IOWA energy BULLETIN

Department of Natural Resources
Vol. 24, Num. 3, 3rd Quarter 1998

Bottle Up Energy Savings

On the 20th anniversary of Iowa's five-cent bottle deposit law, the bill's benefits are a hot topic among citizens, industries and government agencies. One of the many **positive** attributes of recycling aluminum cans, along with plastic and glass bottles, is the amount of **energy** saved. Did you know...

Energy Facts

♦ The energy saved from recycling one glass bottle will light a 100-watt bulb for four hours.
♦ Recycling one aluminum can saves enough energy to operate a television for three hours.
♦ Throwing away an aluminum pop can wastes as much energy as pouring out a can half-filled with gasoline.
♦ Manufacturing one pound of aluminum (30 cans) requires six to eight kilowatt hours of electricity — enough to run a television for five days.
♦ Making aluminum from *recycled* aluminum uses 90 to 95 percent less energy than from original aluminum materials.

♦ *Iowa's five-cent deposit law to encourage soda can and bottle recycling celebrates its 20th year of success.*

♦ The energy lost from aluminum cans discarded instead of recycled last year in the United States could light the city of Atlanta for four years.

Iowa Supporters

According to an independent study, more than 85 percent of Iowans support the bottle law because of decreased litter. Energy savings provide another reason to make sure the recycling bill continues to help Iowa's environment.

Throwing away an aluminum soda can wastes as much energy as pouring out six ounces of gasoline -- equal to half the can's volume.

In This Issue.....

Message from Larry Bean

Midwest Restructuring Summit: The Art of the Deal

More than 100 people gathered in Chicago this summer to discuss electric utility restructuring in the Midwest. State legislators, representatives of energy offices, utility commissions, consumer groups and utilities from the region talked about the art of producing state electric utility restructuring legislation that would ultimately transfer today's monopoly industry to a competitive energy service provider.

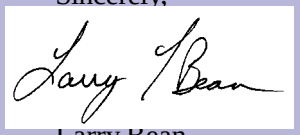
And what did they say? The value of electric utility restructuring is still questionable, according to many state legislators, especially to current small customers with low utility bills. Nevertheless, most participants agreed that, while the timing may be uncertain, restructuring is probably inevitable.

Part of the "deal" is likely to include funding for energy efficiency, renewable energy and low-income programs — the so-called "public benefits." Currently, 16 states are developing restructuring legislation, all with money allocated toward these programs.

In Iowa, careful consideration of restructuring among governmental agencies and the utility industry has been taking place for nearly three years. The state goal is to ensure fairness and quality-driven electricity services, while furthering renewable energy and energy efficiency. Therefore, Iowa is proceeding with caution.

No matter what transpires across the Midwest, citizens here can rest assured that the "art of the deal" means their interests will remain the top priority in any restructuring decisions for Iowa.

Sincerely,



Larry Bean
Administrator, Energy and
Geological Resources Division

We've rewoven our website!

www.state.ia.us/dnr/energy

Check out the DNR-Energy Bureau web site! With all new information, helpful publications and a fresh new look, our web site is the perfect location to learn all about energy, the economy and the environment in Iowa. Special features include:

