

# Keeping a Secure Electric Grid



## A NOTE FROM CEO/GENERAL MANAGER DEBBIE ROBINSON

Several months ago, a piece of speculative fiction was shown on cable television depicting events that could happen should an electricity grid failure cause a national blackout.

In the yarn spun by the show's writers, a cyberattack causes a lengthy national grid failure, and life without electricity is difficult, as you can imagine.

The program's theoretical plot is, of course, a worst-case scenario with far-reaching consequences that we don't want to experience in real life. This is why electric cooperatives have worked diligently with the North American Electric Reliability Corporation and federal agencies over the past several years to strengthen reliability and cybersecurity standards for the nation's bulk power infrastructure system, known collectively as the grid.

The National Rural Electric Cooperative Association is working with its member cooperatives, including Wood County Electric Cooperative, to help ensure that co-ops comply with NERC reliability and cybersecurity standards.

Cooperatives are also working on the cutting edge of research into cybersecurity.

The U.S. Department of Energy recently awarded \$3.6 million to the NRECA's Cooperative Research Network to develop cybersecurity management tools for small utilities. NRECA and Honeywell Corp. plan to provide additional funding for a total of \$4.7 million.

NRECA will collaborate with researchers to create a simple, automated network device that will enable small utilities, such as cooperatives, to manage system security more reliably and cost-effectively, according to Craig Miller, chief scientist at NRECA.

"The system will simplify cybersecurity management for small utilities with limited IT resources," Miller said, adding that improved security for small systems supplements the security of larger utilities.

No one can guarantee that a large-scale blackout caused by cyberterrorists can't happen. Even small electric cooperatives are part of a national effort to protect the reliability and security of our power grid.



Instead of cranking up the thermostat, slip on a sweater to keep warm.

## What Not To Do When It's Cold Outside

Follow these tips to stay safe and save energy during winter.

- 1. DON'T OVERSTUFF YOUR REFRIGERATOR.** Stacking holiday leftovers on top of each other and squeezing extra containers of food onto every refrigerator shelf will prevent the air from circulating. That forces the appliance's compressor to work harder and use more electricity.
- 2. DON'T CRANK THE THERMOSTAT WAY UP** to heat a cold house in a hurry. Turning the heat up to 90 degrees won't warm a 60-degree house any quicker than turning it up to 72 degrees.
- 3. DON'T RUN BATHROOM AND KITCHEN EXHAUST FANS** any longer than you have to. Flip them on to clear smoke while cooking and steam while showering.
- 4. DON'T USE A BARBECUE GRILL OR A PROPANE PATIO HEATER INDOORS,** even if your central heating system is on the fritz. This is a fire hazard and can expose you to carbon monoxide poisoning.
- 5. DON'T TURN OFF YOUR CEILING FANS.** Ceiling fans can save energy during winter. The trick: Set the spin direction to push air up. In this mode, the blades slant downward. Heat rises, so in the winter, the blades should move warm air toward the ceiling and walls and down into the room.



Co-ops across the nation are banding together to protect the security of our power grid.

# Substation Copper Theft Caused Power Outage, Costly Damage

**On the morning of November 11, in Hawkins, a criminal broke into Wood County Electric Cooperative's Faulk-Dobbs Substation to steal copper.**

Using wire cutters, this person destroyed part of the protective fence around the substation, which serves 1,200 meters in Hawkins. The criminal cut 10 of the copper ground wires necessary to stabilize the substation's electrical system and ensure safe operations. This caused the system to become unstable, leading to high-voltage arcing by the regulator. This, in turn, started a fire, which ultimately caused about \$50,000 in damage to the substation and cooperative property.

The fire burned so hot that it melted the inches-thick steel support beams under the transformer and burned a large hole in the middle of an approximately 2-foot-thick slab of concrete, turning sections of it into rock-hard silica. In the end, a high-voltage regulator was destroyed as well.

Now concrete work must be done, copper replaced and expensive testing performed by outside contractors, as well as costly meter analysis—not to mention all of the regular and overtime labor hours that must be spent by linemen to repair the system.

