

# living with energy

IN IOWA

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MARCH 2019

Win an electric weed trimmer ▶ See Page 5

## Weather, critters and reliability



Brunch  
favorites

Electric  
lawn mowers  
have power

United  
in purpose

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## ON THE COVER

The Touchstone Energy Hot Air Balloon made its appearance over Lake Okoboji to kick off the area's Winter Games on January 25. During the event, the hot air balloon was in Arnolds Park Green Space and tethered balloon rides were provided. Iowa Lakes employees, board members and their families were on hand giving out fun gifts. Thanks to Iowa Lakes Electric Cooperative for providing this month's cover photo! ⚡





# Iowa's electric co-ops are united in purpose

BY CHUCK SODERBERG

The true power of locally owned electric cooperatives is found in the members living and working in the communities we serve.

When co-ops are united and working toward common goals, it amplifies their impact and voice.

That's the role the Iowa Association of Electric Cooperatives (IAEC) plays in supporting Iowa's electric co-ops as they work to provide safe, affordable, reliable and environmentally responsible energy.

Our main objective is to support and complement what Iowa's electric co-ops accomplish at the local level. At the direction of our member cooperatives, we deliver expertise and resources through education and training, legislative affairs, regulatory matters, safety, communications and youth development.

## Promoting local governance

We work to make policymakers aware of electric cooperatives and how this business model benefits members and rural communities. Most importantly, we stress that we're all reaching for the same goal – powering lives at the lowest possible cost.

On the state level in 2018, we championed favorable utility legislation in the comprehensive energy bill that protects local governance and member-owner control of Iowa's electric cooperatives. We supported further expansion of the state's move over or slow down law to better protect electric cooperative employees who work along Iowa's roadways. IAEC also supported Gov. Reynolds' Future Ready Iowa legislation, geared toward preparing Iowa's workforce for the jobs of the future; this fits squarely with our cooperative commitment to rural economic development.

As the Iowa Energy Plan entered its implementation phase, we've been active in providing information

and progress updates to the Iowa Economic Development Authority.

Our attention is focused on other state issues, too, including the development of an Iowa Energy Storage Action Plan, the Iowa Energy Workforce Consortium and smart grid discussions.



## Leveraged learning

Relevant education and training are essential as we prepare for an industry

amid major change. This past year, 2,500 cooperative directors and employees participated in more than 50 separate training events organized by IAEC. These conferences and workshops provide valuable learning opportunities so cooperative staff and leaders can adapt as technology and consumer needs evolve.

## Culture of safety

As we reinforce a proactive safety culture among our member co-ops, effective education is essential to that goal. We continue to build on the success of our apprenticeship program in conjunction with the Iowa Association of Municipal Utilities and Northwest Iowa Community College. Three electric co-op linemen graduated from the program last year, and almost 50 co-op linemen are currently enrolled. Several linemen have passed the journeyman's requirements, which involves 7,000

hours of on-the-job training and testing.

Throughout the year, we provide essential safety training through chainsaw, overhead, underground and transformer workshops and apprenticeship competence sessions. IAEC's safety team nurtures a proactive culture of safety through job site observations, Rural Electric Safety Achievement Program inspections and monthly safety meetings with our member co-ops.

## Engaging future co-op members

We also take a leadership role in many of the youth outreach programs supported by local electric cooperatives. Annually, IAEC joins other statewide associations in coordinating the Electric Cooperative Youth Tour, sending more than 1,800 high school students from 46 states to Washington, D.C., in June. As cooperatives, we understand that our student leaders of today are our community leaders of tomorrow.

These are just a few ways we support Iowa's electric cooperatives. Each month, throughout the pages of this magazine, we appreciate the opportunity to showcase how cooperatives are actively engaged in bettering the communities they serve. ⚡

Chuck Soderberg is the executive vice president of the Iowa Association of Electric Cooperatives.

## Cooperative Principles

Iowa's not-for-profit electric cooperatives exist only to serve you and meet your needs for safe, reliable and affordable power. We operate under seven principles that create the framework of our business model and govern co-op directors, managers and employees in making decisions that are in the best interests of our members – and recognize that you have a vote in how your co-op operates. It's a structure that's served us well for more than 75 years – and it will continue to work for many years to come. ⚡

1. Voluntary and open membership
2. Democratic member control
3. Members' economic participation
4. Autonomy and independence
5. Education, training and information
6. Cooperation among cooperatives
7. Concern for community

## Momentum was built!

During the 2019 Momentum is Building energy efficiency conference, more than 160 attendees gained insight into new technologies in the construction and HVAC (heating, ventilation and air conditioning) industry. Sponsored by Iowa's electric cooperatives, the annual conference is geared toward contractors, electricians, HVAC professionals and trade school students who serve Iowa communities. Attendees earn continuing education credits, network with other professionals and learn from nationally known speakers. In turn, the expertise participants gain at this conference is passed along to energy users – like you – who may be looking for ways to be more energy efficient and save money! ⚡



## Co-op directors meet with Statehouse leadership



In February, the IAEC Board of Directors spent the day at the Iowa Statehouse and met with lawmakers, including:

- House Minority Leader Todd Prichard (D-Charles City)
  - House Majority Leader Chris Hagenow (R-Urbandale)
  - House Speaker Linda Upmeyer (R-Clear Lake)
  - Senate Minority Leader Janet Petersen (D-Des Moines)
  - Senate President Charles Schneider (R-West Des Moines)
  - Majority Leader Jack Whitver (R-Ankeny)
  - Gov. Kim Reynolds
- Board members also took time throughout the day to speak with

their local legislators.

These individual visits with lawmakers foster meaningful two-way dialogue between electric cooperatives and elected officials. During the visits, senators and representatives often ask co-op directors for their local perspective on pending or potential legislation. In turn, directors and co-op staff provide relevant facts, figures and anecdotal information to help with legislators' decision-making process. As a member of an electric cooperative, you can be confident your locally elected board members are relaying information that aligns with the promise of providing safe, reliable, affordable and environmentally responsible energy. ⚡

### BENEFITS OF MEMBERSHIP

## NISSAN electric vehicle rebate available

If you're considering purchasing an all-electric vehicle, NISSAN is offering a \$3,000 special rebate for Touchstone Energy® cooperative members.