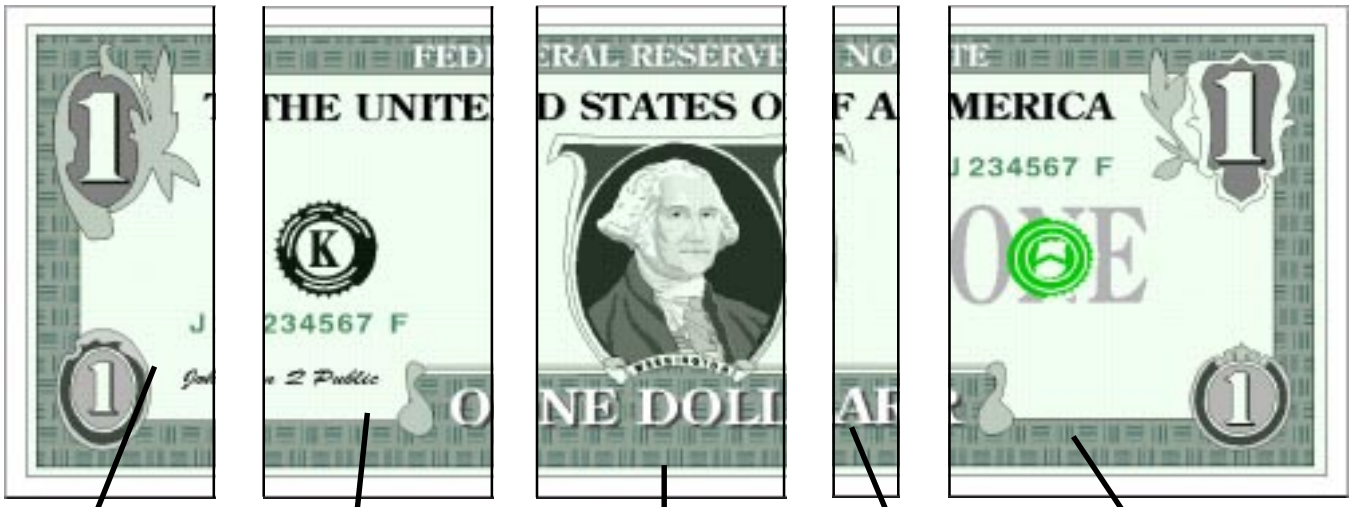
- The Iowa Energy Plan
- Descriptions of wind, ethanol, switchgrass and other state renewable energy programs
- Energy-efficiency programs and ideas
- Links to state and national energy sites
- And more!

Go to www.state.ia.us/dnr/energy for the latest energy news in Iowa!

Analyst's Angle

Where Does My Gasoline Dollar Go?

By Ward Lenz, Energy Data Analyst and David Downing, Program Planner



1998 marked a year of unusually low gas prices that haven't been experienced since 1986. In fact, gas is less expensive today than prior to the 1972 OPEC oil embargo. These low prices are caused by a reduction in world oil demand coupled with increases in global oil production.

So how are gasoline prices determined? Many believe retailers set the prices of gasoline. While retailers do play a small role, many other factors contribute to how much a consumer pays for a gallon of gasoline.

First are the fixed costs, which include **state** and **federal taxes**. These taxes are used to build and repair roads, bike trails and transit systems. The federal tax is uniform throughout the country at 18.3 cents per gallon. The state tax is determined by each state's legislature, which is 20 cents per gallon in Iowa. Other state's gasoline tax rates range from a low in Georgia of 7.5 cents per gallon, to a high of 36 cents in Connecticut. The average state gasoline tax is 20 cents per gallon.

Another price determinant is the **refinery margin**. This margin covers all costs associated with production and distribution of gasoline, including refining and terminal operation, crude oil processing, additives, product shipment and storage, oil spill prevention fees, depreciation, brand advertising and profits. According to the Energy Information Administration, the average refinery margin is 23 cents.

In most cases, **retailers** in any single area receive gasoline for the same cost. Some retailers may then charge lower prices in an effort to increase sales. Ron Marr of The Petroleum Marketers of Iowa estimates that retailers add 3 to 6 cents to their delivered cost of gasoline. This retailer margin pays for employee salaries, facility upkeep, depreciation and other costs associated with owning a business, as well as profit. Included in the retailer margin is an estimated 1 cent per gallon environmental cost.

Finally, the largest factor shaping gasoline price is the **cost of crude oil**. As of the writing of this article, crude oil contributed 33 cents to the cost of gasoline.

Energy-Efficiency Case Study

Archdiocese of Dubuque

Eight schools from the Archdiocese ensure less energy will burn while students learn!

Energy improvements in eight parochial schools enrolled in the Iowa Energy Bank program will save the Archdiocese of Dubuque $31,500 annually.

The Schools Involved:

Aquin Elementary School in Cascade, Richardsville-Holy Cross School in Luxemburg, Saint Joseph School in New Hampton, Saint Mary's School in Waterloo, Saint Patrick School in Anamosa, Saint Paul School in Worthington, Sacred Heart in Maquoketa and Sacred Heart School and Parish in Oelwein.

