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JULY 2021

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Iowa Association of Electric Cooperatives
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CONTENTS JULY 2021

Features

6 Four keys to understanding the new electric grid

The modern grid is complex and interconnected across the country to keep power flowing. Discover four ways it's adapting to the world's new realities.

8 Sweet corn recipes

Celebrate summer with sweet corn and enjoy favorite recipes from Iowa's co-op cooks. PLUS: Find out how you can receive a $25 credit on your power bill!

10 Technology and cost drive a diverse energy portfolio

Learn how electric cooperatives serving Iowa member-consumers are integrating new energy sources into their energy portfolios.

Favorites

3 Statewide Perspective

Electric cooperatives disappointed with legislative session

3 Editor's Choice Contest

Win a $100 home improvement gift card!

14 In the Community

Stop by and see us at the Iowa State Fair!

15 Out Back

County fair rides leave a lasting memory

Electric cooperatives disappointed with legislative session

BY KEVIN CONDON

As lawmakers and Gov. Kim Reynolds tout the 2021 Iowa legislative session's legitimate advances in public policy that benefit rural Iowans, one area where progress will go unclaimed is in the interests of Iowa's electric cooperatives.

Although the session went three weeks into overtime, absent from debate was the opportunity to have worthy and robust discussions on two key priorities for Iowa's electric co-ops and their member-consumers. Establishing or changing laws isn't easy and can take time. With that said, we're disappointed that policies pertaining to vegetation management and the sales tax code inequities co-ops face are not new issues being raised by rural electric cooperatives (RECs).

Lack of vegetation management standards

In the January edition of this column, I detailed the issue surrounding vegetation management distances and how the August 2020 derecho exposed part of our concerns. We hoped that lawmakers would have recent and ample evidence of the need to set a statewide safety and reliability standard for distances that electric co-ops could perform tree trimming and other management practices.

Unfortunately, despite our best efforts, the same opposition groups that prevented the legislation from becoming law a few years ago were able to keep this renewed effort from reaching the House and Senate for a full debate. Sadly, misinformation and scare tactics about the proposal won the day, and the state will continue to lack a standard that provides greater safety for co-op members and linemen while increasing reliability of electric service to rural Iowa.

Sales tax code inequities continue

Further, RECs were disappointed when provisions to resolve a sales tax inequity impacting electric co-ops included in a proposal put forward by the House were stripped out of the final legislation by Senate negotiators. In what appears to be an oversight from legislation passed in 2018, not-for-profit utilities like RECs have been subject to a tax on digital goods and services that for-profit, investor-owned utilities (IOUs) are exempt from. It is estimated that rural electric member-consumers are paying $250,000 more in sales taxes through their electric bills than ratepayers served by IOUs.

We believe resolving the inequity was certainly worthy of inclusion in a tax proposal that included tax provisions for Iowa's non-profit food banks and casinos, both of which will have General Fund impacts, just as the REC proposal would. We congratulate both of those entities for securing a place in the legislation. We also caution those who might claim the potential for a "slippery slope" in resolving this sales tax inequity issue.

To be clear, the electric co-ops appreciate the role of the Legislature and are grateful to those lawmakers who are willing to put their name on a ballot and serve. In our estimation, they continue to deserve our respect; but when it comes to our concerns this session, RECs are not taking any victory laps.

We look forward to developing our policy goals for the 2022 Iowa legislative session and will enjoy planning for our traditional and effective in-person events with lawmakers. We hope they are prepared to answer friendly but direct questions about the lack of progress on these issues. We hope our electric cooperative advocacy on behalf of the 650,000 Iowans we serve throughout all 99 counties will result in more favorable outcomes next year.

Kevin Condon is the director of government relations for the Iowa Association of Electric Cooperatives.

EDITOR'S CHOICE CONTEST

Win a $100 home improvement gift card!

Home improvement projects can boost the curb appeal, resale value and energy efficiency of your home. We'll award one lucky winner with a $100 gift card from a local business or retailer of your choice for a home improvement project!

Visit our website and win!

Enter this month's contest by visiting www.livingwithenergyiniowa.com no later than July 31, 2021. You must be a member of one of Iowa's electric cooperatives to win. There's no obligation associated with entering, we don't share entrant information with anyone and multiple entries from the same account will be disqualified. The winner of the Arbor Day tree packages from the May issue were:

- Gregg Hoins, Allamakee-Clayton Electric Cooperative
- Lavern Hoeper, Butler County REC
- Rose Lennie, Chariton Valley Electric Cooperative
- Gary L Payton, Franklin REC
- Timothy Colburn, Grundy County REC
- Mark Schwartz, North West REC
- Kennon Goedken, Osceola Electric Cooperative
- Emily Mikesh, Prairie Energy Cooperative
- Kyle Leonard, Southwest Iowa REC
- Jeff Gropper, T.I.P. REC

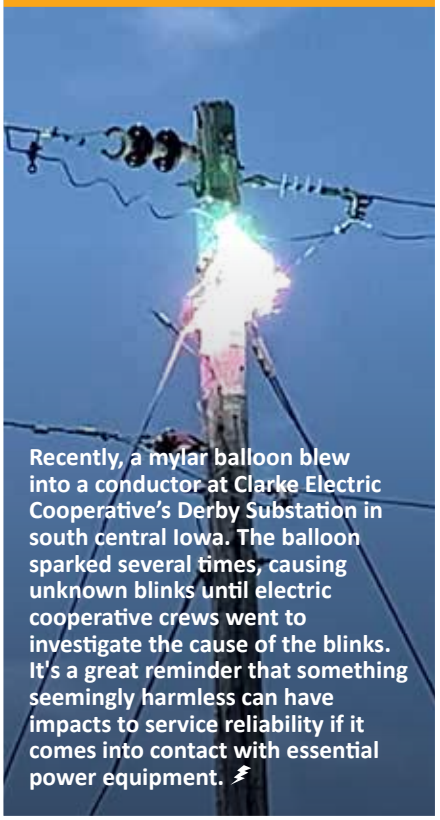
QUOTE OF THE MONTH

"The pandemic underscored the need for safe electricity to power hospitals, essential businesses and homes – so children could attend school remotely and communities could stay safe. Throughout, we never stopped ensuring the safety of employees and communities, while doubling down on our commitment as a critical services provider."

