A Touchstone Energy® Cooperative

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WHEATLAND ELECTRIC COOPERATIVE

NEWS

Wheatland Electric Co-op, Inc.

District Offices

Garden City – 620-275-0261
2005 W Fulton, P.O. Box 973
Garden City, KS 67846

Great Bend – 620-793-4223
2300 Broadway, P.O. Box 1446
Great Bend, KS 67530

Harper – 620-896-7090
906 Central, P.O. Box 247
Harper, KS 67058

Leoti – 620-375-2632
N Hwy 25, P.O. Box 966
Leoti, KS 67861

Scott City-*Main* – 620-872-5885
101 Main St., P.O. Box 230
Scott City, KS 67871

Syracuse – 620-384-5171
206 1/2 N Main
P.O. Box 1010
Syracuse, KS 67878

Tribune – 620-376-4231
310 Broadway
P.O. Box 490
Tribune, KS 67879

FROM THE MANAGER

Electricity 101: The Flip of a Switch

Bruce W. Mueller

Have you ever wondered why they call it electricity?

It's named after those little pieces of atoms called electrons, and that's the place to start in understanding how power plants make something that reliably lights your home with the flip of a switch.

Getting all those electrons to march together inside a wire has been described as one of civilization's greatest and most complex engineering feats.

Just about all of your electricity starts with the scientific phenomenon that spinning a magnet inside a coil of wires will generate electricity. So, deep inside most power plants are large turbines that are turned in different ways: falling water at a hydroelectric dam; burning coal or natural gas at a fossil fuel power plant; atomic energy at a nuclear power plant; or the rotating blades of a wind turbine. One exception is solar energy, which uses materials that produce electricity when they're activated by sunlight.

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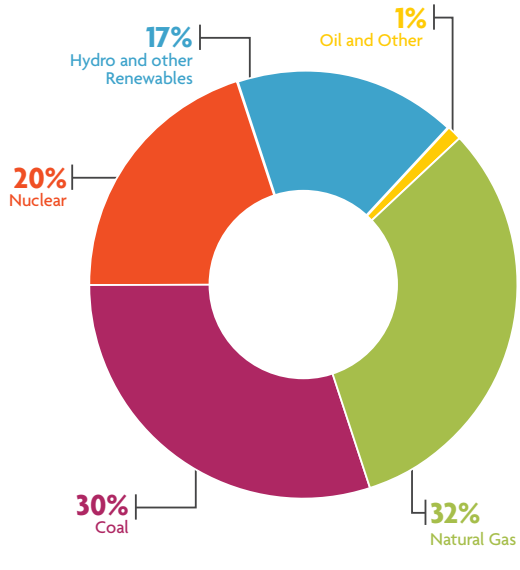
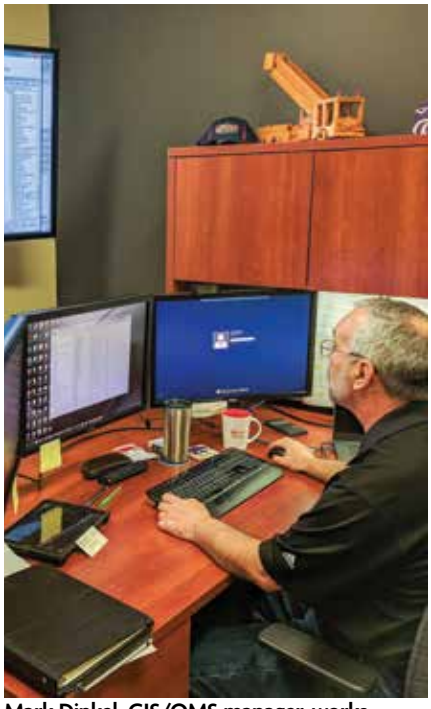
Powerful Sources

Nationally, electric cooperatives and other utilities use a variety of fuels to power American homes and businesses. This diverse fuel mix supplies co-op members with the safe, reliable and affordable power they depend on.



