WESTERN COOPERATIVE ELECTRIC

WESTERN COOPERATIVE ELECTRIC NEWS

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FROM THE MANAGER

Affordable Electricity Powers Quality of Life

Most of us use electricity, either directly or indirectly, at almost all times. Because electricity is so abundant and available with the simple flip of a switch, it's easy to take it for granted.

According to the Energy Information Agency (EIA), the typical U.S. household now uses more air conditioning, appliances and consumer electronics than ever before. The average home also contains 10 or more internet-connected devices. Considering everything that is powered by electricity, it's no longer "just the light bill."


Tom Ruth

Electricity Powers Quality Of Life

Electricity powers our quality of life. From the infrastructure of your home (appliances, water heater and HVAC system) to charging your smartphones and computers, and powering your TV and Wi-Fi router, your energy bill covers so much more than lighting.

Today, there is more demand for electricity than ever before. At home, in schools and business, and in commercial sectors such as transportation, the need for electricity is increasing.

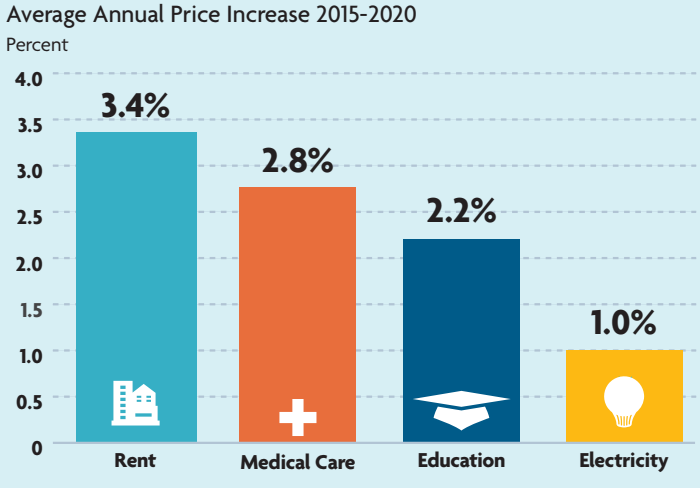
Typically when demand goes up, so too does the price, as is the case with

Continued on page 16C ▶

ELECTRICITY REMAINS A GOOD VALUE

The cost of powering your home rises slowly when compared to other common expenses. Looking at price increases over the last five years, it's easy to see electricity remains a good value!

Average Annual Price Increase 2015-2020



Sources: U.S. Bureau of Labor Statistics Consumer Price Index

Power Supply Strategy Balances Mi

One hundred-plus degree days have arrived, sweltering days that make Winter Storm Uri seem like a distant ice age. For approximately one week in February the weather pattern brought prolonged frigid temperatures to the central U.S. extending north to south.

The cold weather caused high electric demand, high natural gas demand, a reduced natural gas supply (wells and pipelines experienced freezing issues); increased generator outages on fossil-fuel units (also due to freezing problems), and increased wind generator outages (due to icing and low temperature cut offs). Low wind output and transmission outages also contributed to a widespread strain on the electric system across the Midwest, sometimes to the point that there was not enough energy in the region to supply the demand. As a result, electric utilities were directed by the Southwest Power Pool (SPP), the regional transmission organization that balances electricity supply across a 14-state region, to interrupt electricity service for a specified time.

Manager of generation engineering Andy Tewell, left, and Ken Saborin, senior generation engineer, discuss operating strategies at Holcomb Station.

In the sweltering heat of summer, you might be wondering why Storm Uri is still a topic of conversation. For electric utilities, meeting electricity demand is always at the forefront of operational strategies but can be especially challenging during the winter and summer months when weather patterns can bring extreme temperatures. While Storm Uri was a unique weather event — one that we are hoping not to see again soon, if ever — electric utilities across the nation continue to debrief the event to shore up contingency plans.

Electric utilities are designed, built, and operated to support a range of demands in a cost-effective manner. These estimated demand ranges include predicted peak demands, but sometimes, like in February, events can occur beyond predicted peaks and generation resources don't always perform as planned.

Sunflower Electric Power Corporation, Western Co-op's wholesale generation and transmission supplier, takes strategic steps to meet not only the typical energy demand of electricity consumers served by its seven Member distribution utilities but also the energy demand in energy-peaking situations, such as very hot summer days or cold winter conditions. Balancing cost and reliability for typical energy demand and predicted peaks is challenging, and doing it for situations beyond predicted peaks, such as Storm Uri, is even more challenging.

