

FEBRUARY 2022

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ELECTRIC COOPERATIVE LIVING



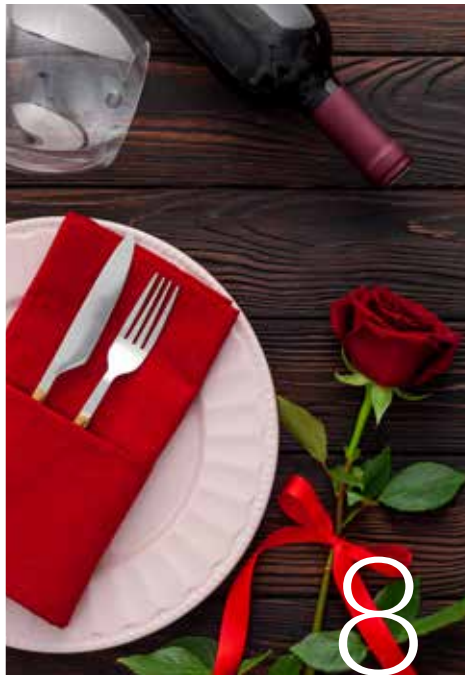
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ON THE COVER

Special thanks to Bruce A. Morrison, a North West REC member-consumer, for supplying this month's cover image. Submit high-resolution photos for consideration to editor@ieclmagazine.com. You could win \$100!

INTRODUCING IAEC'S NEW BOARD PRESIDENT: ROGER SOLOMONSON

BY ERIN CAMPBELL



Roger Solomonson is no stranger to serving on cooperative boards. His family jokes that they will one day inscribe his tombstone with the phrase, "He's at a meeting." He began

his cooperative board service long ago at the age of 21 when he served as a director for a local grain elevator and hasn't slowed down since.

History of advocating for cooperatives

As a retired grain and livestock farmer near Lake Mills in Winnebago County, Solomonson is a longtime advocate of the cooperative business model. He has served as a director for Heartland Power Cooperative for 27 years and is serving his fifth year as a director for the Iowa Association of Electric Cooperatives (IAEC), most recently serving as the board secretary and treasurer before becoming president in December.

Solomonson previously served as vice president and treasurer of the board for Dairyland Power Cooperative, which supplies electricity to Heartland Power Cooperative. As a big believer in education and training, he has earned his Credentialed Cooperative Director designation, the Board Leadership Certificate and the Director Gold designation.

Heart for community service

Many in north-central Iowa know Solomonson from his extensive community service work. Over the years, he has served in leadership roles at the local bank, grain elevator, church boards, township council, extension council, Winnebago Farm Bureau and pork, corn and soybean commodity organizations. Solomonson has also committed his time as Iowa State Membership Coordinator and North

Iowa Regional Director for Gideons International.

"I've lived in this community my whole life, and I'm passionate about giving back," he humbly shares.

Vision for board leadership in 2022

As the incoming board president for IAEC, Solomonson hopes to connect with all directors at Iowa's local electric cooperatives so he can best represent their needs. "My goal this first year is to attend one board meeting at each electric cooperative so I can get to know my fellow co-op directors on their own turf," he shares.

Solomonson's priorities as a leader include open communication. "With three new directors on the statewide board, the dynamics have changed a bit," he shares. "We're bringing a new perspective as we look at issues like cybersecurity and political engagement."

When reflecting on challenges facing

the electric industry, Solomonson says, "I think there are two issues that will challenge Iowa's electric cooperatives in the years ahead. How are we going to maintain reliable electricity as we rely more on intermittent energy sources like solar and wind? And also, how will we deal with increased regulations that are changing the way we supply energy? The goal is to safely supply reliable, affordable energy every time our consumers flip the switch."

Solomonson looks forward to serving Iowa's electric cooperatives in this new leadership role. His industry knowledge, leadership track record and passion to serve will be valuable assets. And if you're trying to track him down, he's probably at a meeting.

Erin Campbell is the director of communications for the Iowa Association of Electric Cooperatives.

Editor's Note: An introduction to the three new statewide directors will appear in the March issue of this magazine.

EDITOR'S CHOICE CONTEST

Win a CTECHi Portable Power Station!

The specs of this CTECHi Portable Power Station include 200W, 320Wh LiFePO4 battery backup power supply, fully charged within 3.5 hours, PD 60W quick charge, solar generator for outdoor travel and camping, plus emergency charging of devices at home.

Visit our website and win!

Enter this month's contest by visiting www.ieclmagazine.com no later than Feb. 28. 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 Philips Soup Maker from the December issue was Arlene Mueggenberg, Raccoon Valley Electric Cooperative.



FIVE WAYS TO SAVE ENERGY WHEN WORKING FROM HOME

BY BRADY CODNER

Today, more Americans are working from home than ever before. More time spent at home means more energy used throughout the day.

If you're punching the clock from home, there are small steps you can take to reduce your energy use and save on electric bills. Here are five easy ways to save energy when working from home.



