

# Bluestem NEWS

## BLUESTEM ELECTRIC COOPERATIVE

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## FROM THE MANAGER

### Beginner's Guide to the Electric Grid



**Mike Morton**

Electricity plays an essential role in everyday life.

It powers our homes, offices, hospitals and schools. We depend on it to keep us warm (and cool in the summer), charge our phones and watch 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 is 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 are starting our day, and in the evenings when we are cooking dinner and using appliances. Severe weather

*Continued on page 12B ►*

## 2024 Bluestem Electric COOPERATIVE ANNUAL MEETING

The Bluestem Electric Cooperative, Inc. Annual Meeting will be held on March 25, 2024, at the United Methodist Church Family Life Center in Clay Center, Kansas. The meeting will begin at 7 p.m. The annual meeting notice will be included in the March issue of the *Kansas Country Living* magazine. Please look for this issue as there will not be a separate booklet mailing.

Official notice of the annual meeting will be mailed prior to the meeting. Again, this will be included in March *Kansas Country Living* magazine.

We hope that you will plan on attending the annual meeting and take part in the business of the cooperative.



# HOW *Electricity* GETS TO YOU



## STEP 1 | Generation

Electricity is generated from various sources.



## STEP 2 | Step-Up Transformer

Voltage is increased to push the electricity over long distances.



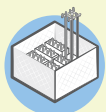
## STEP 3 | Transmission Power Lines

Lines carry electricity over long distances.



## STEP 4 | Transmission Substation

Voltage is lowered so electricity can travel across the local system.



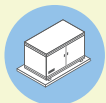
## STEP 5 | Distribution Substation

Voltage is lowered further for safe distribution.



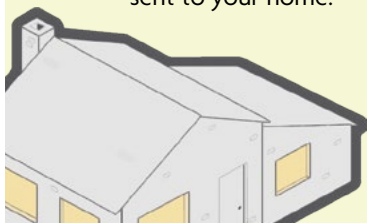
## STEP 6 | Distribution Power Lines

Electricity travels across these lines in your community.



## STEP 7 | Final Stop

A transformer reduces voltage a final time, and electricity is sent to your home.



## Beginner's Guide to the Electric Grid *Continued from page 12A* ▶

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 is available precisely 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 spans the entire country. But it is not just a singular system. It is 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

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.

Bluestem Electric Cooperative receives power from our generation and transmission (G&T) co-op, Kansas Electric Power Cooperation (KEPCo). We work closely with KEPCo to provide electricity at the lowest cost possible. Being part of a G&T benefits members

**The challenge for electric providers is to plan for, produce and purchase enough electricity so it is available exactly when we need it.**

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

# 2024 Teller Committee Selected

Each year the Bluestem Electric Board of Trustees shall appoint a teller committee whose function is to count and verify the ballots for the election of trustees. The teller committee was appointed by the Bluestem Board of Trustees at their Dec. 20, 2023, meeting.

The teller committee will meet on Jan. 3, 2024, at the Bluestem Electric Cooperative office located at 1000 South Wind Drive in Wamego, Kansas, at 6 p.m. to tabulate and certify the election results.

The results of the election of trustees will be printed in the February edition of the Bluestem News located in the *Kansas Country Living* magazine.

## Statement of Nondiscrimination

This institution is an equal opportunity provider and employer.

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at [http://www.ascr.usda.gov/complaint\\_filing\\_cust.html](http://www.ascr.usda.gov/complaint_filing_cust.html), or at any USDA office, or call 866-632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter to us by mail at U.S. Department of Agriculture, Director, Office of Adjudication, 1400 Independence Ave., S.W., Washington, D.C. 20250-9410, by fax 202-690-7442 or email at [program.intake@usda.gov](mailto:program.intake@usda.gov).

### 2024 HOLIDAY OFFICE CLOSINGS

#### JANUARY 1

New Years Day

#### JULY 4 & 5

Independence Day

#### NOVEMBER 28 & 29

Thanksgiving

#### MAY 27

Memorial Day

#### SEPTEMBER 2

Labor Day

#### DECEMBER 24 & 25

Christmas

## ENERGY EFFICIENCY Tip of the Month

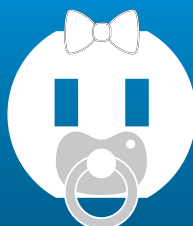
During winter months, ensure your home is well sealed and properly insulated to reduce the need for excessive heating. Seal air leaks around your home and add insulation where needed to save up to 10% on annual energy bills. Install weatherstripping on exterior doors and apply caulk around windows. Check attic insulation levels and hire a qualified contractor if additional insulation is needed.