Energy Improvements

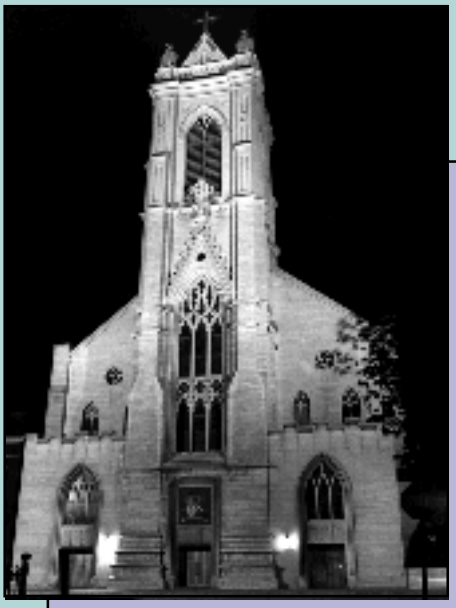
- ♦ Replaced inefficient lighting with T-8 and compact flourescent lights;
- ♦ Installed new thermostats;
- ♦ Added insulation to reduce cooling expenses; and,
- ♦ Installed time clocks that turn off equipment when not in use.

Improving the Schools

The Archdiocese also installed new boilers, windows and building-control devices in several of its schools. Richard Runde, financial officer for the Archdiocese of Dubuque, said, "The Iowa Energy Bank helped reduce operating costs and made operating conditions better."

The Program

Money saved by the Archdiocese is being directed back into the operating budget, where it will ultimately benefit students more directly through educational programs, books and other resources. "I recommend the (Iowa Energy Bank Program) for anybody looking to save money," said Runde.



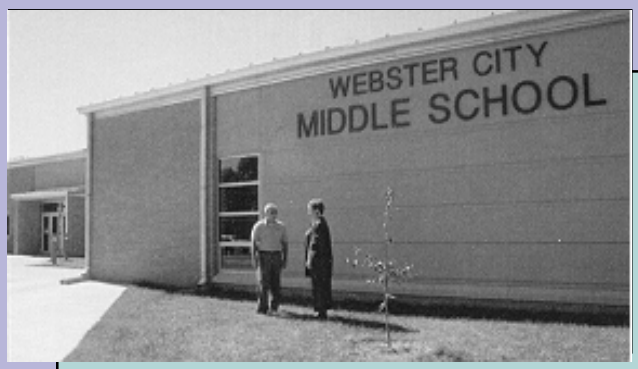
♦ The Archdiocese of Dubuque is saving $31,500 annually due to energy efficiency improvements.

The Iowa Energy Bank Is For You!

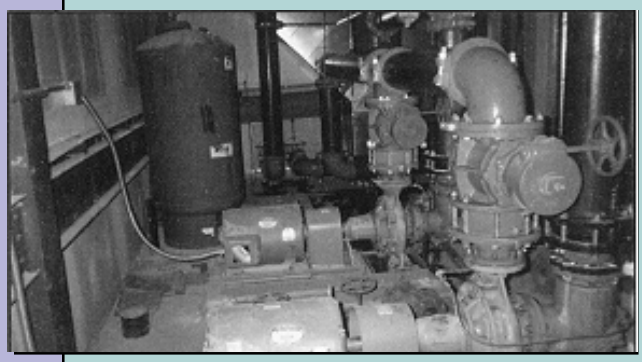
Join the Iowa Energy Bank! The program helps Iowa's public and non-profit organizations decrease the amount of energy they consume — thus lowering energy costs — through building improvements. Schools, local governments, colleges and hospitals can benefit from the financing assistance and expert advice available through the Energy Bank. For details, contact Kimberly Baxter with the DNR at (515) 281-6486; e-mail: kbaxter@max.state.ia.us.

Energy-Efficiency Case Study

Webster City Community School District



♦ Webster City Middle School added a geothermal heat pump system in 1997.



♦ The new system pumps water from outdoor well fields to heat the entire building.

Unearthing energy savings through state-of-the-art heating and cooling.

With assistance from the Iowa Energy Bank, a new geothermal heat pump system is heating and cooling Webster City's middle school, saving more than $15,000 in energy costs annually.