This unique incentive is available to all co-op members for the individual purchase of the NISSAN Leaf®, the world's best-selling 100 percent electric vehicle (EV).

Combined with the \$7,500 Federal EV Tax Credit, you could have a total savings of up to \$10,500 on your purchase of a new NISSAN Leaf. Features of the car include:

- Up to 151-mile range
- Available Pro-Pilot Assist to make highway driving less stressful

- e-Pedal Mode: Accelerate or brake in traffic using a single pedal
- Automatic Emergency Braking standard on all models
- No oil changes ever!

The rebate offer expires April 1, 2019. To learn more, visit [touchstoneenergy.com](http://touchstoneenergy.com) and click on "Co-op Business Resources" and then "Brand News." ⚡

# Model housing program promotes all-electric homes

BY CHERI MONAHAN

Workforce housing is the new hot topic for rural communities. Rural population is declining, and many towns are taking a hard look at what they have to offer for housing, how to attract employees to expand their existing commercial base and entice new companies. While available housing is lacking in many rural communities, those affected are commissioning housing studies and making plans to address the need for apartments, new housing and eliminating residential blight.

The Model Housing program is being revamped to encourage new homes built in rural areas to feature electric HVAC systems (geothermal or ENERGY STAR® air-source heat pump) and electric water heating. It is a promotional tool to create awareness of the benefits of an electric home with ENERGY STAR and other advanced efficiency equipment. The program provides a \$5,000 bonus – a cost that is shared between Central Iowa Power Cooperative (CIPCO) and the participating electric cooperative— on top of equipment rebates, to either the homeowner and/or builder for allowing public access and promotion of the home.



“In rural areas, it can be difficult to attract new members,” says East-Central Iowa REC Director of Member Service Adam Albertsen. “This program can be just the incentive they need to make a project happen. The key is getting in front of the member and builder ahead of time to lay out the cost differential and demonstrate the advantages of an all-electric, energy-efficient home.”

The new marketing campaign, *Savings with Staying Power*, is helping spread the word to contractors and real estate agents within CIPCO’s member system about the benefits of electric heating options. ⚡

Cheri Monahan is the manager of growth strategies for CIPCO, an Iowa-based generation and transmission electric cooperative. CIPCO and its 13 member co-ops serve more than 300,000 Iowans in 58 Iowa counties.

# Win an electric weed trimmer!

Electric lawn and yard equipment has exploded in popularity over the last few years. Some electric units are even rivaling traditional gas equipment in effectiveness. Weed eaters are the best equipment on the market for snatching up the weeds from your lawn or garden with relative ease. With spring quickly approaching, you could win this BLACK+DECKER LST136 40V MAX Lithium String Trimmer, with the battery. The PowerDrive Transmission delivers more power from the motor to the cutting string so you can get the job done faster. This product is valued at \$150, and easily converts from a trimmer to an edger.



## Visit our website and win!

Enter this month’s contest for an electric weed trimmer by visiting the Living with Energy in Iowa website at [www.livingwithenergyiniowa.com](http://www.livingwithenergyiniowa.com) no later than March 31, 2019. 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 Sous Vide cooker from the January issue was Pam Hermann, Butler County REC. ⚡



## \$3,500 SPECIAL REBATE<sup>3</sup>

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No oil changes ever!





# Weather, critters and reliability

BY ANN THELEN

Did you know squirrels, lightning and trees have something in common? They all have the potential to knock out your electricity.

Iowa's electric cooperatives work hard to keep your lights on 24/7, but unplanned circumstances can occasionally create power outages.

The top three troublemakers to electric reliability are trees falling on power lines and other interferences from vegetation, lightning strikes and animals encountering electric equipment.

Power line structures provide perching, roosting and nesting areas for birds and raptors (larger birds of prey, including owls, eagles and falcons). When birds come into power equipment – lines, conductors or transformers – it can result in bird fatalities, power outages and pole fires. Birds are number one in causing more power system outages than any other animal.

## Strong reliability

According to *U.S. News and World Report*, Iowa has the most reliable electrical grid of any state in the U.S. with Iowa's electric cooperatives boasting a 5-year reliability average of 99.97 percent.

Iowa's electric cooperatives work hard to maintain this exceptional reliability standard and reduce the amount of time members are without power from an outage. Among the techniques being used to foil critter catastrophes are snake barriers around substations, buzzard shields on transmission towers and mesh coverings on wood poles to prevent damage from woodpeckers. Some co-ops have also found that burying lines underground is a viable strategy.

Although it's not required by state law or through the Iowa Utilities Board, most electric cooperatives



Photo courtesy of T.I.P. REC

have an avian protection plan – both for outage reductions and environmental responsibility.

## Going underground

Lyon Rural Electric Cooperative (REC) serves members over nearly 900 miles of line in Lyon County, which is the most northwesterly county in the state. Being situated along the Big Sioux River brings beauty and some challenges for overhead lines.

The river valley region can make power restoration more difficult and extended when storms wreak havoc on power line infrastructure. Some areas have steep ditches and roads that may quickly become impassable during snow and ice storms. This is one reason Lyon REC has been undergoing a multiyear project to bury all its power lines.

“Because we don't serve an urban area, it makes sense for Lyon REC to bury our electric equipment underground,” says Ross Loomans, general manager, Lyon REC. “In this

part of Iowa, we've had a lot of issues with rats, mice, snakes, possums and skunks interfering with equipment.”

At the direction of its board of directors, the co-op has a goal of being 100 percent underground with electric equipment. With 775 miles of lines complete, they are well on their way to reaching the goal.

“We're sealing the equipment to the point where rodents can't get in, which is good for the critters and our members,” Loomans adds. “We've also added lightning arresters throughout our system to mitigate outage impacts and damage from lightning strikes.”

The proof is in Lyon REC's improved reliability statistics.

One measure is called the System Average Interruption Duration Index (SAIDI) and is the average outage duration for each member served. Lyon REC has cut its SAIDI nearly in half, going from 57.5 to 33.62 minutes. Nationwide and according to Institute of Electrical and Electronics Engineers (IEEE) standard, the



Photo courtesy of Lyon REC

median value for North American utilities is approximately 90 minutes.