Source: U.S. Energy Information Administration (2017 data)

The Power of Techno



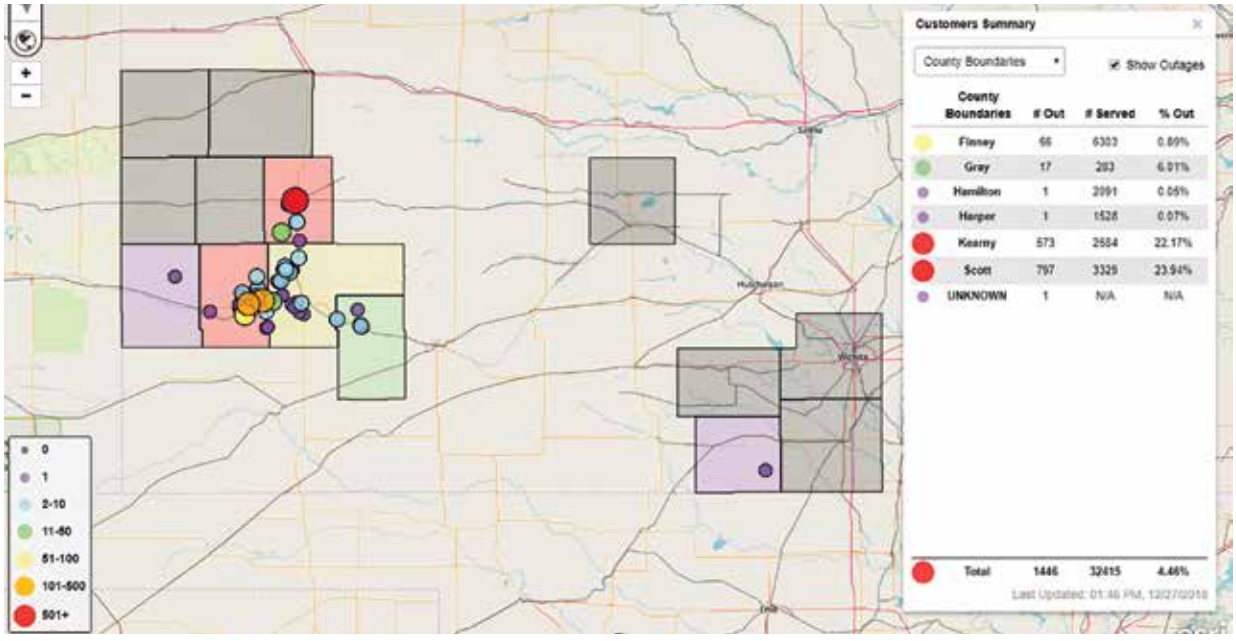
Mark Dinkel, GIS/OMS manager, works to identify the outage cause and GPS coordinates for line crews using information from the AMI system..

Staying up-to-date with emerging technology is one way Wheatland Electric has added value to our membership. Most winter storms in Kansas consist of ice and wind, both of which can wreak havoc on an electrical system. In outage situations, new technology and the implementation of new response techniques has created a more efficient process to communicate to members, and to identify, monitor and repair power outages.

For power outages or downed lines members should always first contact their local office. If after hours, you can contact Wheatland through our outage hotline **1-800-ON-AGAIN (662-4246)**. To view a real-time outage map, visit weci.net, click the "Outages" tab, and "View Outage Map." The outage map shows how many meters are down by county and provides members an insight into the outage situation. This tool lets you know what our line crews are up against, and how long it might be to restore power. For more updates in large outage situations, "like" and "follow" Wheatland Electric's Facebook page (facebook.com/WheatlandElectric).

In order to remotely monitor 32,000-plus meters, Wheatland Electric invested in an automated metering infrastructure (AMI). The meter change-out took nearly two years, but by the middle of 2017 the project was completed and the system was operational. AMI meters have provided faster, more efficient outage detection and diagnosis. System operators can ping meters to get a clearer picture of what is happening in the field and deploy crews more efficiently. In many cases the AMI system identifies the outage, a crew is dispatched, and power is restored—all before the member can call-in to report an outage.

In addition to AMI meters, Wheatland has searched for other ways to use technology to create efficiency in power restoration. **MARK DINKEL**, GIS/



Screenshot of the Outage map during the blizzard. This map can be viewed at any time through WECI.net with up-to-date outage information.

logy During Outages

Crews worked into the night to ensure members power was restored.

Walt Lovins, area supervisor, looks at his iPad while talking with dispatch during outages resulting from the Dec. 27 blizzard.

OMS manager, said "If roads are impassable due to snow or mud we can use drones to fly the lines to identify the cause of the failure—it is much safer and more efficient than sending someone out in a pickup to try to physically drive the lines." The high-definition camera, equipped with a 30 times magnification, can easily identify what equipment is needed to fix the problem, the best route to the outage, and precise GPS coordinates for line crews.

In the case of a large-scale outage, dispatch becomes a command and control center. "There are a lot of moving parts when directing crews throughout several counties in our service area," said **RICK KLAUS**, director of operations. "We try to work from large to small, with a focus on residential power, until we get down to the last one or two meters and everyone's power is back up."