Using Mother Earth

The underground heating system consists of vertical-loop wells that pump water through pipes 100- to 350-feet underground. Water circulating through the pipes is kept warm or cool by the constant temperatures deep in the earth, even during the coldest winter or hottest summer, respectively. Heated or cooled water is then pumped into the school building for heat during the winter or cooling during the summer.

Advantages of Geothermal Heat Pumps:

♦ Environmental benefits such as use of renewable energy resources, noise reduction, reduced use of refrigerants and lower air emissions.

♦ Heat pump systems provide 30 to 70 percent savings during heating mode and 20 to 50 percent savings in cooling mode, compared to traditional systems.

♦ Equipment buried deep within the ground ensures safety to students and staff.

♦ Loop wells have a 55-year life expectancy — conventional systems last only 20 to 25 years.

Other Improvements:

The district made additional improvements to the middle school, including:

♦ Added a central control for electrical systems to manage energy use.

♦ Installed compact flourescents, T-8 bulbs and LED exit lights to improve lighting efficiency and control energy use.

Helping Hands

To help finance the project without overburdening community taxpayers, the school district borrowed $150,000 from the Iowa Energy Bank. The Webster City Municipal Utility also gave a $60,000 rebate for initial costs.

Long-Term Results

After Superintendent Dennis Bahr realized energy-efficient buildings translate into considerable money savings in the long run, he felt joining the program made good sense. Now Webster City Community School District is energy-efficient and environmentally friendly, leading the way for other school districts across Iowa.

Did You Know...

Wind energy production has increased 400 percent in Iowa since 1990, making it the fastest growing energy technology in the state.

Energy Summit Planned for Iowa High Schools

The DNR and the Center for Energy and Environmental Education (CEEE) are co-sponsoring the Iowa Energy Summit on October 30, 1998 at the University of Northern Iowa campus.

The goal of the Summit is to teach students about Iowa's energy future, using a United Nations discussion format. More than 30 high school students plan on participating in the Summit.

Students will discuss topics like transportation, agriculture, energy production, residential efficiency and utility issues. By the end of the one-day conference, the group will establish goals about Iowa's energy use.

For details, contact Rick Stinchfield with CEEE at (319) 273-7357 or Dewayne Johnson with the DNR at (515) 281-7018.

LeMars, Harlan and Pella Join Rebuild Iowa

The DNR is proud to announce the addition of LeMars, Harlan and Pella to Rebuild Iowa, a program to assist communities in achieving energy efficiency in private and public sectors.

- **LeMars** will retrofit 18 buildings on the Westmar College campus. The city recently assumed ownership of the buildings and hopes to make them useful to the community. After one year, the city will expand its energy-efficiency efforts by targeting government-owned buildings and the residential sector.
- **Harlan** plans to increase economic development by improving energy savings. The municipal utility will serve as the local coordinator and has identified 19 local businesses that can benefit from energy-efficiency improvements.
- **Pella** will help area businesses become financially stronger through energy savings by targeting 34 buildings for improvements. Pella is also focusing on education by establishing opportunities for elementary and high school students.

Rebuild America

These communities join Webster City, Des Moines, Waterloo, Cedar Falls and Waverly in the Rebuild Iowa program.

For more information, contact Kimberly Baxter, (515) 281-6486; e-mail: kbaxter@max.state.ia.us.

International Travel for Energy Bureau Delegation

This summer DNR-Energy Bureau staff traveled to Poland and Brazil, sharing ideas about the state's successful energy programs. Larry Bean, Sharon Tahtinen and Monica Stone traveled to Poland in late June, along with William Walker, Jr. of the National Association of State Energy Officials (NASEO). Monica Stone also traveled to Brazil with two members of NASEO and a New York delegate in August.

The trip to Poland focused on developing self-financing energy programs for municipal buildings, as well as agricultural energy programs. The delegates met with Polish partners to discuss the possibility of assisting a city with efficiency improvements.

In Brazil, delegates discussed mandated public buildings programs with government officials. Stone also met with government health care and education representatives to discuss current Iowa programs as examples of potential energy-efficiency initiatives for Brazil.

