Western Illinois ELECTRICAL COOP.
A Touchstone Energy® Cooperative
NEWS
P.O. Box 338 ■ Carthage, Illinois 62321 ■ www.wiec.net ■ 800-576-3125

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.

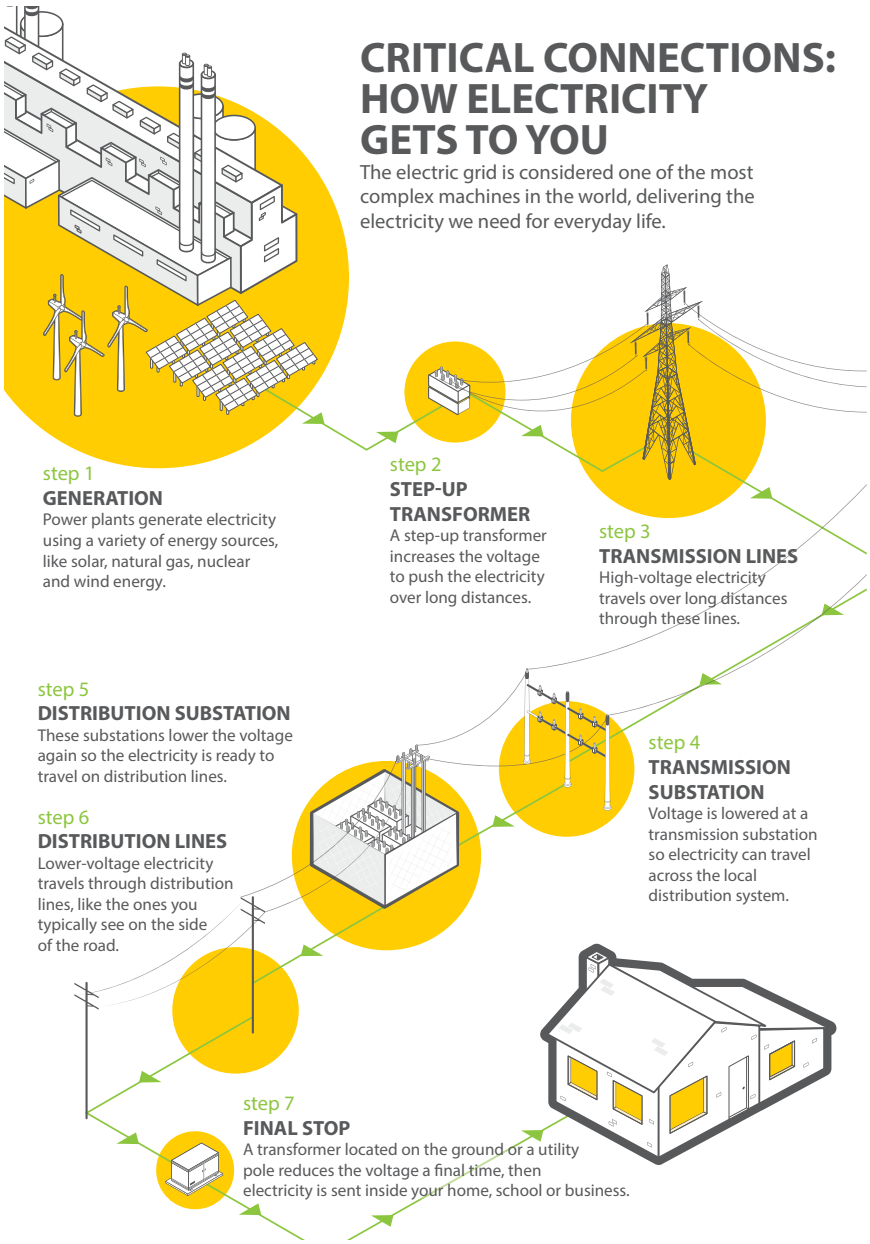
THE CHALLENGE

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.

Continued on page 18B ▶

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.



step 1
GENERATION
Power plants generate electricity using a variety of energy sources, like solar, natural gas, nuclear and wind energy.

step 2
STEP-UP TRANSFORMER
A step-up transformer increases the voltage to push the electricity over long distances.

step 3
TRANSMISSION LINES
High-voltage electricity travels over long distances through these lines.

step 4
TRANSMISSION SUBSTATION
Voltage is lowered at a transmission substation so electricity can travel across the local distribution system.

step 5
DISTRIBUTION SUBSTATION
These substations lower the voltage again so the electricity is ready to travel on distribution lines.

step 6
DISTRIBUTION LINES
Lower-voltage electricity travels through distribution lines, like the ones you typically see on the side of the road.

step 7
FINAL STOP
A transformer located on the ground or a utility pole reduces the voltage a final time, then electricity is sent inside your home, school or business.