When the source of an outage is identified, dispatch will contact the lineman on call or the area supervisor. All journeyman linemen are now equipped with iPads, so while on the phone with dispatch they can display their maps to see where the outage is occurring, what the AMI system says is the possible cause, and what equipment is on that pole or what might be needed to restore power. After power is restored, linemen can clear out outages from the system so other crews know what has been restored.

Wheatland is in the process of upgrading its substations with Supervisory Control and Data Acquisition technology (SCADA). This will give us insight as to how our substations are running, our load balance and provide us with the opportunity to perform preventive maintenance before there's a problem. This means fewer unplanned outages and a stronger system in the future.

No matter how sophisticated or robust an electrical system is, you can never eliminate outages altogether. Mother Nature can always find a way to make the lights go out, but how quickly and efficiently power can be restored is something Wheatland has invested heavily in for the benefit of our members.

It is a group effort to restore power. The customer service representatives taking calls from members, dispatch monitoring outages and directing line crews, and linemen physically repairing lines and poles—everyone must pull together to ensure power is restored as quickly and safely as possible.

Call 1-800-ON-AGAIN During an Outage

If you are experiencing an outage or another similar issue like partial power, blinks or you are without power during a storm for an extended period of time, please call your local office. After hours please call 1-800-ON-AGAIN (662-4246).

Members Harvest Capital Credits

Wheatland Electric retired **$1.25 MILLION** in capital credits to both active and inactive members during Capital Credits Harvest Days. Capital Credits Harvest Days were held at each district office in late December. Hundreds of members stopped at their local office for refreshments and to pick up their capital credits check.

The difference between a member-owned cooperative such as Wheatland Electric and an investor-owned utility is that the same people who purchase electricity from Wheatland Electric also own the cooperative. As a member-owner, you are entitled to margins, also known as the co-op's profits. Your share of the cooperative's profits is called capital credits. "Being able to allocate capital credits to our members reflects very positively on the financial health of the cooperative. 2017 was the first year since 2006 that Wheatland has been able to allocate capital credits," said Bruce Mueller, General Manager.

The board allocated 65 percent of the $1.25 million to the retirement of allocations from 1987 and 35 percent to the retirement of allocations made in 2017. These retirements were made through a check or bill credit, depending on the amount you were owed and whether you were an active member of Wheatland.

Thank you to everyone who attended Capital Credits Harvest Days and thank you for helping build, sustain and grow wheatland. We appreciate you, our members!

Members in the Syracuse office show off the benefits of being a member-owner of Wheatland Electric.

Year Retired	% of Capital Credit Retirement
1987	65 percent
2017	35 percent

Julie Stoss, consumer services supervisor, helps a member during Capital Credits Harvest Days in Great Bend.

Coins Keep Safety in Mind for Strickerts

Last November, Wheatland shared its Commitment to Zero Contacts initiative with you. As part of that initiative, Wheatland provided its linemen a coin to carry in their pockets each day to remind them of why they work safely. Little did we know the impact this coin would have on more than just the linemen who work for Wheatland.

KAYLEE STRICKERT is much like any four-year-old; some days preschool drop-off is more difficult than others. Kaylee was worried about being safe at school. Kyle, her dad and a lineman at Wheatland Electric for the past 11 years, reassured her that her teachers at school were there to keep her safe. Kyle also reminded her that God was in her heart and he would keep her safe as well. After multiple days of being reassured that she was safe at school, Kaylee needed something more. She wanted to go to work with her dad and also wanted to know what keeps him safe at work. Kyle told her

Kyle Strickert has been a lineman at Wheatland Electric since May 2008. Kyle and his wife, Sydney, have two children: Kaylee (4 years old) and Eli (2 years old).

When you put your hand in your pocket and you feel your coin, it makes you stop and think. It reminds me to slow down. It makes me think of my family and the importance of walking through the door each night.

that God keeps him safe at work and keeps his co-workers safe too, and that linemen look out for one another. While Kaylee clung tightly to him, Kyle reached into his pocket and pulled out his coin. Kyle handed the coin to Kaylee and told her that this is what keeps him safe every day. "I look at this coin and I think of you. I think of your brother and I think of your mom. It reminds me to not take any shortcuts," Kyle told her.

Kaylee now keeps the coin in a pouch in her backpack and carries the coin with her every day as a reminder that she's safe.

Kyle was on call in early January and got called to work around 4 a.m. Kaylee woke up as Kyle was walking out the door and wanted her coin. Kaylee got her coin out of backpack and fell fast asleep with the coin in her hand.