SOURCE: [WWW.ENERGY.GOV](http://WWW.ENERGY.GOV)



## SAFETY TIP

Start discussions about electrical equipment safety when children are young. When baby-proofing your home, don't forget about potential electrical hazards.



SOURCE: [WWW.SAFEELECTRICITY.COM](http://WWW.SAFEELECTRICITY.COM)

## DO'S and DON'TS Around Electricity



Start discussions about electrical equipment and safety when children are young.

Here are some great safety lessons to teach:

### DO'S

- ▶ Do stay inside after a storm in case there are downed power lines.
- ▶ Do place a cellphone on the bedside table, not on bedding or under a pillow.
- ▶ Do find another tree to climb if an overhead power line is nearby.
- ▶ Do fly kites, drones or other remote-controlled toys in an open area away from overhead power lines.

### DON'TS

- ▶ Do not go near a downed power line.
- ▶ Do not use or set plugged-in items near water, including a sink, pool or bathtub.
- ▶ Do not go near or enter a substation to retrieve a toy or pet.
- ▶ Do not try to free an object that is stuck in a power line.

SOURCE: SAFE ELECTRICITY

# Report Suspicious Activity Near Electrical Equipment

Substations are part of the electrical generation, transmission and distribution system. Transformers are contained inside many of them, and their job is to transform voltage from high to low or vice versa, depending on their location within the distribution path.

Besides transformers, substations usually house switches, protective devices and control equipment. In large substations, circuit breakers are used to interrupt any short circuits or overloads that may occur.

No one should approach a substation, touch the fence or enter the gate unless they are authorized to do so.

Paying attention to individuals and activity around substations and other utility equipment helps keep everyone safe. Here are some things to look for:

- ▶ Take notice of individuals in street clothes working near or on utility equipment; if you see this, please report it immediately.
- ▶ Notice whether individuals are dressed in proper personal protective equipment or have utility identification badges.

- ▶ Check vehicles or work trucks in the area for utility branded logos or information.
- ▶ Report suspicious behavior you see, including non-utility employees tampering with utility poles, meters, pad-mounted transformers or other equipment.
- ▶ If you notice anything unusual at a substation, please report it to the utility. Examples include the following:
  - ▶ An open or unlocked gate.
  - ▶ A damaged fence.
  - ▶ Obvious damage to equipment inside the fence.
- ▶ Call 911 and then the electric co-op if you see the following:
  - ▶ Smoke or fire.
  - ▶ Non-utility workers inside the substation fence.

Never try to address an issue yourself.

Please report any suspicious activity or damage to the police or Bluestem Electric Co-op.

## FIRST RESPONDER SAFETY

First responders should always wait for the go-ahead from the electric utility before addressing a fire or vandalism at a substation, power plant or solar

farm. First responders should also communicate with and wait for the utility worker before approaching a downed power line or damaged pad-mounted transformer.

## GENERAL SUBSTATION SAFETY

Bluestem Electric and Safe Electricity remind you to:

- ▶ Never go near a substation.
  - ▶ Teach children to never go near a substation or climb its fence to retrieve a ball or pet. Let them know they should always stay away and tell a parent or adult, who should call us to report the incident at 800-558-1580.
  - ▶ Teach children about the dangers of electricity from an early age.
  - ▶ Never try to extinguish a transformer that is on fire since water and electricity do not mix. Call 911 to report the fire.
  - ▶ If you see an issue with or notice something unusual about a substation, transformer or power line, contact your electric co-op. Never try to address a problem yourself.
- For more information about electrical safety, visit [www.SafeElectricity.org](http://www.SafeElectricity.org).

## RESPECT SUBSTATIONS

### Report Suspicious Activity

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

#### Authorized workers should:

- ▶ Wear proper personal protective equipment 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 pad-mounted transformers.

#### If you notice anything unusual at a substation, please report it to the electric cooperative.

##### Examples include:

- ▶ An open or unlocked gate.
- ▶ A damaged fence.
- ▶ Damage inside the fence.

#### Call 911 and then the electric cooperative if you see:

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

SOURCE: SAFE ELECTRICITY