Grundy County REC
A Touchstone Energy® Cooperative

"Our mission is to provide our members safe, reliable, electric service"



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This institution is an equal opportunity provider and employer.

1. Use a smart power strip. Plugging in your most-used devices, such as computers, monitors and routers, to a smart power strip ensures these devices aren't drawing power when they're not in use. Smart power strips also give you the option to select which devices should stay in "always on" mode.

2. Unplug your least-used equipment. If your home office includes equipment like printers and scanners, you're probably not using these electronics every day. In this case, unplug your least-used electronics and devices, since many of these draw energy even when they're not being used.

3. Choose ENERGY STAR®-certified office equipment. If you're looking to purchase new equipment for your workspace, look for the ENERGY STAR® label to ensure you're getting the most energy efficient features. Computers, monitors, imaging equipment and other office electronics that receive the ENERGY STAR® rating include power management features to make saving energy easy, and most are designed to run cooler and last longer.

4. Flip the switch and use natural light instead. It's still chilly out there, so take advantage of the natural light and additional warmth from the sun. When you're working during the day, open blinds, curtains and other window coverings to let natural light in – and don't forget to turn off the lights to reduce energy use!

5. Lower the thermostat. Home heating makes up a significant portion of your energy bills. Turn the thermostat down a couple degrees during the day to reduce energy use and save money. The Department of Energy recommends setting the thermostat to 68 degrees F or cooler during winter months. You're more likely to stay focused and alert when it's cooler in your home, so all the more reason to mind the thermostat.

Working from home doesn't have to take a toll on your energy bills. And whether you're working remotely or not, these practical tips can help everyone reduce their energy use.

Contact Brady Codner at Grundy County REC at 319-824-5251 for additional information about saving energy at home.

Brady Codner is the member services advisor for Grundy County REC.



GRUNDY COUNTY REC ATTENDS WELCOME BACK LEGISLATIVE RECEPTION



Board President Larry Rohach and Directors David Schmidt and Kevin Pruisner represented Grundy County REC at this year's Welcome Back Reception in Des Moines. They spoke to legislators about important topics impacting electric cooperatives and their members.

GRUNDY CENTER DEVELOPMENT CORPORATION LOAN

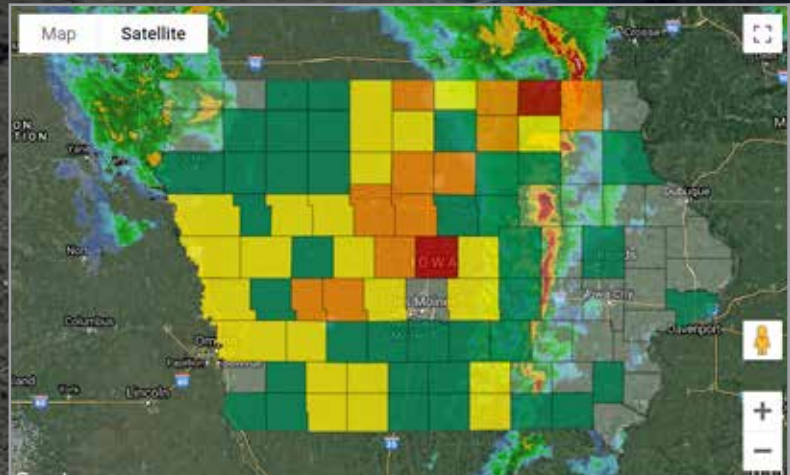
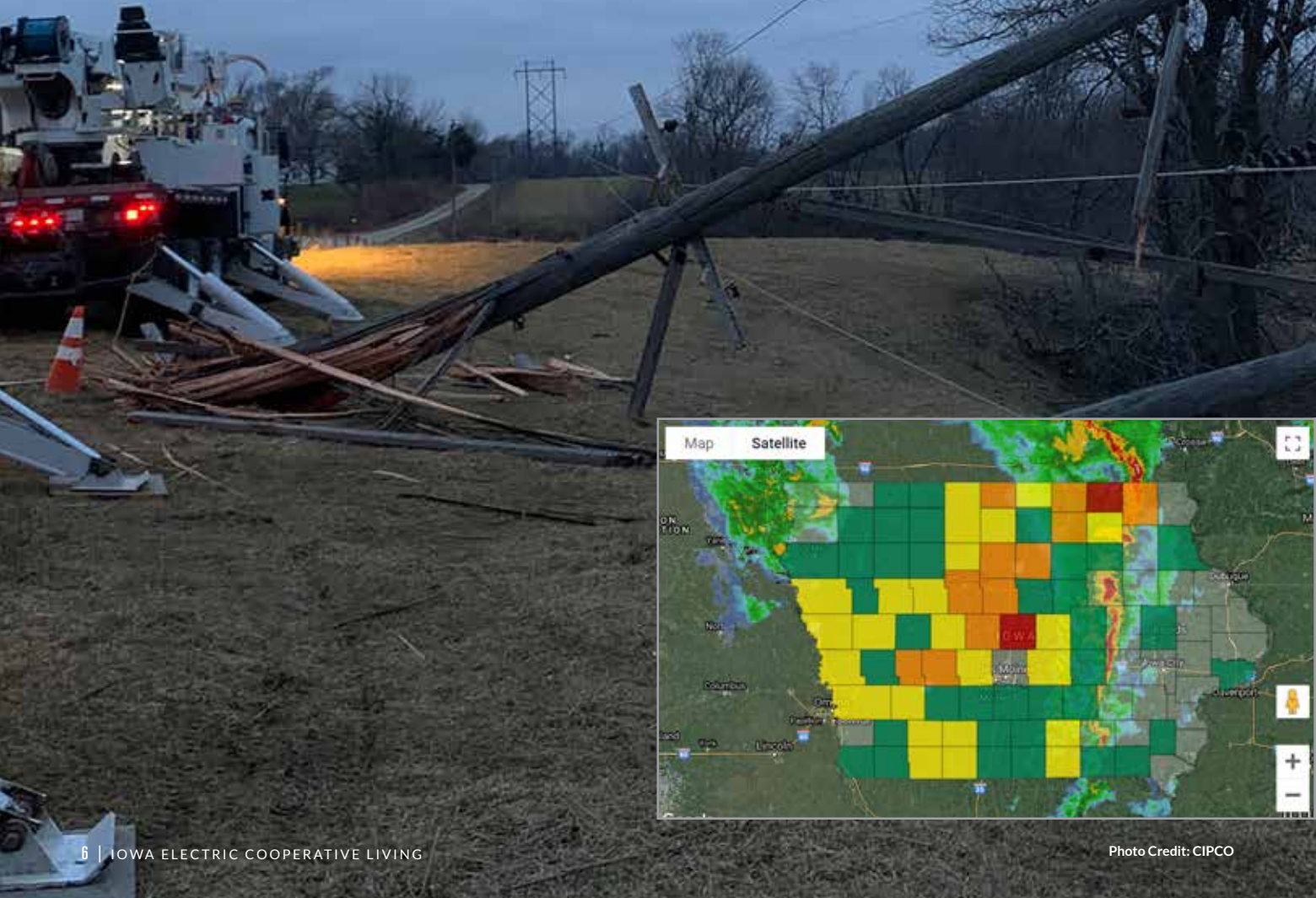