An April 2013 ice storm resulted in millions of dollars' worth of infrastructure damage for Lyon Rural Electric Cooperative, Osceola Electric Cooperative and Iowa Lakes Electric Cooperative. The damage was so extensive that a Presidential Disaster Declaration was issued. Federal Emergency Management Association (FEMA), provided an eligibility amount of roughly \$28,500 per mile of line to replace storm-damaged equipment.

"There's a perception that going underground is more expensive, and in some cases, it is," Loomans says. "However, our actual costs have been nearly 9 percent less than the allocated amount from FEMA."

When power infrastructure is underground, it takes different equipment, such as backhoes, vacuum excavators and fault-finding equipment. A fault interrupts the quality of power supply and is caused by fires, ice storms, animal electrocutions or equipment.

"It's a different mindset," he adds. "Instead of training line workers to climb poles, we train them to find underground faults."

### Taking system cover

T.I.P. Rural Electric Cooperative in Brooklyn serves members over nearly 1,800 miles of line in the Iowa counties of Benton, Iowa, Keokuk, Johnson, Jefferson, Mahaska, Poweshiek, Tama, Wapello and Washington.

"Our most effective strategy is covering up critical pieces of equipment," says Dean Huls, assistant general manager/operations manager. "With the covers, if a bird or raptor lands on the equipment they aren't injured by electric voltage, and there isn't a resulting outage."



Photo courtesy of T.I.P. REC

The cover-ups are made of plastic mesh and are placed on equipment, such as regulators. The regulator generates a fixed-output voltage that remains constant for any changes in electricity load conditions. It acts as a buffer for protecting components from damages.

The cover-ups also prevent bird nests. It's a priority to prevent bird nests, because birds attract other

animals, such as raccoons. With raccoons' climbing ability, they can cause equipment damage by chewing small wires or creating pole fires by encountering equipment.

"We're on a 10-year inspection cycle with all our underground residential distribution risers (devices that connect an overhead line to an underground line)," Huls explains. "When we're doing an inspection and see there isn't a cover-up in place, a service order is put in to have it installed."

Without covering or sealing up the equipment, Huls says it's not uncommon to see several birds at the base of a transformer. Those situations increase bird mortality and contribute to power outages.

"Every year, our animal-reported outages have gone down," Huls says. "It's good for reliability and it saves our members money. We have less equipment to repair and use less staff time in removing nests and other hazards." ⚡

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



Photo courtesy of Lyon REC



# Brunch

## FAVORITES



## California Brunch Casserole

- 6-8 slices white bread
- ¼ cup butter or oleo
- 16 ounces can whole kernel corn, drained
- 2 cups thinly sliced zucchini
- 4 ounces mild green chilies, chopped and drained
- ½ pound shredded Monterey Jack cheese
- 4 eggs, slightly beaten
- 2 cups milk
- 1 teaspoon salt
- 1 teaspoon pepper
- dash of chili powder

Butter the bread slices; place buttered side up in a 9x13-inch casserole dish. Sprinkle on corn, zucchini, chilies, then cheese. Mix eggs, milk, salt, pepper and chili powder. Pour over top and bake at 375 degrees for 25 minutes. Let rest 10 minutes before cutting into squares. Serve warm.

Penny Sue Haley • Keswick • T.I.P. REC

## Morning Mix-Up

- 1 bag frozen hash browns
- 1-2 cups cooked, chopped ham or crumbled sausage
- ½ cup chopped onion
- 2 tablespoons oil
- 6 eggs
- salt and pepper, to taste
- 1 cup shredded cheddar cheese

In a large skillet or electric skillet, sauté potatoes, ham and onion in oil for 10 minutes or until potatoes are tender. In a small bowl, beat eggs, salt and pepper. Add to the skillet; cook, stirring occasionally, until eggs are set. Remove from heat and stir in cheese.

Barb Schwarck • Eldora • Grundy County REC

## Ham Quiche

- 3 cups cubed bread
- 3 cups cubed ham
- 3 cups cheddar cheese
- 3 tablespoons flour
- 6 eggs
- 3 cups milk
- 1 teaspoon prepared mustard
- ¼ cup melted margarine or butter

Mix bread, ham and cheese together and put in 9x13-inch pan. Sprinkle flour over bread, ham and cheese mixture. Beat the remaining ingredients together and pour over the mixture. Refrigerate several hours or overnight before baking at 350 degrees F for 1 to 1¼ hours. Do not cover. Let stand for 10 minutes before cutting into squares and serving.

Sonya Colvin • Cambridge • Consumers Energy

## Bacon-Sausage Rollups

- 1 pound bacon
- 2 packages smokies
- brown sugar

Cut bacon into halves or thirds. Roll around smokies and place in pan. Sprinkle with brown sugar. Bake at 350 degrees F for 45 minutes.

Laura DeSmet • Larchwood • Lyon REC

### MAKE-AHEAD DISHES WIN THE DAY

Stratas and savory bread puddings should be assembled the day before for best results. Frittatas, Spanish tortillas and egg roulades can be made the morning of and easily reheated or served at room temperature.

TIP



## Quick Coffee Cake

- 1½ cups flour
- 1 cup sugar
- 2 teaspoons baking powder
- ¼ teaspoon salt
- 1 egg (place in a 1 cup measuring cup; fill the rest of the way with milk)
- ½ cup brown sugar
- 1 teaspoon cinnamon
- chopped nuts, optional
- 3 tablespoons butter, melted
- optional fruit, peaches or blueberries

Stir first five ingredients together in a bowl and pour into an 8x8-inch pan. Top with brown sugar and cinnamon (nuts, optional). If desired, fold fruit into the batter. Bake at 375 degrees F for 35 minutes. While still hot, pour melted butter over top.

Allyson Bailey • Hamilton  
Chariton Valley Electric Cooperative, Inc.

## Breakfast Pizza

- 1 tube seamless dough crescent rolls
- ½ cup breakfast meat, minced or crumbled
- ½ cup shredded cheddar cheese
- toppings of choice (red peppers, onions, etc.)
- 4 large eggs
- spices and herbs of choice

Prepare a 9x13-inch pan with oil or butter. Press dough lightly to create a crust over the bottom of the pan. Sprinkle meat over crust and layer cheese over meat. Sprinkle desired toppings over cheese. In a mixing bowl, crack eggs and scramble. Add herbs and spices to egg mixture, pour over all. Bake at 375 degrees F for 12-15 mins.