Kyle now carries a new coin with him in his pocket every day. Linemen are often asked by Wheatland's General Manager Bruce Mueller if they have their coin. If they do, which most of them do, they receive a special gift. Wheatland places a strong emphasis on safety, and stories like this are the reason we do.

"When you put your hand in your pocket and you feel your coin, it makes you stop and think," Kyle said. "It reminds me to slow down. It makes me think of my family and the importance of walking through the door each night."

Drones Provide Important Assistance

Wheatland Electric currently has three drones that are used in a variety of applications. The fixed-wing drone is used specifically for mapping projects, and two quadcopters are used for special projects that require precision piloting.

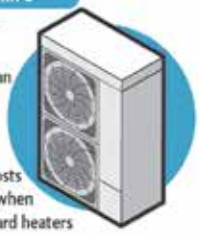
To use drones for a commercial application, **JEVIN KASSELMAN** and **MARK DINKEL** had to pass their Federal Aviation Administration certifications to receive their remote pilot's licenses. In a storm situation, the quadcopter's 30 times magnification high-definition camera is an important tool in assessing damage.

Typically, drones are to be flown only within line of sight; however, in an emergency outage situation, approval by the FAA will allow the pilot to go outside that range. Although Wheatland has only been using drone technology for less than two years, it has proved invaluable for assessing damage and will continue to play an increasing role in the future.

TYPES OF HEAT PUMPS

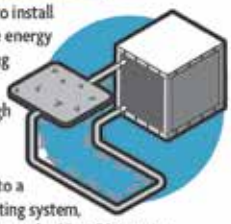
There are three main types of heat pump systems. Use the information below to determine the system that's best suited for your climate and home.

AIR-SOURCE HEAT PUMPS



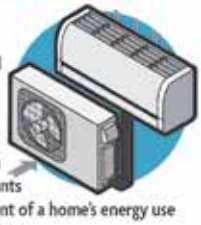
- Most commonly used heat pumps
- Moves heat rather than converting it from a fuel like combustion heating systems do
- Can reduce heating costs by about 50 percent when compared to baseboard heaters or electric furnaces
- Newer, more efficient systems now offer legitimate space heating alternative in colder regions like the Northeast and Midwest. *Note: If temperatures in your area drop below 10 to 25 F, you will need an auxiliary heating system (depending on the size of the system).*

GEOTHERMAL HEAT PUMPS



- More expensive to install but provide more energy savings for heating and cooling
- Move heat through pipes buried underground
- When compared to a conventional heating system, can reduce energy use by 25 to 50 percent
- Effective in extreme climates
- Not ideal for smaller lots and certain soil conditions

DUCTLESS MINI-SPLIT HEAT PUMPS



- Easier to install, quiet, small in size
- Flexible for heating and cooling individual rooms and smaller spaces
- No energy loss through ductwork, which accounts for more than 30 percent of a home's energy use for space heating/cooling.
- Installation can be pricey, but federal incentives may be available

Heat pump systems should be installed by a licensed professional. Contact your local electric cooperative for more information about options and potential incentives.

Sources: Dept. of Energy and Consumer Reports

Smart Houses No Longer a Fantasy

Not that long ago, the 1999 movie Smart House—which featured a fully-automated dream home run by a computer named Pat—seemed futuristic and far-fetched. Fast forward to today, and there are voice-assisted devices you can talk to and ask to control anything from your television and your lights to your mood (OK, it can't literally change your mood but you could ask it to tell you jokes or play upbeat music).

Using smart home devices doesn't mean your digs will have a higher IQ, but it does mean your home could have a leaner energy budget. "Smart homes" are houses that have a number of interconnected devices and home appliances that perform certain actions or functions and many are designed to save money, time and energy.

Here are some smart home devices—that may or may not be interconnected—that could save some green:

- Energy monitoring devices, which give real-time feedback on energy consumption and track your energy stats (kind of like a Fitbit for your home) – these typically cost between $200 and $300 but can make a real difference in your energy bills if you make adjustments based on feedback.
- The SmartThings Hub that acts as the brains of your smart home – with it (and compatible items), you can open your garage door, turn on music or start the coffee maker. When you leave, it can lock the doors, turn off the lights, adjust your smart thermostat and activate a security camera.
- A smart lighting outdoor module, such as GE Z-Wave, which works with Alexa – this allows you to control all your outdoor lighting and appliances, including seasonal and landscape lighting, and schedule or turn outdoor lights on or off from anywhere.
- Smart bulbs, which are internet-capable LED bulbs that allow lighting to be controlled remotely – many of them can change color, some can play music, and specialty smart bulbs may help you sleep better by emitting colors designed to help regulate natural melatonin production or provide soothing light that doesn't disrupt circadian rhythm.
- Smart sprinkler systems – these water your garden only when plants need it. They take local weather forecasts into account and will delay watering if rain is headed your way.
- Water leak detectors and shut-off systems – some are SmartThings compatible but can be operated independently. The simplest versions sit on the floor and alert you when they get wet. More elaborate versions continually monitor the flow of your water system, informing you if water pressure changes and allowing you to shut off the water supply if a leak is detected.