Grundy County REC along with Corn Belt Power Cooperative are excited to support the Grundy Center Development Corporation in securing a new housing development loan. The project will build a new housing development next to the Grundy Center Golf Course.

HISTORIC DECEMBER DERECHO

CAUSED DAMAGE AND OUTAGES THROUGHOUT IOWA

BY ERIN CAMPBELL



Iowa was in the path of a record-breaking thunderstorm on Dec. 15, which was later classified as the first December derecho in U.S. history. The state was experiencing unusually warm weather for that time of year, with record-setting highs in the 70s coupled with strong winds. Iowa's electric cooperatives cautiously monitored the storm system as it moved into southwestern Iowa around 4 p.m. and quickly ripped across the state, leaving northeastern Iowa around 9 p.m.

Record-setting storm

The National Weather Service (NWS) reported the storm spawned 43 tornadoes in Iowa, setting a new record for the most tornadoes in any single day in the state's history. Wind gusts topped speeds of 85 mph in some locations. After the storm passed, several strong wind gusts prevailed throughout the night.

A derecho is often described as an inland hurricane, but with no eye and winds coming across in a line. Derechos are more similar to hurricanes than tornadoes in the damage, which is likely to spread over a wide area. According to NWS, a wind damage swath extending more than 240 miles with wind gusts of at least 58 mph along most of its length can be classified as a derecho.

Service outages and interruptions

For Iowa's electric cooperatives, which serve primarily rural areas, there were 22,500 outages at the peak on Dec. 15. This accounts for approximately 10%

of all electric cooperative meters in the state. After the storm, line crews set out to assess the damage and make repairs as best they could in the prevailing wind gusts following the storm.

As the sun rose the next morning, it provided the necessary illumination for crews to better assess the storm's complete damage. Straight-line winds, tornadic activity, flying debris, and trees, limbs and branches contacting power lines caused broken poles, downed conductors and extensive damage to electrical equipment throughout the state.

"With severe storms like this one, we experienced damage to both the electric transmission system and the local electric distribution systems, which can create extended outage situations," says Scott Meinecke, director of safety for the Iowa Association of Electric Cooperatives (IAEC).

Mutual aid efforts help restore service

The safety team at IAEC coordinated crews and equipment from unaffected electric cooperatives to impacted co-ops to assist in the power restoration effort.

"We call it mutual aid when cooperatives help other cooperatives in times of need," explains Meinecke.

Within the first 24 hours of the storm hitting Iowa, power was restored to 18,500 electric cooperative meters. The remaining 4,000 outages were fully restored within the next couple of days.