Anita Doughty • Ankeny • Consumers Energy

## Black Walnut Bread

- 1 egg
- 1 cup brown sugar
- 1 cup sour cream
- 2 cups flour
- ½ teaspoon baking powder
- ⅛ teaspoon salt
- 1 teaspoon baking soda
- ½ cup walnuts

Mix egg, brown sugar and sour cream. Sift together dry ingredients and blend into egg mixture. Bake 50 to 55 minutes in greased loaf pan at 325 degrees F.

Betty Goodman • North English • T.I.P. REC

## Banana Blueberry Muffins

- 2 extra-ripe medium bananas, peeled
- 2 eggs
- 1 cup brown sugar
- ½ cup butter, melted
- 1 cup blueberries
- 1 teaspoon vanilla
- 2¼ cups flour
- 2 teaspoons baking powder
- ½ teaspoon cinnamon
- ½ teaspoon salt

Puree bananas in blender (should produce ½ cup). Combine bananas, eggs, brown sugar and butter until well blended. Stir in blueberries and vanilla. In a separate bowl, combine flour, baking powder, cinnamon and salt. Make a well in center of dry ingredients. Pour in liquid mixture, mix until just blended. Spoon batter into well-greased muffin pan cups. Bake at 350 degrees F for 25-30 minutes. Makes 12 muffins.

Leora Van Middendorp • Rock Rapids • Lyon REC

### FRESH FRUIT IS THE SHOWPIECE

Arrange seasonal or tropical fruits on a platter or place in a decorative bowl. Jazz up fruit with a drizzle of scented simple syrup, ginger glaze or decorative sugar.

TIP

### EGG-CELLENT OPTIONS

Eggs are protein powerhouses, nutrient-rich and filling! When deciding on an egg dish, consider how much time you have to prepare. An egg bake will be easy, and frittatas take a bit longer and require more ingredients, for instance.

TIP

## Wanted: Let's Grill! The Reward: \$25 for every one we publish!

There's nothing quite like firing up the grill when it's warm outside. Share your recipes for burgers, veggies, marinades and more! 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.livingwithenergyiowa.com](http://www.livingwithenergyiowa.com).

The deadline is March 31, 2019. Please include your name, address, telephone number, co-op name and the recipe category on all submissions.

**EMAIL:**  
[recipes@livingwithenergyiowa.com](mailto:recipes@livingwithenergyiowa.com)  
(Attach your recipe as a Word document or PDF to your e-mail message.)

**MAIL:**  
**Recipes**  
*Living with Energy in Iowa*  
8525 Douglas Ave., Suite 48  
Des Moines, IA 50322-2992

### FOOD STAGE

Set out plates, silverware, glasses and napkins the night before. Fresh flowers in pretty vases or simple mason jars add vibrancy, flair and subtle fragrance to the morning.

TIP

# Spring forward with lawn care and landscaping plans

BY PAT KEEGAN AND BRAD THIESSEN

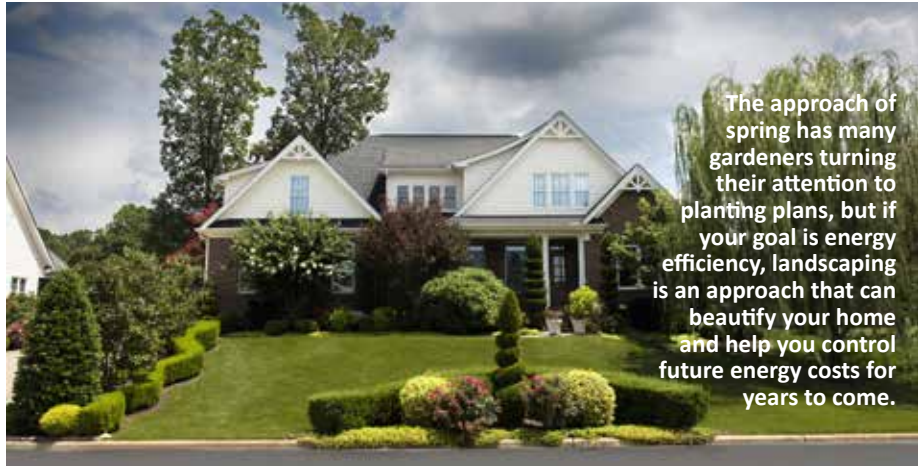
Soon the grass will turn green, flowers will sprout up and birds will sing. With the arrival of spring, you will likely start seeing ads for lawn mowers. What's the best option to select?

## Electric mowers keeping pace

Until recently, corded and cordless electric mowers tended to be underpowered. For cordless mowers, this fact was made worse by their sub-par battery life.

But today, with those problems largely solved, the best electric mowers have the power and battery life to keep pace with a gas mower, depending on the size of your lawn.

A cordless, electric mower with a large 56-volt battery can run for about one hour. Plug-in electric mowers don't have this limitation but using a long electrical cord can be challenging.



Quality electric mowers, especially the cordless, rechargeable ones, tend to cost twice as much as a new equivalent gas model. But you can recoup some of the expense with cheaper operating costs, since electricity is a less expensive fuel than gas, and electric engines generally require less maintenance than gas engines.

Another important cost consideration is that rechargeable batteries typically need to be replaced after three to five years. The cost savings also depend on the size of your lot. A small lot uses less gas, so fuel cost savings are less significant.

You can also save some money on the purchase price with a corded mower if you don't mind the hassle of navigating around the cord.

## Weigh your priorities

There are additional benefits of electric mowers besides lower fuel and maintenance costs. Electric mowers are much quieter than gas mowers and they start instantly. Electric mowers produce fewer tailpipe emissions, but the overall environmental impact depends on how the electricity you're using to charge the mower is generated. The environmental benefits will be greater if the electricity is generated from renewable energy sources.

## Landscaping for energy efficiency

Spring's arrival has many people thinking about landscaping plans. If your goal is energy efficiency, now is the time to start thinking about what types of trees and shrubs to plant once the temperatures warm up. Carefully positioned trees around a home can save as much as 25 percent of household energy consumption for heating and cooling.

### Trees at the top

Before planning a tree, call 8-1-1 so underground pipes, wires and conduit can be identified. Make sure

the tree is the proper distance from power lines, typically at least 20 feet – today and in the future when it exponentially grows.