The trips to Poland and Brazil were financed through a grant to NASEO by the U.S. Agency for International Development. Communication and continued involvement will progress over the next year.

For more information, contact Monica Stone, (515) 281-6361; E-mail: mstone@max.state.ia.us.

Join Us! Iowa Energy Leadership Awards Luncheon

Wednesday, November 4, 1998
11:30 a.m. - 1:15 p.m.
Hotel Fort Des Moines
Des Moines, Iowa

Help us honor four organizations for their outstanding work in energy efficiency and renewable energy development. This year's winners are:

- Ankeny Community School District
- Center for Global and Regional Environmental Research, Iowa City
- Rebuild Webster City
- Skogman Construction Company, Cedar Rapids

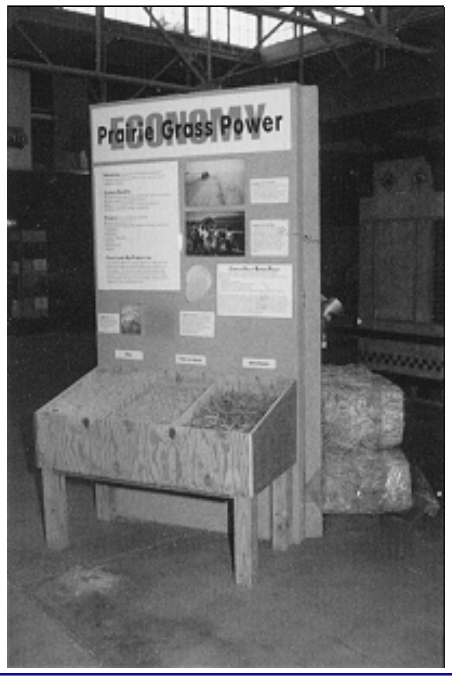
The awards luncheon is part of the annual Iowa Association for Energy Efficiency conference, November 3-4. For luncheon ticket information, contact conference coordinator Alda Helvey at (515) 225-2323; e-mail: alda8345@aol.com.

Switchgrass Attracts Fairgoers

Thousands of visitors to the Iowa State Fair in August viewed "Prairie Grass Power," the Energy Bureau's switchgrass exhibit.

Co-sponsored by Chariton Valley RC&D, the booth focused on the economic and environmental potential of switchgrass as an energy cash crop in Iowa. The three-dimensional display included a live stand of switchgrass, hands-on opportunities to view products made from switchgrass, and photos explaining the crop's many advantages for Iowa.

Homegrown Energy, a newsletter highlighting renewable energy in Iowa, was distributed at the booth. To receive a copy, or for more information on switchgrass, contact Julie Tack at (515) 281-8665, or check out the Energy Bureau website at www.state.ia.us/dnr/energy.



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Calendar of Events

October 23. Winter Fuels Forum, West Des Moines, IA. Energy industry professionals to discuss and forecast the upcoming heating season. For information, contact DNR Energy Analyst Ward Lenz at (515) 281-8518; e-mail: wlenz@max.state.ia.us.

November 3-4. Iowa Association for Energy Efficiency "Think Globally, Act Locally" conference, Des Moines, IA. For any person interested in energy efficiency and renewable energy. Topics include Energy Stat Homes, geothermal heat pumps, day lighting and more. Contact Alda Helvey at (515) 225-2323; e-mail alda8345@aol.com.

November 5. The Analyst Workshop, Ankeny, IA. Located in the Maple Room at the DMACC Conference Center. Contact Greg Maxwell, Director of Industrial Assistance, Iowa State University, Ames, IA 50010. Phone: (515) 294-8645.

November 17-19. 4th Annual Iowa Association for Municipal Utilities (IAMU) Water and Wastewater Operator's Training Workshop, Des Moines, IA. Includes several energy efficiency modules. Contact Karen Nachtman at (800) 810-4268; e-mail: energy@iamu.org.

Power to Choose

A Consumer's Guide to Electricity Deregulation

This 24-page booklet, published by the Department of Energy, is an exellent resource for understanding the core issues surrounding restructuring of the electric utility industry in the Midwest. For your copy, contact Julie Tack, DNR information specialist, at (515) 281-8665; e-mail: jtack@max.state.ia.us.

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