middle School Winner "Pass on the Glass"

Kevin Heisdorffer, an eighth grader at Pekin Middle School, performed a "hot test" and a "cold test" to determine the effectiveness of different types of insulation in the summer and winter. He monitored the ambient temperature and the temperature of the insulation, then compared the results to determine the insulation with higher performance.

High School Winner "Wrap Up Your Energy Savings"

Corey Menning, an eleventh grader at Algona High School, compared four types of house wrap. His tests included resistance to exfiltration (by using a balloon), temperature performance, puncture resistance, and moisture infiltration. He discovered that one of the four brands of wrap exhibited superior performance in each test.

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