

February 2024

# Powerlines



## Guide to the electric grid, the world's most complex machine *by General Manager Steve Stroshane*

Electricity plays an essential role in everyday life. We depend on it to keep us warm in the winter (and cool in the summer), charge our phones and binge our favorite TV shows. If the power goes out, even briefly, our lives can be disrupted.

The system that delivers our electricity is often described as the most complex machine in the world, and it's known as the electric grid. As an engineer and general manager for our local electric co-op, I'm fascinated by how it works! It's a privilege to help design and operate this complex machine we all depend on.

What makes it so complex? We all use different amounts of electricity throughout the day, so the supply and demand for electricity is constantly changing. For example, we typically use more electricity in the mornings when we're starting our day, and in the evenings when we're cooking dinner and using appliances. Extreme weather and other factors also impact how much electricity we need.

The challenge for electric providers is to plan for, produce and purchase enough electricity so it's available exactly when we need it. Too much or too little electricity in one place can cause problems. So, to make sure the whole system stays balanced, the electric grid must adjust in real time to changes and unforeseen events.

At its core, the electric grid is a network of power lines, transformers, substations and other infrastructure that span the entire country. But it's not just a singular system. It's divided into three major interconnected grids: the Eastern Interconnection, the Western Interconnection and the Electric Reliability Council of Texas. These grids operate independently, but are linked to allow electricity to be transferred between regions when backup is required.

Within the three regions, seven balancing authorities known as independent system operators (ISOs) or regional transmission organizations (RTOs) monitor the grid, signaling to power plants when more electricity is needed to maintain a balanced electrical flow. ISOs and RTOs are like traffic controllers for electricity.

Polk-Burnett Electric Cooperative is part of MISO, the Midcontinent Independent System Operator. MISO manages the flow of high-voltage electricity across 15 states and the Canadian province of Manitoba (the dark red area). Forty-five million people, including the members of Polk-Burnett, depend on MISO to generate and transmit the right amount of electricity every minute of every day.



### The journey of electricity begins at power plants

Power plants can be thought of as factories that make electricity using various energy sources, like natural gas, solar, wind and nuclear energy. Across the U.S., more than 11,000 power plants deliver electricity to the grid.

You may not realize it, but Polk-Burnett does not generate power. Except for two local solar arrays, we purchase the bulk of our power from our generation and transmission (G&T) partner, Dairyland Power Cooperative. Dairyland keeps generation resources available for peak performance in all weather conditions to ensure a constant supply of safe, reliable electricity.

To get the electricity from power plants to you, we need a transportation system. High-voltage transmission lines act as the highways for electricity, transporting power over long distances. These lines are supported by massive towers and travel through vast landscapes, connecting power plants to electric substations. There are 15 substations in our Polk-Burnett service area. We are working with Dairyland to design and build a new Cedar Lake Substation north of Somerset. This grid modernization project will help meet our area's growing need for energy safely and efficiently. Construction is set to begin in 2025.

Substations are like pit stops along the highway, where the voltage of electricity is adjusted. They play a crucial role in managing power flow and ensuring that electricity is safe for use in homes and businesses.

Once the electricity is reduced to the proper voltage, it travels through distribution power lines, like the ones you typically see on the side of the road. Distribution lines carry electricity from substations to homes, farms and businesses. Distribution transformers, which look like metal buckets on the tops of power poles or large green boxes on the ground, further reduce the voltage to levels suitable for household appliances and electronic devices. After traveling through transformers, electricity reaches you—to power your everyday life.

The distribution lines and transformers are owned by Polk-Burnett. We are known as an electric distribution cooperative, and our employees operate and maintain 3,510 miles of distribution power lines (1,930 miles buried underground and 1,580 miles overhead) and 16,300 transformers.

We're proud to be your local, trusted energy provider. From the time it's created to the time it's used, electricity travels great distances to be available at the flip of a switch. That's what makes the electric grid our nation's most complex machine—and one of our greatest achievements.

## Co-op receives high satisfaction score on annual member survey

Thank you to everyone who completed our 2023 member survey in December. Polk-Burnett Electric Co-op received a score of 86 out of 100 on the American Customer Satisfaction Index. The survey was emailed to 14,085 members, and more than 3,300 were returned for a 24% response rate. All who submitted a survey were entered into a drawing for a \$50 bill credit.

Drawing winners are:	John Hanvelt, Frederic	Jill Andersen, Somerset	Mark Nelson, Webster
	Patricia Cangemi, Amery	Kristine Selander, Luck	Curtis Fallstrom, Siren
	Matthew Stenerson, Amery	Weston Streitz, Frederic	Larry Selzler, Osceola
	Monica Mogren, Shell Lake		

**Thank you, members! Your feedback is greatly appreciated.** Surveys give members a voice and help us learn what's working and what we can do better. ♥



*Results based on data provided by Polk-Burnett Electric Co-op, collected between Dec. 1-10, 2023. ACSI did not regulate the survey administration or sample size. ACSI and its logo are registered trademarks of the American Customer Satisfaction Index LLC.*



## Get to know Co-op Board Director Joe Metro

Joe Metro was elected to the Polk-Burnett board of directors by members in co-op District 4 in 2016. He is a graduate of the U.S. Naval Academy in Annapolis, Maryland, with an engineering degree (1961-66), and flew helicopters for the Navy through 1973. He also has an MBA degree, Master of Business Administration.

