

# CIRCUITS

NEWS FOR DAKOTA ELECTRIC MEMBERS



## Farmington family installs geothermal heat pump, takes advantage of savings

When the Poppen family decided to build a home a few miles outside of Farmington, Jim Poppen began researching how to make the home as energy-efficient as possible. Knowing that heating and cooling make up nearly 50 percent of a home's energy use, Jim decided to install a geothermal heat pump — the most energy-efficient heating and cooling system available.

Jim, his wife Mary and their two sons, Dylan and Ryan, moved into their new home in June. Although they haven't had much time to see the energy savings yet, Jim is confident the investment

will be worthwhile.

"Long-term costs were really the motivating factor for installing a geothermal heat pump," he said. "Although it is an expensive investment up front, from what I've been told as far as cost and bill projections, the cost to upgrade over a traditional heating and cooling system will pay for itself pretty quickly — possibly five years."

A geothermal heat pump consists of a network of plastic pipe buried underground. A non-toxic antifreeze solution circulates through the pipes, then to the

heat exchanger inside the geothermal heat pump. In the summer, the liquid inside the tubing collects heat from the home and moves it into the ground. In the winter, it collects heat from the ground and brings it into the home. Since more heat energy is transferred than consumed in the process, the efficiency of a geothermal heat pump can range from 300-400 percent as compared to 80-95 percent for combustion furnaces.

While the geothermal heat pump could provide the home's heat all winter, Jim also has a propane furnace as a back-

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### Upcoming events

Labor Day - office closed . . . . .	Sept. 7
Energy Wise® Expo. . . . .	Sept. 17
Wind Farm Tour. . . . .	Sept. 17-18
Board Meeting . . . . .	Sept. 24, 8:30 a.m.

September 2015



Your Touchstone Energy® Cooperative 



**Greg Miller**  
President & CEO

## EPA announces final Clean Power Plan

On August 3, President Obama announced new rules set forth by the Environmental Protection Agency (EPA) related to carbon emissions and its effects on climate change. While coal-fired power plants produce just a portion of worldwide carbon emissions, they are placed front and center in carbon reduction discussions. The goal is to reduce the use of coal and encourage the use of natural gas and more renewable energy sources like wind and solar.

The final rule is very different from the draft plan announced last summer. The overall U.S. carbon dioxide reduction goal is now 32 percent from 2005 levels, instead of the original 30 percent reduction. The new rules are several thousand pages long, so utilities are still digesting the document and providing feedback.

### What Great River Energy is doing

Our power supplier, Great River Energy, has made great strides in reducing carbon emissions and adding significant renewable energy to its generation portfolio. They are well positioned to work toward meeting these new standards.

Between 2005 and 2012, Great River Energy began operating two natural gas power plants, added more than 400 megawatts of new wind power and installed a patented coal-refining process known as DryFining™.

In 2013, Great River Energy's board of directors established a strategy to further reduce its reliance on coal and seek ways to minimize carbon dioxide emissions. Since then, the cooperative expanded its hydroelectric contracts, completed a highly efficient combined heat and power plant,

## geothermal heat pump (cont.)

up heat source which allows him to take advantage of Dakota Electric's dual fuel program. By participating in the program, Jim pays 5.32 cents per kilowatt-hour (kWh), which is half the normal residential electric rate. In return, Dakota Electric can interrupt power to his geothermal heat pump on cold winter days and nights during times of peak demand, and the propane furnace will take over as the temporary heat source.

In addition to the dual fuel program, Jim took advantage of rebates offered by Dakota Electric, as well federal tax credits. In total, he saved approximately \$10,000 on his geothermal system.

If you would like more information on geothermal heat pumps or other Dakota Electric energy-saving programs, contact the Energy Experts® at 651-463-6243 or visit [www.dakotaelectric.com](http://www.dakotaelectric.com).

### Benefits of a geothermal heat pump

- 300-400 percent energy-efficient
- All working parts are located indoors
- Much quieter than conventional air conditioners
- Potential for free hot water all summer
- Hydronic floor heating option available — no need for boiler
- Maintenance-free — most underground pipes are designed to last 50 years
- \$400 per ton rebate from Dakota Electric
- 30 percent federal tax credit



*Jim Poppen dug the loop fields for his geothermal heat pump. Six 800-ft. loops were installed 10 feet underground and are used to transfer heat to and from his finished 2,500 sq. ft. home.*

launched a statewide solar build-out and exited a contract for half the output of a coal-based power plant.

