

NEWS LINE

Citizens Electric Corporation's monthly publication

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Do you have a winter storm plan?

When winter temperatures drop and storms hit, it can be challenging to stay safe and warm. While we have had relatively mild winters the past few years, we could be affected by extreme winter storms in the future. Your friends and neighbors at Citizens Electric care about your safety, and we want you to be prepared.

Heavy snow and ice can lead to downed power lines, leaving our members without power. This can be extremely dangerous as temperatures plunge. During a power outage, our crews will continue to work as quickly and safely as possible to restore power, but there are a few things you can do to prepare yourself.

•**Stay warm** – Plan to use a safe alternate heating source, such as a fireplace or wood-burning stove during a power outage. These are great options to keep you and your loved ones warm, but exercise caution when using, and never leave the heating source unattended. If you are using gasoline-, propane- or natural gas-burning de-

vices to stay warm, never use them indoors. Remember that fuel- and wood-burning sources of heat should always be properly ventilated. Always read the manufacturer's directions before using.

•**Stay fed** – The CDC recommends having several days' supply of food that does not need to be cooked on hand. Crackers, cereal, canned goods and bread are good options. Five gallons of water per person should also be available in the event of an extended power outage.

•**Stay safe** – When an outage occurs, it can mean power lines are down. It is best not to travel during winter storms, but if you must, bring a survival kit along, and do not travel alone. If you encounter downed lines, always assume they are live. Stay as far away from the downed lines as possible, and report the situation to Citizens Electric by calling 1-800-286-2251.

Winter weather can be unpredictable and dangerous, and planning ahead can often be the difference between life and death.

Citizens Electric is ready for what Mother Nature has in store, and we want you to be ready, too. For more winter safety tips, visit www.ready.gov/winter-weather.



Photo courtesy of Adams Electric Cooperative

Youth Tour applications available

What do 1,500 high school students, our nation's capital and electric cooperatives have in common? The Electric Cooperative Youth Tour, of course!

Youth Tour was established with one thought in mind – to inspire our next generation of leaders. Since 1964, more than 50,000 young Americans have taken advantage of this special opportunity offered by their electric cooperative.

It all takes place in June, when hundreds of electric co-ops across the country send participants to Washington, D.C. for a chance to learn about the cooperative business model and a full week of sight-seeing. This is an all-expenses paid trip. It begins with a dinner for winners and their families in Jefferson City. The next morning, students fly to D.C. to visit monuments and museums, meet their representatives and take an evening cruise on the Potomac River.

While in D.C., participants also have a

chance to meet with their elected officials and discuss the issues that are important back home. Without a doubt, Youth Tour has grown into an invaluable program that gives young Americans an experience that will stay with them for the rest of their lives.

You may know someone who has attended Youth Tour, or perhaps you know of an exceptional student who would be a great candidate for the program. If you do, please share this article with them. This year we are asking students to share their leadership experience and how they plan to continue to be a leader after graduation.

Youth Tour is so much more than a sight-seeing trip. Students have repeatedly shared that this experience has helped them grow into successful professionals. It has also benefited our local communities. Youth Tour participants return home with a deeper understanding and skillset of what it takes to be a leader, and as a result, they put these skills to use right here at home.

Citizens Electric also sends students to the Cooperative Youth Conference and Leadership Experience, CYCLE, in Jefferson City. This exciting event is hosted by the Association of Missouri Electric Cooperatives and is held in July. CYCLE offers teens the opportunity to learn about leadership, visit with Missouri Representatives and even debate a bill on the floor of the Missouri House of Representatives.

CEC holds an essay contest every year. However, this year we are also accepting video submissions. The contest is currently open, and entries are due by March 1, 2016. The contest is open to any sophomore or junior who lives in the Citizens Electric service area. This year's topic focuses on current and future community leadership.

Help us find the next generation of leaders. For more information about Citizens Electric's Youth Tour program, call 877-876-3511 or visit www.cecmo.com.