- **Brent Ridge, president and CEO, Dairyland Power Cooperative.**

Dairyland Power Cooperative is a generation and transmission cooperative that provides wholesale power and other services for 25 electric distribution cooperatives and 17 municipal utilities in the Upper Midwest, including co-ops in northeastern Iowa.

POWERFUL IMAGE



Recently, a mylar balloon blew into a conductor at Clarke Electric Cooperative's Derby Substation in south central Iowa. The balloon sparked several times, causing unknown blinks until electric cooperative crews went to investigate the cause of the blinks. It's a great reminder that something seemingly harmless can have impacts to service reliability if it comes into contact with essential power equipment.

TRAVEL IOWA

Explore the great outdoors this summer with an Iowa State Park Passport

The Iowa Tourism Office and the Iowa Department of Natural Resources recently announced updates to the popular Iowa State Park Passport to give adventurers a fun and engaging way to track their visits to state parks. The launch follows 2020's successful centennial anniversary, with nearly 30,000 check-ins at parks across the state.

Those who are looking to explore the state's beautiful landscapes can sign up for the free passport at traveliowa.com/passport with their email address or by texting PARKS to 515-531-5995.

Travelers are eligible for prizes simply by visiting and checking in to one or more of Iowa's 62 participating state parks.

"2021 has been declared the Year of the Road Trip, and Iowa is ready to be at the center of it all," says Amy Zeigler, state tourism manager for the Iowa Tourism Office. "Our state parks provide the perfect opportunity to hop in the car or on the bike and embark on the road to adventure."

The more parks visited, the more available prizes. Giveaways sponsored by AARP Iowa include:

- First 1,000 people with 10 check-ins earn a 2021 Iowa State Park Passport T-shirt.
- Check in to 30 parks for a chance to win one of four Fitbit activity trackers.
- Every check-in is an entry into monthly Endless Adventures Prize Packs:
  - July – Camping tent and accessories
  - August – Hammock and picnic accessories
  - September – Yeti cooler set
  - October – $500 Bass Pro Shops gift card

Visitors are encouraged to abide by public health guidelines and visit the Iowa Department of Natural Resources website (www.iowadnr.gov) and its alerts and closures page for information related to health and safety guidelines and seasonal construction that may impact accessibility.

Energy efficiency keeps improving, even through a pandemic

Americans keep getting more efficient in their use of energy, a trend that's even powered its way through the pandemic.

Last year saw a 7% drop in energy use in the U.S., the largest annual decrease since those figures first started being collected in 1949, says the Department of Energy's Energy Information Administration (EIA). EIA attributes much of that decrease to the economy's reaction to the coronavirus.

Sleeping later

Energy consumption didn't just drop – it shifted as well. Commercial energy use fell dramatically as people stayed home from the office. Residential use rose because, of course, people stayed home from the office. People even slept later – some areas reported peak morning electricity use moving from around 6 a.m. when people would normally shower and make breakfast before leaving the house to go to work. Instead, energy use peaked at times later in the day as people simply walked from their kitchen to their home office.

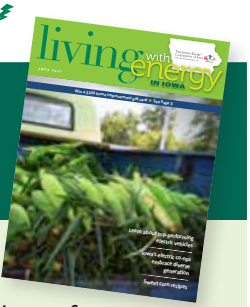
Will people decide they prefer that kind of commute in their socks even after the coronavirus concerns return to normal? Or will they be even hungrier for in-person meetings?

The 2020 statistics don't offer a lot of guidance on that kind of speculation. But the specialists pouring over those figures do draw some conclusions: new, more energy-efficient uses of technology may change some of our energy use patterns, and the overall trend to energy efficiency will likely continue. Several well-established, long-term energy use trends include:

- Residential energy use per household fell 16% from 2001 to 2018, says a coalition of energy efficiency groups;
- Automobiles continued a 20-year trend that has increased average fuel economy more than 30%, from 19.6 miles per gallon in 2011 to 25.7, according to preliminary 2020 figures from the Environmental Protection Agency;
- Use of highly efficient LED bulbs has grown from a 20% market share in 2015 to 60% in 2019 – and that trend won't be reversed since LEDs last well over 10 years;
- One measure of efficiency is "energy intensity," which calculates how much energy is consumed per dollar of the nation's Gross Domestic Product. In 2020, that number was about half of what it was 30 years ago, and it's projected to fall further in the next 30 years. "The U.S. economy becomes steadily less energy-intensive" through 2050, the EIA predicts.

That forecast for the next 30 years comes from a new EIA report, "Annual Energy Outlook 2021." The overall message is that energy efficiency improvements are baked into our everyday lives. While the report projects energy use will not completely return to 2019 levels until 2025, it "does not project long-term structural changes in electricity demand resulting from the pandemic."

Picture this ... you could win $100!

