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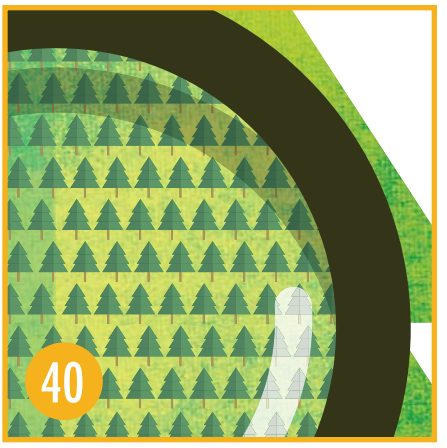

FEATURES

VOLUME 75 • NUMBER 7

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THE FIRST WIND-POWER BOOM

BY FRANK K. GALLANT

Photo courtesy Windcharger

We're in the middle of a wind-power boom. Installed capacity has increased from just over 4,000 MW in 2001 to close to 70,000 MW today. This happened once before in the United States, although with a tamer technology.

Between 1920 and 1935, farmers and ranchers purchased a million wind chargers—not the iconic windmills used since the 1850s to pump water for crops and livestock and still seen along rural back roads, but small, propeller-driven electricity generators.

Old black-and-white photographs show the propellers and attached tail vanes sticking up from farmhouse and barn roofs like TV antennas. Others perched atop lightweight steel towers. A big, prosperous farm might have had two or three towers.

The essential components were the propeller and tail, an attached generator, and wires leading indoors to a control panel and a battery.

The smallest wind chargers were ideal for charging radio batteries. At its peak, the Wincharger Corporation, the leading manufacturer, produced 2,000 of its 6-volt "DeLuxe" models each day at its factory in Sioux City, Iowa. The machines sold for $44 or, better yet, $15 when purchased with a Zenith radio and a 6-volt battery.

A newspaper ad promised the DeLuxe would "END ALL Recharging Nuisance!" at a cost of "ONLY 50 CENTS A YEAR" to operate. Owning a Wincharger was considerably more convenient and cheaper than taking the battery to the filling station in town to be recharged every few days.

Farmers soon discovered these batteries could also keep a lightbulb glowing while the family was gathered in the parlor to listen to *The Jack Benny Program* or *Fibber McGee and Molly*. They wanted more electric lights, and manufacturers responded by making bigger and bigger wind chargers.

Wincharger came out with a larger radio charger and then launched the 650-watt "Famous" model, followed by the 1,200-watt "Giant," which boasted an output of "175,000 watt-hours per month."

Another Iowa company, Parris-Dunn Corporation, made wind chargers ranging in size from 135 watts to 3,000 watts. Between 1934 and 1941, the company shipped 37,000 units to all 48 states and 93 foreign countries.

The "performance, quality, and dependability leader," according to the wind-charger history buffs who maintain the information-packed website **Windcharger.org**, was the Jacobs Wind Electric Company out of Minneapolis. It was started in 1931 by two inventive brothers who grew up on a windy ranch in eastern Montana.

Their Model 45 (45 amps) sold for $290. A 50-ft. tower to mount the generator, propeller, and tail vane added $365 to the purchase, and a 440-amp-hour battery brought the total to $830.

Jacobs Wind Energy soon was making bigger models to compete with the rural market-leading Delco-Light Plant, which ran on gasoline. And at one point, they teamed up with Briggs and Stratton Corporation to make a combination diesel generator/wind charger that promised to cut fuel costs and noise when the wind was blowing and provide continuous power for lights and appliances when it was not.

Each of these companies hired top engineers and had patented technology. Wincharger was known for an air-brake governor that prevented damage when the wind exceeded 20 mph. Paris-Dunn's gyroscopic governor tilted the propeller and generator up and away from the wind. Jacobs' Master Mind control panel regulated battery charging so well that the company could offer an unconditional 10-year warranty on its batteries, as opposed to the industry standard of three years.

But none of this mechanical genius could stand up to the convenience and affordability of central-station power and the success that the federal Rural Electrification Administration had in making it available to farms, ranches, and small towns. Starting in the late 1930s, electric co-ops regularly lopped off county-size chunks of the wind-charger market, and this didn't let up until the early 1950s.

Lagging sales forced Paris-Dunn to manufacture military training rifles during World War II and to close its doors in 1949. Wincharger limped along by starting a line of rotary inverters (DC to AC). When an epic flood ruined its factory in 1953, the company decided not to rebuild. Jacobs was gone three years later. **RE**

JIM MATHESON, CEO

Those of you who joined us in San Diego for the Annual Meeting and TechAdvantage® Conference were treated to a nice mix of engaging content and memorable experiences.

Our keynote speakers offered historical context and contemporary analysis to help guide us through significant changes in our industry, consumer expectations, and our political environment. We celebrated NRECA's 75th anniversary by taking over the city's historic Gaslamp Quarter and throwing a members-only block party. And we elected new officers to lead NRECA for the next two years.

At the regional meetings, I saw the resolutions evolve as members offered new ideas and shaped the proposals to reflect the unique concerns of their regions.

At CEO Close-Up, I watched as each of the standing committees worked to reconcile the many subtle variations that emerged from regionals to form a final set of proposed resolutions for consideration in San Diego.

> "NRECA is a healthier and stronger organization because of you and our resolutions process."

For me, the most impressive and memorable sight of the week was the ocean of yellow voting cards bobbing up and down as members cast their votes during the annual business meeting.

For those of you who are regular annual meeting attendees, this sight may seem routine and unremarkable. But as a new member of the co-op family attending my first annual meeting, that simple gesture marked the successful conclusion of a resolutions process that is the heart and soul of a healthy cooperative culture.

Watching this process unfold has been a valuable learning experience early in my tenure at NRECA.

I was in the final stages of the CEO search just as this year's resolutions process was ramping up. When I watched the Resolutions Committee work, I was immediately struck by the professionalism, sincerity, and attention to detail they brought to the task. Every member had an opportunity to participate. Every argument presented to the committee was given just consideration. And every participant was afforded the respect and dignity that should be the hallmark of any democracy.

When the delegates gathered at the annual meeting for final debate and voting, the process was transparent, respectful, and orderly. Some ideas were approved. Others were not. But no matter the outcome of a particular vote, we all benefit from the transparency of the process.

I was also impressed that members vote on every resolution in the compendium, not just amendments and new resolutions. These resolutions cover everything from highly technical regulatory concerns to the co-op family's enduring love for Willie Wiredhand.

