

A Touchstone Energy® Cooperative 



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## Outage management technologies improve reliability

“The only things certain in life are death and taxes,” as the old saying goes. Well, we can add another to the list: power outages. An outage can range from annoying to dangerous, depending upon its timing and length.

CNMEC’s primary goal is to deliver the highest possible quality of electric service at the lowest possible price. Perhaps the key measure of quality in the eyes of members is the number of times their lights blink or go out.

Let’s talk a bit about how the grid is designed as a backdrop to how technology is improving reliability by reducing blinks and outages. Along the power lines that bring electricity to your home, CNMEC installs protective devices in the form of fuses and reclosers (high-voltage circuit breakers). Fuses and reclosers serve the same purpose as the fuses and circuit breakers in your home.

A fuse is a one-shot device. When a fault occurs, the fuse blows and everyone downstream from it loses power. Reclosers are multi-shot devices, meaning they can operate a certain number of times before they stay open, and an outage occurs. A common setting is what’s known as a triple-shot. Here’s how that works. A tree limb contacts the power lines and creates a fault. The recloser senses it and opens, creating the first blink.

Here’s where a recloser differs from your home circuit breaker. It waits a certain amount of a time (typically a few seconds), then recloses to try and complete the circuit. If the fault is still there, it opens again. This creates the second blink. Triple-shot settings allow the device to reclose a third time and if the fault is still there, it stays open, and the members downstream experience a power outage.

Reclosers can also be placed on one-shot operation for safety purposes during line construction or maintenance. For instance, recent construction on wind farm transmission lines required CNMEC to place reclosers on one-shot operation. This resulted in longer outage times in the areas effected as line crews had to be dispatched to restore power. Add that with all the the recent thunderstorms, we also experienced several lightning caused outages which can require replacement of powerlines and poles.

Blinks are a nuisance, but they eliminate a lot of extended outages by protecting wires and equipment from serious damage.

So, what kind of technology is improving service reliability? The Smart Grid is spawning an amazing array of equipment and software that are already improving reliability. When combined with field construction practices, like building multiple ways to feed power loads and the deployment of advanced metering systems (AMI), the future of reliability is bright, pun intended.

Eventually, there will be a power outage despite the best efforts of CNMEC. That is where AMI and outage management systems (OMS) earn their keep. The basic element of an AMI is a meter that can communicate with your electric co-op. The OMS maps system data and meter locations into a piece of software that models the electric grid.

Now, the whole suite of systems CNMEC uses comes into play. The co-op dispatcher can call out or redirect a crew to the exact location of the problem. A map of the outage and number of impacted members is generated, and member service reps are notified that an outage is in progress.

The end result of all this technology is the minimization of outages and their length, plus more availability of up-to-date information for the consumer.

Mother Nature is a tough opponent, and it’s impossible to eliminate outages and blinks altogether. But with the way technology is advancing, we can expect to see some remarkable improvements.

