

# Beginner's Guide to the Electric Grid

Electricity plays an essential role in everyday life.

It powers our homes, offices, hospitals, and schools. 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 your electricity is often described as the most complex machine in the world, and it's known as the electric grid.

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. Severe 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 support 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.

**The journey of electricity begins at power plants.**

continued on page 8-B ►

## WIN

ONE OF TWO MONTHLY \$5 BILL CREDITS

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### THIS MONTH'S CONTEST:

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**Find this Willie Wiredhand in this issue of *The Connection*.**

♦ ♦ ♦



**Winners for the month of November:**  
Eileen & Darold Primmer, Huxley  
Dennis & Linda Meyer, Marshalltown

**Here's how to enter:**

1. Answer the question or challenge posed each month.
2. Send answers to Consumers Energy with:
  - Name
  - Service Address
  - Account Number
  - Phone Number
  - Email Address

Submit via email or mail:  
Email to: [kglenney@consumersenergy.coop](mailto:kglenney@consumersenergy.coop)  
Subject line: Contest

Mail to: Consumers Energy  
Attn: Contest  
2074 242nd Street  
Marshalltown, IA 50158

3. Winners' names will be drawn at random and published in upcoming issues of *The Connection*.

## January 2024

### Dates To Remember:

**JANUARY**

- 1 Office Closed - Observe New Year's Holiday
- 2 Read Meters
- 3 Bills Due
- 3 Automatic Payments Deducted
- 10 Email / Mail Bills
- 25 Automatic Payments Deducted

**FEBRUARY**

- 1 Read Meters
- 3 Bills Due
- 5 Automatic Payments Deducted

# Beginner's Guide to the Electric Grid

(continued)

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.

Consumers Energy receives power from our generation and transmission (G&T) co-op, CIPCO. We work closely with CIPCO to provide electricity at the lowest cost possible. Being part of a G&T benefits members like you by placing ownership and control in the hands of your co-op, prioritizing affordability and reliability, supporting local economic development, and fostering a sense of community.

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.

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, schools, 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 everyday life.

