

## **Highlights of Energy/Environmental History at UNI**

### **Historical Sampling of Attitudes about Energy at UNI**

#### **Fire and Smoke - 1917**

Although there must be fire where there is smoke, it does not follow that the greatest amount of smoke means the greatest number of calories of heat per pound of coal consumed. After watching the periodic eruption of our miniature Vesuvius, we wonder if the conservation of our natural resources so diligently taught in our class room is practically demonstrated by an efficient firing of our heating system.

Editorial page, The College Eye, March 28, 1917

#### **Gab in Darkness: Save Electricity - 1945**

Here's a chance for you to perform a patriotic service that's as simple as flipping the electric light switch on your wall or in an empty classroom. You really don't need the light when you are "gabbing" out in the hall or when you've gone down the hall to visit, and you may be doing your part to help save fuel, manpower, or even those precious war-time commodities, light bulbs.

This week President Malcolm Price suggested that Teachers College might do even more than her present cooperation with the national brownout for outdoor lighting. Students, faculty and staff can be on the alert for unused indoor electricity and be prompt to eliminate this waste, he said.

Special Wartime College Eye, March 9, 1945

#### **Dancer Fuel Savings - 1973**

To the editor:

In light of the current energy crisis, the Dancer Hall Council has passed the following resolution: We hereby encourage all residents to commit themselves to the conservation of energy resources through compliance with the suggestions of our government officials. Specifically we urge each house and all individuals to act immediately on the following measures:

1. Turn down and maintain room temperatures of 68°.
2. Turn off lights and appliances in your room when you leave, even for short periods. Where possible reduce or dim hall lighting, shut off laundry room lights when not in use, and turn off lounge lights after 12:00 p.m.

The energy crisis is a very real threat, and only immediate collective action can offer us hope for its solution.

Dancer Hall Council

Northern Iowan, November 20, 1973

#### **Every Little Bit Helps - 1980**

"Help conserve energy, use the revolving doors." Sound familiar? Since winter began these signs have been posted at the entrances in the Union that have revolving doors. Although many of the students and professors have changed their ways and are using the revolving doors, there is still a large number (according to my observations) that either can't read, don't give a damn, or are ignorant of the fact that there is an energy problem.

The university is doing what it can to conserve energy by enforcing the 65 degree temperature, insulating buildings and repairing them; let's work with them to make sure that the other measures being used are just as effective – no matter how small they may be.  
Kevin Knickrehm, UNI student, Northern Iowan, January 29, 1980.

### **Campus Shutdown Saves UNI Money - 1986**

“Plant services is always trying to create new ways to save money and energy at UNI,” comment by Tom Paulson, Physical Plant Director after saving the university \$12,827 from shutting down campus from December 21 to January 1.

Donnelle Louise Eller

Northern Iowan, January 21, 1986

### **UNI Students Recognize Need for Energy Efficiency - 1994**

“We may have won, but we’ve got a long way to go,” comment by Rhonda Goumett, Gamma Phi Beta house manager, after the sorority won the “Blower Door” competition for allowing the least amount of air to escape (through leaks in the building from cracked caulking, lack of weather stripping, etc.). They won a cash award of \$55 from the Inter Fraternity/Panhellenic Counsel.

Northern Edition, April 27, 1994

### **Gas Prices Hurt Student’s Pocketbooks - 2004**

“I try to find alternative ways of transportation like riding my bike or walking to work if I have time. The reality of it is I still have to travel home to Des Moines, so I’m almost forced to buy gas,” comment by student Jess Maass about rising price of gasoline.

Bridget Eggers

Northern Iowan, June 18, 2004

## **Milestones**

### **1915**

UNI (then the Iowa State Teachers College) offers one of the first two collegiate-level conservation courses in the nation.

### **1950**

UNI (then the Iowa State Teachers College), in collaboration with the Department of Public Instruction and the Conservation Commission, establishes the Iowa Teachers Conservation Camp, one of the first programs designed to specifically educate teachers about the problems associated conservation of soil and wildlife, and concern for the total environment.

### **1954**

Iowa State Teachers College received an Award of Merit for 1954 from the National Association of Conservation Education and Publicity for “outstanding leadership in advancing conservation in Iowa through teacher training.”

