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BULLETIN

Department of Natural Resources
Special Edition Newsletter 1998

A Vision for the Future

Ankeny Community School District



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Global and Regional
Environmental Research

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A Vision for the Future

1998 Energy Award Winners

The Department of Natural Resources proudly presents the 1998 Iowa Energy Leadership Awards, recognizing outstanding innovations in energy efficiency and renewable energy in the state.



This year's winners share an uncommon vision for the future, while living and working in common environments.

Among the hundreds of

school districts, university organizations, communities and home builders in Iowa, the four winners — representing each of these groups — are demonstrating the economic and environmental benefits that come from wise energy management.

They are doing so for business development, educational and environmental reasons. Whatever the motivation, their efforts are leading the way

Article by Julie Tack
Photos by Kenneth Formanek

to building a sustainable energy future in Iowa. That vision for the future makes this year's winners true leaders in the development of renewable energy and the advancement of energy efficiency.

To each of the 1998 award winners, congratulations and thank you.

Every Effort Counts Ankeny Community School District

How many schools in Iowa — much less the nation — have a full-time facilities energy manager? Ankeny Community School District does, and it's one of many efforts the school system is making to conserve its resources by saving energy.

Ankeny's incentive for achieving



■ (Left to right) Dr. Ben Norman, superintendent, Ted Godlove, facilities energy manager, and Steve Drake, director of support services, oversee the school district's facility operations.

energy efficiency is grounded on educational principles. According to Dr. Ben Norman, superintendent of Ankeny schools, “Energy use is a facet of education. The less of our educational dollar that goes toward energy, the more it can go where it’s supposed to — the students and teachers.”

A Long History

Work toward understanding the district’s energy use began more than 20 years ago, during the energy crisis of the 1970s. When the district realized how much money was being allocated toward utility bills, it started implementing small changes in its buildings. Improvements like weather stripping and insulated windows were the first of many proactive steps to improve efficiency. Soon, every decision about school facilities included energy use as a factor.

As building energy management grew, so did the number of outside contractors and service companies being paid to install and monitor heating, ventilating and air conditioning equipment. The district realized it would be more cost-effective to hire a full-time facilities energy manager.

Ted Godlove, facilities energy manager for the district, said, “My goal

is to provide the optimum level of comfort and the most efficient use of energy at the least possible cost.” Godlove is responsible for handling all new energy improvements, overseeing daily operations of HVAC equipment, and managing comfort levels at each of the nine schools in the district. He even has a computer that lets him monitor energy use and control equipment operations from his home.

Partnerships

The school district is able to track almost \$130,000 in utility company rebates and has worked in partnership with the Iowa Energy Center and other local energy-conscious consultants to improve lighting, heating and cooling systems. The district’s most recent project is a new geothermal heat pump system retrofitted to an older elementary school. The system provides both air conditioning and heating less expensively than the

previous heating system. Work is underway to install additional heat pumps at two elementary schools and a middle school.

Another example of past energy efficiency projects is the replacement of every light bulb in the entire district with T-8 lamps.



■ Teachers work in a comfortable environment, due to efficient heating and cooling, new T-8 lighting and insulated windows.

comfortable. Superintendent Norman said, “Comfort level plays an important part in the learning environment.” Marcy Sparks, principal of Northwest Elementary, agrees. “At the end of the day, teachers and students feel refreshed. They are able to remain excited all seven hours of the learning day because they aren’t exhausted from the heat.”

Outside the school day, buildings are used for thousands of hours each year by community organizations. “We want our taxpayers to be getting the most for their money,” said Norman. “We want to serve our community *and* our students, and we are finding ways to make that work.”

Dr. Norman shares his district’s experience in building energy management with other schools in Iowa. Ankeny Community School District is teaching that every step to maximize energy use can make a difference, both in cost savings and how well students perform in the classroom. It’s a perfect example that when it comes to energy efficiency, every effort counts.



■ Construction is beginning on the second of four geothermal heat pump systems within the district. This one is located at an elementary school.

It’s All About Comfort

An important goal in energy management for the district is to ensure that teachers and student are

The Times They Are A'Changing

The Center for Global and Regional Environmental Research



■ Founded in 1990, The Center for Global and Regional Environmental Research (CGRER) is located in the Advanced Technology Laboratory at The University of Iowa. Funding for CGRER is provided through an assessment on the total gross operating revenues of Iowa's investor-owned utilities.

The juts and curves of the strangely shaped metallic building are almost blindingly bright on a sunny afternoon. The building that houses the Center for Global and Regional Environmental Research (CGRER), located in the heart of The University of Iowa campus, is a modern phenomenon amidst an other-wise traditional collegiate environment.

The building, like CGRER, represents a change in times for both the university and the state of Iowa.

Breaking Down Barriers

Founded in 1990, the mission of

CGRER is to study regional and global environmental change by drawing on the expertise of researchers from varied disciplines. Currently, 66 faculty members from fields such as science, engineering, medicine, law and humanities work together to understand global change. This interdisciplinary approach is quite unique.