Smart appliances and devices save money, because in many cases, they allow you to use less energy. They're also convenient, fun to use and can give you peace of mind. In short, they may be worth it in the long run, but only if the initial outlay fits your budget.

SAFETY Tip of the Month

Make a fire escape plan for your home. Note any possible exits, including windows. Draw a floor plan of your house and mark two ways to escape from each room. Make sure doors and windows leading to the outside can easily be opened by everyone in the family.

Electricity 101: The Flip of a Switch *Continued from page 16A* ▶

Every one of those power plants is unimaginably complicated—think about what you would do if you were handed a lump of coal and were told to make it run your refrigerator.

Most large electric generating plants need large banks of transformers to boost the voltage for the cross-country trip through wires held up by tall transmission towers. As it nears your neighborhood, the voltage is reduced at one of those fenced-in complexes of metal, wires and transformers called a substation. Lower voltage makes the electricity safer for home energy use. As the electricity gets closer to your home or business, the voltage is reduced again with smaller transformers, which you can typically see mounted on a nearby utility pole or in a ground-level green box in your yard.

Beyond those basics, all that flowing electricity needs to be coordinated so it gets to the right house just as it's needed. Safety is always top priority. Line crews need to be kept organized for both routine power line maintenance as well as restoration after storm damage.

When you think about it, that's a lot of power in the simple flip of a switch!

Until next time, take care.

Wheatland Electric's lineman work in all weather conditions to get the power back on as safely and quickly as possible.

A DAY *in the* LIFE

BY ALLI CONINE

This month we told you how Wheatland handles wide-spread outages during a storm. We talked about the importance of getting power restored as quickly and safely as possible. Now, let's talk about those out in the elements getting power back on—the linemen.

The National Weather Service issued a blizzard warning for most of the counties in the western part of Wheatland's service territory on Dec. 26, 2018. Heavy snow, strong winds and blowing snow were expected. It started as rain, which continued to fall late into the night, and in the early morning hours of Dec. 27 the rain turned to ice and then to snow. The blizzard that followed brought 8 to 12-plus inches of snow and more than 60 mph winds. Two common elements of a winter storm in Kansas are ice and wind and unfortunately, both can wreak havoc on an electrical system. At the peak of the storm more than 3,400 members were without power.

I first talked to **WALT LOVINS**, area-wide supervisor in Scott City, around 4 a.m. on Dec. 27. I knew we were without power at home because the baby monitor beeps when it loses power. Walt knows when we have members without power because the Cooperative Response Center (CRC) sends him a text and an email when this occurs. Walt then notifies the lineman on call, which happened to be him that day. Walt headed to the Scott City warehouse but was unable to start identifying, isolating and restoring outages because of the adverse weather conditions. The rest of the crew followed shortly.

Linemen are Wheatland's first responders, braving dangerous conditions to keep us safe and comfortable. When the lights go out, so do they. During the winter storm on Dec. 27, Walt and **JORDAN HABIGER**, a lineman in Scott City, walked a half-mile one way in 4- to 6-foot drifts, 50 mph winds and blowing snow to identify the source of an outage. Walt shared that this wasn't the first time and it wouldn't be the last time he would need to walk to identify the source of an outage. Sometimes it's because of mud and other times it's because of snow. Linemen do whatever it takes, in all weather conditions to get the power back on.

We shared several pictures on Facebook during the storm of the conditions our linemen were battling and the outpouring of positive comments from our members was incredible. "Much appreciation and thankfulness to you and all who work in horrible weather conditions to make the rest of us safe and comfortable." "Thank you Wheatland Electric for all your hard work to keep our electricity going." Often, we take our power—and the men and women who provide it—for granted, but these two positive comments representing the many posted to the Wheatland Facebook page, reminded us to be grateful for those who keep us safe.

A special thanks to all of our linemen who battle the elements to restore power as quickly and safely as possible and for maintaining an intricate system of power lines around the clock. You are appreciated!

ALLI CONINE, Manager of Member Services and Corporate Communications