Photo Credit: Corn Belt Power Cooperative

"We're always thankful for members' grace and patience as crews work long shifts to restore power," says Meinecke. "The damage from this December storm was particularly heavy in some areas and it can be frustrating when we're not able to provide much detail on when power will be restored. In some cases, crews couldn't safely head out immediately after the storm because the wind gusts made it too dangerous to be out in the buckets or on the poles."

A statewide outage map is available at www.iowarec.org to give a snapshot of current outages for Iowa's electric cooperatives. The outage map is automatically updated every 15 minutes and users can view by county or electric cooperative boundary with a weather overlay layer.

While this storm was one for the record books, Iowa's electric cooperatives were prepared for the worst and acted quickly to restore power as safely and quickly as possible.

Erin Campbell is the director of communications for the Iowa Association of Electric Cooperatives.



Photo Credit: Midland Power Cooperative

STORM SAFETY REMINDERS

- » Never go near or attempt to drive over downed power lines. Assume they are energized and dangerous and notify the electric utility or authorities.
- » Obey Iowa law and move over or slow down if you come upon utility crews working on the side of the road. Give them room to work safely.
- » Don't use portable generators in partially covered areas like garages or porches. Only use them in ventilated spaces outdoors to avoid carbon monoxide poisoning.

Date Night

RECIPES

AT HOME

CHICKEN PARMESAN FOR TWO

- 2** skinless, boneless chicken breast halves
salt and pepper, to taste
- 1** egg
- $\frac{2}{3}$** cup panko bread crumbs
- $\frac{1}{2}$** cup grated Parmesan cheese, divided
- 1** tablespoon flour
- $\frac{3}{4}$** cup plus **$\frac{1}{2}$** tablespoon olive oil, divided
- $\frac{1}{2}$** cup tomato sauce
- $\frac{1}{4}$** cup fresh mozzarella, cubed
- $\frac{1}{4}$** cup provolone cheese
- $\frac{1}{4}$** cup fresh basil

Place chicken breasts in freezer bag on a solid, level surface. Firmly pound chicken with smooth side of meat mallet until $\frac{1}{2}$ -inch thickness. Season chicken with salt and pepper. Beat egg in a shallow bowl, set aside. Mix bread crumbs and $\frac{1}{4}$ cup of Parmesan cheese, set aside. Sprinkle flour over chicken on both sides. Dip chicken in egg, then place chicken in bread crumb mixture and coat both sides. Heat $\frac{3}{4}$ cup olive oil in large skillet on medium-high heat until oil begins to shimmer. Fry chicken until golden brown, approximately 3 minutes each side. The chicken will finish cooking in the oven. Place chicken in baking dish. Top each chicken breast with tomato sauce, mozzarella, provolone and fresh basil. Sprinkle $\frac{1}{4}$ cup Parmesan cheese and $\frac{1}{2}$ tablespoon olive oil on top. Bake at 450 degrees F for 15-20 minutes until cheese is brown and bubbly. Chicken is cooked through when registering an internal temperature of at least 165 degrees F. Enjoy with mixed greens and crusty bread. *Serves 2*

Sue Nagel • Panora • Guthrie County Rural Electric
Cooperative Association

CHOCOLATE ANGEL FOOD CAKE

- $1\frac{1}{2}$** cups egg whites (12 eggs)
- $1\frac{1}{2}$** teaspoons cream of tartar
- 1** cup granulated sugar
- $1\frac{1}{2}$** teaspoons vanilla
- $\frac{3}{4}$** cup cake flour
- $1\frac{1}{2}$** cups powdered sugar
- $\frac{1}{4}$** cup Hershey's cocoa
strawberries

Beat egg whites and cream of tartar until foamy. Gradually add granulated sugar 2 tablespoons at a time. Add vanilla and continue beating until meringue holds stiff peaks. In a large bowl, blend flour, powdered sugar and cocoa. This must be Hershey's cocoa so there is no fat in it; otherwise, the cake will fall out of the pan. Fold the flour mixture into the egg white mixture. Put batter in an ungreased 10x4-inch tube pan. Gently cut through the batter. Bake at 375 degrees F for 20-35 minutes. Invert on a funnel, hang until cold. Serve with fresh strawberries.

Sonya Colvin • Ames • Consumers Energy

WILD RICE QUICHE

- 3** eggs, beaten
- $1\frac{1}{2}$** cups half and half
- $\frac{3}{4}$** cup Swiss cheese, grated
- $\frac{3}{4}$** cup Monterey Jack cheese, grated
onion, to taste
parsley, to taste
- 5** slices bacon, fried and crumbled
- 2** cups wild rice, cooked
unbaked pie shell
paprika, optional
parsley, optional

Combine ingredients, pour into unbaked pie shell. Bake at 450 degrees F for 10 minutes, lower heat to 350 degrees F for 30 minutes more. Remove from oven and let set up for 10 minutes before cutting and serving. Sprinkle quiche with paprika and parsley for garnish if desired. *Serves 6*