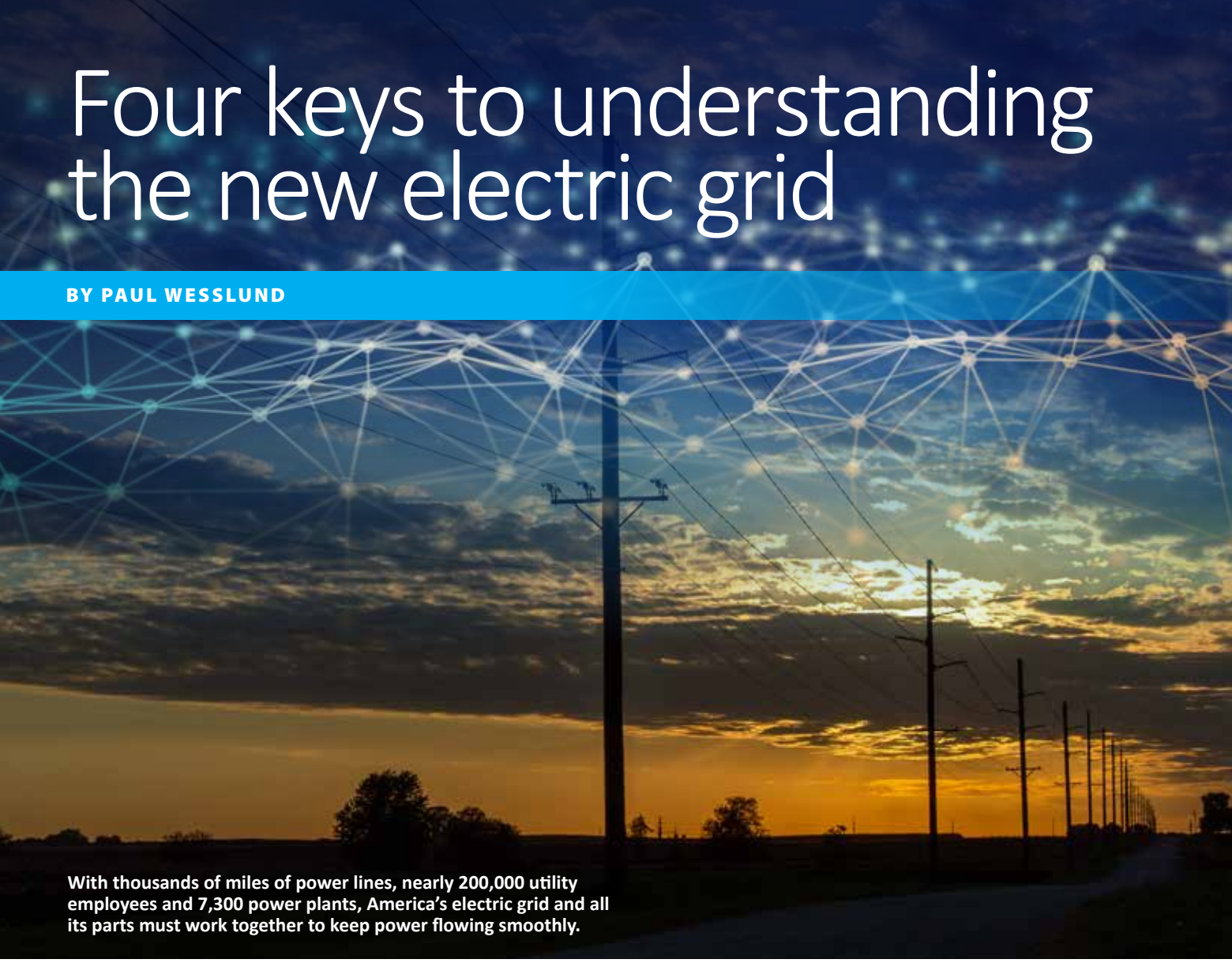


We're always looking for stunning images for the cover of *Living with Energy in Iowa*. If we select your photo for a cover, we'll award you with $100. The photos must be clear, of an Iowa place served by an electric cooperative and in high resolution. To be considered, email photos to editor@livingwithenergyiniowa.com with "Cover Submission" in the subject line.




Four keys to understanding the new electric grid

BY PAUL WESSLUND



With thousands of miles of power lines, nearly 200,000 utility employees and 7,300 power plants, America's electric grid and all its parts must work together to keep power flowing smoothly.

America's electric grid is often called the most complex machine in the world. That's not a stretch when you think about what it does: it runs your refrigerator and charges your phone, all from a ray of sunshine, a pile of coal, falling water or a prairie breeze.

In between those starting and ending points are 160,000 miles of high-voltage transmission lines, millions of miles of low-voltage power lines, 7,300 power plants, nearly 200,000 electric utility employees, thousands of electrical substations and transformers that adjust voltage for the cross-country trip along transmission lines, then back down before it enters your house – and all these parts must work together to keep power flowing safely. In addition, this complex network is adapting to weather patterns, increasing cybersecurity threats, consumer expectations and additional decentralized power sources like rooftop solar panels.

Those are big changes for such a vast and intricate system. "But the silver lining is that technology is available to help address the changes," says Venkat Banunarayanan, vice president of Integrated Grid Business & Technology Strategies with the National Rural Electric Cooperative Association (NRECA).

For all its complexity, the electric grid can be described in three major parts: a power source (like a natural gas plant or wind turbine); the wires and equipment that deliver power; and a home or business that receives the power.

To understand the modern grid more deeply, here are four ways it's adapting to the world's new realities.

1 Resilience in the face of more severe weather

Last year was the busiest recorded hurricane season along the Atlantic Coast. Wildfires are increasingly intense, especially in the West, and ice storms and cold weather surprised the South this winter.

These changes call for new ways to make sure the lights stay on.

Electric utilities are increasing grid resilience by integrating weather forecasting with other smart technologies that monitor electric current and analyze how to respond. NRECA's Banunarayanan calls this "predictive technology."

By knowing how weather will affect power equipment, he says, "an electric co-op can preposition work crews so they can quickly

respond to the outage, and they can redirect the flow of electricity to take an alternate route to minimize the duration of a power outage."

2 Strengthening cybersafety

Cybersecurity measures have become standard operating procedure for utilities to protect against cyberattacks. Electric co-ops and other utilities work closely with the U.S. Department of Homeland Security to monitor and strengthen defenses.

"Utilities are constantly improving to make sure they are more cyber-resilient," says Banunarayanan.

Electric co-ops also urge consumer-members at home to protect themselves from hackers. When devices like printers and smart TVs connect to the internet, that actually makes them part of the electric grid.

3 More power to consumers

Many utilities have voluntary programs that manage electric loads by turning off water heaters or air conditioners for short periods of time. Those programs add another layer of coordination. Additionally, homeowners are installing solar panels on their roofs or in their backyards, with some even selling excess electricity back to the utility – over the electric grid.