Following his military service, he worked as a facilities and construction manager for colleges and universities in Upstate New York, Pennsylvania, and Minnesota. During his career, he managed campus construction projects, from design and architecture through bidding, contractor management, and the movement of people and equipment into new spaces.

While managing university facilities, Joe was responsible for buying electricity. He said he became an electric co-op board director to experience the other side of the business: supplying reliable electricity. Joe primarily worked with investor-owned utilities. He said the co-op business model was new to him, and he appreciates the cooperation and governance principles at Polk-Burnett.

"I get to see the big picture, participate in strategic planning, and monitor the plan's execution by the general manager and employees," said Joe. "I enjoy being on the board, helping the co-op provide a good service to members."

Joe also serves on the board for Polk-Burnett Propane and represents us on the Legislative and Regulatory Committee of the Wisconsin Electric Cooperative Association. In this role, he shares our local perspective and provides direction on state laws that affect our ability to deliver safe, reliable power.

Joe and his wife, Audrey, live in Balsam Lake, where they raise Border Terriers; he calls them "Benji-like dogs." The Metro's terriers are bred to demonstrate the highest standards in appearance and temperament. One of their dogs was invited to Crufts International Dog Show in the United Kingdom, and two others received Grand Champion awards from the American Kennel Club.



## Co-op taking applications for 2024 board election

Polk-Burnett Electric Cooperative holds elections each spring for co-op board directors. This year, board positions in co-op districts 7, 8 and 9 will be on the ballot. Members in those districts have an opportunity to get involved in co-op decision making by running for a seat on the board. Applications for the 2024 election are now being accepted from co-op members in districts 7, 8 and 9. The deadline to apply is March 15.

As a cooperative, Polk-Burnett is owned by its members and governed by a board of directors elected from its membership. Directors serve a three-year term and attend monthly meetings to guide policy and budget decisions. If you are interested in board service, please call the general manager's office for information, 800-421-0283, ext. 313.

## Why does my power go out?

Polk-Burnett employees work hard to keep your lights on, and members experience an average of less than one hour without power per year, excluding storms and major events. Some outages impact a single member, while others impact several hundred members. *Our goal is to reduce the number and length of outages for all members, and when the power goes out, crews respond quickly to restore outages, while keeping you informed.*

**The most common type of outage is a planned outage.** These are necessary power interruptions to safely rebuild portions of the electric system. Planned outages impact a small number of members and can last from a couple minutes to a couple hours. Each year, the co-op schedules about 1,000 planned outages for work across the system.

**The most impactful outages are substation or transmission line outages.** These range from a nesting bird causing trouble at a substation to a tornado causing widespread damage to transmission lines. These are called power supply outages, and they can impact more than 1,000 members at a time. In a normal year, we experience less than five power supply outages.

**Other common causes of power outages** include animals, trees, car accidents, dig-ins that damage underground lines, lightning and equipment failure.

**Outages caused by underground cable faults have greatly reduced,** thanks to our completed underground cable replacement program.

*If your account information is up to date and includes your cell number, we'll send you a text alert when your power goes out. Update your account on SmartHub, polkburnett.com or 800-421-0283, ext. 335.*



Save the Date ♥ 86th Annual Meeting and Member Appreciation Day ♥ Friday, June 14



## Space heaters can be dangerous and can increase bill

It's cold outside! But remember, space heaters can be a fire hazard and can greatly increase your electric bill.

Space heaters are not meant to heat entire homes. Your best bet to improve warmth and comfort in your home is to add insulation, and seal doors and windows with caulk and weatherstripping. Give us a call for assistance. We can help co-op members save energy and money with rebates on home performance tests and improvements, 800-421-0283, ext. 318.

If your home is already efficient and you want to add a little warmth to a room, a space heater may work for you. Only use space heaters for small spaces that you are occupying. Place heater on a level surface and keep away from children, pets and flammable materials.



## \$350 off home performance test, then up to \$1,000 rebate on home energy upgrades

Have your home tested by a certified energy rater, using a blower door fan and infrared camera. The energy rater will identify heat loss, evaluate insulation and provide a report with the best ways to improve your home's energy performance. Contact us for a list of qualifying energy raters to get started, 800-421-0283, ext. 318.

**IF YOU RECEIVE AN EMAIL SURVEY, WE APPRECIATE YOUR FEEDBACK TO HELP US IMPROVE.**

**All members who submit a survey will be entered in a drawing for a \$50 bill credit.**

Polk-Burnett is your local Touchstone Energy Cooperative. Reliable power with efficiency and extraordinary service.

Follow us on Facebook. Sign up for our SmartHub app.

**800-421-0283 • polkburnett.com**



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