### **1970**

Office of environmental studies opened under the Directorship of Dr. Clifford McCollum, Dean of the College of Natural Sciences.

#### **1974**

Energy Conservation Task Force created with the following objectives:

- 1) Serve as a clearing house for suggested methods for energy conservation here on the campus.
- 2) Recommend policy and operating procedural changes for implementation by the administration that will provide energy conservation.
- 3) Solicit staff and student participation in a variety of efforts to conserve energy.
- 4) Communicate with the campus community as a whole to keep it informed of the actions taken to conserve energy.

#### **1975**

UNI chemistry faculty embark on Citizens' Workshops on Energy and Environment. In 1975-1976 they conducted over 200 workshops to a total audience of 9,482 people.

#### **1975**

An interdisciplinary minor in environmental perceptions is established to expand student awareness about environmental problems and solutions.

#### **1979**

Thomas Paulson, Director of the Physical Plant, reports that a series of "quick fix" maintenance programs undertaken at UNI have helped UNI to achieve a 15% reduction in energy consumption between 1973-78. The measures employed included insulation reinforcement, roofing projects, closing of unnecessary vents, and lowering thermostats.

#### **1980-81**

A temporary reduction in operations put into effect for the first time at UNI between December 20, 1979 – January 4, 1980 realizes an energy savings estimated at \$43,000.

#### **1980**

Capstone founded

#### **1982**

Physical plant adds new co-generation unit that generates both steam and electricity, which greatly improves efficiency of electricity production and space heating.

#### **1985**

The Board of Education approves the establishment the Institute for Environmental Education at UNI under the leadership of Professor Dave McCalley. Its mission is to be a center for research and development and for dissemination of information and educational materials. It also administers the Conservation Education Field Station and the OUTLOOK environmental enrichment project. The Institute builds on programs that have trained over 2,000 teachers.

#### **1988**

The Integrated Roadside Vegetation Management (IRVM) program is established at UNI to promote the planting of prairie grass on roadsides. To provide a cost effective way to do this, the Iowa Ecotype Project (IEP) was initiated in 1990 to produce and increase regionally adapted Iowa-origin source identified seed for commercial producers. The IEP increased source identified seed of 50 prairie species, and released 81 “ecotypes” of 33 species for commercial production.

### **1990**

UNI President Constantine Curris becomes one the 22 original signors of the Talloires Agreement, “founded on the belief that institutions of higher learning must exercise leadership to promote and reinforce environmental responsibility by integrating ethical, social, economic, and ecological values of environmentally sustainable development into institutional policies and practices.”

### **1992**

Environmental Programs is established in the College of Natural Sciences. It offers a Master of Science Degree with three emphases: Environmental Science, Environmental Technology, and Environmental Health.

### **1993 - 2006**

UNI’s Facilities Services issues “University Pesticide Policy” in April, 1993. As stated, “Herbicides pesticides and fertilizers used shall be those judged to be the least harmful, based on available information. Applications shall be scheduled only when needed, and targeted so as to maximize their effectiveness with minimal potential negative environmental effects. They shall be stored, mixed, and applied in accordance with recognized safety guidelines.”

In 1999, total acreage treated on-campus with chemicals was 230 acres. In 2000, total acreage treated was reduced to 105 acres. In 2002, total treated acreage was reduced to 89 acres.

### **1998**

he Yards for Kids project was founded as a community health education program aiming to significantly reduce use of lawn pesticides. Accomplishments include:

- The City of Cedar Falls Parks Division reduced its pesticide spraying to only 10% of park areas. In the first five years, the City saved \$26,000 and 300 gallons of weed killers.
- The Covenant Health System and affiliates (a major hospital and clinics in Waterloo, Iowa) have adopted ecological lawn care practices. No pesticides were applied during 2001.
- The City of Waterloo added 8 new parks to a growing list of pesticide-free parks.
- The Cedar Falls Community Schools has committed to significant reduction in pesticide application on school grounds.