Planted in the right place, within 5 to 10 years, a fast-growing shade tree can reduce outside air temperatures near walls and roofs by as much as 6 degrees on sunny days. Surface temperatures immediately under the canopy of a mature shade tree can be up to 25 degrees cooler than surrounding shingles or siding exposed to direct sunlight.

- Deciduous trees – ones that lose leaves in the fall – are great options for seasonal summer shade. Tall varieties planted to the south of a home can help diffuse sunlight, providing roof shading and also let in the winter sunlight.
- Shorter varieties of deciduous trees can be planted near exposed west-facing windows to help shade homes on sultry summer afternoons. Mass plantings of evergreens on a north or northwestern section



# Plant the right tree in the right place

For more tips on smart tree planting in your community, contact your local electric cooperative or visit [www.ArborDay.org](http://www.ArborDay.org).

Given all these considerations, weigh your priorities. If you are looking to buy new, have a small- to mid-size lot, prioritize environmental concerns and don't mind navigating a cord or recharging batteries, an electric mower could be the right choice for you.

If you don't mind the noise, maintenance and other hassles of a gas mower, have a large lot and prefer not to invest in the upfront purchase price, a gas mower may be a better option.

## Less conventional options

If you're willing to keep your lawn mowed regularly and don't mind breaking a sweat, consider a manual reel mower. Some models are more effective than you might think, and they're far less expensive and require little maintenance or storage space.

The most dramatic step you could take is replacing your lawn completely, perhaps with water-efficient landscaping, a rock garden, a vegetable garden or even an artificial lawn. This could dramatically cut your water bill and the environmental impact of a lawn.

Any change you make, whether in mowing or landscaping, will require a little research. But it's great to know the option of an electric mower is more viable than ever! ⚡

Trees beautify our neighborhoods, and when planted in the right spot, can even help lower energy bills. But the wrong tree in the wrong place can be a hazard ... especially to power lines.

### LARGE TREES

Height/spread of more than 40 feet, such as:

- Maple
- Birch
- Oak
- Sweetgum
- Spruce
- Linden
- Pine

### MEDIUM TREES

Height/spread of 25 to 40 feet, such as:

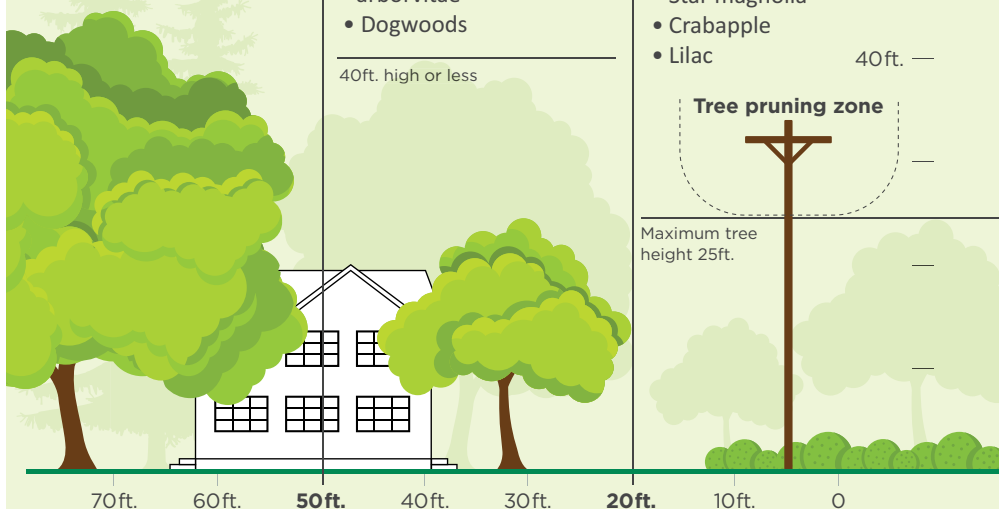
- Washington hawthorn
- Goldenraintree
- Eastern redbud
- American arborvitae
- Dogwoods

### SMALL TREES

Avoid planting within 20 feet of power lines. When planting within 20 feet is unavoidable, use only shrubs and small trees.

Height/spread of no more than 25 feet such as:

- Star magnolia
- Crabapple
- Lilac



Be safe! Always call 811 before you dig to locate any buried utility lines.

Source: The Arbor Day Foundation and the National Rural Electric Cooperative Association

of a yard can form a windbreak, shielding the home from frigid winter winds.

- A slow-growing tree will generally live longer than a fast-growing tree. Slow-growing trees often have deeper roots and stronger branches, making them less prone to breakage by windstorms or heavy snow.
- Trees, shrubs and groundcover plants can also shade the ground and pavement around the home. This reduces heat radiation and cools the air

before it reaches your home's walls and windows.

To ensure lasting performance of energy-saving landscaping, use plant species that are adapted to Iowa's climate.

Planting trees requires specific care and steps to ensure a successful outcome. Iowa State University Extension and Outreach horticulturists can help answer your questions about how to best handle planting new trees. Contact the ISU Hortline at 515-294-3108 or [hortline@iastate.edu](mailto:hortline@iastate.edu).

Deciduous trees—those that lose their leaves in autumn—are great options for seasonal summer shade. Tall varieties planted to the south of a home can help diffuse sunlight, providing roof shading.