Penny Sue Haley • Keswick
T.I.P. Rural Electric Cooperative

SWEET & SOUR MEATLOAF

- 1 8-ounce can tomato sauce
- ¼ cup brown sugar
- ¼ cup vinegar
- 1 teaspoon yellow mustard
- 1½ - 2 pounds ground beef
- ¼ sleeve saltine crackers, crushed finely
- 1 medium onion, minced
- 3 cloves garlic, finely minced
- 1½ teaspoons salt
- 1 teaspoon pepper
- 1 green pepper, chopped
- 1 egg

Mix tomato sauce, brown sugar, vinegar and mustard until sugar is dissolved, set aside. In separate bowl, mix ground beef, crackers, onion, garlic, salt, pepper, green pepper and egg. Add 1 cup of tomato sauce mixture to meat mixture. Mix well and form into a greased, shallow baking pan. Pour remaining tomato sauce mixture over meatloaf. Bake uncovered at 400 degrees F for 45 minutes to 1 hour.

Danice Zern • Conrad
Grundy County Rural Electric Cooperative

SLOW COOKER PEPPER STEAK

- 2 pounds beef sirloin, cut into 2-inch strips
- garlic powder, to taste
- 3 tablespoons vegetable oil
- 1 cube beef bouillon
- ¼ cup hot water
- 1 tablespoon cornstarch
- ½ cup onion, chopped
- 2 large green peppers, chopped
- 1 14.5-ounce can stewed tomatoes, not drained
- 3 tablespoons soy sauce
- 1 teaspoon white sugar
- 1 teaspoon salt

Sprinkle steak with garlic powder. Heat oil in large skillet and brown beef strips. Transfer to slow cooker. Mix bouillon cube with hot water until dissolved, then mix in cornstarch until dissolved. Pour into slow cooker with meat. Stir in remaining ingredients. Cover and cook on low for 6-8 hours. *Serves 6*

Camilla Williamson • Albia
Chariton Valley Electric Cooperative, Inc.

PINK SQUIRREL DESSERT DRINK

- 1 gallon vanilla ice cream
- 1½ cups cream de cacao liqueur
- 1½ cups cream de almond liqueur
- whipped cream
- chocolate covered cherries

Set ice cream out to soften. Blend softened ice cream with both liqueurs, adding less or more to taste. Pour blended ice cream back into bucket or a freezer-safe bowl. Return to freezer until set (will not freeze hard). When ready to serve, dip desired amount into glass. Top with whipped cream and a cherry. This keeps well in freezer for quick and easy entertaining.

Joni Rus • Rock Valley
North West Rural Electric Cooperative

COCONUT CREAM PIE

- 2 cups milk
- ⅓ cup flour
- ¾ cup sugar
- 1 egg, beaten
- 1 teaspoon vanilla
- ½ cup coconut, shredded
- 1 9-inch pie crust, baked

Heat milk in a saucepan. Mix flour and sugar, add some of the heated milk and stir until smooth. Add flour mixture to saucepan and cook until the mixture has started to thicken. Temper beaten egg with stove mixture and add to pan. Once cooked, add vanilla and coconut. Pour into pie crust and refrigerated until set. Enjoy! *Serves 8*

Laura DeSmet • Larchwood
Lyon Rural Electric Cooperative

WANTED:

ICE CREAM RECIPES

THE REWARD:

\$25 FOR EVERY ONE WE PUBLISH!

Deadline is Feb. 28

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@ieclmagazine.com

(Attach your recipe as a Word document or PDF to your email message.)

MAIL: Recipes

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OPPORTUNITY OF A LIFETIME: WIN A TRIP TO WASHINGTON, D.C.!



Enter our Essay Contest by March 25



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SOME OF THE THINGS STUDENTS WILL DO AND SEE ON YOUTH TOUR:

- Washington Monument
- World War II Memorial
- World War I Memorial
- Albert Einstein Memorial
- Franklin Delano Roosevelt Memorial
- Vietnam Veterans Memorial
- The National Mall
- Boat cruise on the Potomac River
- Holocaust Memorial
- Ford's Theater
- Korean War Veterans Memorial
- Lincoln Memorial
- Washington National Cathedral
- Mount Vernon
- Iwo Jima Sunset Parade
- White House
- U.S. Capitol

THESE ELECTRIC COOPERATIVES ARE SPONSORING THE 2022 YOUTH TOUR

All of the electric co-ops on this list are offering one or more all-expenses-paid Youth Tour trips this year, so check your co-op's website or call the office for more details.

Access Energy Cooperative
 Allamakee-Clayton Electric Cooperative
 Butler County REC
 Calhoun County Electric
 Cooperative Association

Chariton Valley Electric Cooperative, Inc.
 Clarke Electric Cooperative, Inc.
 Consumers Energy
 East-Central Iowa REC
 Eastern Iowa Light and Power Cooperative



AN IOWA STUDENT WILL EARN A \$1,000 COLLEGE SCHOLARSHIP TOO!

During the 2022 Youth Tour this June, a student from each participating state will be chosen to serve on the national Youth Leadership Council (YLC).

