

## CMS ELECTRIC COOPERATIVE

# The Enlightener

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#### Lightbulb Winners

Congratulations to this month's lightbulb winners:

- ▶ Caleb Fitzgerald
- ▶ JoAnn Franz
- ▶ Jaden Friesen
- ▶ Ronnie Gibson
- ▶ Carol Kay
- ▶ Kris Lindsay

Contact us today for your free lightbulbs!



#### Nondiscrimination

This institution is an equal opportunity provider and employer.

## 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.

CMS 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, CMS 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.

*Happy Labor Day*

In Observance of Labor Day, our office will be closed on Monday, Sept. 6.



## Energy Efficient Irrigation Strategies

Agriculture is the backbone of our country, and keeping farmland well-irrigated is crucial for almost any agricultural producer. Farm irrigation methods or technologies can make a huge difference when it comes to maximizing productivity while minimizing costs.

Energy efficient irrigation methods help farmers curtail unnecessary water use while growing the same produce, reducing their operating costs and increasing overall productivity. Above all, 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 any old, inefficient diesel irrigation motors. Typically, electric motors are about 90% efficient, while diesel motors have much lower efficiencies between 30% and 40%. This means cost savings in the long run for farmers. Electric motors also have lower maintenance needs and can make use of a variable frequency drive (VFD) irrigation system which helps to further reduce costs.

VFD systems allows farmers to pump water at different rates, which maximizes 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 their diesel motors to electric ones, although pairing the motor with a VFD system is still a relatively new agricultural trend.

Irrigation efficiency is not a one-time deal. After several years, the efficiency of irrigation pumps tends to decline. 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 usually assess the pump's discharge pressure, lift, water flow and

power input. Regular testing of irrigation pumps can help to 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 their watering systems. With Wi-Fi connected crops, there are several factors to consider, 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. There are other network connectivity platforms that could 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.

Kansas' electric cooperatives are proud to support their agricultural members and will continue to help them determine opportunities to improve and meet their energy efficiency goals.

## 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.