While this event was terribly costly in many ways, it could have, in an instant, been tragic also. If those copper ground wires had been cut and gone unnoticed, a cooperative employee performing routine maintenance easily could have been electrocuted. So, too, could the thief while committing the crime.

In addition to the enormous danger, crimes like these increase cost of service to members. That's because all members share the expenses of a nonprofit cooperative. In an instance like this, one person's \$90 gain is multiplied and paid for by many.

Copper theft from a utility is a state felony. Anyone with information regarding this theft, or any theft, is reminded that their local Crime Stoppers pays rewards for anonymous tips leading to convictions.



**The copper used in electric substations has become a target of theft, causing costly repairs and endangering both co-op workers and the thieves themselves.**



## Wood County Electric Cooperative

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Debbie Robinson

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### MEMBER BENEFITS AND SERVICES

- Online account access and bill payment
- Paperless E-Bill services
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- SmartPower prepay electric system
- SmartGuard surge protection system
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**Monday**, First Methodist Church, *Van*  
**Tuesday**, Family Dollar, *Mount Vernon*  
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**Thursday**, Brookshire's, *Winnsboro*  
**Friday**, Economy Drug, *Grand Saline*

## Contact Us

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Keep your home and family safe by properly maintaining your fireplace.

## Spruce up Your Fireplace

**If you've used your fireplace much this winter, or if it has several winters of use, it might benefit from a facelift.**

Here are some ideas for making your fireplace a glowing centerpiece of your house.

**REPLACE YOUR MANTEL.** You can order pre-cut mantels in any price range and in materials ranging from hardwood to marble to plaster. This is a weekend job for a handy do-it-yourselfer.

**CLEAN YOUR FIREPLACE AND CHIMNEY.** Wait at least a day after your last fire and shovel out the ash and unburned pieces of wood. Then sweep the interior of the fire box out. Make sure you use a metal bucket for gathering ashes in case an ember is still live.

Or, hire a chimney sweep and save yourself the trouble. Even if you're not burning wood in your old fireplace anymore, give it a good cleaning.

**CLEAN THE BRICK OR STONE THAT SURROUNDS YOUR FIREPLACE.** If the brick is sealed, most of the soot should scrub off with detergent and a cloth. Tougher stains might require a mixture of ammonia and water with a stiff-bristled brush. Test a small area first to make sure the brush doesn't damage the brick's surface and the solution doesn't discolor it. If your brick is unsealed or old, don't scrub it; instead, just sweep it.

**REPLACE YOUR WOOD-BURNING FIREPLACE WITH AN ELECTRIC MODEL.** You might feel some heat if you sit close to your wood-burning fireplace, but it's not producing enough heat to help your furnace keep the house warm. In fact, it's sucking your home's heated air right up the chimney. Consider converting that energy-inefficient fireplace to an electric version. If you haven't seen one in awhile, you'll be amazed by how realistic its "flames" look, thanks to technological advancements.

## Dry Safely

**Drying clothes on an outdoors clothesline is not always practical, especially during the winter months when it's cold and gray. But before you turn to your trusty electric clothes dryer, take time to clean out lint, which can cause a fire.**

Here are some tips from the Consumer Product Safety Commission to ensure laundry day doesn't spark a disaster.

► Clean the lint screen/filter before or after drying each load of clothes. If clothing is still damp at the end of a typical drying cycle or drying takes longer than normal, then the lint screen or the exhaust duct could be blocked.

► Clean the dryer vent and exhaust duct periodically. Check the outside vent while the dryer is operating to make sure exhaust air is escaping. If it is not, the vent or the exhaust duct might be blocked. To remove a blockage in the exhaust path, it might be necessary to disconnect the duct from the dryer.

► Clean behind the dryer, where lint can build up. Have a qualified service person clean the interior of the dryer chassis periodically. Keep the area around the dryer clear.



Proper settings and maintenance will keep your costs down and keep you safe.