4 Utilities keeping up with the change

Large fields of wind turbine farms and solar power arrays require building transmission lines to new locations. They also involve planning for a kind of power that might only operate when the sun shines or the wind blows. These changes are necessary and helpful, but they are also expensive.

Annual spending on the U.S. transmission system has increased from $9 billion a year in 2002, to $40 billion in 2019.

But that spending is paying off.

In 2017, Americans experienced about eight hours of power interruptions, according to the Energy Information Administration. By 2019, that was down to five hours.

"Power outages have been going down because there's investment being made to increase the robustness of the grid," says Banunarayanan. "I expect the reliability of the grid to increase."

Paul Wesslund writes on consumer and cooperative affairs for the National Rural Electric Cooperative Association, the national trade association representing more than 900 local electric cooperatives. From growing suburbs to remote farming communities, electric co-ops serve as engines of economic development for 42 million Americans across 56% of the nation's landscape.

Last year was the busiest recorded hurricane season along the Atlantic Coast. Wildfires are increasingly intense, especially in the West, and ice storms and cold weather surprised the South this winter. These changing weather patterns call for new ways to make sure the lights stay on.

The electric grid is constantly adapting to changing weather patterns, increasing cybersecurity threats, consumer expectations and additional decentralized power sources like rooftop solar panels.

Corn Kernels Source: Iowa Corn Growers Association, Iowa State University Extension and Outreach

Corn and Black Bean Salsa

- 2 cups sweet corn, cooked
- 1 can black beans, rinsed and drained
- 1 scallion, sliced
- ½ cup tomatoes, diced
- ½ red bell pepper, diced
- 1 lime, zested and juiced
- 2 tablespoons canola oil
- ¼ teaspoon seasoned salt
- ¼ teaspoon black pepper
- ¼ teaspoon chili powder
- sprinkle cayenne
- sprinkle garlic powder

Mix all ingredients together, adjust seasonings to taste and serve. This recipe is great as a salsa with tortilla chips or on tacos or burritos. It is also a great stand-alone side salad or served on greens.

Chris Daniels • Casey
Guthrie County Rural Electric Cooperative Association

CORN KERNELS

KERNELS AND ROWS

The number of kernels per ear can vary from about 500 to 1,200. A typical ear of corn has 800 kernels in 16 rows. There is one silk for every kernel that grows in an ear of corn.

Curried Creamy Corn

- 3 teaspoons butter
- 2 cups fresh sweet corn
- 2 tablespoons green peppers, chopped
- 2 tablespoons onions, chopped
- ½ teaspoon curry powder
- ¼ teaspoon salt
- dash of pepper
- 3 ounces cream cheese
- ⅓ cup milk

In a saucepan, melt butter then add corn, peppers, onions, curry powder, salt and pepper. Cover and cook over medium heat for 8-10 minutes or until corn is tender. Add cream cheese and milk, stir over low heat until combined. *Serves 4*

Gina Lloyd • Linden
Guthrie County Rural Electric Cooperative Association

Cheesy Creamed Corn

- 2 quarts frozen sweet corn
- 4 ounces cream cheese, cubed
- 2 tablespoons butter or margarine
- 2 tablespoons milk
- 1 tablespoon sugar
- 4 slices American cheese
- 1½ teaspoons salt

Cook and drain corn. Stir in remaining ingredients. Cook and stir over medium-low heat until butter and cheese are melted. *Serves 8*

Emily Rassi • Rock Rapids
Lyon Rural Electric Cooperative

Garden Fresh Sweet Corn Salsa

- 1 cob sweet corn
- ¼ cup cilantro, diced
- 3 garlic cloves, diced
- 1 jalapeno, diced
- juice of ½ lime
- ¾ cup yellow or red onion, diced
- 2 cups fresh tomatoes, chopped
- ¼ teaspoon salt
- tortilla chips

Cut cooked corn off the cob. Toss all ingredients except for chips in a bowl. Serve fresh with tortilla chips. Store refrigerated up to 3 days. *Yield: 4 cups*

Susan Harrison • Le Mars
North West Rural Electric Cooperative

Sweet Corn Dip

- **4 cups corn cut fresh off the cob or frozen**
- **1 14.5-ounce can diced tomatoes, drained**
- **½ cup sour cream**
- **½ cup mayonnaise**
- **tortilla chips**

Cook, drain and cool corn. Mix corn with drained tomatoes, sour cream and mayonnaise then chill. Serve with tortilla chips. For a spicier dip, use a can of diced tomatoes with green chilies. *Serves 12*

Donna Johnson • Kanawha
Prairie Energy Cooperative

BBQ Chicken & Corn Pizza

- **1 tablespoon oil**
- **1 onion, chopped**
- **2 garlic cloves**
- **1½ cups chicken, cooked and chopped**
- **¼ teaspoon salt**
- **¼ teaspoon pepper**
- **1½ cups barbeque sauce, divided**
- **1 15-inch pizza crust, unbaked**
- **6 ounces cheddar cheese, shredded**
- **1 cup fresh corn**
- **4 ounces gouda cheese, shredded**
- **¼ cup cilantro**

Sauté onion in oil for 5 minutes. Add garlic and cook for 1 more minute. Mix in the chicken, salt, pepper and ½ cup barbeque sauce. Turn off the heat. Spread 1 cup barbeque sauce on the pizza crust, then top with cheddar cheese, chicken mixture, corn and gouda cheese. Bake at 375 degrees F for 30-35 minutes. Remove and top with cilantro. Cool 10 minutes before slicing. *Serves 6*

Lauren Zollinger • Rock Rapids
Lyon Rural Electric Cooperative

Fried Sweet Corn

- **8 ears sweet corn**
- **2 tablespoons butter**
- **3 tablespoons red pepper, diced**
- **⅓ cup heavy cream**
- **1 tablespoon fresh parsley, chopped**
- **salt**

Husk corn and remove silks. With a sharp knife, cut the kernels from the cob. Add butter to a large sauté pan then add corn and pepper, stirring for several minutes. Add cream and cook for 3 minutes over high heat. Stir in parsley and season with salt.