I want to thank every member who offered an idea, participated in a meeting, served on a committee, or cast a vote in San Diego. Sometimes democracy is slow. Often it's messy. And it can be challenging to maintain. But NRECA is a healthier and stronger organization because of you and our resolutions process. **RE**

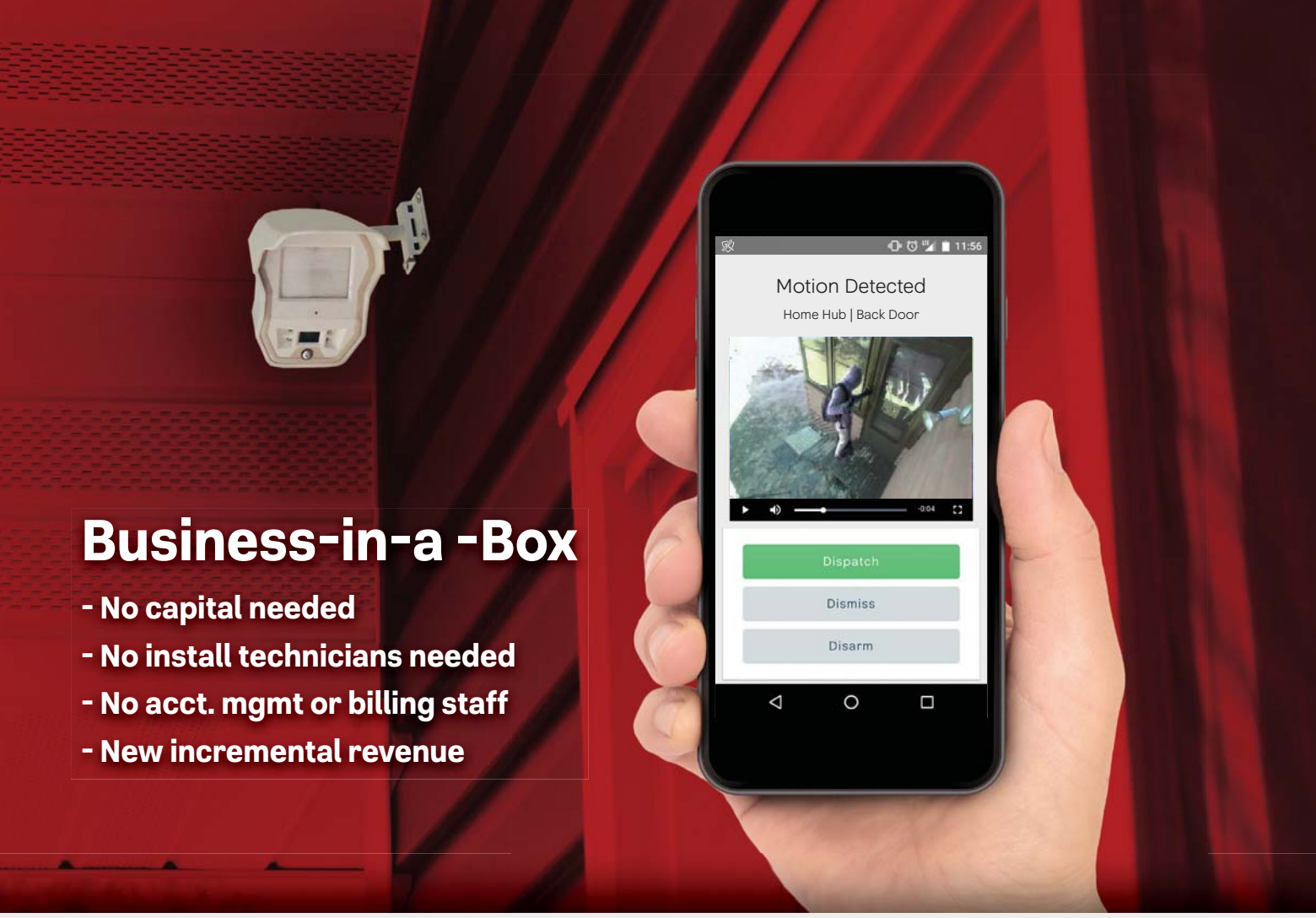

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Photo by Jim McCarty

Heath Martin from Northfork Electric Cooperative chats with children during a break in Dos de Junio, Bolivia.

BOLIVIA THROUGH A CO-OP LENS

You may have heard about the 16 linemen from Missouri and Oklahoma who traveled to Bolivia last August to turn on the lights in two villages in the Amazon Basin. Well, now you can see this NRECA International project up close in a photo book published by the Association of Missouri Electric Cooperatives.

A Brighter Bolivia contains hundreds of photos by award-winning electric co-op photojournalist Jim McCarty, the longtime editor of *Rural Missouri*, the co-op consumer magazine published by the association. The 64-page book sells for $20 plus $6 for shipping and can be ordered at **ruralmissouri.coop/merchandise.php**. All proceeds will go toward future electrification projects.

"While this adventure affected all of us in different ways, one thing we all had in common was our desire to do more for the proud and beautiful people of Bolivia," McCarty says. "This book attempts to do just that, by ensuring more of these projects take place."

McCarty and the volunteer linemen spent 17 days in Dos de Junio and El Torito, during which they set 220 poles and strung 10 miles of lines. The project culminated with a lighting ceremony hosted by the two villages.

About 360 families now have electric lights in their homes for the first time and can feel safer going out at night because of the new streetlights in the village plazas, McCarty notes.

Both villages are on the outskirts of Riberalta, a small city in northern Bolivia not far from that country's border with Brazil.

Photos by Jim McCarty

(Left photo) Rural Missouri *Editor Jim McCarty poses with a group of Bolivian children. (Right photo) Damon Lester from Indian Electric Cooperative in Oklahoma loads a truck to start the work day.*

A STREET SIGN HONORS A FALLEN CO-OP FRIEND

People who work at Owen Electric Cooperative often smile, sometimes cry, and always remember Chase Duvall when they look up at the street sign near the headquarters building in Owenton, Ky. It reads "Electric Avenue," but they know it doesn't just refer to their stock-in-trade.

Duvall, who died a year ago April 13 from a heart condition, was a beloved workmate and friend who famously led his co-workers in a spirited line dance to Eddy Grant's '80s hit "Electric Avenue" every year at the co-op Christmas party.

His friends say he was a one-of-a-kind personality who touched hearts throughout the co-op community, locally, and around the state. Only 43 when he passed away, he had worked in Owen Electric's operations department for 21 years.

"He did good deeds quietly, never boasting," says Scott Frost, an operations technical support specialist. "He was always ready to take the lead when lives were on the line. And he was always finding ways to make things work."

This inclination extended beyond his day job.

"Chase was all about helping others," says System Operator Kevin Miller. "His first love was the Jonesville Fire Department. The most memorable thing he would do each year is drive the fire truck and stop door to door with Santa to visit kids in the Jonesville community."

A rabid Owen County Rebels basketball fan, Duvall led the victory parade after the girls won the 2015 district championship (Miller's daughter played for the team). Chase wanted the girls to get the same recognition for winning as the boys in the community.

"He lived a life of service—the reason co-ops exist," says Mark Stallons, Owen Electric president and CEO. "He solved problems for members and employees alike. He inspired us to be our best."

Owen Electric employees unveil a street sign to honor beloved colleague Chase Duvall (inset photo), who passed away in April 2016.

Photos by Whitney Duvall

Photo courtesy MEC/Paul LaVoie

A dedication ceremony for a new solar facility that will provide power to Mohave Electric Cooperative

HARVESTING THE DESERT SUN

The new 13.8-MW solar array in Fort Mohave, Ariz., is visual proof that Mohave Electric Cooperative listens to its consumer-members.

"Our members want solar. They are for it as long as it's cost effective for the cooperative," says CEO Tyler Carlson.

No upfront capital was required. Mohave Electric has a 30-year power-purchase agreement with Constellation (a subsidiary of Exelon Corp.). The agreement gives the co-op the option to purchase the system after six years.

The arrangement is "a cost-effective way to incorporate more renewable power into our purchased-power portfolio," Carlson says.

The massive plant stretches across 84 acres of desert and is fitted with a state-of-the-art single-axis tracking system that enables the system to remain at an optimal angle to the sun throughout the day.

It's adjacent to another Mohave Electric/Constellation solar array. Together, the two arrays generate enough power for 4,000 homes. The co-op is based in Bullhead City and serves about 40,000 meters along the Nevada border in northwestern Arizona.