► Replace accordion-type ducting material with a rigid or corrugated semi-rigid metal duct. The flexible plastic or foil type of duct can more easily trap lint and is more susceptible to kinks or crushing, which can greatly reduce airflow.



Substations are essential to safe and reliable electric distribution service and should only be entered by authorized personnel.

# Substations Perform Powerful Role

*Electrical system depends on devices behind the fence*

**Electrical substations are vital to the delivery of power to your home or business. The complex array of equipment serves as transit points in this system, with the ability to raise (“step up”) and lower (“step down”) voltage.**

High voltage helps speed power across long distances on transmission lines. However, if electricity enters your home at too high a level, electronics could be damaged (case in point: lightning strikes).

As power gets closer to its destination, substations decrease it to a safe level. Substations also keep voltages constant, preventing harmful fluctuations.

Several types of substations are found between power plants and homes. Each contains different equipment, including transformers, lightning arrestors, circuit breakers, insulators and more. A transformer performs the heavy work, altering voltage as needed.

Initially, step-up substations at power plants increase electricity’s voltage to various levels (between 69,000 and 750,000 volts) so it can be shipped through high-voltage transmission lines. Once electricity gets closer to its destination, transmission substations typically reduce the voltage to between 23,000 and 69,000 volts.

From there, the power moves over smaller transmission facilities to electric co-op distribution systems. Distribution substation transformers then slash the voltage even lower, normally to 12,500 volts.

At this point, the distribution lines you see running up and down rural roads and across fields bring power to you. To make that energy safe for household use, a pole-mount transformer (the round object resembling a small gray garbage can located near the top of a utility pole outside your residence) or a pad-mount transformer (the gray boxes dotting your neighborhood) cuts the voltage once more, to between 120 and 240 volts.

Substations remain an important part of your electric cooperative’s system.

Remember, the voltage entering and exiting substations far exceeds anything you’ll find at home. Substation fences protect you and the equipment housed within and help ensure that your co-op can continue providing you with a safe, reliable and affordable supply of power.

## POWER TIP

Save ENERGY • Save MONEY

**In the dark days of winter, sunlight is at a premium and electric lights are switched on more often.**

To get the most out of your lighting, a damp rag will help. Globes and shades on overhead lights will seem brighter if you wipe away the accumulated layer of dust and grime on them. While you’re at it, replace any incandescent lights you might have in those fixtures with energy-efficient options like CFLs or LEDs.

VIDEO, WRITE OR PHOTOGRAPH YOUR WAY TO

### \$4500 IN PRIZES

This year’s topic for the Co-op Teens Power Texas Contest:

## HOW MY CO-OP HELPS THE COMMUNITY



BEST VIDEO

### \$1000



BEST ESSAY OR STORY

### \$750



BEST PHOTO WITH CAPTION

### \$500

RUNNERS UP IN EACH CATEGORY ALSO WIN CASH PRIZES!

## TEXAS CO-OP POWER

CO-OP TEENS POWER TEXAS

For complete rules and entry instructions, visit

### TexasCoopPower.com

# Solid Lighting Solutions

LEDs meet (and exceed) 2014 lighting efficiency standards

BY MEGAN MCKOY-NOE AND BRIAN SLOBODA

**A new year calls for updated lightbulb efficiency guidelines. No need to use bulbs with a twist; light-emitting diodes can help you switch on savings.**

Congress called for improved energy-efficiency standards for traditional incandescent bulbs under the federal Energy Independence and Security Act of 2007. By 2014, lightbulbs using from 40 to 100 watts must consume at least 28 percent less energy than classic bulbs. The change will save Americans an estimated \$6 billion to \$10 billion in lighting costs annually.

When the next wave of standards kicks in this month, traditional 40- and 60-watt incandescents will no longer be available. In their place, some consumers are filling the gap with a solid solution: LEDs.

## 'Solid' Lighting

Incandescent bulbs create light using a thin wire, called a filament, inside a glass bulb—a delicate connection that can easily be broken. In contrast, LEDs are at the forefront of solid-state lighting—small, packed electronic chip devices. Two conductive materials are placed together on a diode. Electricity passes through the diode, releasing energy in the form of light.