# Are you ready for electric vehicles?

BY PETER MUHORO

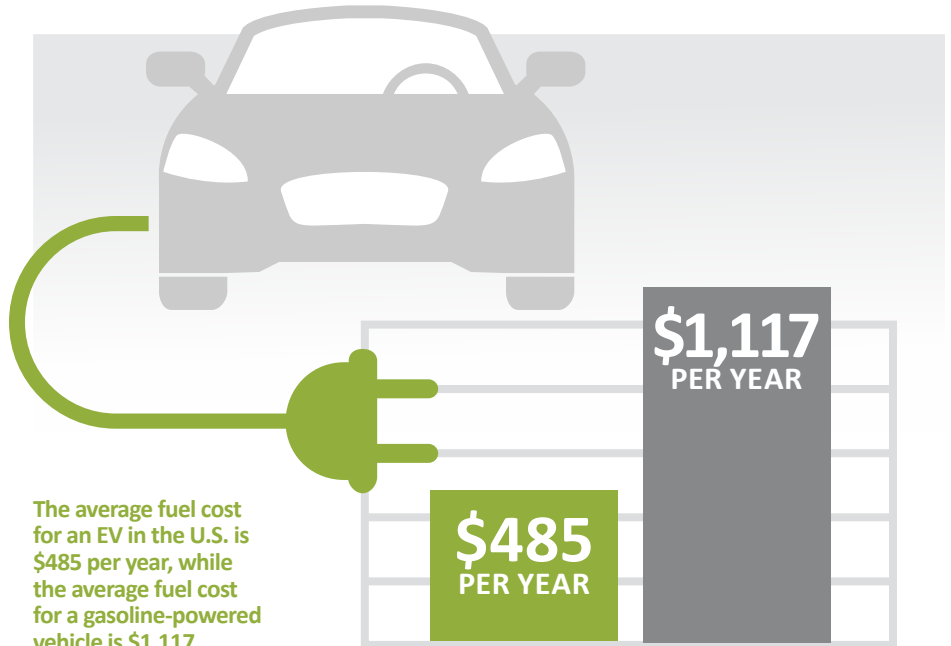
In my role for the National Rural Utilities Cooperative Finance Corporation (CFC), I travel across the country talking with electric cooperative staff and directors about emerging technologies and trends that will have an impact on how they serve their members. I was recently in Des Moines where I spoke to more than 150 directors of Iowa's electric cooperatives about several trends.



As analysts like me look at technological trends down the road, we see that electric vehicles (EVs) have the potential to dramatically transform the transportation and electric utility industries within the next 10 to 20 years. According to the Boston Consulting Group, by 2030, gas-powered vehicles will likely drop to about 50 percent of new car sales in the U.S., with all-electric accounting for 15 percent and hybrid EVs taking the rest of the market share as the EV charging network builds out.

Change is coming, and it will come quickly. Deiter Zetsche, CEO of Mercedes-Benz, likened the adoption of EVs in America to ketchup in a bottle; we know the transition to EVs is coming, but we don't know exactly when. And just like the ketchup, once it comes, it will happen quickly and will surprise the unprepared!

But here's what we do know: EVs are catching on throughout Europe and Asia. Top car manufacturers are making plans to transition to all-electric product lines. Fuel costs for EVs can be dramatically cheaper when compared to gas-powered vehicles. EV charging will require infrastructure investment from electric utilities, which is already happening by electric cooperatives, including those in Iowa. There is now evidence that about 80 percent of EV charging will occur at



home, likely when the car is parked overnight.

Two key considerations may impact your decision to purchase an EV: fuel costs and charging capacity.

## Fuel costs

Most people have the notion that charging an EV is cheaper than pumping gas, but most people don't realize just how economical EVs are. According to a 2018 study from the University of Michigan's Transportation Research Institute, EVs cost less than half as much to operate compared to gas-powered cars. The study concluded that the average fuel cost for an EV in the U.S. is \$485 per year, while the average fuel cost for a gasoline-powered vehicle is \$1,117. Maintenance costs are also lower for EVs because they have fewer moving parts and lack specialty components found in their internal combustion counterparts. These realities will make it easier for car buyers to make the switch to electric.

## Charging capacity

We know that EVs are cheaper to operate, but many drivers still have concerns about charging an EV. Looking at trends and emerging

technologies in this area, I'm less concerned about range anxiety as the charging infrastructure continues to grow. I am more concerned about charge time and the capability for fast-charging services. Pumping gas for over 100 years, we've become accustomed to fueling our vehicles in a five-minute time frame. With a Level 3 DC fast charger, 30 minutes can provide an 80 percent charge, which isn't ideal when you're on the road. But remember, most EV owners will recharge overnight at home, so refueling your car won't usually require a stop at a charging station as often as you would with gasoline.

Your electric cooperative will play a key role as rural areas adapt to EVs and a future economy, which relies increasingly on electricity. Our mission to power lives and empower communities is as strong as ever, and we're here to answer your questions about energy use. Contact your local electric co-op to learn more about EVs and charging technologies. And if you're in the market to buy a new car, take a look at what EVs have to offer. ⚡

Peter Muhoro, Ph.D., is the vice president of strategic industry research and analysis for CFC.



# Overhead gizmos keep you electrified!

BY PAUL WESSLUND

Have you ever wondered what's on an electric utility pole? Let's go over the basics.

The equipment and devices vary from pole to pole but think of a utility pole as a layer cake, with the electric components at the top. Most noticeable of course are the wires, supported by the crossarms and/or insulators. At the highest levels, they could be high-voltage transmission wires carrying power long distances. More often what you're looking at are medium-voltage distribution lines carrying power into neighborhoods and communities. Beneath those may be service wires with stepped-down power ready to be used in a home or business.

It's important to remember they are bare wires, which is why you hear regular warnings to stay away if a storm knocks power lines to the ground. That's also why the wires are attached to insulators that keep them from being in contact with the wood, steel or other supporting materials.

Just below the electric lines hangs a variety of equipment. The big metal cans are transformers that convert high voltages to low voltages. Devices that look like stacks of big gray donuts could be protective lightning arrestors (or "reclosers") that act like a fuse or circuit breaker, shutting down the line when they detect a problem. Collections of what looks like metal

cereal boxes are "capacitors," which help improve the efficiency of power flow and regulate voltage. Other switches and regulators monitor and adjust the flow of electricity as energy use changes throughout the day.

Some of the lines you see might be ground wires that carry static electricity (such as lightning) into the earth or balance the flow of power and help ensure safe operation of the system, or they could be guy wires to

keep the pole straight.

The lowest layer carries non-electric lines: cable TV, telephone, internet and traffic light controllers. There's one more layer – any of those lines might also be underground to get to a house or meet up with other underground lines. ⚡

Paul Wesslund writes on consumer and cooperative affairs for the National Rural Electric Cooperative Association.

## >> What's on that pole?

This illustration shows basic equipment found on electric power distribution poles. Not all poles have all this equipment on them. They vary according to location and the service they provide.