THE SQUIRREL WHO TRIED TO RIG THE ELECTION

In one of the lesser-known end-of-year lists, TransGard, maker of patented substation fencing, compiles the five previous year's worst animal-caused substation outages. The Pennsylvania-based company's 2016 list is:

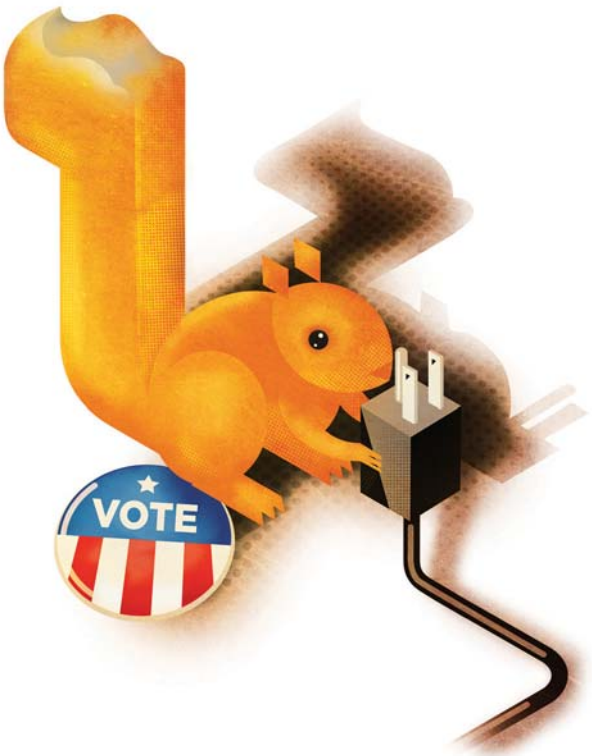
• "Sleepless in Seattle"—39,000 Seattle City Light customers lost power on May 11 when a raccoon decided to explore a substation. Athima Chansanchai, who lives in the funky Freemont neighborhood, told KIRO7 News that a beeping smoke detector woke her up around 2:45 a.m.

• "Danger in Denver"—A raccoon in Aurora, Colo., also a night owl, blew up a transformer at 3:55 a.m. on October 21. Some 27,000 customers were affected.

• "Boom!"—A squirrel went up in flames along with the main breaker at the municipal power plant in Wellington, Kan. The November 9 explosion produced a plume of smoke that could be seen for miles around. Most people in the town of 8,000 went without power overnight.

• "Rigging the Election?"—Early voters had to cast their ballots on paper when voting machines went down at the Miami (Ohio) County Board of Elections on October 31. The culprit: a squirrel at a nearby substation.

• "Snake-out"—A snake sunning itself in an Xcel Energy substation knocked more than 3,000 Xcel Energy customers off the grid at mid-day on October 3.



RHODES FAMILY REACHES THE SUMMIT

After a weeklong journey, Choctawhatchee Electric Cooperative (CHELCO) CEO Steve Rhodes and his family joined an elite group of climbers in reaching Tanzania's Uhuru Peak, the top of Mt. Kilimanjaro. At 19,340 feet, it's the highest point in Africa. As part of their journey, Steve, his wife, Tami, and daughter, Samantha, have raised nearly $41,000 for NRECA International.

The adventure started in early 2016, when Steve began planning a family adventure of a lifetime, and one with a strong purpose: help raise money for rural electrification efforts around the world.

"If you think about it, nothing improves a life more than access to electricity," Rhodes says. "From daily chores to nighttime security to modern technology, nothing has a bigger impact than electricity. As a family, we want to do our part."

The trip itself brought multiple challenges: unfriendly weather, continuously changing terrain, and an illness that almost derailed the trip. But on the seventh day, the family completed the slow climb up a narrow rocky path to the summit just before the sun came up.

"My biggest surprise was the mental toughness required," Rhodes recalls. "The last two to three days were physically grueling but probably even more difficult mentally. It was all about 'one foot in front of the other' and perseverance. This added to the overall feeling of accomplishment once we reached the summit."

To see photos, videos, and additional information from the trip or to make a donation to NRECA International's Electrify Africa fund, visit the Rhodes family blog at **rhodestokili.com**.

Photo courtesy Steve Rhodes

CHELCO CEO Steve Rhodes (left) with wife, Tami, and daughter, Samantha, at the Kilimanjaro summit

NRECA ELECTRIFICATION STRATEGY TOUTED

Electrification of the transportation and heating sectors could double electricity sales in the United States by 2050 while decreasing energy sector carbon dioxide emissions by 70 percent or more, according to a Brattle Group report that gives broad credit to work by NRECA.

"Beneficial electrification is one of our key initiatives," says Jim Spiers, NRECA vice president for Business and Technology Strategies. "Electrification complements energy independence, American investment, local investment, and jobs and rural prosperity while improving environmental performance of the energy sector."

The Brattle Group report calculates that complete electrification of U.S. heating alone would drive up electricity demand by 2050 to about 1,500 terrawatt-hours, a 40 percent increase over 2015 electricity sales. Meanwhile, continued increases in use of green power sources like wind and solar would drive emissions down dramatically despite increased demand.

Keith Dennis, NRECA's senior principal of end-use solutions and standards and a pioneer of the beneficial electrification movement, notes that just a few years ago, the forecast for the electric power industry was diminishing sales and a stagnant or reduced workforce.

"Now the trend is toward electrification," Dennis says. "Electricity is the future."

—By Cathy Cash

DRIVER'S ED GOES ELECTRIC

Driver's ed isn't just about the teenager behind the wheel; it's also about current automobile technology. So the Berkeley County School District in coastal South Carolina feels lucky to have Berkeley Electric Cooperative (BEC) as a benefactor.

BEC has leased a 2016 Nissan LEAF, a $30,000 electric car, to the school system for a token $1 per academic year.

Dwayne Cartwright, president and CEO of the Moncks Corner-based co-op, said they originally purchased the car to test the effect of the recharging cycle on the distribution system.

"We realized, however, that there was an opportunity to share this innovative technology with students, who are also our future member-owners," he says.

Superintendent of Schools Brenda Blackburn told *The Berkeley Independent,* "Our friends at Berkeley Electric Cooperative never cease to amaze me. Not only do they show their passion for our students and their education through teacher grants, volunteering in our schools, and donating their resources to our initiatives and programs, they are innovative and proactive. Our partnership to bring this electric car to Cross High School is another great example of their creativity and commitment to the students and families in Berkeley County."

The students will get firsthand experience with the pluses and minuses of electric cars. They'll also discover that the LEAF is "a lot of fun to drive," Cartwright adds. RE

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THINKING BIG

From broadband to microgrids, small co-ops find innovative ways to make a large impact

By Derrill Holly

Big electric cooperatives, with their heftier budgets and larger staffs, often get the recognition for leading on technological innovations and groundbreaking projects.

But some smaller co-ops have refused to let size stand in the way of their commitments to big-time service.

"The pace of change and innovation may be different around the country, but the size of the cooperative is not an impediment to taking on challenges and meeting consumer-members' needs," says Jim Spiers, NRECA vice president for Business and Technology Strategies. "I think the co-op commitment to local and democratic control is what sets us apart. It means the cooperative is always in the best position to respond to member concerns."