Currently, Great River Energy is on track to reduce its carbon dioxide emissions by 29 percent by 2030, from 2005 levels, and will continue to seek additional plant efficiencies to comply with the new rules. The cooperative also accelerated the depreciation of its two largest coal plants in order to minimize the risk of stranded investments.

### What it means for you

Although we are uncertain how the Clean Power Plan will impact our bottom line, we know Great River Energy has worked hard to prepare for these new regulations. As a consequence, Great River Energy believes that it is well positioned to comply with the new rule. We know our members want an environmentally-friendly supply of energy, but we also know they want affordable electric rates. As always, our goal is to meet the requirements of this new rule while finding the right balance between affordability and reliability for our members.

Between 2005 and 2013, Great River Energy has achieved the following emission reductions:

- Carbon dioxide (CO<sub>2</sub>) emissions have decreased by 19 percent;
- Total sulfur dioxide (SO<sub>2</sub>) emissions have decreased by 58 percent; and
- Total nitrogen oxides (NO<sub>x</sub>) emissions have decreased by 41 percent.

## Assistance for military service personnel

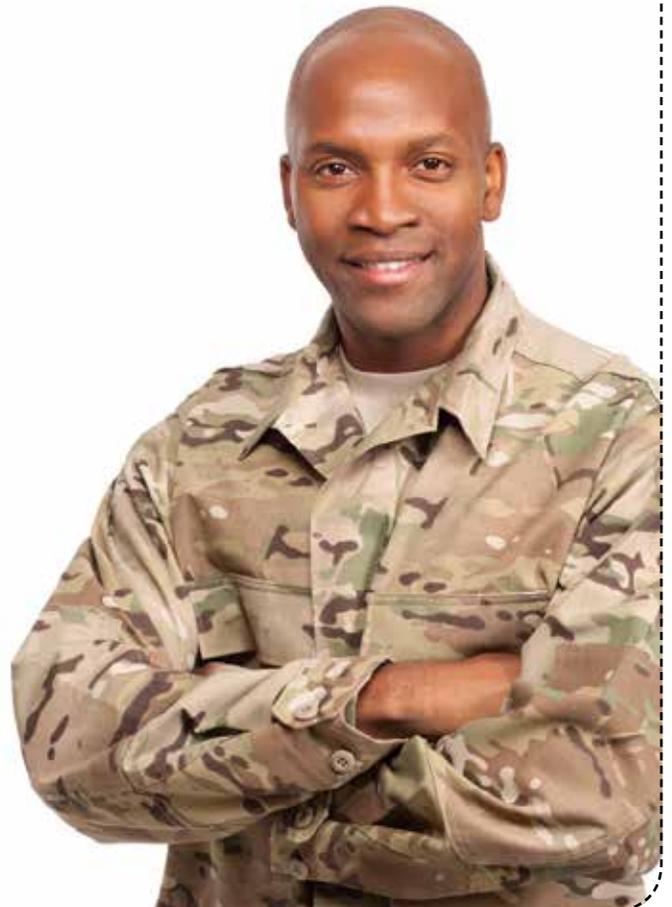
If a member is ordered into active duty, for deployment or for a change of duty station, Minnesota law may protect these military personnel and their families from shutoff if they cannot pay their utility bills in full.

### How to apply

Call 651-463-6212 to get an application and set up a payment plan. You must keep your payment plan to qualify for protection.

### Payment plans

- If your household income is below the state median household income, pay 10 percent of your household's gross monthly income toward your gas/electric bill; or
- If you receive energy assistance, pay 10 percent of your household's gross monthly income toward your gas/electric bill; or
- If your household income is above the state median household income, make and keep a payment plan.



# More than 7,000 attended **Dakota Electric's Member Appreciation Event**

Dakota Electric Association had a total of 7,081 people attend the cooperative's 18th annual Member Appreciation Event at the Minnesota Zoo on July 30. During the event, zoo admission was free to all Dakota Electric members and their families.

Members enjoyed the new Hawaiian Monk Seals exhibit and children explored the newly-opened Hanifl Wild Woods nature-based play area. Members were also entertained with music by the Barbary Coast Dixieland Band and close-up magic performed by Bob Miller. LED Lucy, Dakota Electric's new mascot, was on hand for added fun for the children, and many people enjoyed discounted tickets to the IMAX.

As part of the event, Dakota Electric asked attendees to bring food donations for area food shelves. Visitors donated 1,985 pounds of food along with \$1,000 in cash. Since 1999, members have donated more than 14 tons of food and nearly \$10,000 to local food shelves.