Jerry Schnoor and Gregory Carmichael are co-directors of the organization. "CGRER is working to break down traditional university barriers and bring people together," said Schnoor.

Why?

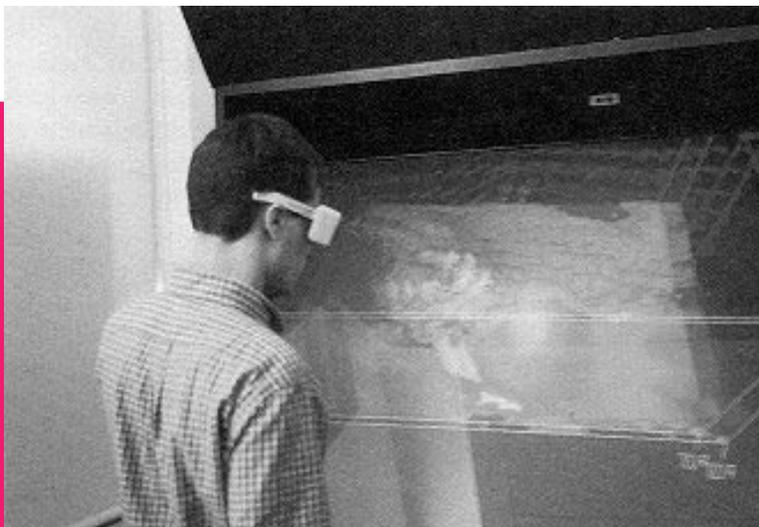
The Human Touch

"Global change is not just an environmental issue," said Schnoor. "We want to be experts on the human element." Understanding how social norms and cultural activities play a role is critical to research efforts.

With the goals of helping to shape policy, providing data for well-founded decisions among industries and governments, and creating educational opportunities for Iowa's students and citizens, CGRER is a beehive of scientific and technological activity.

Energy's Impact

At the center of this activity is understanding the complex and integral role energy has in affecting



■ Much of the research taking place at CGRER involves computer modeling. This ImmersaDesk displays data in a three-dimensional format, requiring special glasses for viewing.

Neighborhood Know-How Rebuild Webster City

Street after street of perfectly maintained homes. New public buildings. A freshly constructed bike path winding through town.

Webster City residents know how to make their community a better place to live. It just took energy efficiency to help them gain national attention for their efforts.

The U.S. Department of Energy's (DOE) Rebuild America program helps communities decrease energy costs while improving quality of life and local economies. When Webster City heard of the program, town members were excited to join. "We saw this as a new tool for economic development," said City Manager Theresa Rotschafer.

The Beginning of Success

Rebuild Webster City was established with assistance from the Department of Natural Resources and the

■ (Below) Frigidaire is one of several local businesses saving money through energy efficiency. The appliance company has made more than \$4 million in improvements.



■ (Above) A model energy home demonstrates energy efficiency.



Webster City Municipal Utility. The Des Moines-based company, The Energy Group, worked with community leaders to develop strategies for reducing the entire town's energy consumption by 30 percent.

The municipal utility and The Energy Group spearheaded efforts by creating a Rebuild Webster City home office on main street, along with an "energy store" where consumers can buy energy-efficient equipment sold locally at lower prices. Additionally, local contractors agreed to contribute two percent



■ A new bike path in town demonstrates neighborhood know-how.



■ Webster City's new fire department saves energy while helping firefighters save lives.

of all project costs back to the program, in exchange for free marketing and work on projects associated with Rebuild.

Outstanding Results

To date, \$50,000 of DOE funding has resulted in \$4.5 million in energy

The Competitive Edge

Skogman Construction Company

Home construction is a competitive business. With hundreds of builders in Eastern Iowa alone, any advantage can help a construction company increase its business success. For Skogman Construction Company, that new competitive edge is energy efficiency.

As a fifth-generation company in the Greater Cedar Rapids/Marion area, Skogman is one of the largest builders in the state, producing between 100 and 130 new homes each year.

Setting a New Standard

In 1997, the construction company made the business decision to build every home to the Energy Star® standards established by the Environmental Protection Agency. This



■ Drew Skogman, vice president of Skogman Construction, shows one of the homes his company is building in Cedar Rapids, built 30 percent more energy efficient than Iowa's Model Energy Code requirements.

commitment makes Skogman the leading builder of energy efficient homes in Iowa, exceeding the Model Energy Code by at least 30 percent.

Drew Skogman, vice president of Skogman Construction, said that while the company has always had an interest in energy efficiency, its new program got off the ground with the help of MidAmerican Energy.

"They [MidAmerican] saw we were already including many of the construction techniques that would help us meet the Energy Star® standards," said Skogman. MidAmerican's Energy Star® New Home program provides a "road map" for how a builder can make a home more energy efficient.