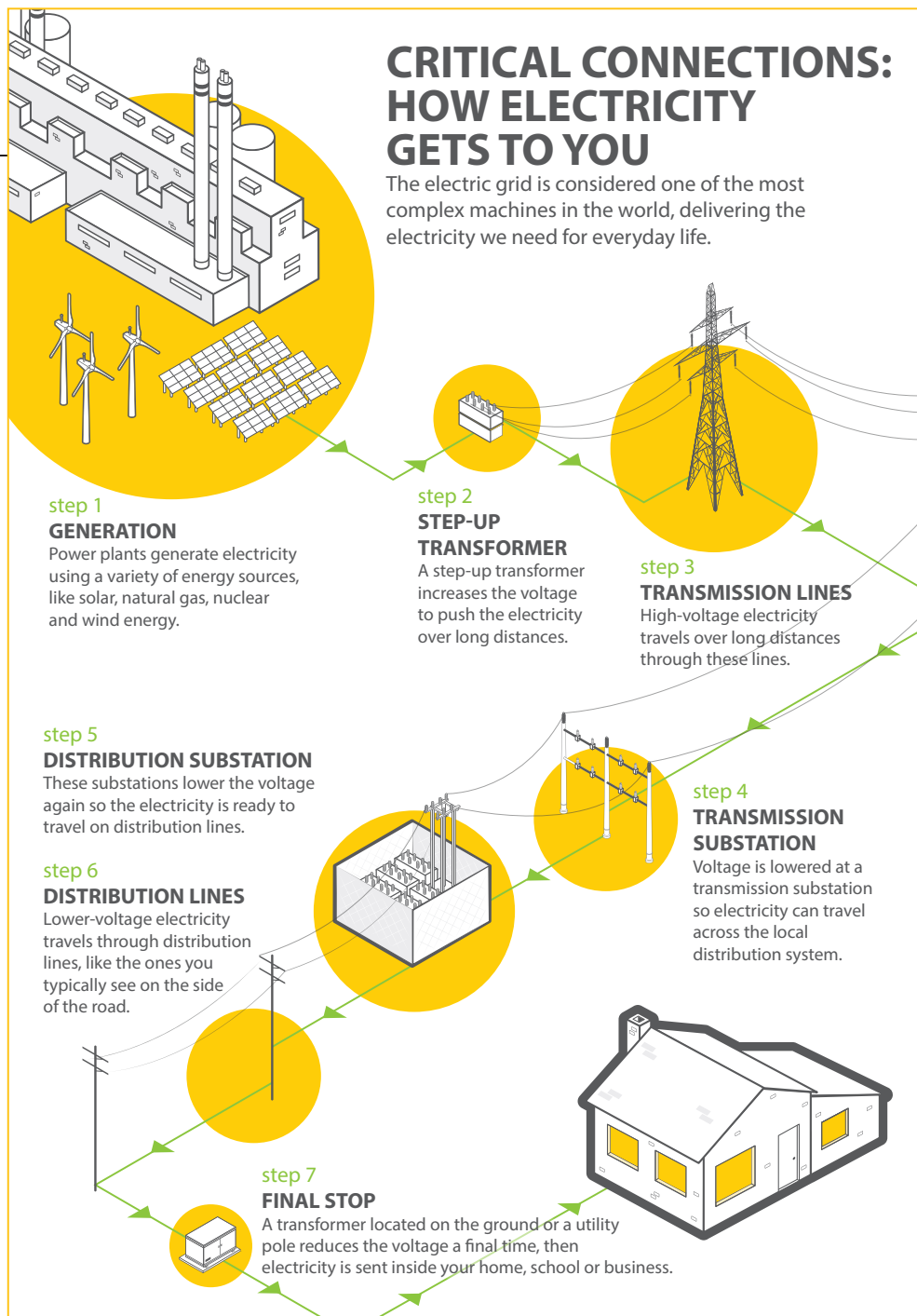
We're proud to be your local, trusted energy provider. From the time it's created to the time it's used, electricity travels great distances to be available at the flip of a switch. That's what makes the electric grid our nation's most complex machine—and one of our nation's greatest achievements.

May the closeness of your loved ones, family, and friends fill your heart with joy in 2024. From all of us at Consumers Energy, Happy New Year!

**Bridget Itzen,**  
CEO/General Manager

## CRITICAL CONNECTIONS: HOW ELECTRICITY GETS TO YOU

The electric grid is considered one of the most complex machines in the world, delivering the electricity we need for everyday life.





# CONSUMERS ENERGY BOARD APPROVES PATRONAGE CAPITAL RETIREMENT FOR 2023

At Consumers Energy’s board meeting on November 30, 2023, the Board of Directors approved the retirement of \$538,000 of patronage capital credits. **This patronage capital retirement was shown as a credit for each member’s portion of this retirement on electric bills received in December 2023.**

The retirement of patronage capital credits is a tangible demonstration of member ownership in Consumers Energy. As a cooperative that belongs to the members it serves, Consumers Energy operates as a not-for-profit utility.

Any “profits” made by the cooperative are referred to as margins. At the end of each year, the margins are allocated to each member’s patronage capital credit account in proportion to the amount of electricity purchased after all statutory and reserve requirements are met. From the time the margins are generated until they are returned, this money is put to work within the cooperative, minimizing debt financing and strengthening our financial position.

Your elected Board of Directors must first consider the financial condition of the co-op and the needs for capital funds for coming years before distributing patronage capital credits. The patronage capital credit amount is determined by the board and is set at a level that maintains the financial integrity of the co-op. The board evaluates Consumers Energy’s equity goals, the patronage capital credit rotation plan, the cost of borrowing money, plant growth, and storm reserves.

Please contact Consumers Energy at 800-696-6552 with questions about your portion of the retirement for 2023 or the patronage capital retirement process.