Spiers adds that smaller co-ops have a way of getting the most out of their staffs by tapping into their skills, their personalities, and their community ties. When a problem or need gets noticed, conversations begun on a pickup truck tailgate or at a roadside diner can lead to good ideas and thoughtful solutions with a co-op connection. When those ideas leap from napkin or paper sack drawings to business plans and blueprints, the people at small co-ops roll up their sleeves and get to work.

Of the 843 NRECA members that are distribution cooperatives and member-owned public power districts, 125 systems have more than 40,000 meters, 168 are between 20,000 and 40,000, and 550 serve 20,000 meters or fewer.

For the purpose of this article, we'll look only at co-ops in the last group.

SOUTHEAST COLORADO POWER ASSOCIATION: TOTALLY WIRED

Back in the days when the internet primarily meant dial-up service accessed through third-party service providers, leaders of Southeast Colorado Power Association (SECPA) were already carving a path toward the winning side of the digital divide. The result is high-speed service in rural communities as good as or better than what's available in many metropolitan areas.

The La Junta, Colo.-based distribution co-op began planning installation of telecommunication components across its system in the late 1990s. As discussions moved into fiber optics, managers and directors considered options that would make a new fiber network a community resource.

"Discussions began with community institutions that were already looking for reliable and affordable options to access information and data with high-quality consistency," says Jack Johnston, CEO of SECPA.

That was in 1998, and talks led to 22 schools, eight libraries, six agriculture extension service offices, four hospitals, and two community colleges committing to the project. The following year, a 600-mile fiber-optic backbone was built to serve those institutions, plus the co-op's offices and many substations.

"The locations of those facilities gave us an immediate market to nearby businesses looking for alternatives to the T-1 or dial-up services available at the time," Johnston says. It also offered the possibility of building a network reaching beyond the 10,000 members across its service territory.

"Because some of the institutions and surrounding businesses were outside areas served by SECPA, we created SECOM, or Southeast Communications, as a division," Johnston says. "We also began offering broadband internet service directly to potential customers."

Before sales started, Jon Saunders, chief operating officer for SECOM, joined the company as a network engineer. Since then, he has overseen the network's expansion and technology upgrades.

"We've been able to serve many of our rural areas by building out a wireless distribution network supported by our fiber-optic system," Saunders says. "We're now upgrading those sites to the fifth generation of wireless equipment."

Wireless access points across the system are installed atop tall buildings,

Photo courtesy Southeast Colorado Power Association

Southeast Colorado Power Association began deploying fiber-optic broadband in 1999, the early days of high-speed internet.

on grain elevators, and on water tanks, as well as on conventional communications towers. In some rural locations, co-op poles have been built on hilltops solely to expand the network.

"We use 30-foot poles, and the only power going to the pole is a secondary line carrying 240 volts to serve the equipment," Saunders says.

Since the first customers signed up in late 1999, SECOM has continued to grow. The company now has more than 6,000 customers and service is available in neighboring Pueblo and parts of Colorado Springs. With a USDA Community Connect Grant, it has added communities like Aguilar.

Quality internet and direct peering connections mean no buffering when streaming movies or music, and gamers enjoy fast connections. Cottage industries have sprung up, and customers have reliable connections for telecommuting.

"When we promise speeds, 200 megabits per second, for example, that's not just a goal," Saunders says. "It's a commitment to that customer."

SOUTH LOUISIANA ELECTRIC COOPERATIVE ASSOCIATION: POWER AND WATER

After heavy rains, it would just bubble to the surface—raw sewage rendering the yards of customers unusable and posing health and environmental hazards for entire neighborhoods.

The outdated, poorly maintained sewage system serving communities in southeastern Louisiana faced numerous state and federal violations. The small, privately owned system was one of several in the region that had fallen into disrepair.

"Our assistant general manager was having a lot of problems with sewage backups in his yard," says Joe Ticheli, general manager of South Louisiana Electric Cooperative Association (SLECA) in Houma. "He was having both wastewater issues and water quality issues, and many of our members were too."

The owner-operator faced criminal charges, and when systems under his control fell into bankruptcy, state and federal regulators saw the electric cooperative as a potential solution.

"We actually were not the lowest bidder when the projects went up for sale, but regulatory agencies knew the co-op had a good reputation and supported our bid," says Ticheli, who has been with SLECA for 17 years and has been general manager since 2011. "We felt that by buying these systems and bringing them up to standard, we'd improve the lives of SLECA members. Operated correctly, we felt it could also help keep electric rates down for our nearly 17,000 SLECA members by providing revenue to help offset our power costs."

The co-op made the acquisition and established Total Environmental Solutions Inc. (TESI) as a for-profit subsidiary in 2000. It initially included water and sewer systems in six states, but it has since been trimmed back through sales to operations in Louisiana and the Carolinas.

"We have a large offshore oil and gas industry based in Houma, and many of our SLECA members are shrimpers," Ticheli says. "That means investments we make in our water and sewer systems help protect their livelihoods."

TESI is run independently with its own senior management and board of directors, but many of its business and safety practices mirror cooperative business model principles followed by SLECA.

"We've got about 17,400 customers in south Louisiana, where we operate 200 wastewater systems and 26 water systems," says Bill Schoening, TESI's CEO, adding that TESI's physical assets in the state are valued at $6.8 million, and net revenues total $5.6 million annually.

The company continues to improve its properties with a goal of meeting

Photo courtesy South Louisiana Electric Cooperative Association

CEO Joe Ticheli (left) was instrumental in South Louisiana Electric Cooperative Association's takeover of the failing regional water and sewer systems in 2000.

Photo courtesy Bayfield Electric Cooperative

Bayfield Electric Cooperative's community solar project, conceived and promoted by members, was expanded twice before construction even began.

operating standards required under the Clean Water Act. Most facilities are meeting compliance schedules outlined in a 2000 consent decree, according to officials at the Environmental Protection Agency. An application to replace the consent decree with a long-term compliance plan is under review.

TESI facilities are compliant with Louisiana Department of Environmental Quality standards, says Greg Langley, the state agency's press secretary, adding that organic nutrients flowing into the Gulf of Mexico do not primarily originate in Louisiana.

"We're always monitoring efforts that help to keep our waters clean, so we have a strong interest in how sewage facilities operate," he says.

BAYFIELD ELECTRIC: MEMBER-DRIVEN SOLAR

Conversations about community solar are pretty common for electric cooperatives these days, but at Wisconsin's Bayfield Electric Cooperative, one well-informed member has a lot of people listening.

"We've been able to generate an awful lot of interest in community solar in a relatively low-income area," says Bill Bailey, founder of Chequamegon Bay Renewables, a non-profit foundation promoting renewable energy and sustainable agriculture. "The key was just talking to people about the potential of controlling their costs and getting them to think in terms of annual savings."

Bailey formerly operated a commercial greenhouse in Bayfield Electric's service territory. When he decided to add a number of efficiency and renewable energy features to his business in 2011, he approached the Iron River-based co-op about interconnecting his new solar arrays to its system.

"We're a small co-op with less than 8,900 members, so everybody does a lot of different jobs," says Larry Roecker, the co-op's master electrician who is also the co-op's director of member services and informational services. So after Bailey pitched to the directors and managers the idea of a community solar project for the co-op in September 2014, the board asked Roecker to look into it.

"I asked Bill to help me put together a survey, and within weeks, it was approved by the board," Roecker recalls. The survey was distributed to all Bayfield Electric members in the local pages of the statewide consumer magazine, *Wisconsin Energy Cooperative News*, in the February 2015 issue.

Although Wisconsin weather might make solar a hard sell, the co-op has stressed net metering and the savings solar might provide during summer months corresponding to peak demand periods.