Skogman's homes also have been evaluated by the Home Energy Rating System. All of the company's new homes have earned a rating of four stars or better on a five-star scale, with a minimum score of 86 (the average in Iowa is 74.1 on a 100-point scale).

Family Appeal

To date, more than 60 families



■ An important building technique is ensuring top-notch wall, ceiling and basement insulation.

have purchased Skogman's energy-wise houses. One of the greatest benefits to these families is the cost savings associated with energy efficiency. According to MidAmerican Energy, estimated energy cost savings exceed 20 percent, which equals \$30 to \$45 per month for the average homeowner. "Energy efficiency is another factor that makes our homes appealing," said Skogman.

Tried and True Techniques

The company's construction techniques include high efficiency windows; improved heating, cooling and hot water systems; and setback thermostat controls. Most importantly, Skogman concentrates on limiting air infiltration. "When you turn on the heat in the winter, it's as if the house inhales," said Skogman. "The furnace is sucking in air from the outside." Higher insulation values in basements, walls and ceilings, along with sealed ventilation ducts, help control air filtration.

Additionally, homes built by



■ The finished product, one of Skogman's 100-130 homes built each year.

Skogman provide greater comfort, lower the cost of a home over its entire lifetime, and help improve the environment.

With Skogman Construction Company concentrating on better energy management in its homes, other builders will probably soon follow. "We are educating homebuyers about energy efficiency. Buyers will ask other builders, and those builders will need to act," said Skogman.

Incorporating energy efficiency into its home building techniques is an important reason why Skogman Construction Company is earning a competitive edge in eastern Iowa.

Rebuild Webster City, continued

improvements, and almost \$550,000 in annual savings.

Public facilities, churches, schools and private businesses have all implemented energy efficiency improvements. From the city fire department to the largest employer, Frigidaire, 20 organizations have jumped onto the energy efficiency bandwagon.

Funding to pay for improvements is available through the utility and a local bank. Participants can pay back loans as part of their utility bills.

Projects included a new geothermal heat pump system in the middle school, which now serves as a model in Iowa.

National Award

Through the strong cooperation and commitment between the

town's private and public sectors, Webster City earned national attention when it won the DOE's National Rebuild Partnership of the Year award in March 1998. Webster City was chosen from 160 community participants across the country for its outstanding initiative and achievements.

Down the road, Rebuild Webster City plans to make nearly \$10 million in improvements by the year 2000, with annual energy cost savings of \$2.5 million. As a result the town also will gain a healthier environment.

With each new success, town members exhibit a modest pride in what they have achieved. "We're a quiet success story," said Rotschafer.

In many towns across the United States, that claim may not be quite as easy to make. But in Webster City, the statement is fully backed by neighborhood know-how.



Center for Global and Regional Environmental Research, continued

global change. Reaching all corners of the world, CGRER is studying the relationships among energy, the

environment and the economy. From working with China on its energy demand, to discussing agriculture practices with Iowa's farmers, members of CGRER see renewable energy and energy efficiency as strong elements for affecting global change.

Examples of the organization's energy research projects include:

- ◆ The Iowa Greenhouse Gas Action Plan. The Plan makes

recommendations on how Iowa can reduce its air emissions, save energy and provide for renewable energy resources.

- ◆ An analysis for the Iowa Utilities Board, in conjunction with the Iowa Energy Center, on how a deregulated electric utility industry will affect air emissions in the state.

- ◆ The planting of hybrid poplar trees in Amana to demonstrate the energy benefits of using riparian zone buffer strips to improve water quality. Poplars can replace propane for corn drying and heating out-buildings.

"Our goal is to improve efficiency and save emissions while bolstering the economy," said Schnoor. As a premiere energy and environmental resource center for the state and nation, CGRER's work will help Iowa's energy perspective change with the times.



■ Dr. Jerry Schnoor, co-director of CGRER, leads faculty in understanding energy's relationship to the environment.

Student Energy Leadership Award Winners

The DNR is honoring two students with Iowa Student Energy Leadership Awards for their projects on energy efficiency and renewable energy. The students were chosen from more than 40 entries related to energy at the Iowa State University Science and Technology Fair March 27 and 28, 1998. The two students will receive their awards as part of the annual DNR Iowa Energy Leadership Awards luncheon on November 4.

Middle School Winner "Polymers"

Eric Turner, a seventh grader at Otto B. Laing Middle School in Algona, won for his investigation of polymers and their effect on water conservation. Polymers are chemical molecules the size of rock salt capable of absorbing water. Polymers can reduce the need for watering crops by 25-60 percent, depending upon location and conditions, thus lowering energy consumption.

High School Winner "Cow Manure: A Source of Energy"

Joni Taylor, a junior at Stuart-Menlo High School in Stuart, evaluated the energy content of cow manure based on differing diets of corn and hay. She concluded that cow manure was a viable source of alternative energy, and that hay was the greatest contributor to high energy content in the waste material. She plans to expand her evaluation next year.

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