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524 North Madison | P.O. Box 338
Carthage, IL 62321
www.wiec.net | 800-576-3125

OFFICE HOURS
8:00 a.m. - 4:30 p.m.
Monday - Friday

BUSINESS OFFICE
217-357-3125

TO REPORT AN OUTAGE
800-576-3125

BOARD OF DIRECTORS

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MAP LOCATION CONTEST

Every month we are printing four members' map location numbers in the newsletter. If you find your map location number call the WIEC office by the 25th of the following month, tell us where it is and we will give you a $10.00 bill credit. Keep on reading the WIEC News.

"Beginner's Guide" continued from page 18A

At its core, the electric grid is a network of power lines, transformers, substations and other infrastructure that spans 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. **3818-11**

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

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.

Western Illinois Electrical Coop. receives power from our generation and transmission (G&T) co-op, Prairie Power, Inc. (PPI) We work closely with PPI 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. **3721-10**

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.

Welcome new members

October 2023

Agritech Research
Cody Benjamin
Keith H Blythe
Gabrielle Cajar
Gabriel Cuan
Andrea Deon Lung
Matthew Maas
Todd and Lacey Morris
Blake Rea
Dallas Rose

YOUTH DAY » SPRINGFIELD

MARCH 20, 2024

YOUTH TOUR » WASHINGTON D.C.

JUNE 14-21, 2024

Western Illinois Electrical Coop. continues to encourage high school students to learn more about government and their role in it by sponsoring the Youth Day (Springfield, Ill.) and Youth Tour (Washington, D.C.) events. These events give high school students an up-close look at both their state and federal governments and how they operate.

This contest is a great way for a high school sophomore, junior or senior to win an all-expense-paid trip to Washington, D.C. Western Illinois Electrical Coop. will award one son or daughter of a WIEC member an 8-day trip to our nation's capital that includes transportation, meals and hotel accommodations. **3531-1**

The WIEC winner will join about 50 other Illinois high school students in Washington during the week of June 14, 2024. During their time in D.C., students will learn about American and rural electric history, in addition to how the federal government operates. In past years, students met with representatives in the House and Senate, visited Arlington National Cemetery and Gettysburg, the Smithsonian Air and Space Museum, Mt. Vernon, the World War II Memorial, the U.S. Memorial Holocaust Museum, and even danced the night away on a river boat cruise on the Potomac River. **5530-52-2**

Emma Whitaker and Mitchell Sparrow on House Floor with Rep. Norine Hammond

HERE'S HOW IT WORKS.

WIEC will award the top six entrants an all-expense-paid trip to Springfield, Ill., as part of the Youth Day/Springfield event, to visit the Illinois State Capitol on March 20, 2024. The group will get to see their state government in action, up close and personal. One of these six students will then be awarded the trip to Washington, D.C., later in the year.

To enter the contest, students just need to complete a simple application. The application can be found on our website at www.wiec.net, or you may contact our office directly at 217-357-3125 or 800-576-3125 to have us send you one another way. **The deadline to apply is Feb. 16, 2024.** With only a small investment of his or her time, a student could win the trip of a lifetime!

RESPECT SUBSTATIONS

and all other electrical equipment

REPORT SUSPICIOUS ACTIVITY

Only authorized utility workers should approach a substation, touch the fence or enter the gate.

Paying attention to activity in or near substations and other utility equipment helps keep everyone safe.

Safe Electricity.org® Learn more at:

Authorized workers should:

- Wear proper personal protective gear and display an ID badge.
- Use work vehicles that have utility branded logos/information.

Suspicious activity includes individuals in street clothes who are:

- Near or inside a substation fence.
- Tampering with equipment, such as power poles, meters and padmount transformers.

If you notice anything unusual at a substation, please report it to the electric utility. Examples include:

- An open or unlocked gate.
- A damaged fence.
- Obvious damage inside the fence.

Call 9-1-1 and then the electric utility if you see:

- Smoke or fire.
- Non-utility workers inside the substation fence.
- Non-utility workers on a pole or tampering with a meter.

Happy New Year

The WIEC office is
CLOSED JANUARY 1
to celebrate New Year's Day.

WE WILL REOPEN JANUARY 2.

Happy New Year from the WIEC Board of Directors and employees.

ENERGY EFFICIENCY TIP OF THE MONTH

During winter months, ensure your home is well sealed to reduce the need for excessive heating. Seal air leaks around your home and add insulation where needed to save up to 10% on annual energy bills.

Install weather stripping on exterior doors and apply caulk around windows. Check attic insulation levels and hire a qualified contractor if additional insulation is required.

Source: energystar.gov