Can drones benefit CEC?

Drones are in the news – a lot. Apart from military uses, commercial applications are growing. Amazon wants to use drones to deliver your packages. There is a rumor of a Northern Minnesota retailer wanting to use them to deliver beer to ice fishermen. Farmers are testing them for crop management – and so on. So, will drones someday find a home working for Citizens Electric? It's likely. But first, a little history.

The first recorded use of drones for warfare occurred on August 22, 1849, when Austria attacked Venice, Italy using unmanned explosive-laden balloons. Since then, military applications have driven most of the advances. Drones are a perfect solution when you need to access information about areas that are either hard to reach or dangerous.

Drones are more properly known as unmanned aerial vehicles, or UAVs, and are either autonomous or remotely piloted (RPV). Autonomous models follow a pre-programmed flight plan, whereas a licensed pilot flies the RPV from a remote location. This remote location can be half a world away in military applications. For commercial use, significantly shorter distances are involved. Regardless of operation type, modern drones are either fixed-wing or rotary models.

But how can Citizens Electric use a drone? Assessing storm damage springs to mind. A helicopter or airplane can be used instead, but these options suffer from two issues. First, they are likely to be grounded for some time following the storm for pilot and crew safety. Our crews are in the field as soon as possible, often in the midst of the storm. Second, these alternative aircraft are very expensive to operate.

So, with ground access frequently blocked by debris or flooding, getting a comprehensive assessment of damage is both time consuming and dangerous. Flying a drone over the area can capture detailed images of the situation and help us dispatch the right crews with the right materials to the right location. This kind of intelligence gets members' lights back on faster.

Drones have significant potential in preventive maintenance. Programmed to fly over far-flung transmission and distribution lines using the utility's mapping data, a drone can video the route and return with

HOW ELECTRIC CO-OPS CAN PUT DRONES To USE

- Ability to assess storm damage when roadways are inaccessible
- Infrared capability can detect hot spots on power lines or in substations
- Ability to assess vegetation management needs near power lines
- GPS data can pinpoint areas in the co-op's service territory that need attention



America's Electric Cooperatives

an assessment of potential tree or vegetation problems. By integrating GPS data, the exact areas needing attention are pinpointed, and crews are then dispatched to correct the issues. This eliminates a lot of time and expense patrolling lengthy rights-of-way.

Anticipating privacy concerns, drones will be programmed to fly specific routes as mentioned above. They won't be looking at meters or the service wires from the pole to homes and businesses. Most video and other photographic data will never be seen by a human operator. It is simply too time consuming, especially when restoring an outage. Software will analyze the imagery and identify potential problem areas for additional human interpretation.

Brian Hahn, GIS Technician/Staking Coordinator, believes drones could be an asset to CEC. "You could use thermal imaging to find hot spots on insulators or connections before they fail." Many utilities use handheld infrared (IR) devices for just such purposes today. With a drone, they could cover far more area at a much lower cost. Problems could be solved before causing an interruption to your service.

The use of 3-D imaging to assess the condition of poles and towers in hard to reach areas is a possibility. Likewise, the impact of construction on wildlife could also be monitored if required by government agencies.

Once in widespread use, you can be sure many more applications will develop. Delivering light materials to field crews? Pizza?

However, getting a drone in the air is not a trivial matter. Since recreational use of drones has created some issues, the Federal Aviation Administration (FAA) is regulating their use for commercial activities. CEC would need to get approval from the FAA to operate a drone, and the pilot has to be FAA licensed and backed by dedicated and certified ground support. This will keep drones out of regular airspaces and away from sensitive areas. While the FAA has been directed to streamline and expedite approvals for commercial drone use (the latest approval took exactly 90 days), getting ready to apply takes a lot of time and effort. Finally, drones capable of utility tasks can be expensive, ranging from a few thousand to half a million dollars.

As with all technology Citizens Electric investigates and deploys, drones will only be used if they will reduce operating costs and increase reliability. These amazing craft have significant potential to do both.