"Along Lake Superior, the worst months for solar production are November and December, due to overcast conditions and reduced daylight hours," Bailey says. Once ice forms on the lake and temperatures drop in the winter, though, solar production increases because there is less daytime cloud cover.

Over the following year, survey results were tabulated and discussions about potential projects were included in membership meetings and other community events. Directors

Cordova Electric Cooperative is looking into using Alaska's Crater Lake for an energy storage project, jointly developed with the bayside city of Cordova.

also began considering the size of a community solar project, agreeing in March 2016 to at least a 150-kilowatt array priced at $499,000, to be fully funded by June 1.

"We had two months to collect a half-million dollars," Bailey says. "We pitched the project at community meetings, to civic and business groups, and kept promoting share purchases in *Wisconsin Energy Cooperative News*."

Members were allowed to subscribe to the equivalent of 90 percent of their annual power use, based on a three-year average. The price of each available 205-watt unit was set at $500.

When collected funds topped $380,000, or 76 percent of what was needed for the small project in May, plans to build got underway. But in June, money kept coming in, reaching $785,000, and the project was expanded to 250 kW.

"When we held our annual meeting in June, members asked us to expand the project to 300 kW so more members could participate," recalls Bayfield CEO Diane Berweger. "We started construction late summer of 2016."

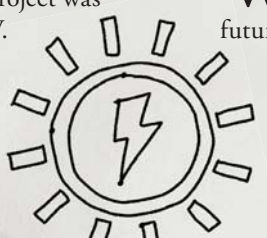
The project has been on-line since October 2016. "Of 2,016 available shares, less than 100 have not been sold, and we built the largest array we could handle at our headquarters," Berweger says.

CORDOVA ELECTRIC COOPERATIVE: SMALL TOWN, BIG THINKING

When the people of Cordova, Alaska, plan for a sustainable future, the motivations to find local solutions come right out of local geography and history. The community of 2,200 is reachable only by boat or aircraft, and a string of disasters over the past 60 years has fueled a passion for homegrown self-reliance.

"We always have to be ready for uncertainty, whether it's caused by weather, geology, or anything else," says Clay Koplin, CEO of Cordova Electric Cooperative.

In 1964, the Great Alaska Earthquake raised the town's elevation by 6 feet, dramatically increasing its footprint. The Exxon Valdez oil spill turned the waters surrounding Cordova into an environmental "dead zone" in 1989. Flooding following heavy rains in 2006 washed away components of the co-op's 1.25-MW Humpback Creek hydroelectric facility as it was undergoing major renovations following a fire. A 5-ton



transformer wound up downstream, and a 500-lb. transformer washed out to sea was found during low tide more than a mile offshore.

"We can never say, 'We will meet this construction timeline at this exact cost,' because it never happens that way," Koplin says.

In 2015, Koplin, an engineer by training, completed two years of full-time distance learning at Indiana University's Kelley School of Business to earn his MBA. He's used the experience to factor agility into the co-op's organizational chart, and he approaches major projects in ways designed to use the talents of his staff, now mostly from the millennial generation.

"It allows us to react to external developments while maintaining our connections to the co-op's core values and established operating practices," he says.

Results have included burying the entire 78-mile distribution system to all but end weather-related outages, and all street lights in Cordova were converted to energy-saving LEDs. Cordova Electric's system is highly automated, with operating data collected and stored for maintenance and performance analysis.

Serving 1,566 members, Cordova Electric has operated for years as a microgrid. Its 18 MW of generation also include nearly 11 MW of diesel generation at the co-op's Orca Power Plant and 6 MW from its Power Creek Hydroelectric facility.

"We have all of this rich data from every operating parameter we've been collecting, and that's caught the attention of both state and federal analysts," says Craig Kuntz, the co-op's project technology coordinator. Kuntz has been involved in several projects where controlling costs and reducing delays have been critical.

Sandia National Laboratory, in Albuquerque, N.M., is mining 15 years of Cordova Electric's smart grid data. It's being used to perform dynamic modeling of the Alaska Center for Energy and Power's recently completed static power flow and generation mix modeling for a proposed battery storage project.

A joint municipal water and co-op power project at Crater Lake, about three miles northeast of the city, could boost Cordova Electric's renewables capacity to 90 percent or more while meeting the increased demand for city water during seafood-processing season.

"If a 1.5-MW battery bank in a container can store 4 to 6 MWh of energy, Crater Lake could store 500 times that amount," Koplin says. "At that point, adding solar or wind to our grid gives us ample stored hydropower when these sources are not available."

Photo courtesy Hancock-Wood Electric Cooperative

Divers wear extensive gear to inspect the underwater cables that supply electricity to Hancock-Wood Electric's members on Ohio's Kelleys Island.

HANCOCK-WOOD ELECTRIC COOPERATIVE: ISLAND SERVICE

Hard, wet work and lots of planning have to occur before tons of cable can be laid to keep electricity flowing to Kelleys Island, Ohio. Hancock-Wood Electric Cooperative has spent nearly five years getting ready for a $5 million cable replacement project designed to serve the 10 percent of its members who live there.

"We looked at all available options for replacing the 1970 east cable to ensure service reliability, and a new underwater cable made the most sense," says Bill Barnhart, the North Baltimore, Ohio-based co-op's vice president of engineering and operations.

This is the co-op's fourth such underwater cable project since it took over service operations for the island after merging with the tiny Lake Erie Electric Cooperative (LEEC) in 1967. The first Hancock-Wood Electric cable was laid from Marblehead Peninsula in 1970, and a second replaced the failed LEEC west cable in 1970. The third replacement cable was installed to replace a damaged one after it was caught by a Canadian tugboat anchor in 2003.

"The cable weighed 6.5 pounds per foot and was dragged about one mile out of position," recalls John Cheney, former general manager. It was torn from its position on the island, snapped in the middle, and broken on the mainland.

Cheney, now 85, engineered the installation of Hancock-Wood Electric's original island cables and oversaw their rehabilitation as a contractor in the late 1990s. In 1998, Cheney also was project manager for a $600,000 silicone-injection process that extended the life of the cable, delaying costly replacement for 18 years. Hancock-Wood Electric was the first company to use this process for an underwater application, according to contractors.

While Lake Erie's average depth is 62 feet, the sloped channel between Marblehead and Kelleys Island is less than half that. In the shallowest areas, the cable will be buried 3 feet down in silt atop the solid limestone lakebed.

The new power line upgrades capacity from a 15-kilovolt line to a 34-kilovolt line and includes fiber-optic cable for broadband services. The offshore work must be completed before winter ice floes clog the channel.

"We anchor the terminal ends to bedrock and install cast-iron submarine protectors on both ends of the cable to prevent damage from boats, ships, or submerged ice," Barnhart says.

More than 925 of Hancock-Wood Electric's nearly 11,000 members reside on the island, but fewer than 400 live there year-round. The island is a popular tourist destination for North Coast families between Cleveland and Detroit, so no work will be done during the busy summer months.

"We'll spend this year and early 2018 on permit requirements, environmental and logistics issues and begin offshore work after Labor Day," Barnhart says. "Then we've got a narrow window to get the cable placed before winter."

Co-op members on the island will pay a $10 monthly charge over 20 years to cover part of the project's costs. Directors compared analyses of capital projects across the co-op's system to determine what they believe is a fair contribution to ensure reliable service on the island for decades to come.