Barb Walter • Alton
North West Rural Electric Cooperative

Easy Corn Fritters

- **3 cups sweet corn kernels, 4 ears of corn**
- **½ cup all-purpose flour**
- **2 tablespoons cilantro, chopped**
- **1 teaspoon coarse kosher salt**
- **1 teaspoon black pepper**
- **2 large eggs, beaten**
- **vegetable or canola oil for frying**

In a medium bowl, mix corn, flour, cilantro, salt and pepper until well combined. Add eggs and mix well. Heat a large skillet over medium-high heat. Add oil to cover the bottom of the pan and heat until hot. Use about ¼ cup of corn mixture for each fritter, drop about 6 fritters into the hot skillet and flatten out a bit. Cook fritters until golden brown, about 2 minutes. Using a spatula, flip and cook another 2 minutes or until golden brown. Repeat with the remaining mixture and serve immediately. Fritters can be kept warm in a 200 degrees F oven if not served immediately. *Yield: 12 large fritters*

Tamara Kramer • Le Mars
North West Rural Electric Cooperative

Wanted: Soup and Stew Recipes
The Reward: $25 for every one we publish!

Nothing comforts the heart and warms the soul quite like a hearty bowl of soup! With crisp and cool fall days in mind, we want your favorite soup or stew recipe. If we run your recipe in the magazine, we'll send a $25 credit for your electric co-op to apply to your power bill. Recipes submitted also may be archived on our website at www.livingwithenergyiniowa.com.

The deadline is July 31, 2021. Please include your name, address, telephone number, co-op name and the recipe category on all submissions. **Also provide the number of servings per recipe.**

EMAIL: recipes@livingwithenergyiniowa.com (Attach your recipe as a Word document or PDF to your email message.)

MAIL:
Recipes
Living with Energy in Iowa magazine
8525 Douglas Ave., Suite 48
Urbandale, Iowa 50322

SWEET VS. FIELD CORN
Only 1% of corn planted Iowa is sweet corn; the other 99% is field corn.

CORN KERNELS

STORING CORN
Refrigerate sweet corn in tightly wrapped plastic for 1-2 days if the husk is removed. If the husk is still on, store uncovered in a refrigerator for 1-2 days.

CORN KERNELS

BRIGHT GREEN MEANS RIPE
Sweet corn is ripe when husks are bright green and moist. After peeling the husk back, the kernels should be evenly spaced and plump.

CORN KERNELS

MORE THAN DELICIOUS
Sweet corn is undoubtedly an Iowa favorite, but it's more than just delicious. It's also a good source of vitamin C, lutein and fiber.

CORN KERNELS

Technology and cost drive a diverse energy portfolio

BY ANN THELEN

Electric cooperatives serving Iowans showcase new projects

Corn Belt Power Cooperative brought Wisdom Station's new 150-killowatt solar facility online in 2020. The project features two different photovoltaic panel arrangements, a fixed-tilt array and an array of single-axis tracking panels. The 600 total panels now occupy space once used for the plant's coal pile. Wisdom Station converted to an all-natural gas burning facility in 2014.

Editor's Note: This is the first of a two-part series on how electric cooperatives serving Iowa member-consumers are integrating new energy sources into their energy portfolios. Part two will also feature cooperatives serving the northeastern and southeastern parts of the state.

Solar shines as a cost-effective resource

As Central Iowa Power Cooperative (CIPCO) works to close the gap left by the early closure of Duane Arnold Energy Center, it is focused on finding additional power purchase agreements with developers of wind and solar resources to fortify its power supply portfolio. CIPCO is a generation and transmission electric cooperative and, through its 13 members, serves over 300,000 Iowans in 58 Iowa counties.

"Energy from solar and wind resources are, relatively speaking, low-cost alternatives to other means of generation," says Bill Cherrier, CIPCO executive vice president and CEO. "We give great thought to the value these assets bring to the power supply portfolio, analyzing the costs and the potential benefits and drawbacks of every decision.

"The solar option has been outstanding for us and really over the last eight years, it's become much more competitive. Compared to nuclear and coal plants, it is very economical and at times more competitive than those. The issue is you don't always have it when you need it," Cherrier continues. "Therefore, coal and natural gas play a very important part in our portfolio and will for some time to come."

CIPCO's involvement in solar projects has been in the spotlight in recent months.

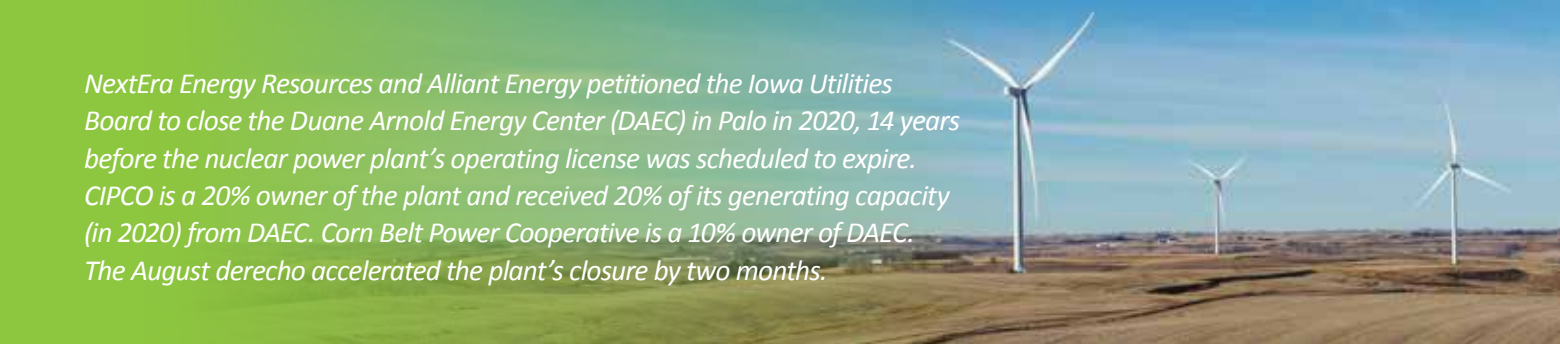
Wapello Solar comes online

Earlier this year, Wapello Solar, LLC came online. CIPCO has a power purchase agreement (PPA) to purchase 100% of the power from the 100-MW_{AC} Wapello Solar for 25 years. Clēnera LLC partnered with Renewable Energy Systems (RES) to construct Wapello Solar in six months, creating approximately 250 jobs at peak construction. Despite beginning construction during the COVID-19 pandemic, Wapello Solar progressed with little to no delays and entered commercial operation in early 2021.