So what does Sunflower do to prepare for energy-demand challenges? The electric industry is very complex, one that can't be summed up in a few bullet points, but below are some of the strategies implemented so that Sunflower can serve Western and its other member-owners with reliable energy at the lowest possible cost:

- Regular testing is conducted on all electric generating units to assess their operating status.
- Planned maintenance outages are conducted in the spring or fall when energy-peaking days are less likely to occur.
- A fuel-diverse generation fleet comprising natural gas, coal, wind, solar and hydro allows Sunflower to capitalize on fuel resources that are in the best interest of its members at a given time.

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nimizing Energy Costs, Managing Risks

- A fuel-diverse generation fleet serves as a hedge against rising prices of a particular fuel resource. The price of coal is very stable compared to the volatility of natural gas pricing and is an effective hedge against the price of market energy, which is usually correlated to the price of natural gas. Sunflower's coal-based unit helped offset astronomically high natural gas prices during Storm Uri.
- A technology-diverse, owned-generation fleet — comprising a steam coal unit, steam natural gas units, internal combustion natural gas units, and reciprocating internal combustion engine (RICE) units — allows for an operating strategy that can react to changing weather patterns, energy demand, and price fluctuation. For example, Sunflower's quick-start RICE units are often used to back up fluctuating intermittent, non-dispatchable renewable resources (wind and solar), and its natural gas steam units are designed to operate in a more consistent, stable manner.
- Contracts for coal and natural gas are strategically entered to obtain fuel at optimal prices. This involves constant evaluation of Sunflower's current contracts and forecasting how much will be needed to meet consumer demand. Both overestimating and underestimating fuel needs have inherent risks, such as cost impacts and fuel accessibility.
- While coal is stored on site, ample natural gas storage facilities are expensive alternatives that Sunflower has explored but, to this point, have proven to be cost-prohibitive. Fixed-price gas contracts that could be used to protect against price volatility are also problematic due to the low utilization and fluctuating dispatch of Sunflower's gas-fired generation assets.

> **Meeting our Members' power supply needs is a continuous balance between minimizing energy costs and managing risks.**
>
> **COREY LINVILLE, VICE PRESIDENT OF POWER SUPPLY AND DELIVERY AT SUNFLOWER.**

- Sunflower has power purchase agreements that allow access to wind and solar resources without the burden of ownership and maintenance.
- Sunflower is a member of the SPP. Every day, 24-7, the SPP oversees, manages, and balances the dispatch of the energy in its service territory. Sunflower is in constant communication with SPP regarding the dispatch of our generation units, the market price of energy, transmission availability, and calls for public conservation when necessary. SPP staff and membership continue to debrief Storm Uri to determine possible changes that could improve energy supply in such extreme and rare events while still balancing affordability.

"Meeting our members' power supply needs is a continuous balance between minimizing energy costs and managing risks," said Corey Linville, vice president of power supply and delivery at Sunflower. "Yes, we could build a system that is virtually indestructible, but doing so would increase prices every day in anticipation for a catastrophic event that may never occur. Our board has chosen to employ various strategies to manage energy-demand risks while keeping costs as affordable as possible."

Affordable Electricity Powers Quality of Life *Continued from page 16A* ▶

most goods or services, like cable or even your favorite specialty coffee. However, that's not true with electricity. Let's take a look at how the value of electricity compares to other common expenses.

Over the last five years, the cost of rent increased 3.4%, medical care increased 2.8%, and education increased 2.2%. But the cost of electricity only increased 1%. Considering all the ways we depend on electricity, it still remains a great value.

So, the next time you're enjoying your favorite podcast, TV series or movie, consider the value of electricity and how it enhances your quality of life.

We care about you, the consumer-members we serve, and understand that electricity is more than a commodity — it's a necessity. That's why Western Cooperative Electric will continue working hard to power your life, reliably and affordably.

HANDLE WITH CARE
Irrigation Equipment
ON THE FARM

Irrigation watering pipes are often made of aluminum, a great conductor of electricity.
When assembling irrigation systems, be extremely careful when handling long sections of pipe.