"People were very generous with their donations this year, which will help a lot of people living in this area," President and CEO Greg Miller said. "Dakota Electric is a not-for-profit electric cooperative, so this event is our way of showing appreciation to our members. It is fun to see so many people enjoying a free night at the zoo."



# Commercial Members: Join us for this year's **Energy Wise® Expo on Sept. 17!**

**Thursday, Sept. 17**

11 a.m. — 3:00 p.m.

**Brackett's Crossing Country Club**

17976 Judicial Rd., Lakeville, MN

Join commercial members from Dakota Electric Association and Minnesota Valley Electric Cooperative for a free educational networking event at this year's Energy Wise® Expo.

Approximately 40 vendors will be on hand to provide information on topics such as HVAC, building automation, data center design, facility engineering and design, and much more!

## 20-minute tech tip presentations

### Lighting Technologies

Philips Lighting

### Lighting Case Study

The Retrofit Companies

### Benchmarking and Energy Analysis

Energy Insight

### Waste Programs

MN WasteWise

### Electric Vehicles

Werner Electric

*More presentations are still being finalized.*



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## Look up for **hazards during harvest**

The rush to harvest can lead to farmers working long days with little sleep. It is important to take time for safety. Before starting work, make sure to note the location of overhead power lines.

The Energy Education Council urges farm operators and workers to:

- Use a spotter when operating large machinery near power lines.
- Use care when raising augers or the bed of grain trucks around power lines.
- Keep equipment at least 10 feet from power lines — at all times, in all directions.
- Inspect the height of farm equipment to determine clearance.
- Always remember to lower extensions when moving loads.
- Never attempt to move a power line out of the way or raise it for clearance.
- If a power line is sagging or low, call Dakota Electric.



If contact is made with a power line, stay on the equipment. Make sure to warn others to stay away and call 911. Do not leave until the utility crew says it is safe to do so. The only reason to exit is if the equipment is on fire. If this is the case, jump off the equipment with your feet together, without touching the ground and vehicle at the same time. Then, still keeping your feet together, hop to safety as you leave the area.

- Source: [SafeElectricity.org](http://SafeElectricity.org)

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# Circuits Quick Clips

## Energy & safety education for kids

It's back-to-school time, and if you're a teacher looking to bring energy education into the classroom, check out the resources Dakota Electric has available!

### Safety Programs

To help keep children safe around electricity, Dakota Electric offers two safety programs. Play It Safe Around Electricity is designed for children in preschool to third grade. Dakota Electric's power line safety demonstration programs are available for children ages 10 and older and presented by a former power line specialist. Call Ann at 651-463-6192 for more information.

### Speakers Bureau

Dakota Electric has a speakers bureau to present to schools, rotary clubs, chambers of commerce and other community organizations on a variety of energy-related issues, including power line safety, renewable energy and energy efficiency. LED Lucy is also available for community events. Call Brenda at 651-463-6234 for more information.

### Touchstone Energy® Kids Zone

The Touchstone Energy Kids Zone is a great place for children to learn more about electricity. The site includes games, videos and more to teach children about energy safety, renewable energy and helping their family create a more energy-efficient home. Visit [www.kidsenergyzone.com](http://www.kidsenergyzone.com).



## Energy Efficiency Tip of the Month

Did you know that 90 percent of the energy used to operate a washing machine comes from using hot water? A simple switch from hot to cold can save a great deal of energy!

Also, consider air drying or even line drying to save even more household energy.

*Source: U.S. Department of Energy*



## Board of Directors

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## Members who qualify for Cold Weather Rule protection can sign up **beginning Oct. 15**

Are you struggling to pay your utility bills? Members can avoid disconnection or be eligible for reconnection between Oct. 15 and April 15 by following steps outlined by Minnesota's Cold Weather Rule.

Watch for your September bill statement mailed between Sept. 10 and Oct. 6. The bill will include a Cold Weather Rule brochure with more information on program details and contact information for agencies that provide utility payment assistance. You can also visit our website at [www.dakotaelectric.com](http://www.dakotaelectric.com) and click on Residential > Payment Options > Financial Assistance for more information.

The Minnesota Public Utilities Commission also has details available at [www.puc.state.mn.us](http://www.puc.state.mn.us).

## Contact Us

Member service & drive-up window  
7 a.m. – 7 p.m. Monday - Friday  
651-463-6212 or 1-800-874-3409  
Minnesota Relay Service 711

Lobby 7 a.m. – 4:30 p.m., Monday - Friday  
4300 220th Street West, Farmington, MN 55024

24-hour outage & emergency service  
651-463-6201 or 1-800-430-9722

Underground cable locations  
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Tree trimming & street lights 651-463-6287

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