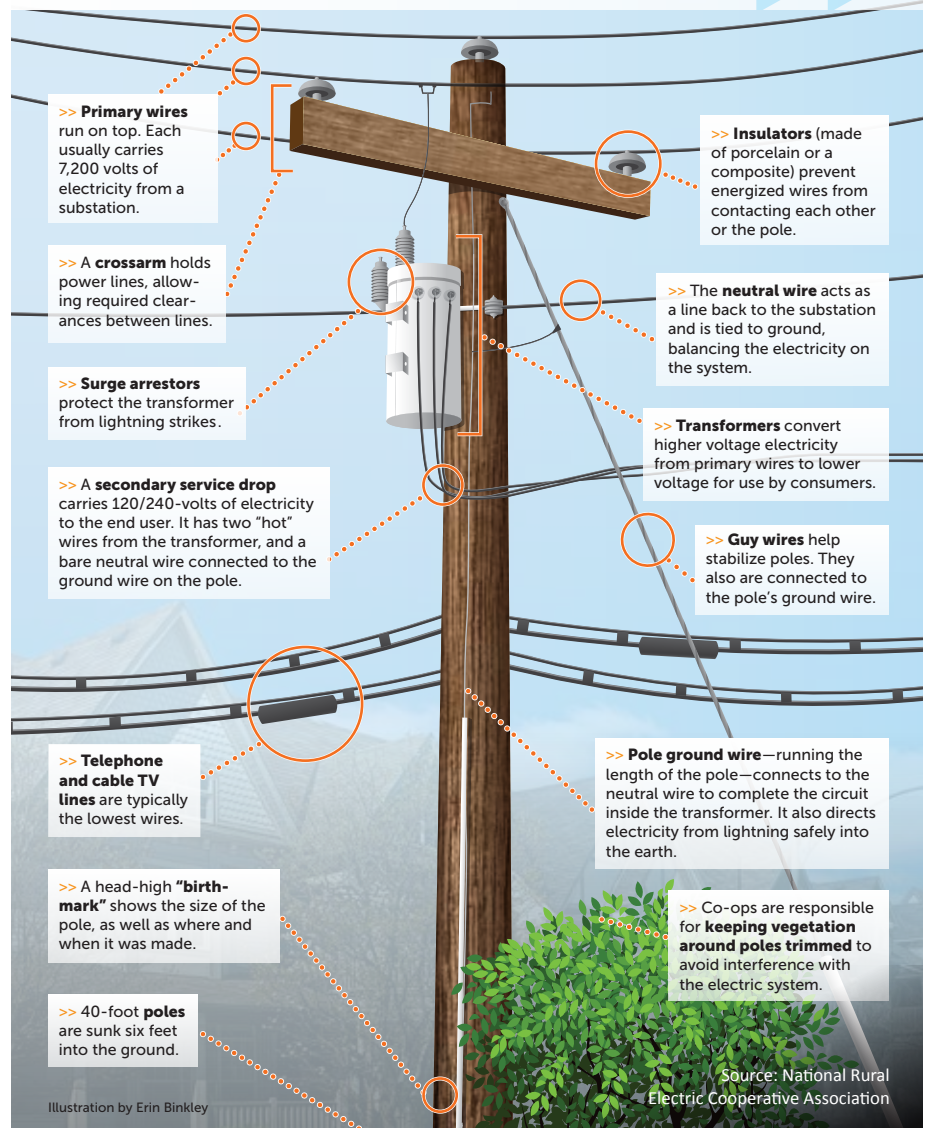


Illustration by Erin Binkley

Source: National Rural Electric Cooperative Association



Utility poles bring power to the people. Never nail or staple posters of political candidates or lost pets to utility poles, which can tear a line worker's protective equipment, interfering with their safety while on the job.

# Maintain proper clearance around grain bins

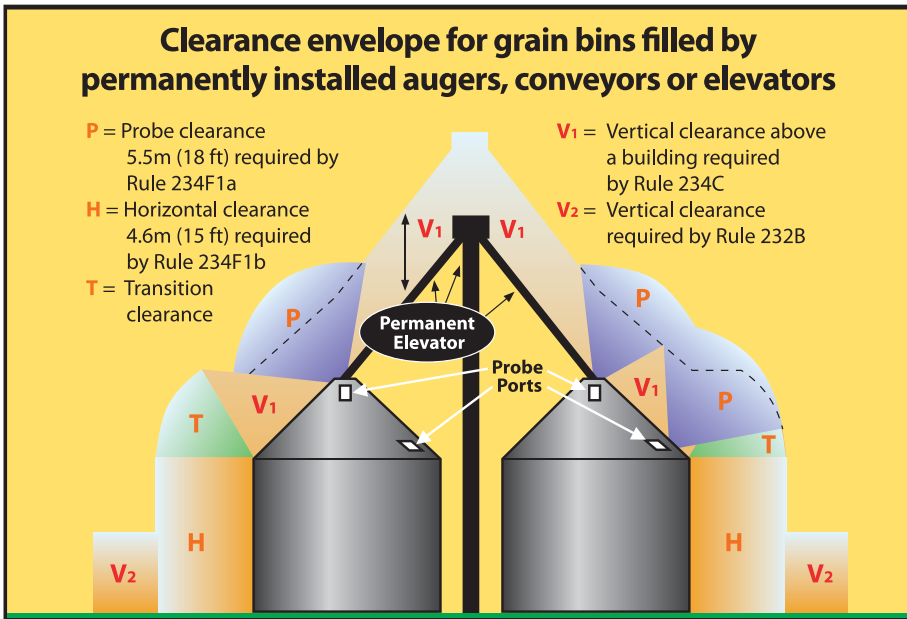
The state of Iowa requires specific clearances for electric lines around grain bins, with different standards for those filled by portable and permanent augers, conveyors and elevators. According to the Iowa Electric Safety Code found in Iowa Administrative Code Chapter 199 – 25.2(3) b: *An electric utility may refuse to provide electric service to any grain bin built near an existing electric line which does not provide the clearances required by the American National Standards Institute (ANSI) C2-2017 “National Electrical Safety Code,” Rule 234F. This paragraph “b” shall apply only to grain bins loaded by portable augers, conveyors or elevators and built after Sept. 9, 1992, or to grain bins loaded by permanently installed augers, conveyors, or elevator systems installed after Dec. 24, 1997.* The Iowa Utilities Board has adopted this language.