LEDs were invented in 1960 at General Electric and originally were a red color. They were used in remote controls, exit signs, digital watches, alarm clocks and car signal lights. After the invention of blue-colored LEDs in the 1990s, the devices quickly gained momentum for large-scale lighting.

## LEDs Offer Several Benefits

- ▶ They could last longer, perhaps for decades.
- ▶ The energy to use them could be substantially less than that of compact fluorescent lamps or other fluorescents.
- ▶ With no mercury content, LEDs are less hazardous than fluorescents.
- ▶ The products are rugged and more resistant to breakage.
- ▶ LEDs perform well in cold climates, especially outside.
- ▶ They can be dimmed and produce a more pleasing light.

However, some consumers avoid LEDs because the price tag exceeds normal lightbulb costs. The true value lies in the lifetime of the bulb. It takes about 50 traditional incandescent bulbs, or eight to 10 compact fluorescents to last as long as one LED lamp.

Sources: *The Association of Electrical Equipment and Medical Imaging Manufacturers, U.S. Department of Energy, Cooperative Research Network*



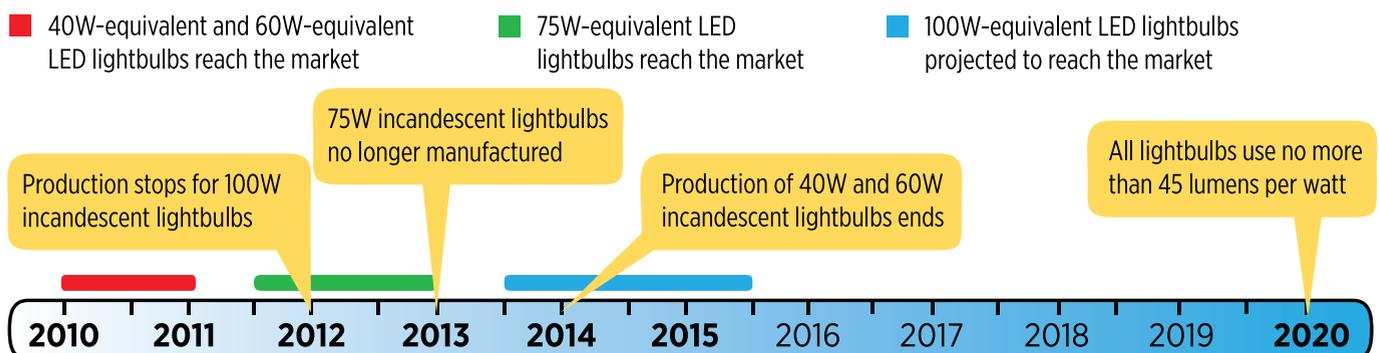
## Shedding Light on LEDs

Curious to know if LEDs are right for you? Learn how to read LED labels at [lightingfacts.com/content/consumers](http://lightingfacts.com/content/consumers).

Homeowners can visit [energysavers.gov/lighting](http://energysavers.gov/lighting) to compare LEDs to new energy-efficient incandescent bulbs and CFLs.

## LEDs: A DECADE OF CHANGE

By 2014, lightbulbs using between 40 watts and 100 watts must consume at least 28 percent less energy than traditional incandescents, saving Americans an estimated \$6 billion to \$10 billion in lighting costs annually. The federal Energy Independence and Security Act of 2007 also mandated that lightbulbs become 70 percent more efficient by 2020. Light-emitting diodes, LEDs, are quickly evolving to meet this challenge. Learn more at [energysavers.gov/lighting](http://energysavers.gov/lighting).



BULB: ANDREY KHRITIN | THINKSTOCK; CHART: U.S. DEPARTMENT OF ENERGY LIGHTING FACTS PRODUCT SNAPSHOT: LED REPLACEMENT LAMPS 2011



# *Happy New Year*

**FROM WOOD COUNTY ELECTRIC COOPERATIVE**

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The directors and employees of Wood County EC hope that 2014 brings peace, prosperity and happiness to all of our members.