- Always consider your location and the length of the pipe you are holding.
- Make sure the pipe's long reach will not come near or into contact with power lines.
- If the pipe touches or comes too close to a power line, you could be electrocuted.
- Do not store, handle or assemble irrigation pipes under or near overhead power lines.

Talk to everyone in your family (including kids and teens) about the dangers of moving pipes. **TEACH IRRIGATION SAFETY TO ALL STAFF AND SEASONAL WORKERS.**

We care about your safety. Please pause and consider all power line locations before starting a job.

Energy Efficient Irrigation Strategies

Agriculture is the backbone of our country, and keeping farmland well-irrigated is crucial for almost any agricultural producer. Energy efficient irrigation methods help farmers curtail unnecessary water use while growing the same produce, reducing their operating costs and increasing overall productivity. When choosing between different irrigation methods and technologies, the most important aspects to consider are the overall cost, return on investment, convenience and minimization of risks.

One of the easiest ways to maximize energy efficiency, as many farmers have already done, is to use electric motors in place of inefficient diesel irrigation motors. Electric motors are about 90% efficient, while diesel motors have much lower efficiencies between 30%-40%. This means cost savings in the long run. Electric motors also require less maintenance and use a variable frequency drive (VFD) irrigation system, which helps to further reduce costs.

VFD systems allows farmers to pump water at different rates, maximizing irrigation throughout the day. A VFD system can control the speed of the electric motor because it controls the electric power frequency supplied to the motor. Since there are many benefits from using electric irrigation motors, the majority of U.S. farmers have switched to electric ones, although pairing the motor with a VFD system is still a relatively new agricultural trend.

Irrigation efficiency tends to decline over time. After five years, irrigation pumps are typically evaluated for performance efficiency. The evaluation can help inform decisions on the most cost-effective solution, whether making improvements to the existing pump or replacing it entirely. Irrigation pump tests assess the pump's discharge pressure, lift, water flow and power input. Regular testing of irrigation pumps can help ensure the pumps are working as efficiently as possible. Upgrading irrigation hardware can also lead to more efficient irrigation system performance. Replacing leaky sprinklers, for example, can help save a significant amount of water. Maintaining the overall efficiency of irrigation systems over time helps to reduce water use and save energy.

There are many new agricultural technologies that are part of the "precision agriculture" industry, including autonomous tractors, crop-monitoring drones and robotic milking or weeding machines. Beyond existing irrigation technologies, Wi-Fi-connected crops is one type of precision agriculture irrigation technology. After placing Wi-Fi-connected sensors throughout a crop field, farmers can monitor the conditions by simply using their smartphones or computers. Data on light, humidity, temperature and moisture are captured by the sensors. That data is automatically sent to a server to be analyzed, which is then sent to a farmer's smartphone app. Using Wi-Fi-connected crops also allows farmers to remotely set automatic timers for watering systems. With Wi-Fi-connected crops, several factors are considered, such as cost, range, bandwidth and power. One constraint of using Wi-Fi-connected crops is that the sensor range can be limited, which makes the technology only feasible for smaller farms. Other network connectivity platforms can be applied to irrigation management, such as cellular connection, satellites, LoRa and Sigfox, but Wi-Fi is by far the most commonly used.

As technology continues to improve, there will be new opportunities to support the agricultural sector. Replacing technology that uses on-site fossil fuels, such as propane and gasoline, with technology powered by electricity will help improve energy efficiency and reduce local pollution.

Western is proud to support our agricultural members and will continue to help them find ways to improve and meet their energy efficiency goals.

Students Discover the KEY to LEADERSHIP

MAGGIE BRULL, Plainville; **TYRA SCHULTZ,** Grainfield; **BROOKE HERRMAN,** LaCrosse; and **COLBY STULL,** McCracken, were among 29 Kansas and Oklahoma student leaders to discover the "KEY" to leadership during the June 21-25 Kansas Electric Youth (KEY) Leadership Conference. Western Cooperative Electric selected Brull, Schultz, Herrman, and Stull from a group of high school juniors, that entered our youth contest. To attend this exclusive virtual conference, students applied last fall and were selected based off a written essay, quiz and interview in front of a panel of co-op judges.

"Western is proud to support the KEY Leadership Conference and its promotion of leadership skills in our Co-op's youth," General Manager Tom Ruth said. "Our hope is that leadership opportunities like these will provide valuable experience for our local students and help them to further engage in the cooperative community."