*Consumers Energy’s Board of Directors: Front row – Bill Hobson, Pat VonAhnen, Tony Lem, Denny Beckman. Back row – Arden Greiner, Jennifer Sease, Steve Quick, Craig Griffieon, Bob Meimann*



Each member's portion of this patronage capital retirement is shown as a credit on the member's electric bill or mailed as a check if requested. The retirement of patronage capital credits is a tangible demonstration of member ownership in Consumers Energy.



**1** Consumers Energy tracks how much electricity you use throughout the year.



**2** Each year, after expenses are paid, Consumers Energy calculates margins (excess revenue).



**3** Consumers Energy uses the margins to pay down debt, invest in facilities and improvement projects, and allocate to members as capital credits based on their usage of electricity.



**4** If financial conditions allow, Consumers Energy retires (pays out) capital credits to members.



**For more information, contact the Member Services Department at 800-696-6552 or [info@consumersenergy.coop](mailto:info@consumersenergy.coop).**



# WHAT IS A CO-OP?

*with Safety Sadie*



An electric cooperative is a company that provides electricity to its members. Electric co-ops are owned and operated by their members, which keeps them invested and involved in their community. Electric cooperatives often provide service to rural communities.

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ENERGY  
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SERVICE  
ELECTRICITY  
COMMUNITIES  
EDUCATION  
TRAINING  
NETWORK  
RENEWABLES



# Annual Pole Inspection and Treatment Program for Continued Reliable Service and Safety in 2024

Consumers Energy will have approximately 2,000 poles inspected and treated this year for the cooperative. The annual pole maintenance program will be in the Huxley, Alleman, and Elkhart areas.

Inspection crews will be performing maintenance on meter poles, transformer poles, and line poles. The treatment helps extend the life of the poles in the cooperative's system. The inspection process also determines the poles that cannot be saved with treatment. These poles are then marked by inspectors and will be replaced by Consumers Energy crews.

WE WANT TO HEAR FROM YOU!  
TAKE OUR MEMBER SURVEY AND  
GET A \$5 BILL CREDIT!

Take a short member survey  
by January 31, 2024, and  
get a \$5 bill credit!

Go to the website at  
[www.consumersenergy.coop/member-survey-2023](http://www.consumersenergy.coop/member-survey-2023)  
or scan the QR code below to take the survey!



One \$5 bill credit per membership.



# ELLIOT MAYLAND

## EMPLOYEE SPOTLIGHT



**JOB: OPERATIONS SUPERVISOR**



**DREAM VACATION: FREE OCEAN SIDE BEACH VACATION**



**FAVE BANDS/PERFORMERS: ANYONE PLAYING LIVE MUSIC**



**FAVE MOVIES: ACTION**



**FAVE FOOD: ITALIAN**



**FAVE PEOPLE: WIFE & DAUGHTER**



Attention high school sophomores, juniors, & seniors:

**WIN A FREE TRIP OF A LIFETIME!**

**JUNE 15-21, 2024**



To apply for a chance to win this FREE trip to Washington, D.C., scan the QR code here or visit [www.consumersenergy.coop/youthtour](http://www.consumersenergy.coop/youthtour).

For more information, contact Billing and Education Program Coordinator, Tami Kerwood, at 800-696-6552 or [tkerwood@consumersenergy.coop](mailto:tkerwood@consumersenergy.coop).

**DEADLINE TO APPLY:  
MARCH 14, 2024**



COLOR THIS ARTWORK! COLORED PENCILS OR MARKERS WILL WORK TO COLOR IN THIS NEWSLETTER.

**2024 SCHOLARSHIP PROGRAM**



For full details or to apply, scan the QR code here or visit [www.consumersenergy.coop/scholarship-program](http://www.consumersenergy.coop/scholarship-program).

For more information, contact Billing and Education Program Coordinator, Tami Kerwood, at 800-696-6552 or [tkerwood@consumersenergy.coop](mailto:tkerwood@consumersenergy.coop).

Academic  
Scholarship



**DEADLINE TO APPLY:  
MARCH 15, 2024**

Apply for one of Consumers Energy's \$1,000 academic scholarships available to graduating high school seniors!