### **1999-2000**

Three on-campus resident halls improve energy efficiency under the UNI Department of Residence Renovation Project. Switches to more efficient lighting in two of the halls resulted in a 63.5% reduction in electricity consumed from 280 light fixtures, with an overall savings

estimated at 44,577 kWh/year. In the third hall 286 single-paned windows are replaced with low-emissivity double-pane windows for a 69.2% savings in space heating of 635 million Btu/year. Overall savings for the three halls totaled 787 million Btu/year, the same amount of energy required to drive 11 conventional cars 15,000 miles/yr. Total savings are estimated to be over \$8,000 per year.

## 2005

UNI Professor Daryl Smith in collaboration with David O'Shields produce and direct the video America's Lost Landscape: the Tallgrass Prairie. It tells the rich and complex story of one of the most astonishing alterations of nature in human history when, in the timespan between 1830 and 1900, 240 million acres of tallgrass prairie were transformed to farmland. The extraordinary cinematography of prairie remnants, original score and archival images are all delicately interwoven to create a powerful and moving viewing experience about the natural and cultural history of America. It has won numerous awards including the Pare Lorentz Award from the International Documentary Association, besting the Oscar-winning March of the Penguins. It was also shown nation-wide on PBS in April, 2007.

## Ongoing Programs/Centers with Focus on Sustainability

1. **The Iowa Waste Reduction Center (IWRC)** was established by the Groundwater Protection Act of 1987 to provide assistance to Iowa small businesses in reducing their chemical and toxic wastes. Since inception, IWRC has conducted over 2,906 [on-site reviews](#) at diverse businesses in all 99 Iowa counties; more than any other program in the nation. (more info coming)
2. **National Ag-Based Lubricants (NABL) Center**, established in 1991, is nationally recognized as a leader in the development and commercialization of soybean and other vegetable oil-based industrial lubricants. NABL seeks to bring together an understanding of lubricant markets, application and performance requirements, and the use of additives to expand the capabilities of the lubricant industry, and increase market opportunities for the nation's farmers.
3. **Recycling and Reuse Technology Transfer Center (RRTTC)** was founded in 1992 with on-going funding from the Iowa Legislature to address solid waste problems. RRTTC is an interdisciplinary research, education and outreach center serving Regent university researchers and students, Iowa citizens, business, and industry. Its goals include development of economical approaches to solving intractable solid waste problems and providing research and technical assistance on public health issues related to solid waste concerns.  
As a Regent-funded center it also promotes development of student and faculty expertise in the areas of eco-industrial sustainability and by-product re-utilization. RRTTC accomplishes this through a competitive grants program that fund projects that emphasize sustainable by-product re-utilization and industrial ecology.
4. **The Center for Energy and Environmental Education (CEEE)**, established in 1994, provides space for instructional and support facilities, and serves as a model of energy efficiency and environmental awareness. The mission of the center is to nurture a positive environmental ethic and to develop environmental literacy in children and adults. It strives to do this through educational programming, instructional materials development, educational research, and

community outreach. Ten to 12 projects per year focus on energy efficiency and renewable energy, community agriculture, waste reduction and recycling, and teacher education and curriculum development.

5. **Buy Fresh/Buy Local (BF/BL)** campaign was founded in 1997 with a grant from the Leopold Center for Sustainable Agriculture. As a flagship program of the CEEE, its mission is to facilitate the direct sale of fresh meat and produce grown by local farmers to institutional food buyers. In 2003, in collaboration with Practical Farmers of Iowa and Food Routes Network, BF/BL launched a comprehensive marketing and consumer outreach campaign. In 2005, 23 restaurants, retailers and businesses, committed to selling fresh food to their customers as well as supporting the regional food system, paid local farmers almost \$600,000. Between 1998 and 2005, farmers revenues from sales totaled of over \$2 million. These food dollars that would have otherwise left the local economy, now create jobs and supporting independent locally owned food and farm businesses in our region.

6. **The Tallgrass Prairie Center** was established at (UNI) in 1999. Through partnerships with individuals, organizations, federal, state and local agencies, the center develops research techniques, education and source identified seed for restoration and preservation of prairie vegetation in rights-of-way and other lands. The Center includes the Integrated Roadside Vegetation Management (IRVM) Program, established in 1988 to assist Iowa counties in implementing the planting of prairie grass along roadways. Prairie vegetation is a key component of Midwest IRVM programs since native prairie plants form stable and diverse communities that compete effectively against intrusive weeds. The IRVM Program has assisted 50 Iowa counties in developing and maintaining roadside prairie plantings. Since 1998, it has provided seed to 78 counties sufficient to grow 10,000 acres of prairie.