# CNMEC

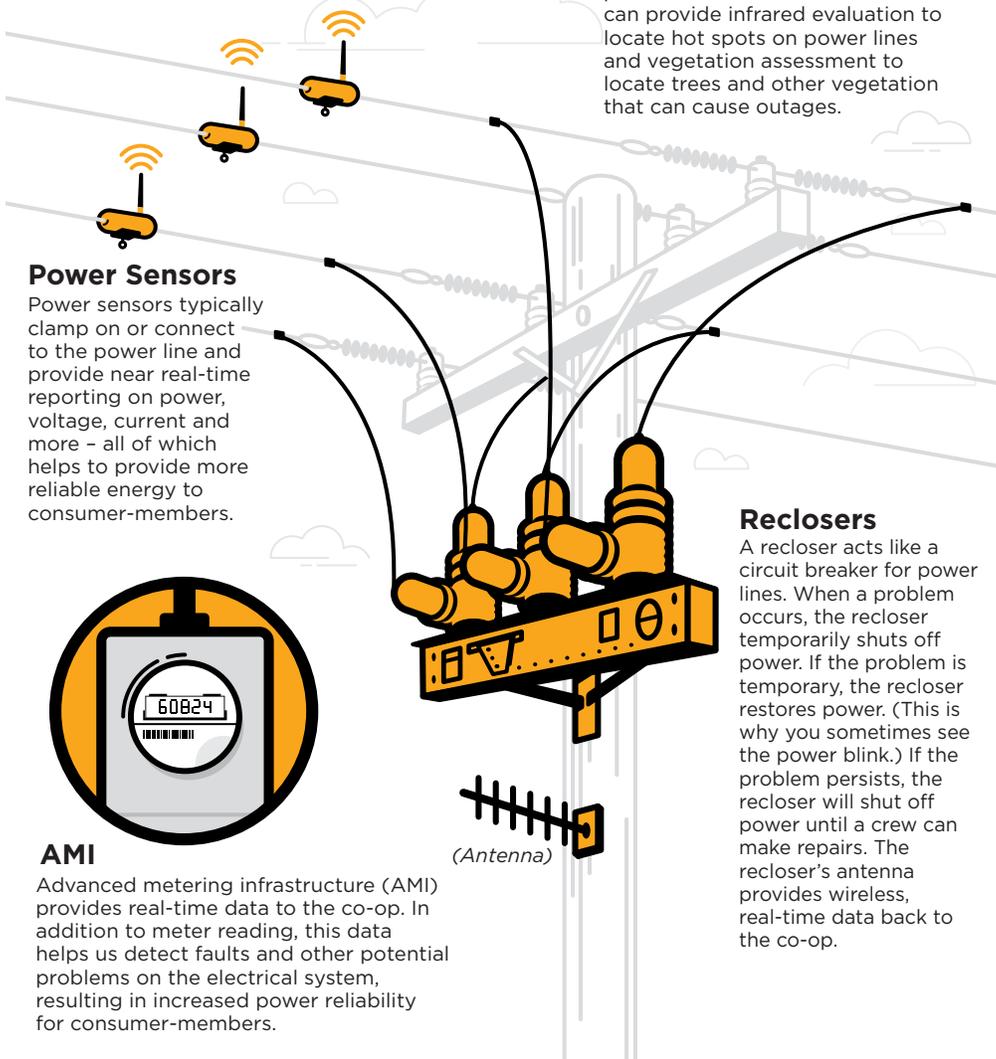
## Monitoring the Line for Reliability

Electric co-ops use a variety of monitoring and automation technologies that improve power reliability, shorten outage times and reduce labor time for crews. Here are four technologies we use to improve reliability.



### Drones

Drones may be used to inspect the power lines we maintain. Drones can provide infrared evaluation to locate hot spots on power lines and vegetation assessment to locate trees and other vegetation that can cause outages.



### Power Sensors

Power sensors typically clamp on or connect to the power line and provide near real-time reporting on power, voltage, current and more - all of which helps to provide more reliable energy to consumer-members.



### AMI

Advanced metering infrastructure (AMI) provides real-time data to the co-op. In addition to meter reading, this data helps us detect faults and other potential problems on the electrical system, resulting in increased power reliability for consumer-members.

### Reclosers

A recloser acts like a circuit breaker for power lines. When a problem occurs, the recloser temporarily shuts off power. If the problem is temporary, the recloser restores power. (This is why you sometimes see the power blink.) If the problem persists, the recloser will shut off power until a crew can make repairs. The recloser's antenna provides wireless, real-time data back to the co-op.

## Energy Efficiency Tip of the Month

Old, uninsulated and improperly installed exterior doors can waste energy and money.

Shut the door on wasted energy by weather stripping and sealing all exterior doors. If you have an old exterior door, consider replacing it with a newer, energy efficient model.



Source: [energy.gov](http://energy.gov)



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