Lineworker  
Scholarship



**DEADLINE TO APPLY:  
MARCH 15, 2024**

For those pursuing a career in the powerline industry, apply for Consumers Energy's \$1,000 Lineworker Scholarship.



# firing up one **PORTABLE GENERATOR** is like starting **HUNDREDS OF CARS**

According to the Consumer Product Safety Commission (CPSC), one fuel-powered portable generator produces as much carbon monoxide (CO) as hundreds of combustion-engine cars.

Using a portable generator in your home, garage or too close to your home is like starting a parking lot full of cars and letting the CO poison seep into your home. And the devastating result is almost immediate: The CO from one generator can kill in minutes.

## USING A PORTABLE GENERATOR SAFELY

1. Always use a generator at least 20 feet away from your home.
2. Never operate one inside a home, on a porch or near windows and doors.
3. The 20-foot rule also applies to other locations, such as a shed, cabin, camper or trailer.
4. When shopping for a generator, look for one that produces reduced emissions.
5. Also look for one that shuts off automatically when high levels of CO are present.
6. Keep your generator well-maintained and follow all manufacturer's instructions.
7. Ensure CO detectors are installed on every level of your home and near or in bedrooms.
8. Test CO alarms monthly; also track their age. They need to be replaced every seven years.

Source: CPSC

Learn more at:



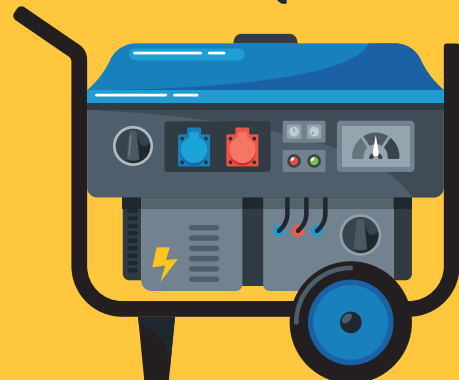
## TOP 3 REASONS for using a generator

1. Weather-related power outages.
2. Power shutoffs.
3. Temporary locations.

## CO deaths associated with PORTABLE GENERATORS

Approximately 85 individuals die in the U.S. each year.

81% of deaths occur in residential locations.





## CONSUMERS ENERGY BOARD OF DIRECTORS

District 1 - Marshall, Jasper, & Tama Counties:  
Denny Beckman  
President  
dbeckman@consumersenergy.coop

Bill Hobson  
Director  
whobson@consumersenergy.coop

Pat VonAhnen  
Secretary-Treasurer  
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District 2 - Story County:  
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Steve Quick  
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District 3 - Polk County:  
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Vice President  
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Tony Lem  
Director  
alem@consumersenergy.coop

Jennifer Sease  
Director  
jsease@consumersenergy.coop

Energy Efficiency Cost per kWh:  
\$0.000381

## To report an outage, call 800-696-6552.

For the most accurate outage updates, check SmartHub or [www.consumersenergy.coop](http://www.consumersenergy.coop) for messages, the statewide outage map, or call Consumers Energy.

## WAYS TO PAY YOUR CONSUMERS ENERGY BILL



Online or the app  
[www.consumersenergy.coop](http://www.consumersenergy.coop)

Automatic recurring  
monthly payments



In person

By phone 24/7  
844-201-7196



By mail

By dropbox



2074 242nd Street | Marshalltown, IA 50158



641-752-1593 | 800-696-6552



641-752-5738



[www.consumersenergy.coop](http://www.consumersenergy.coop)



[info@consumersenergy.coop](mailto:info@consumersenergy.coop)

**OFFICE HOURS**  
7:30 AM - 4:00 PM  
MONDAY - FRIDAY



### YOUTH TOUR

- FREE trip to D.C.!
- Educational & FUN!
- Offered to members' high school sophomores, juniors, & seniors



### PATRONAGE CAPITAL CREDITS

- Funds are allocated to members based on electric usage.
- Members receive funds when the cooperative retires margins.

**For information on ways to pay or programs and services offered, contact the Member Services Department.**