

Evolution of Linework

“We’re doing a lot more work than 20 years ago with the same or even less linemen.”

by Brenda Kleinjan

FROM AUTOMATED METERS THAT CAN BE READ remotely to power tools that make a do-it-yourselfer’s tools look like toys, the future is here and being integrated at cooperatives throughout the region.

The incorporation of innovative new technologies allows cooperatives to gather information more quickly and ultimately continue to improve their quality of service.

GPS (Global Positioning System) technologies are but one of many advances impacting cooperatives’ most noticeable employees – the line worker. From the high-tech trucks and gear to the specialized training the workers receive, the job has evolved.

Similar to many a farm or home workshop, some of the tools in the line worker’s toolbox have evolved into souped-up versions of their predecessors.

Crimpers powered by sheer brute strength are now replaced by hydraulic- and battery-powered devices, making the work a bit easier and faster.

“We’re doing a lot more work than 20 years ago with the same or even less linemen,” said Roger

Squires, operations manager at H-D Electric Cooperative in Clear Lake, S.D., which serves Hamlin and Deuel counties in east central South Dakota.

“All our buckets and diggers have hydraulic tools that just save time hand and fist,” said Squires.

In some areas of the state, rugged terrain makes using bucket trucks nearly impractical. In those cases, cooperative line workers rely on the time-tested skills of climbing and classic tools associated with their trade.

“The hand tools available to linemen make life so much easier and safer,” said Squires. “They can do their job better and at a safer pace.”

For example, Squires said that a cordless or hydraulic drill can drill 10 holes in the time it would take to bore one hole using a traditional bit and brace that was the norm when Squires started.

When Squires started as a lineman for the cooperative nearly three decades ago, a routine maintenance job would require six to eight linemen and a foreman. The crew would first need to inform



area residents that the power was going to be off for a period of time and then the men would gear up to climb the poles while the line was de-energized.

“Then we’d kill miles of line at a time. Today, if they do it hot without bothering anybody, we can pull three to four spans and retie it and nobody would know the difference,” Squires said.

Yet no matter if a line worker is climbing poles or using increasingly sophisticated bucket trucks, one of the biggest changes in line work is working lines hot or energized. Today, the line is likely to be worked hot or energized.

“None of the consumers even know we’re working on their line,” said Todd Sprang, lead lineman out of H-D’s Hayti, S.D., outpost.

And more changes are in store.

Future technologies will make the line worker’s truck a mobile technology center.

Cooperatives have already been embracing geographic information system (GIS) technologies into their mapping and staking endeavors.

At Sioux Valley Energy, based in Colman, S.D., the cooperative has gone the next step, integrating the technology into their line trucks. Each of the cooperative’s trucks is equipped with global positioning satellite receivers. Information gathered by the devices is collected at the cooperative’s dispatch center in Colman.

This allows dispatchers at the cooperative’s headquarters to track the location of the trucks and also allows linemen to receive information about locations where their service is needed.

SCADA (Substation Control and Data Acquisition) technology has allowed cooperatives throughout the region to gather information about power delivery throughout their network of power lines and substations. This information helps the cooperative pinpoint trouble areas and improve system reliability.

And, more recently, as East River Electric Power Cooperative in Madison, S.D., has its poles inspected as part of an ongoing inspection process, the GPS coordinates of the poles are incorporated into the cooperative’s ever-increasing databases.

“By incorporating that information into GIS, it can give specific information on poles and structures,” said East River’s Information Technology Manager Chuck Lohsandt. Lohsandt said this information has potential uses in damage repair, allowing the timely gathering of information on downed power lines.

The regional transmission cooperative is looking at incorporating GPS transmitters into its fleet of line trucks in the next couple of years.

“That will be handy when calling in a One Call locate, the



Above: The future holds many changes for line workers. **Opposite:** Sioux Valley Energy dispatcher Amy Olson monitors a map of the cooperative’s system projected on the wall while the screens in front of her show weather conditions, truck locations and other system information. *Photo courtesy Carrie Law/Sioux Valley Energy* **Cover:** H-D Electric Cooperative linemen Kevin Holida, left, and Todd Sprang, right, display some of the equipment of a lineman’s trade. Holida, wearing pole climbers, holds a transformer gin and a handline that are among the traditional tools of a lineman while Sprang is equipped for working a line from a bucket. Included in his gear are safety harness, rubber sleeves and gloves.

dispatcher can bring up a service territory map and know right where the truck is,” Lohsandt said.

Another advantage is in case of emergency.

“Having GPS in a vehicle in a snowstorm, such as a white out, if they’re transmitting that GPS coordinate, we know exactly where those guys are at,” Lohsandt said.

The collecting of all this information and gathering similar information from other entities such as rural water systems, fuel lines and highway departments allows the cooperatives to develop a clear and accurate picture of the areas they are working in.

“We can go in a bit more educated as we go into work plans,” Lohsandt said. “All that information gets dumped into GIS and shows you on a map exactly where those coordinates are.”