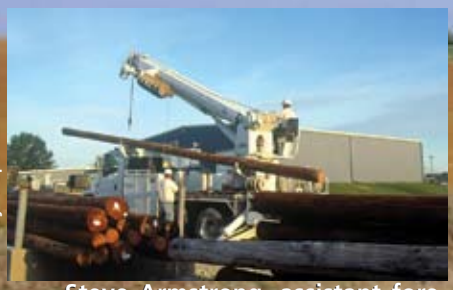
Ride along with a co-op maintenance crew

The maintenance plan at your local electric cooperative helps ensure a safe and reliable flow of electricity to you, but this story shows why your co-op also must expect the unexpected. We followed a crew from Consumers Energy in Marshalltown, as workers replaced a utility pole struck by lightning.

BY LE SPEARMAN

Photos by Le Spearman



1 Steve Armstrong, assistant foreman, loaded poles on the digger derrick truck at the co-op's storage facility before the crew headed out to the job site.

2 The crew placed "Utility Work Ahead" signs and traffic cones to slow drivers and safely direct them around the work area.

6 Before moving the electrical wires, the crew attached a "truck ground" wire from the vehicle to the neutral line.

7 To make sure the new power pole was installed straight, the crew used a plumb bob to check its position.

8 After the crew moved the pole into position, the two linemen on the ground "tamped" it into place.

3 Matt Weiland, field service foreman (left), and Steve Ralston, field service rep, "framed" the new pole by attaching new insulators and hardware.

4 Before the crew started digging, Rick Dolash, field service representative, cleared grass and weeds from the spot for the new pole.

5 Weiland and Dolash cleared dirt from the auger as Armstrong bored the hole for the new utility pole with the digger derrick truck.

9 When the new pole was solidly in position, Armstrong "tied" the "hot" wire to the top insulator.

10 Safety was always the crew's number-one priority. Note Armstrong's rubber arm protector sleeve and the insulated rubber blanket around the pole.

What does it cost to maintain a mile of line?

For Iowa's local electric cooperatives, keeping their power lines in peak operating condition is a top priority. Quite simply, well-maintained lines mean better reliability and fewer outages for co-op members.

Consumers Energy, based in Marshalltown, serves parts of Story, Jasper, Marshall, Polk and Tama counties with more than a thousand miles of power lines. "We service 1,140 miles of electric distribution," explains Jim Kidd, field services manager for the co-op. "Our operating and maintenance budget for 2003 is $800,000, and by dividing $800,000 with our line miles we arrive at about $700 maintenance cost per mile."

"Maintenance is ongoing, and we do what is called line inspection for 25 percent of our system every year," says Kidd. He adds that this policy exceeds the annual requirement specified by the Iowa Utilities Board, which governs Iowa utilities.

Kidd works closely with the Consumers Energy crews that check and maintain the company's electric lines. "I always say that nothing is more important in my mind than supporting them," says Kidd. "It is a team effort."

That effort begins early each morning when Kidd and his crew of field service representatives meet to plan the day's work schedule. A large map in the linemen's room shows all of the electric lines served by Consumers Energy.

During warm-weather months, electrical line installation is the priority; most of the yearly line maintenance inspections are scheduled during winter. However, Kidd emphasizes that his staff constantly checks the co-op's electric lines. "We have unscheduled line patrols all the time," says Kidd.

"We inspect more than one substation a year, where we have anywhere from two to four circuits coming out," says Steve Armstrong, assistant foreman for the co-op. He adds that the crews inspect everything on the lines connected to that substation. The list includes checking for—and repairing—loose hardware on the lines, transformers, split crossbars, broken ground wires, bad tie wires and broken insulators.

Obviously, the utility poles are the backbone of the above-ground electric distribution system. "When we build a new line today, approximately 24 poles will do a mile," says Kidd. "They used longer spans and lighter poles in older lines to save cost and money, with perhaps 16 to 18 poles in a mile."

All of those poles need to be checked regularly too. Consumers Energy hires an outside contractor that specializes in pole inspections to handle that job. "We have Ameripole Inspection Company from Marshalltown come in once a year to inspect 600 poles," says Armstrong.

"Our line maintenance is good for the members and good for reliability, so they will not have many 'blinks' or outages," says Matt Weiland, field service foreman for Consumers Energy. He explains, for example, that trees that have grown into power lines can create a temporary blink capable of lowering line voltage. "It can actually drop a computer off-line," he adds.

When Consumers Energy crews remove brush, trees and tree limbs away from service lines, they use a brush chipper to recycle trees and brush into wood mulch. "With the chipper, we can chip the material and blow it into the truck—and that makes it easier to haul," says Rick Dolash, field service representative for the co-op. If possible, the wood chips are given to a cooperative member near the work site to reduce transportation costs.

Consumers Energy members also play an important role in line maintenance. The co-op really appreciates the added help when a member spots a potential problem and reports it to the co-op. "Little problems can turn into big problems, and the number of outages will be less through the whole year when they are fixed," says Kidd. ▪

Regular inspections help extend pole life

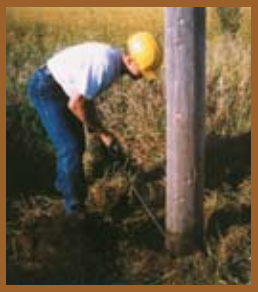
Many of Iowa's electric co-ops hire independent contractors to check, evaluate and treat each utility's poles. This process can extend the service life of a pole by 10 to 12 years.

The inspection crew visually checks poles for external damage caused by woodpeckers, lightning or weathering. Then the workers remove soil to a depth of 18 inches to inspect each pole's base and check the exposed wood for rot or fungal disease, which is scraped away.

Photos courtesy Ameripole

Next, the crew taps the pole with a hammer—both above and below ground—to "sound" the pole. The quality of sound indicates whether the pole is solid or might have a soft center caused by internal decay.

Then the crew uses an 18-inch drill bit to drill a three-eighths-inch hole into the center of each pole to access areas of possible damage or weakness. If the pole is in good condition, the inspection crew plugs the drilled hole with a dowel treated with wood preservative. If needed, the crew treats the exposed pole's base with a wood preservative and wraps it with a moisture-proof barrier before replacing the soil.



A small, dated aluminum inspection tag is attached to each pole that passes inspection. Any pole that needs to be replaced is marked with a square, red tag.