The week-long conference focused on different pillars of leadership and included sessions about the cooperative business model and cooperative principles, advocacy focusing on the grassroots Co-ops Vote program and how students can be a force for political action, preparing for the transition between high school and higher education, and finally the importance of reputation management. The speaker lineup featured a discussion with Sen. Jerry Moran, who visited openly with the students and answered their questions on topics ranging from foreign grain exports, to death tax on inherited land, the pandemic, climate change, and support for military families. Other speaker highlights included an inspiring message from Survivor's Holly Hoffman, and a presentation titled "Wolves Can't Fly" from keynote speaker and Kansas City Chiefs mascot Dan Meers.

For Brull, being a part of the KEY Leadership Conference youth delegation was inspiring, and it motivated her to take a closer look at what it means to be a leader.

"I learned that my voice matters, and that even though I'm still a teenager, there's a lot I can do in my world to make a difference," she said. "I also learned that there's a lot that goes into success including hard work, determination and perseverance. I heard a lot of different perspectives and truly enjoyed the experience."

At the conclusion of the conference, students submitted a short video focused on what leadership means to them. These videos can be viewed at westerncoop.com or Western's YouTube channel.

Maggie Brull

In addition to the conference, the students had the opportunity to apply for the Kansas Youth Spokesperson position. Maggie Brull, sponsored by Western Cooperative Electric headquartered in WaKeeney, was named the 2021 Kansas Youth Spokesperson. Brull is scheduled to give a speech about the KEY Leadership Conference at the Kansas Electric Cooperative Summer Meeting in Overland Park in August.

All students who completed the virtual conference are eligible to apply for both the KEC Auxiliary Scholarship and the NRECA Glenn English Scholarship that are designed for youth program alumni.

KEC plans to do in-person youth trips in 2022. Western's application window for high school Juniors will open in December 2021. For more information about the Western youth programs, visit westerncoop.com/youth-tour.

Proper Rest, Using '4 A' Method can Improve Harvest Safety

Farming requires long days in the field and little rest. The pressure to harvest as much as possible, combined with fatigue and looming deadlines, increases the risk of injury. In fact, most injuries occur during the spring and fall when stress and fatigue are common among farmers.

The safety and health of workers, including making time for sleep, should be a priority when considering a farm's productivity, according to Josie Rudolphi, University of Illinois Extension associate research scientist. "Rushing and cutting corners can lead to injury, which no one has time for, especially during the harvest," Rudolphi says.

Rudolphi grew up on a farm and understands the pressures of harvest season. She says that getting proper rest can make a huge difference in staying safe, but during the time crunch of harvest season, farmers sacrifice sleep to work late into the night.

"Sleep deficiency has been associated with increased injury, reduced reaction time, and reduced concentration," Rudolphi says. "All of which could impact health and safety, as well as productivity."

The demands of harvest are stressful, and a lack of sleep can intensify that and lead to errors in the fields or even on the roads. To improve sleep, Rudolphi advises farmers to go to bed and wake up at regular times when possible. They can use rainy days to catch up on sleep.

Other Sleep Health Tips Include:

- Create a bedroom environment that encourages sleep; keep it quiet, dark and cool.
- Avoid large meals, caffeine and alcohol before bedtime.
- Limit electronic device use.

In addition to improving sleep, managing stress is an important component to injury prevention, health and safety, according to Rudolphi. "By using the 'Four A' Method of avoid (planning ahead), adapt (changing expectations), alter (changing the situation when you can) and accept (acknowledging that a situation is what it is), farmers can successfully manage the stress of long hours and unpredictability," she adds.

For information about safety around electricity, including farm and ranch safety, visit SafeElectricity.org.

Feeling stressed this harvest season? WHAT'S YOUR PLAN?

Breakdowns. Long hours. Setbacks. There is no way to predict what harvest will bring. Have your PLAN in place to manage your stress for a safe and healthy harvest.