"The directors approved this nominal assessment for islanders benefitting from this service so it would not adversely affect them," says George B. Walton, Hancock-Wood Electric's president and CEO. "As a members-first cooperative utility, we are committed to providing safe, affordable, and reliable electric service to all our member-owners—including those who are literally at the end of the line." **RE**

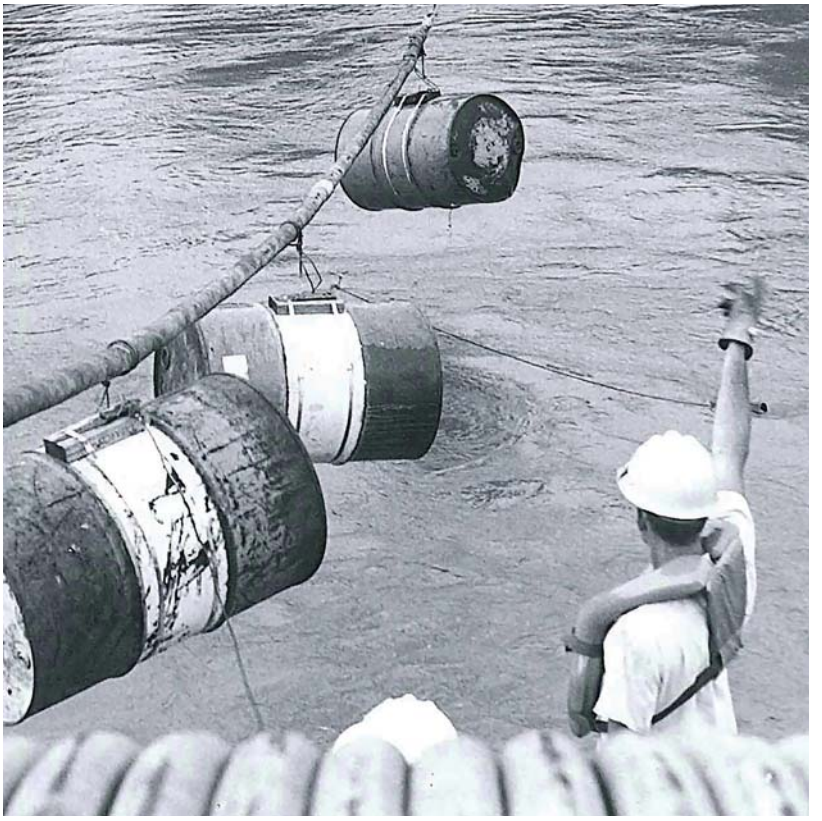


Photo courtesy Hancock-Wood Electric Cooperative

Weighted barrels helped lay the Hancock-Wood Electric power cable that stretches along the bottom of Lake Erie to Ohio's Kelleys Island.

MORE THAN POLES AND WIRE

EUDA NETWORK KEEPS THE CO-OP SUPPLY CHAIN HUMMING

BY DERRILL HOLLY

Photo by Alexis Matsui

Carlton Penney, director of manufacturing for the Texas Electric Cooperatives pole division, examines a load of pine logs at the co-op's Jasper, Texas, facility.

It takes a lot to keep power flowing to 42 million electric cooperative consumer-members. Beyond the manpower, there is the hardware: millions and millions of parts that must be inventoried, maintained, and replaced when they go bad.

So how do co-ops ensure they have readily available equipment in sufficient quantities that can be shipped quickly, particularly after natural disasters, whenever and wherever they are needed?

"You can't rely on just-in-time inventory from factories when it comes to parts. You have to have them when you need them," says Johnny Andrews, chief operating officer of manufacturing and distribution services for Texas Electric Cooperatives (statewide; TEC), headquartered in Austin.

TEC is one of nine members of the Electric Utilities Distribution Association (EUDA), a trade group formed in 1995 to represent logistics and manufacturing suppliers for distribution cooperatives. All members are either independent cooperatives, subsidiaries of statewide associations, or corporations created with co-op support to meet the needs of members and municipal utilities.

In total, EUDA members stock about $175 million worth of electric utility distribution and transmission inventory at all times. Combined annual sales top $1.25 billion and meet the bulk of construction, maintenance, and emergency response and recovery needs for NRECA's 838 member distribution co-ops.

"Any EUDA group member can access the other EUDA distributors' inventory when major outage events like hurricanes and ice storms occur," says EUDA Chairman Matt Brandrup.

Brandrup is also CEO of Rural Electric Supply Cooperative (RESCO) in Madison, Wis. RESCO operates

a network of satellite warehouses supplying more than 200 member co-ops in nine states.

"RESCO's six warehouses were created to be an extension of our member co-ops' warehouses," Brandrup says. "We work hand in hand with our members to help them set up their own proper inventory levels."

That approach, adopted by all EUDA members, goes beyond basic inventory management practices and treats utility hardware as perishables.

"Poles and electrical equipment have shelf lives and need to be put into service within an appropriate timeframe and not sitting in warehouses or co-op yards just in case they are needed," Andrews says. Sophisticated demand-planning software helps EUDA members keep on top of supply.

"We have the ability to forecast down to the item's location-level in our supply chain model," Andrews says. "Ninety-nine percent of the time, we have what a customer wants in the quantity they want when they want it."

DELIVERED FRESH

TEC has material in more than 20 warehouses and 30 pole yards across Texas. Those facilities house equipment considered "safety stock," designated for use in the hours immediately following widespread outages.

After region-wide incidents like major hurricanes or ice storms, other EUDA members can quickly dispatch parts, and manufacturers that routinely serve the co-op market can rapidly ship inventory. The approach is applied across EUDA systems based upon seasonal weather threats.

When winds in excess of 50 mph swept through the service territories of several Minnesota electric cooperatives in July 2016, damage was extensive.

Rockford-based Wright-Hennepin Cooperative Electric Association quickly turned to RESCO, which has four fully stocked storm-response trailers at the ready.

"Those trailers are always loaded with storm-related material like splices, hardware, and conductor and can be shipped immediately to one of our members should a storm-response need arise," Brandrup says.

EUDA members deal with multiple suppliers to ensure quality and savings through bulk purchasing, he adds.

"RESCO is in a unique position to use the buying power of all of our 218 members to get the best and most competitive pricing we can," Brandup says.

Tim Sullivan, CEO of Wright-Hennepin, adds, "It's critically important to have a long-term relationship with reliable suppliers. They put a premium on fast response, and there are cost certainties you can count on from vendors you know and trust."

And by having a supply group they can trust with many supply chain management functions, including the bidding process, purchasing, warehouse and inventory management, and shipping and receiving, co-ops using the system are able to control personnel and other costs.

The arrangement helps with Federal Emergency Management Agency (FEMA) paperwork, as well.

"The federal government wants to know that you procured resources competitively," Sullivan says. "When you already know your supplier is competitively priced, you're ahead of the game."

In October 2015, the territory of Greenville, Texas-based Farmers Electric Cooperative was strafed by straight-line winds that led to a presidential disaster declaration. For the co-op staff, it was an all-hands-on-deck event, and TEC personnel were on site to keep critical inventory flowing to line crews.

"Our EUDA vendor deals with dozens of different suppliers, but we only have one point of contact," says Farmers Electric General Manager and CEO Mark Stubbs. "Our invoice may be 10 pages long with dozens of different items, but it's complete and a lot easier to deal with when compiling FEMA expense reports."