These young leaders will meet virtually throughout 2022 and participate in leadership training, practice their public speaking skills, attend co-op forums and engage in community activities like voter registration drives.

The Youth Leadership Council experience will officially commence at the 2023 National Rural Electric Cooperative Association (NRECA) Annual Meeting, held in Nashville, Tennessee. Here, the group will spend a few days reflecting on the experiences they've had throughout the year, attend informational and entertaining conference sessions alongside electric cooperative leaders from throughout the country, and solidify lifelong friendships and connections!

Iowa's local electric cooperatives are just getting started on their selection process for high school sophomores, juniors and seniors from their areas to earn an all-expenses-paid trip for the June 18-24 Youth Tour to Washington, D.C. Unfortunately, there always are more qualified student candidates from these co-ops (as well as deserving students from co-ops that aren't participating in the Youth Tour program) than there are openings on the trip. However, one of those students will have the opportunity to win a trip through the *Iowa Electric Cooperative Living* 2022 Youth Tour Contest!

Students who are eligible to apply for the Youth Tour trip at participating Iowa electric co-ops should apply locally first. However, students can

double their chances of winning a trip by entering the magazine's contest right after they enter the one for their electric co-op.

Students from across America take part in this weeklong education trip to the nation's capital each year. Participants will travel to Washington, D.C., meet their U.S. representatives and senators, and watch history come alive as they explore museums, memorials and monuments. They'll also meet student leaders from nearly every state and hear dynamic speakers during Youth Day. Best of all, students will make friendships that last a lifetime and become part of a group that has more than 50,000 alumni in every walk of life, including U.S. senators and CEOs.

OFFICIAL CONTEST RULES

The 2022 Youth Tour Contest is open to any high school sophomore, junior or senior who's part of a member family of an Iowa electric co-op. **One all-expenses-paid trip will be awarded by *Iowa Electric Cooperative Living* magazine**, in addition to the trips sponsored by local electric cooperatives.

Of course, students at supporting co-ops first should apply for the Youth Tour through their electric co-ops. Then, to enhance your chances of earning a trip, we encourage you to enter this contest too. If you're chosen as the winner of a trip sponsored by your local electric cooperative, you'll become ineligible to win the trip sponsored by *Iowa Electric Cooperative Living* magazine.

To enter, you will be required to submit an official entry form plus a short (250-word maximum) essay in response to this statement: **Pick one of the seven cooperative principles and share how your local electric cooperative embodies it.** Entry forms are available at www.IowaYouthTour.com. You can submit your essay online at this address or email it to youthtour@iowarec.org. Entries must be received by March 25.

Iowa Electric Cooperative Living magazine and IAEC staff will judge all essays anonymously. The decision of the judges will be final. The winner of the *Iowa Electric Cooperative Living* Youth Tour Contest will not be announced until April 15, which is after all sponsoring local electric cooperatives will have chosen their 2022 Youth Tour participants.

Farmers Electric Cooperative, Inc.
(Greenfield)
Franklin REC
Grundy County REC
Harrison County REC

Heartland Power Cooperative
Iowa Lakes Electric Cooperative
Lyon REC
Midland Power Cooperative
MiEnergy Cooperative

Nishnabotna Valley REC
North West REC
Pella Cooperative Electric Association
Prairie Energy Cooperative

Raccoon Valley Electric Cooperative
Southern Iowa Electric Cooperative
Southwest Iowa REC
United Electric Cooperative

AVOID SOLAR ENERGY SCAMS

Solar energy is booming, and the future is brighter than ever. With rooftop solar panels, many homeowners can now harness the sun's natural rays to produce electricity that's environmentally friendly and cost-effective.

With the increasing popularity of solar, some businesses are unfortunately taking advantage of consumers who are interested in installing rooftop panels. While many solar companies are genuine and truly want to help consumers with a successful solar installation, there are the occasional bad apples.

You've likely heard a story or two about solar vendors that promised rooftop panels that would generate enough electricity to power the entire home. Then, after the homeowner has paid thousands of dollars for the installation, the solar panels aren't working, and the vendor is nowhere to be found. Sadly, this story has been the reality for many consumers.

Protect yourself from scams

If you're interested in solar panels for your home, consider these tips before installation:

- First, talk to Brady Codner, member services advisor at Grundy County REC. We want you to feel confident about any decisions you make about your home energy use, especially decisions about generating energy at home.
- Collect at least three quotes from different solar companies to ensure you're getting a competitive deal. As with any major purchase, research is key, so thoroughly read customer reviews for each of the three solar vendors.
- If you speak to a solar vendor and they use high-pressure tactics – such as an offer that's only good for 24 hours – run! Any reputable solar company will recognize that you need time to review a proposal and thoroughly weigh your decisions.

- If it sounds too good to be true, it probably is. So, if a solar company is making promises that sound unachievable and outlandish, they probably are. Remember, if you have any questions, you can always count on your electric co-op for advice.
- Finally, when it's time to review and sign a solar contract, make sure the language is clear and easy to understand. Ensure any prior verbal (or emailed) promises are also included in the contract.