Clēnera acquires, develops, builds and manages utility-scale solar projects and energy storage facilities throughout the U.S.

Located on nearly 800 acres, Wapello Solar features 318,000 bi-facial solar panels on single-axis tracker tables. When siting the projects, it's important to locate and construct at the lowest cost possible, while having necessary access to the transmission system. To check all these boxes, the projects are typically located on land that is rural, and in these instances, landowners are often pleased with the projects because developers work with landowners, and the opportunity creates diversity for their income.

On the heels of the completion of the Wapello Solar in southeast Iowa, CIPCO and Clēnera Renewable Energy announced the execution of a PPA for Coggon Solar, LLC, a 100-MW_{AC} solar project in eastern Iowa.



NextEra Energy Resources and Alliant Energy petitioned the Iowa Utilities Board to close the Duane Arnold Energy Center (DAEC) in Palo in 2020, 14 years before the nuclear power plant's operating license was scheduled to expire. CIPCO is a 20% owner of the plant and received 20% of its generating capacity (in 2020) from DAEC. Corn Belt Power Cooperative is a 10% owner of DAEC. The August derecho accelerated the plant's closure by two months.

Coggon Solar will bring significant economic benefits to the local area. According to Clēnera, the project will contribute several million dollars in property tax revenue to Linn County over the life of the generating facility. Clēnera also estimates that the project will create approximately 350 jobs during peak construction, many of which will be from local labor.

Coggon Solar is anticipated to begin commercial operations in 2022.

"Our electric cooperative members count on reliability more than anything. It's imperative to their lives and livelihood. Our job is to deliver the best balance in a diverse energy portfolio," Cherrier adds.

Solar array occupies the former site of coal pile for power plant

In 2020, Corn Belt Power Cooperative brought Wisdom Station's new 150-kilowatt solar facility online. The project features two different photovoltaic panel arrangements, a fixed-tilt array and an array of single-axis tracking panels. The panels take up space once occupied by the plant's coal pile. Wisdom Station converted to an all-natural gas burning facility in 2014.

Corn Belt Power supplies electricity to nine member cooperatives and one municipal cooperative that serve farms, rural residences, small towns, businesses and industries in 41 counties in northern Iowa. There are 600 total panels at Corn Belt Power's Wisdom Station with 75 kilowatts of generation on each of the fixed-tilt and single-axis tracking arrays.

A fixed-tilt array is an array in which the panels never move and are pointed in one direction at all times. The single-axis tracking panels will move with the sun to maximize energy generation.

"We hope to learn more about the true costs and benefits of the two technologies – fixed-tilt versus single-axis tracking," says Jacob Olberding, vice president, power supply, Corn Belt Power. "We tried to set up as much of an "apples to apples" comparison as we could. The two arrays are located right next to each other. Each array has the same size model, quantity of solar panels and inverters. We are monitoring and documenting the performance and costs associated with the two arrays so that our members can make informed decisions when considering the two technologies."

Iowa Choice Renewables, a company established and run by a group of electric cooperatives in rural Iowa, installed the system. The array interconnects to Iowa Lakes Electric Cooperative's distribution system at Wisdom Station.

Ann Thelen is the editor of *Living with Energy in Iowa.*

Solar panels at Wapello Solar LLC are bi-facial, meaning they have a back layer of transparent glass to give them the ability to utilize the sunlight reflected onto the rear side of the panel as well as onto the traditional front panels.

Photo Credit: RES

The official ribbon cutting for Wapello Solar, LLC, took place in April. From left: Jeremy Teresinski, RES; Tim Jordan, RES; Ken Johnston, FTC Solar; Bill Cherrier, CIPCO; Michael Gallego, Clēnera; Iowa Lt. Gov. Adam Gregg; Sen. Joni Ernst; Rep. Mariannette Miller-Meeks; and Tammi Sevy, Clēnera.

Battery-powered substations? An innovation recharge!

Basin Electric Power Cooperative, which provides power to electric co-ops across the Midwest, introduced a member-owned Trial Battery Rate into its policy in 2019. The rate allocates up to 150kW per Class C member to employ between a substation and the end user.

Northwest Iowa Power Cooperative (NIPCO), a Basin member, provides wholesale electric generation and transmission services to seven member cooperatives serving nearly 34,000 member-consumers in 10 western Iowa counties.

NIPCO engineers developed a plan to take advantage of this storage allocation to provide the best "bang for its buck" across its entire NIPCO membership. In late 2020, NIPCO directors approved an innovative concept to pool member cooperatives' individual allocations, allowing NIPCO to integrate a 975-kilowatt Tesla® Mega Pack battery storage unit to the feeder of a single distribution substation within the NIPCO system. The plan enables NIPCO to utilize battery storage as a part of its overall load management strategy.

"The goal of installing a grid-scale battery will be for peak-shaving, thus reducing the peak power demand charge that NIPCO pays to purchase power during periods of high consumption. These demand charges are passed along to our member co-ops," explains Chris Larson, NIPCO's system protection engineer II. "The battery will be charged during off-peak hours and then discharged during peak hours, alongside NIPCO's existing load management system. Operating the battery storage system in this manner reduces the peak power demand charges that ultimately get passed along to member-consumers."

Sitework adjacent to the Lawton Substation prepares the area for installation of the 975kW Tesla® Mega Pack battery.