7. **Electrical & Information Engineering Technology (EIET) Program** at UNI's Department of Industrial Technology has introduced energy education and demonstration into the senior design research project required for graduation. One of the ongoing projects is UNI's Zero Emissions Solar Electric Boat "UNI e-Boat." The team members design and build a solar boat, recruit sponsors for the competition and then compete in 2001 at the Solar Splash®, the International Solar Boat Regatta held each year in Buffalo, N.Y. The solar boats use either direct solar energy or solar energy stored in batteries. EIET has sent teams since 2001. In 2003, the UNI team ranked second in the initial qualifying race and won the Perseverance Award. In 2006, the UNI Solar Boat team participated in the 13<sup>th</sup> Annual Intercollegiate World Championship in Fayetteville, Arkansas.

Another project is the Wind/Hydro Green Power Station in nearby Hickory Hills Park. The 1.5 kW green power station was designed to generate 4,380 kWh per year. The green generation is enough to save 6,350 pounds of CO<sub>2</sub> per year. In another the world's first solar powered wheel chair was designed and built as an EIET project.



Department of Industrial Technology

## Electrical and Information Engineering Technology

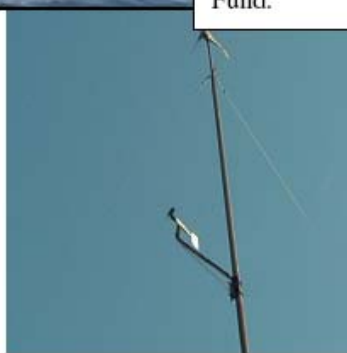
Applied Technology: Solar & Wind Based Renewable Energy Projects at UNI Electrical & Information Engineering Technology Program for a brighter & cleaner Iowa!

*The following are renewable energy based projects recently developed in the Department of Industrial Technology at UNI by undergraduate students, lab technicians, and faculty & staff members.*

We are proud to recognize and support environmentally friendly technologies as well as the enhancement of academic and technological development of the EIET student community. These projects are completed by UNI students as part of their undergraduate senior design research project in the Electrical & Information Engineering Technology (EIET) Program at the Department of Industrial Technology.



**UNI's Zero Emission Solar Electric Boat "UNI e-Boat"** to promote clean energy technologies on Iowa lakes and rivers (2002, 2003, 2004, 2005). UNI Solar Boat Team will travel to Fayetteville, Arkansas in June 2006 to represent UNI in the 13<sup>th</sup> Annual Intercollegiate World Championship. Our e-Boat includes two separate electric motors 4 HP and 15 HP permanent magnet DC, fiber glass hull, variable Speed controller, 480 W solar panel capacity, three deep cycle batteries, PWM controller, other control & instrumentation equipment. **Sponsors:** Iowa Energy Center (IEC), Profile Inc, Midwest Boats, Rockwell-Collins Inc, Deere & Company, Denso, CNS SOAR Grants, UNI Intercollegiate Academics Fund.



**UNI Wind/Solar 1.5 kW green power generation and instrumentation unit** (2000) was designed to generate 4,380 kWh electricity per year. This hybrid green power system saves 6,351 pounds of CO<sub>2</sub> per year. 423 to 2117 trees would be required to offset these yearly emissions of CO<sub>2</sub>. An excellent testbed to renewable energy education at UNI. **Sponsors:** CEEE, CNS SOAR Grants, Industrial Technology Department.



- ❖ Iowa's First & Only Solar Powered Outdoor Digital Display
- ❖ The world's **FIRST** solar powered wheel chair designed and built at UNI.
- ❖ CEEE 1 kW PV Project  
**Sponsors:** IEC, CNS SOAR Grants, Industrial Technology Department, CEEE, IEC.
- ❖ Starr Solar/Hydro/Wind/Fuel-Cell Project at Hickory Hills Park, Sponsor UNI Foundation.

For more information about any of these projects or the EIET program please contact program coordinator & project advisor Dr. R. Pecan at 273-2598 or pecan@uni.edu, or <http://www.uni.edu/indtech/eiet>