KEEPING IT STRAIGHT

As handheld scanners and Wi-Fi-enabled inventory-management systems have replaced paper ledgers and parts manifests, pole yards and warehouses have been standardized with universal product codes, which allow for "big picture" inventory management across entire EUDA member inventories.

In some instances, logistics management protocols used by the United States military or major retailers have been adapted for co-op use.

John Maples, director of operations at the TEC distribution center in Georgetown, northeast of Austin, points to huge racks of parts along a warehouse gangway.

"It's like going to Walmart," he says. "Whenever they scan, it sends a signal back to replenish. Everything that comes in here is barcoded from the time it walks through the door until it leaves."

TEC tracks items as they're shipped out aboard container trucks and flatbed supply trailers, and warehouse personnel and yard crew members immediately begin pulling replenishment supplies.

"We have 20 trucks assigned to TEC—13 in the pole plant out in Jasper, Texas; we have seven here; and then one that floats around," Maples says, adding that each truck is trackable by GPS. "We can tell the customer when the next stop is coming, what they can expect, and where their items are at any time."

EUDA also helps distribution co-ops stay current with new line equipment rules.

Following adoption of U.S. Department of Energy efficiency standards for distribution transformers in 2013, co-ops relied heavily on EUDA members to meet demand. While units already in co-op inventories were exempt, any new orders were subject to the new regulations.

"Many of RESCO's stock units already met the new efficiency standards," Brandrup says. "We worked closely with ERMCO, our cooperatively owned transformer manufacturer partner, to update our stock transformer specification three months prior to the required implementation date to ensure we had a high level of inventory at the transition date."

ERMCO is the Electric Research and Manufacturing Cooperative, a wholly owned subsidiary of Arkansas Electric Cooperatives Inc. Headquartered in Dyersburg, Tenn., it has turned out pad- and pole-mounted transformers for electric cooperatives since 1971.

ADAPTING TO A CHANGING GRID

Like the supply and logistics operation of Arkansas Electric Cooperatives, several EUDA members were founded by electric co-ops or their statewide associations in the 1930s and '40s to help address supply shortages and pricing issues posed by equipment manufacturers and distributors focused on larger investor-owned utilities.

They include the manufacturing and distribution arm of TEC; United Utility Supply, an operating unit of the Kentucky Association of Electric Cooperatives (statewide); Tarheel Electric Membership Association, operated by North Carolina's Electric Cooperatives and owned by member co-ops in North Carolina, Virginia, and Maryland; and Cooperative Electric Energy Utility Supply, owned by South Carolina's two G&Ts, 20 distribution co-ops, and the state-owned utility, Santee Cooper.

RESCO was founded by the Wisconsin statewide; GRESCO was developed to meet the needs of co-ops and other utilities in the southeastern United States; Gen-Pac primarily serves co-ops and publicly owned utilities in the Pacific Northwest; and Western United Electric Utility Supply is a member-owned supplier serving the Mountain West.

Over the decades, the distributors began to share information and strengthen ties to help meet the needs of members in their territories. Early joint efforts included promoting manufacturing standards that met or exceeded Rural Utilities Service requirements.

Representatives of the nine members now meet formally twice each year but also interact regularly as co-op equipment and supply needs change. Many of those discussions focus on upgrading system infrastructure to handle larger residential subdivision and commercial loads, particularly as exurban development extends into more co-op territories.

Photo by Alexis Matsui

Pole-mount transformers await shipment from Arkansas Electric Cooperative's ERMCO manufacturing facility in Dyersburg, Tenn.

EUDA

Electric Utility Distributors Association

Arkansas Electric Cooperatives, Inc.

CEE-US Cooperative Electric Energy Utility Supply

General Pacific, Inc.

GRESCO

Texas Electric Cooperatives

RESCO Rural Electric Supply Cooperative

United Utility Supply

Western United Electric Supply

With over $1 billion in sales and over $150 million in distribution and transmission equipment inventory, the EUDA distributors are hard at work bringing exceptional value to you, our Members.

Whether it is the extremely competitive pricing we provide, the integrated warehouse management services we offer, or the patronage refunds we return; the EUDA group of distributors are working hard for our Members, and not for profits!

Contact your regional EUDA distributor today to find out how we can help your cooperative with your material supply chain needs.

Photo by Alexis Matsui

The ERMCO manufacturing facility has turned out transformers for electric cooperatives since 1971.

"This includes substation upgrades, circuit upgrades, and, in some cases, securing new sources of additional wholesale power," says RESCO's Brandrup. "Many times, these larger projects require additional design/engineering resources and qualified workers to complete the projects in a very specific time period."

In some cases, co-ops that once had most of their assets above ground now maintain large projects with miles of buried lines connected to ground-mounted transformers.

"Getting major manufacturers to recognize the importance of our members' collective business aggregated through TEC is the most important success," Andrews says. "Co-op managers know they've also got support systems in place that can get any parts or devices to wherever they're needed to repair or expand systems and keep electricity flowing to members."

EUDA members are working on expanding and modernizing their distribution systems to create new markets for specialized services or products. Several coordinate repair, reclamation, and recycling services for obsolete transformers and meters and worn or damaged conductor. They also collect and dispose of transformer fluids.

"This whole site is EPA certified for storage of PCBs," says TEC's Andrews during a tour of a contract transformer facility operating within his Georgetown distribution center. "It allows our members to just put stuff on a truck and bring it here, so they don't have to do any hazmat or decaling or shipping or pretesting. It gives co-ops the level of expertise that they could not possess locally and saves them significant money."

Salvageable distribution and transmission cans from pole-mounted transformers are collected and emptied, cores are rewound, fittings and hardware are replaced, and fresh mineral oil is added. Then the units are transported back to their co-op owners and put back into service.

"There's still a lot of equipment out there from the 1950s and '60s," Andrews says. "It's just unbelievable what comes through here."

Chris Perry, president and CEO of United Utility Supply Cooperative, a parts and equipment supplier for cooperatives in 17 eastern and Midwestern states, sees innovation as key to meeting load growth and member interest in things like distributed generation.

"We've found it crucial to adapt to changing dynamics and business models to meet the evolving needs of our members," says Perry, who is also president and CEO of the Kentucky Association of Electric Cooperatives. "It's not enough to rely on loyalty and a great reputation." **RE**

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FEBRUARY 2017 PHOTO CHALLENGE WINNERS

Congratulations to Kennedy St. George from The Victory Electric Cooperative Association for "Aftermath of an Ice Storm" (below), winner of the February 2017 *RE Magazine* Photo Challenge with the theme "The Skies of Co-op Country."

Congratulations as well to Boni Edwards from North Platte, Neb. Her photo, "Stormy Skies" (right), earned runner-up honors in the competition.

Aftermath of an Ice Storm

Line crews from The Victory Electric Cooperative worked round-the-clock to restore power after a massive ice storm struck southwest Kansas in January 2017. Here, a silhouetted lineman repairs a downed line near a small farm.

Photo by Kennedy St. George

The April contest theme is “Trees.”

Visit REmagazine.coop to see all the photos, read the contest rules, “Like” your favorite shots, or enter some images of your own.

Stormy Skies

Menacing clouds gathered into a tornado near North Platte, Neb., during a July 2016 storm outbreak.

Photo by Boni Edwards

Photo courtesy iStock

A stock photo of an interesting right-of-way solution

R.O.W. BY THE NUMBERS

WITH NEARLY 150,000 PROBLEM TREES, MINNESOTA'S LREC NEEDED A PLAN OF ATTACK

BY JOHN VANVIG

Minnesota may be the land of 10,000 lakes, but ever since Tim Thompson arrived at Lake Region Electric Cooperative (LREC) in the west-central part of the state, he's been concerned with another number: 148,593.