The stored power from the battery will replace almost 1 megawatt of power (enough to power approximately 100 homes) being demanded of the substation for up to six hours during the scheduled load control cycle.

The Tesla battery pack will be connected to the Lawton Substation located west of Lawton, Iowa. While the distribution substation serves Woodbury County Rural Electric Cooperative members, the savings will be socialized across the entire NIPCO membership and, ultimately, benefit member-consumers at the end of the line.

NIPCO engineers are finalizing substation drawings and site prep to place the battery and its associated infrastructure, which will begin this summer. The battery is expected to deploy its first charge by December 2021.

NIPCO plans to share ongoing performance data with its membership to highlight the battery's ability to flatten demand curves, reduce power costs and use existing generating resources more efficiently.

Top-performing electric vehicles

BY MARIA KANEVSKY

As electric vehicles gain popularity nationwide, many car manufacturers are creating new electric models to appeal to consumers. Electric vehicles may have higher sticker prices than traditional gas-powered vehicles, however, their lifetime costs can end up being less due to lower maintenance and fuel costs.

Since electric vehicle technology is constantly improving and prices keep decreasing, consumers are starting to consider electric vehicles for their next purchase. There's an electric model out there for everyone, depending on your priorities and preferences.

2020 Nissan Leaf

Photo Credit: Nissan

Hyundai Ioniq Electric

Photo Credit: Hyundai

Affordability matters

For many, affordability is most important when purchasing a new vehicle. There are several budget-friendly options for those who want an electric vehicle but don't want to break the bank. One of the most popular and affordable electric options is the Nissan Leaf. The 2020 Nissan Leaf has a Manufactured Suggested Retail Price (MSRP) of $31,600, according to *U.S. News & World Report*, and an older Nissan Leaf can be purchased for an even cheaper price. As with conventional vehicles, used (or older) electric models will typically cost less than the newest model.

Another affordable electric vehicle is the 2020 Hyundai Ioniq Electric with an MSRP at about $33,000. The Hyundai Ioniq Electric has one of the highest MPGe ratings compared to other electric vehicles, at 133 MPGe, meaning it uses electric power very efficiently, thus needing fewer charging sessions. Additional benefits of the Hyundai Ioniq Electric include high safety scores and a long warranty.

Luxury on a budget

For those interested in a luxury vehicle while still keeping it relatively budget-friendly, the 2020 Tesla Model 3 could be an option to consider. With a starting MSRP of $35,400, the car provides a sophisticated interior while delivering great efficiency and 220 miles of range.

Mileage range is a priority

Some consumers may instead prioritize a greater mileage range on their electric vehicle to eliminate range anxiety. Several new electric vehicle models have an especially large range. The 2020 Tesla Model S Long Range Plus has the largest range currently available on the market at 402 miles of maximum range. Using a Tesla Supercharger for only 15 minutes can get you about 130 miles of range on the 2020 Tesla Model S, but this car comes with the hefty MSRP price tag of about $80,000. Another option that's a little more affordable but still provides a modestly long driving range is the 2021 Chevrolet Bolt, with a maximum range of 259 miles and an MSRP of roughly $36,600. The Chevrolet Bolt is a strong competitor among many electric vehicles, making it a solid choice as an everyday car.

Before purchasing any new vehicle, be sure to appropriately research which model will work best for you and your family.

Having a plan for charging your new vehicle will also be critical, either at home or at public charging stations. Once you purchase an electric vehicle, let your local electric cooperative know. Many electric co-ops offer one-time rebates or special rate plans for electric vehicle owners that can help you save additional money over time when charging your new car.

Maria Kanevsky writes on consumer and cooperative affairs for the National Rural Electric Cooperative Association.

Stop by and see us at the Iowa State Fair!

The Touchstone Energy Cooperatives of Iowa are pleased to once again sponsor the Bruce Rastetter 4-H Exhibits Building at the Iowa State Fair. As Touchstone Energy members, we're part of a nationwide network of locally owned co-ops that provides resources and leverages partnerships to help member-consumers use energy wisely.

If you're planning a visit to the Iowa State Fair this summer, make sure to stop by and see us in the newly renovated 4-H Exhibits Building on the southwest corner of the fairgrounds. Come into the air-conditioned facility for a break from the heat and look for us near the new concession area.

Electric co-op staff from across Iowa will hand out plastic hard hats for the kids while supplies last. They can also try on some lineworker safety gear and take fun photos in our co-op safety selfie station!

Electric co-op members who take a quick survey on our iPads will automatically be entered into our fair contest. After the fair, three lucky winners will be randomly selected to choose one of three prize options:

- Roomba 614 Robot Vacuum
- DEWALT 20V MAX XR Blower
- Breville Smart Oven Pro

We will also announce the winners from our new Shine the Light contest during the fair. Iowa electric co-op member-consumers and employees had an opportunity to nominate local community volunteers for the contest in June. Three deserving volunteers will each receive a $1,500 donation for their charity as we celebrate our cooperative commitment to community.

We look forward to connecting with our co-op members at the Iowa State Fair this summer. Please stop by our booth and say hello!

PRIZES!

See you there!

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County fair rides leave a lasting memory

BY VALERIE VAN KOOTEN

Eleven months of the year, a certain tract of land in county seats sits quietly, barns empty, buildings vacant. But come July and August, it fills with 4-H kids, entertainment seekers and the greasy foods we all love, as the county fair kicks into high gear.

Any fair worth its salt has a midway. As a kid, this was the biggest draw. My friends and I loved the stomach-roiling, brain-churning mechanical monsters that threw us against each other and then up along the metal frame.

Whirly rides are a no go

But I've learned my lesson on the "whirly" rides. While I can stomach a roller coaster or a ride that goes straight forward, anything that turns in circles will make me sick the rest of the day. This lesson was imprinted on a muggy July evening at a county fair in central Iowa in the 1980s.

In this party was my mom, her friend Maxine, Maxine's two grandkids aged 9 and 6, and me. I was in my early 20s and found myself delegated to ride the Octopus from Hades with the two smaller kids. This was one of those entertainments that not only turns, but also has a car on the end of each spoke that whirls as well. I was game to ride along with the kids who were begging to go.