P — Prepare for the Season
With preparation, some stress can be avoided. Anticipate the demands of harvest and plan ahead. For example, prep healthy meals, fuel equipment and perform routine maintenance ahead of schedule. **What can you do to prepare?**

L — Lean on Loved Ones
Seeking support from others rather than taking on everything yourself can help reduce stress. Text or call a friend or family member when you need support. **Whom can you lean on?**

A — Activate Coping Mechanisms
Coping mechanisms can help manage stress. They include engaging in physical activity, finding ways to make yourself laugh and carving out time for hobbies. **Which coping mechanisms will you use?**

N — Nip Negative Self-Talk
Negative self-talk leads to decreased morale and feelings of hopelessness. When your inner critic nags, be kind to yourself and remember thoughts are not reality. **How will you tell your inner critic to take a hike?**

Need immediate assistance?
National Suicide Prevention Lifeline: 1-800-273-8255

CONTENT DEVELOPED BY JOSIE M. RUDOLPHI AND COURTNEY CUTHBERTSON, UNIVERSITY OF ILLINOIS EXTENSION

Understanding Power Surges and Blinks

Have you ever noticed your lights blink during a thunderstorm? Or perhaps you've noticed a blinking microwave clock when you arrive home. When this happens, you've likely experienced a brief disruption to your electric service, which could result from a power surge or blink. While the symptoms of surges and blinks can appear similar, what's happening behind the scenes can be quite different.

What's a power surge?

Power surges are brief overvoltage spikes or disturbances of a power waveform that can damage, degrade or destroy electronic equipment within your home or business. Most electronics are designed to handle small variations in voltage; however, power surges can reach amplitudes of tens of thousands of volts — this can be extremely damaging to your electronic equipment.

Surges can be caused by internal sources, like HVAC systems with variable frequency drives, or external sources, like lightning and damage to power lines and transformers.

Western Cooperative Electric encourages all members to install surge protective devices (such as surge protector power strips) to safeguard your sensitive electronics. If you're experiencing frequent surges in your home or business and you believe the cause is internal, contact a qualified electrician to inspect your electrical system.

What's a power blink?

Power blinks are also brief service interruptions, but they're typically caused by a fault (short circuit) on a power line or a protective device that's working in reaction to the fault. Faults can occur through a variety of instances, like squirrels, birds or other small animals contacting an energized power line, tree branches touching a power line, or lightning and other similar events. In fact, when it comes to power disruptions caused by critters, squirrels reign supreme. In 2019 alone, squirrels were responsible for more than 1,200 outages.

Any of the events noted above can cause your power to blink, but you may also experience a brief interruption when protective devices that act like circuit breakers are working to detect the fault. Believe it or not, these brief power blinks caused by protective devices are good because that means the equipment is working as it should to prevent a prolonged outage.

Regardless of the cause, Western Cooperative Electric crews will be on their way to inspect the damage and make necessary repairs after a power outage. And you can help too! Any time you experience repeated disruptions to your electric service, please let us know by calling 800-456-6720.

Share the Road

School days bring traffic congestion, especially as everyone figures out their new morning schedule. Be kind and take precautions when sharing the road.

Young Pedestrians

- The National Safety Council states most children who lose their lives in bus-related incidents are 4-7 years old.
- Stop and yield to pedestrians crossing in the crosswalk or at an intersection.
- Don't block the crosswalk when stopped forcing pedestrians to go around you and potentially into the path of moving traffic.
- Be alert, children are unpredictable.

School Buses

- When driving behind a bus, allow greater following distance. It will give you more time to stop once the yellow lights start flashing.
- It is illegal in all 50 states to pass a school bus that is stopped to load or unload children.
- If the yellow or red lights are flashing and the stop arm is extended, traffic must stop.

Bicyclists

- When passing a bicyclist, proceed slowly and leave 3 feet between your car and the cyclist.
- When turning left and a bicyclist is approaching in the opposite direction, wait for the bicyclist to pass.
- Watch for bicyclists turning in front of you without looking or signaling, especially children.

Utility Vehicles

- The Move Over and Slow Down law in Kansas requires drivers to vacate the lane closest to a stationary utility or emergency vehicle if possible or slow down to a safe speed for weather conditions.
- Driving too fast or not moving over can endanger a lineworker elevated in a bucket truck by causing the bucket to move or sway and endanger lineworkers on the ground.

NATIONAL SAFETY COUNCIL

FUN AT THE *fair*

County fairs are an essential part of the summer experience, especially in our rural communities. Typically off the heels of harvest, fairs are an important element in maintaining the sense of community that many Kansans hold dear. Western Co-op is proud to support local fairs and activities. This year, Western will hold a safety demonstration, teaching spectators about the importance of electrical safety at the State Fair. Congratulations to all the 4-H'ers, and good luck at the State Fair. Please feel free to stop by and say hello.