Support from your co-op

Going solar is a major decision, so you'll want to conduct a good bit of research first. Our goal is to provide our members with credible energy information, allowing you to make the best decisions about your energy needs. One way Grundy County REC does this is through our partnership with Iowa Choice Renewables.



If investing in a solar array is the right path for you, we can offer turnkey solar arrays at competitive pricing and/or help you analyze other solar companies' quotes. If you're looking for a general starting point, check out the Department of Energy's homeowners guide at www.energy.gov/eere/solar/homeowners-guide-going-solar. Please contact Brady Codner at 319-824-5251 for more information.

Happy Service Anniversary!!

Karl Nielsen & Nichole Heaverlo



Nichole - 2 Years



Karl - 10 Years



Grundy County REC
A Touchstone Energy Cooperative
"Our mission is to provide our members safe, reliable, electric service"

THREE INTERESTING FACTS ABOUT ELECTRICITY

BY PAUL WESSLUND

Electricity turns dark into light, makes hot foods cold and cold foods hot, washes the dishes and searches the internet. It is essential to our everyday lives, yet we rarely think about it. But behind the scenes, interesting things are happening with electricity.

1 Electricity must be used or stored after it's generated

A rechargeable battery stores electricity, but the kind of electricity you use in your home needs to be used after it's generated. Electricity produced from power plants, solar panels, wind turbines and hydro dams needs to be perfectly timed for when you decide to use it.

A vast and intricate system of devices control power flow in a precisely balanced way. It's one reason utility operators must be strategic when adding renewable energy to the nation's fuel mix. Solar energy and wind power depend more on the whims of Mother Nature, which adds an extra degree of difficulty to power management.

Large-scale battery storage technology is rapidly improving, creating another way for electric utilities to better balance the flow and timing of electricity. Battery technology could also make it easier to add solar and wind energy to our grid because it can store energy when it's breezy and sunny, then use it at night and during calm weather.

2 Blame a squirrel for power outages

While severe weather causes most outages, if it's nice out and your electricity goes off, it could be caused by a squirrel. We all know to play it safe around electricity, but squirrels don't. They scamper and chew around transformers, substations and utility poles where they can disrupt high-voltage equipment.

But it's not just squirrels. Snakes, birds and other critters can find their way



into dangerous places. There's no official recordkeeping of wildlife-caused power outages, but estimates run as high as 20%.

3 Highways could charge electric vehicles (EVs) in the future

If researchers have their way, EVs wouldn't need to plug in – they could charge while being driven! “Wireless dynamic charging” projects are underway around the world. The idea is like wireless chargers you can buy for your home electronics, the kind you can set near a charger rather than actually plugging in the smart phone or other device.

Charging cars while they're driving along the freeway is of course a lot

more ambitious. But some developers predict that within five years, there could be stretches of vehicle-charging lanes.

Futurists expect electric trucks would be the most likely users of wireless charging lanes. Wireless dynamic truck charging could keep deliveries rolling rather than stopping for several hours to plug-in and recharge.

Electricity is such a basic part of our everyday life, so it's easy to forget about it. But every now and then it's good to think about all its benefits and mysteries.

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.

NEW TECH ALERT: IRON-AIR BATTERIES

BY MARIA KANEVSKY

As the electric grid continues to evolve, new technologies are being developed to help advance the grid of the future. One of these technologies is a new form of battery storage technology called the iron-air battery, which could potentially provide long-duration energy storage for *hundreds* of hours.

Long-duration storage adds reliability

Current battery technologies can only offer storage for tens of hours, meaning the innovative iron-air battery could provide energy for roughly 10 times longer than existing grid-scale batteries. This new technology could help ensure grid reliability even with extreme weather, such as hurricanes or powerful thunderstorms.

Long-duration energy storage will also be crucial for adding more solar and wind energy to the grid. This is because renewable energy is dependent on the weather and may not always be available when we need it. New iron-air batteries could provide the missing link by storing excess energy for when the sun isn't shining or the wind isn't blowing.

Low-cost “reversible rusting” technology

The battery technology itself is made up of thousands of small iron pellets that develop rust when exposed to oxygen. This process discharges the battery. When the oxygen is removed, the pellets revert back to iron, which then charges the battery. According to Form Energy, the startup company developing this new technology, this process is known as the principle of “reversible rusting.”