The first clue that this might not be so pleasant was the ride attendant, a teenaged boy with hair in his eyes, and a T-shirt with a vulgar saying on it. He grunted at us as we climbed into the Car of Death and latched us in. The second clue that this was going to be the Ride of Horrors was when said attendant started the ride by withdrawing a screwdriver from his back pocket and jamming it into the starting apparatus.

The ride lurched into motion, and I quickly realized that I had not figured the seating chart correctly. The largest person should be on the outside so that the smaller ones don't get smashed in centrifugal motion. I was in the middle, so the little boy with me was getting the brunt of both his sister and me. I clung to the back of the seat, trying to pull myself away from him, which got more and more difficult the faster we went.

"Grandma" to the rescue

After two minutes of grim determination on our part to hang on, the 6-year-old wanted out. I tried to motion the adolescent attendant, only to find him flirting with a girl in line. It was obvious he was going to be of little aid. As we whirled past my mom and her friend, I tried to get their attention.

"Tell them to STOOOOPPPP…." I yelled, the Doppler Effect kicking in and carrying my voice away. She and Maxine were chatting away, totally ignoring us. In the meantime, the 6-year-old was crying, and the 9-year-old looked pale. I was in real danger of getting hurled upon.

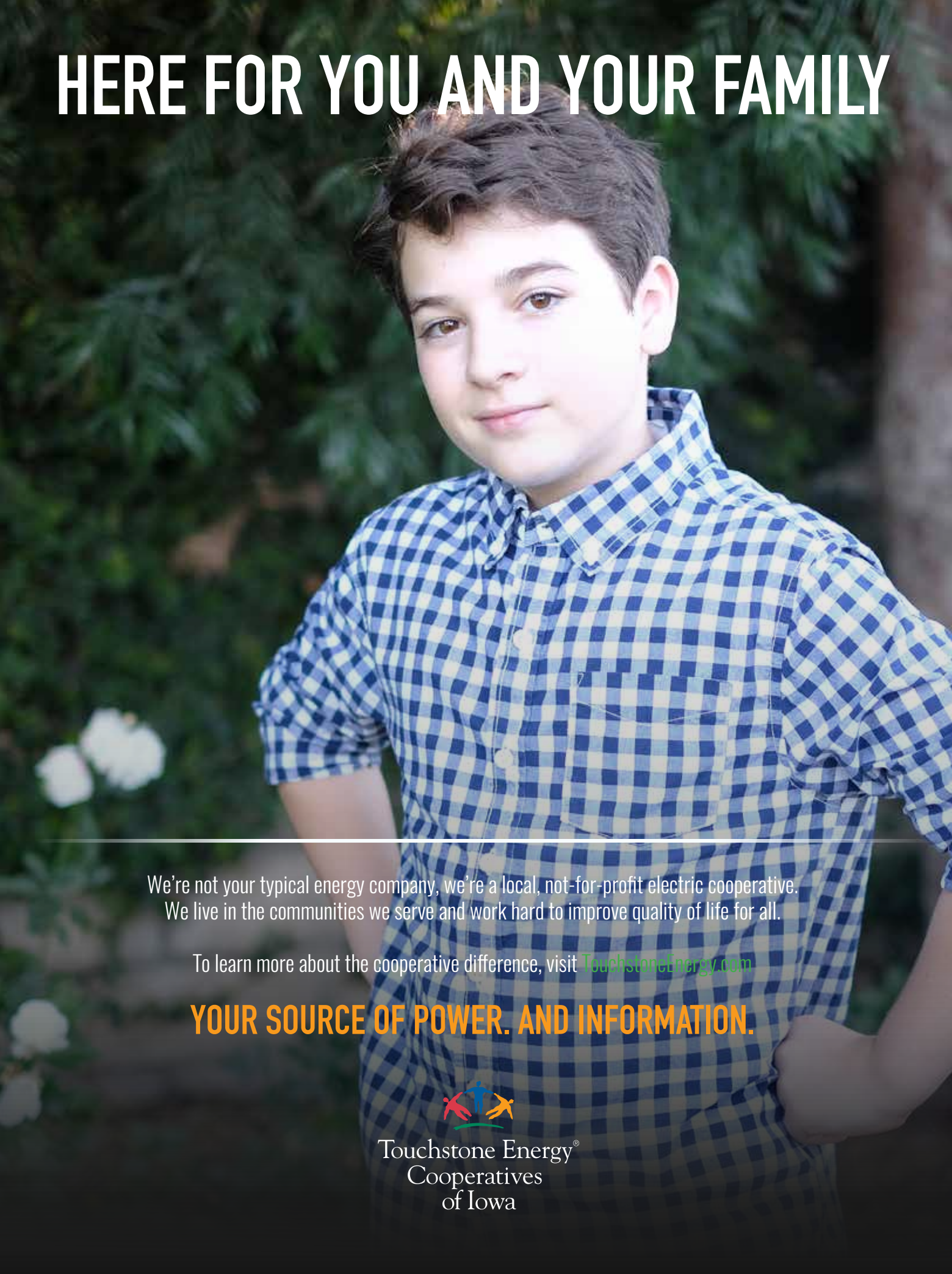
"MOOOOOMMMMMM!" I whirled a rotation. "TELL HIM TO STOOPPPPPP…!" Second rotation.

The 6-year-old finally broke through. "GRANDMA! I WANT TO GET OFFFFF!" The two women finally saw us gesturing and screaming and alerted Flirting Attendant, who pulled the screwdriver out of the works and brought us to a grinding halt.

We staggered off the ride, wobbly, sick and angry. Teen Attendant grunted at us as we left. Mom and Maxine found the whole thing somewhat hilarious.

Just in case you're wondering, I've never ridden the Octopus from Hades again.

Valerie Van Kooten is a writer from Pella who loves living in the country and telling its stories. She and her husband Kent have three married sons, two incredibly adorable grandsons and a lovely granddaughter.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