Your local electric cooperative is required by the Iowa Utilities Board to provide this annual notice to farmers, farm lenders, grain bin merchants and city and county zoning officials. The drawings on this page show the required clearances, but your co-op’s policies may be more restrictive. If you have any questions concerning these regulations – or what needs to be done before you begin placing a new grain bin or moving an existing one – please call your electric co-op for help. ⚡

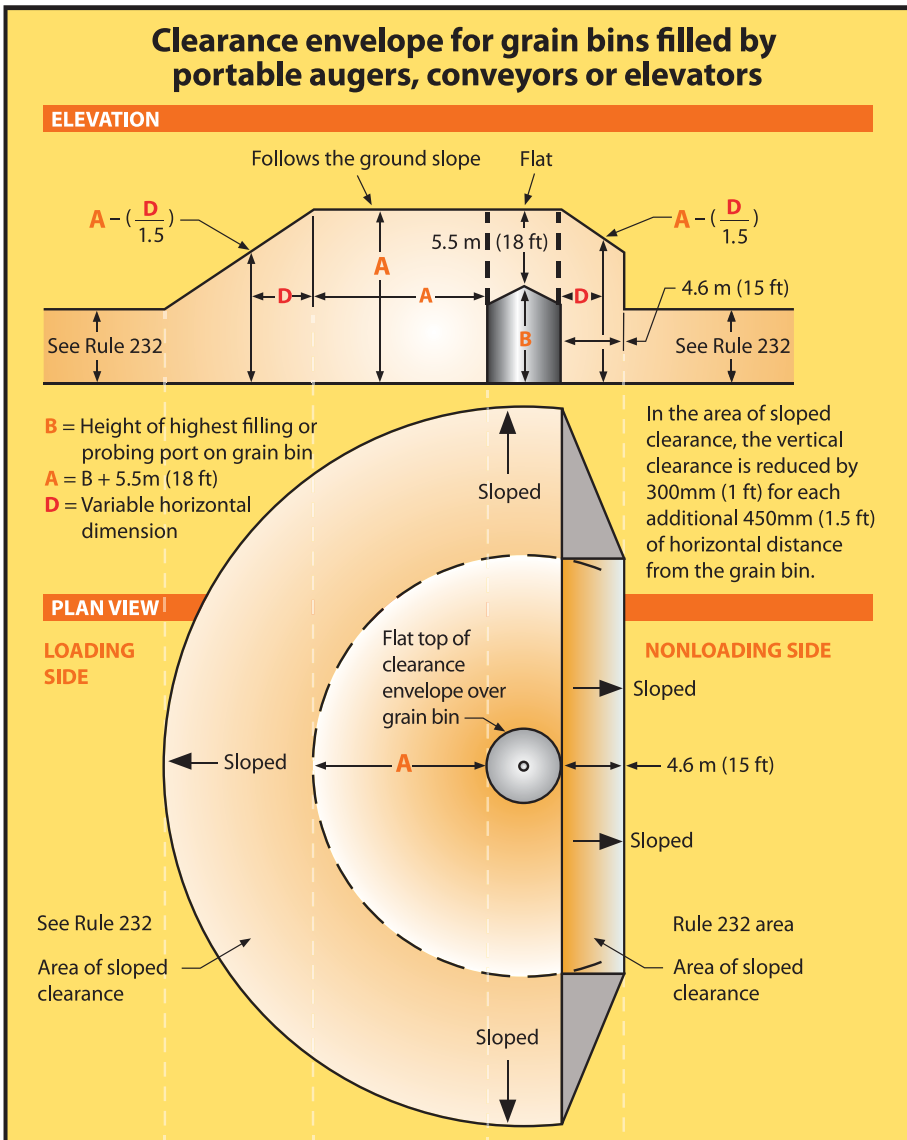
## Disclaimer

These drawings are provided as part of the Iowa electric cooperatives’ annual public information campaign and are based on the 2017 Edition of the National Electrical Safety Code. To view the actual drawings, refer to that publication.

Every care has been taken for the correctness of the contents of these drawings. However, the Iowa Association of Electric Cooperatives and its member cooperatives accept no liability whatsoever for omissions or errors, technical inaccuracies, typographical mistakes or damages of any kind arising from the use of the contents of these drawings, whether textual or graphical.



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# Sloppy, productive and happy

BY VALERIE VAN KOOTEN

I glean much of my knowledge about the world from the tidbits printed on the inside of the lid on the bottles of iced tea that I drink. Who knew that children tend to grow faster in the spring? Or that cats have 100 vocal cords?

Scrap that one. Anyone who's locked a cat somewhere at night where he doesn't want to be knows that one is true.

Today, my lid enlightened me that in Athens, drivers can lose their licenses if they are considered "unbathed" or "poorly dressed." It's a good thing I don't drive a car in Greece.

Not that my hygiene habits are worse than anyone else's, except on the days that they are. It's not often anymore that I can get by with sluffing around in the same clothes, unshowered, for several days at a time. But, during the years that I worked at home — some days seeing only the UPS driver for company — I took full advantage of sloppiness.

Oh, I know: All those magazine articles demand that if you're going to work at home, you need to pretend that you're actually going to an office so that you'll be more productive. Get up early, take a shower, put on work clothing and head the 20 feet to your desk.

I'm here to tell you that's total bunk. Most of my home-working days were spent in my pajamas and bathrobe, complete with oversized slippers and full bed head, with our dog Monte literally lounging across my feet. I cranked up the tunes, quickly dialing down the volume when the phone rang. And unless there was a video conference call, I rocked the stereotype of those who worked at home. And here's the thing — I was just as productive, if



not more so, than someone having to wear pantyhose. I'm sure that if I could blast the Rolling Stones in my office nowadays, I'd get a lot more done.

My sister and I even had a long-standing contest about who looked worse on the days when we were both in hygiene-impaired mode and would get together at one of our houses for coffee. We'd look each other over and then decide. "You win," I'd say to her on one day, giving her points for a ratty headband and oversized, inside-out sweatshirt. On other days, my mismatched socks and spiky hair — achieved without gels, creams or

putties — but rather, just sleeping would win the match.

Now back to the hapless UPS driver. I'd pretend not to be home when the doorbell rang or open the door just wide enough to retrieve my package and sign my name. Somewhere, deep within my slovenly appearance, I had enough pride to worry about what the driver thought.

But not enough to put on a clean T-shirt, you understand. ⚡

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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 and two incredibly adorable grandsons.



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