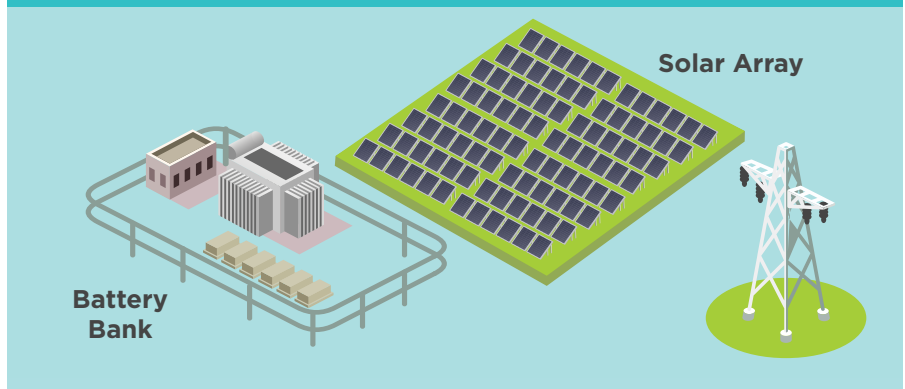
Since the battery technology mainly uses water, air and iron – all abundant and cheap resources – the technology is relatively low cost. These resources also make the technology relatively safe and simpler to recycle since there are no heavy metals.

A key feature of these batteries is their

THE FUTURE OF ENERGY STORAGE

A new form of battery storage technology, known as the iron-air battery, could potentially provide long-duration energy storage for hundreds of hours.

Long-duration energy storage will be crucial for adding more solar and wind energy to the electric grid since renewable energy is dependent on the weather and may not always be available when needed.



low cost, with Form Energy promising a price of less than \$20 per kWh. That price is about one-tenth the cost of lithium-ion battery technology, which is currently the cheapest battery technology on the market.

Individual iron-air batteries are about the size of a washing machine, making it easy to group many batteries together in a larger, scalable system. The size of the battery module group can vary depending on the storage needed at a specific site. This means the batteries can be placed in a variety of areas, from rural to urban, to meet energy needs.

Continued research and development

While this technology may be a solution for long-duration energy storage, the battery is not yet ready at the commercial level – although it is close. Form Energy estimates the battery should be ready for mass production by 2025. As a pilot project to test this groundbreaking technology, Form Energy is working with Great River Energy, a generation and transmission cooperative located in Minnesota. The 1 MW/150MWh project is anticipated to go live in 2023.

Given the importance of long-duration energy storage for the future of the grid, other startups are also looking to develop long-duration battery storage technology.

Time will tell if the iron-air battery, or any other long-duration battery, becomes successful as a new emerging technology. In the meantime, electric utilities can start to understand where this technology may potentially fit within their own systems to make the grid more resilient and reliable. Whether this technology becomes mainstream or not, utilities will continue finding ways to provide affordable, long-duration storage as the electric grid continues to change.

Editor's Note: In the March issue, we'll spotlight how several electric cooperatives in Iowa are harnessing battery storage technology.

Maria Kanevsky writes on consumer and cooperative affairs for the National Rural Electric Cooperative Association, the national trade association representing more than 900 local electric cooperatives.

FOOD AS A LANGUAGE

BY VALERIE VAN KOOTEN

On top of my microwave sits an oblong wooden box. The top features a decoupage rose, with the glue covering the petals a dingy yellow. The entire box is battered and nicked, but it contains a huge part of my history, culinary and otherwise.

Treasured mementos

Inside are recipes and other memorabilia – small index cards and scraps of paper featuring handwriting that can make me catch my breath. The box holds my Grandma Terpstra’s letter to me while I was a student at Iowa State University, telling me how she helped my uncle at the local farmers market and that the green beans are about past prime – not a recipe, but a note I treasure and store in the back of the box; my mom’s homemade ice cream directions, written in her angular script on a card that’s gone waxy with age; and my own childish fourth-grade penmanship, loopy and large, outlining my neighbor’s hot milk cake recipe, with a notation beside the “1 cup margarine” that says in parentheses, “2 sticks.”

I can trace my skill and advancing knowledge in the kitchen by these cards. Hot milk cake to deviled eggs to layered desserts to a cheese soufflé I am pretty sure I never attempted but am loath to throw away, just in case inspiration strikes.

My pile of cookbooks shows the same wear; they fall open to old favorites, pages splattered with cake batter and cookie dough. Their spiral bindings are coming apart, and disembodied pages are stuffed in like afterthoughts. These books come from churches and schools, high school home economics classes and local nonprofits. The names accompanying each recipe recall yet more memories, as I remember an older woman in my childhood church, or a family who has since moved away.

Family food memories

As human beings, we tend to relate family and get-togethers and



celebrations and deaths to food. It’s always been that way, I suppose.

Mention any holiday and aside from the religious overtones associated with that day, my guess is that your next thought will be the food – the scrumptious taco salad your sister-in-law makes, or the corn casserole everyone requests from your cousin, or the college kid who gets away with bringing potato chips, or the oyster stuffing that only your dad will touch (a dish that is sequestered at the end of the counter as much for those of us who don’t want it on our plates as it is for my dad, who doesn’t want to share with anyone).

Kent’s dad passed away at Thanksgiving. On the evening of the funeral, 30 of us gathered and shared the food that had descended on each of us – meat and cheese trays and ham buns, brownies and bars, gelatin salads and hamburger casseroles. When one doesn’t know what to say, food becomes the language of compassion.

And I’m good with that. Unless it’s oyster stuffing. Sorry, Dad – I don’t know what language that is.

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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