That's the figure a vegetation management consulting company came up with in 2009 after an initial assessment of trees growing, or threatening to grow, into the Pelican Rapids-based co-op's lines. For Thompson, who'd started as the CEO a little more than a year earlier, it was an eye-opener.

"That is nearly 40 trees per mile of power line across the entire LREC system," Thompson wrote in a case study for ACRT Inc. **(acrt.com)**, the consulting company that did the assessment.

The assessment concluded that limbs were overhanging lines, or would grow over lines within five years, every 132 feet along 5,700 miles of cable serving the co-op's 27,000 consumers.

Those calculations sent up a red flag, of course, for existing and potential outage and service-quality problems. But Thompson remembers another worry creeping in as he toured his new service territory eight years ago: About 10 percent of Minnesota's famous lakes lie within LREC's service territory, and summer homes and cabins line those shores. His tour took him right alongside those leafy retreats.

"I was walking under the line, and when I looked up, I could see it going right through the trees," Thompson recalls. "Then I look over toward the lake, and what do I see? All these kids, swimming, running around, playing catch. And then I looked back up at the line. Now, did you ever climb a tree when you were a kid? It just looked like a huge liability, and it was really motivating to solve the problem."

'START THE CHAINSAWS'

For Thompson, the lesson was clear: LREC needed to get a better handle on controlling the tens of thousands of trees flanking its lines. Prior to his arrival, he says, the co-op had been spending around half a million dollars a year clearing limbs and falls, mostly in response to outage calls and members concerned about low-hanging branches.

"We just didn't have an adequate plan," he says. "It was underfunded, and therefore we never budgeted enough. We had stacks of service orders for limbs that needed trimming, and we'd have consumers coming in worried about trees on their lines."

MEET A MAG MEMBER

MIKE THOMPSON

After nearly four decades in co-op power generation, Mike Thompson brings a diversified portfolio to his job as senior manager of generation engineering & environmental at Sunflower Electric Power Corporation, the G&T based in Hays, Kan.

"I don't jump very high, but I play a lot of positions," Thompson says. "I've worked in generation operations, generation engineering, fuels procurement, power contracting, power marketing, power supply. I've gotten exposure to a pretty broad swath of the big picture."

He spent most of his 38-year career at Big Rivers Electric Corporation, the Henderson, Ky.-based G&T. He thought he'd retired about three years ago, but Sunflower had other ideas and lured him back into the working world.

That was also when NRECA's Business & Technology Strategies unit recruited Thompson into its Generation, Environment & CO_2 Member Advisory Group (GEC MAG). Thompson says the panel provides G&T engineers like him with a valuable network of capable peers facing similar challenges.

"It's a collaboration with the other G&Ts," he says. "We share resources and experience on the hot topics that are impacting all of us at any particular time. Right now, it's the Clean Power Plan."

Although the plan's future is now uncertain, Thompson says he expects the GEC MAG to be busy plotting a G&T strategy.

"The recent elections will be a topic for our next meeting. We'll discuss how we should adapt our research and our work."

What was needed, Thompson concluded, was a more comprehensive, numbers-based approach to keeping the trees in check.

To begin with, he opted for the threat assessment. But the cost of simply counting trees ran into some resistance. "People said, 'Tim, let's just take that money and start cutting trees. Let's start the chainsaws and get going.'"

Thompson countered that before the co-op could develop a sound tree-trimming plan, it needed to understand the scope of the work. And the result was the initial assessment of 148,593 threatening trees.

The next step was to figure out where the most pressing dangers were so LREC could send its contract cutting crews to the right circuits and stretches of line. That would allow the work to proceed far more efficiently than responding call-by-call to outages or consumer concerns.

"That's important," Thompson says, "because if you can get to the trees before they get into the line, the cost goes way down."

LREC worked with ACRT on one of its early pilot projects to develop a tree-trimming model the company calls "Arborcision." The model laid out an orderly plan of attack on overhanging limbs, both those that were in the lines right then and those that would reach into the lines soon.

"Maybe the best way to explain it is an analogy," Thompson says. "Co-ops for decades have used engineering models to make their construction work plans. Well, we didn't have a very sophisticated way to put together our vegetation management plan. With Arborcision, we've collected a lot of representative data on what trees are there, how close they are to the right-of-way, how fast they grow."

The plan lays out a coordinated, phased approach to protecting co-op lines from overhanging limbs, circuit by circuit and substation by substation.

"Let's say there's four circuits coming off a substation," Thompson says. "The first time around, we had to do all four. But now we can predict, using the model, that we only have to do circuits two and three but not one and four. It's a real valuable tool."

STAFF TREE EXPERT

Chris Byrnes, LREC's system arborist, helped put that plan together back in 2009. He was an ACRT arborist then. The tree assessment—the study that led to the trimming management plan—was based on about 1,000 samples taken along the co-op's rights-of-way, he says.

"It spins out what we've got along the lines, it has all the metrics of the trees along the lines, and it projects them about five years out," Byrnes says. The resulting management model "goes down to the circuit level. Most of our circuits are around 40 or 50 miles of line. If a circuit has

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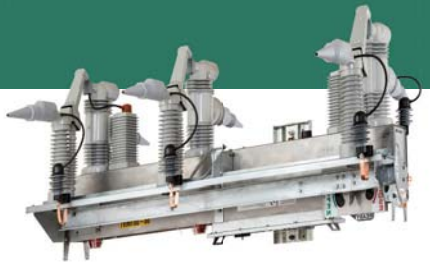

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a lot of trees that are fast growing, it will kind of bump that circuit up on the plan.

"Right now, I have a list that says, 'This circuit has to be taken care of right now,' and then I just work down the list," he says. "But last year, we had a lot of danger trees to deal with, so the plan would rerun the algorithm and tell me how much that change will cost."

In the meantime, besides running Arborcision and keeping the contractors on the co-op's tree-trimming plan, Byrnes has another important task as system arborist: responding to, and working with, members whose trees need attention or may need attention sometime soon.

"Most of our work is routine maintenance now," he says. "I don't get to talk to every single member, but when one has concerns or questions, I can point to the plan and explain what we're doing and why we're doing it. And I try to tell them what it's going to look like when we're done."

When consumers report a tree they're worried about, Byrnes takes a slightly different approach.

"Those call-ins cost about three times as much because there's no concentration of the work," he says. "So we might try to put it off a bit. Unless it's a danger tree that needs to be dealt with immediately, I'll tell them about the plan and say that we'll be getting to that tree in a year or two."

A visit from the co-op's system arborist makes a strong impression on members, Thompson says.

"You can just imagine how different it is for the member to have our new system arborist, a tree expert if you will, come in and talk to them," he says. "And our guy Chris is really good at that."

'NO LONGER A GUESS'

In the first few years after LREC developed its plan, its tree-trimming budget took a substantial jump. After all, it had nearly 150,000 threatening trees to trim.

But that budget item has come down now, settling in about where the co-op was when it first started assessing, planning, and measuring its tree-trimming progress. Some other figures, compiled by LREC and ACRT, suggest how the cost reduction has come about:

- Average trees per mile of line dropped from 40 in 2009 to six in 2014.
- Outages caused by trees, calculated at 60 to 70 percent in 2009, was 30 to 40 percent five years later.
- The trimming contractor's crews spent 10 percent of their time running from hot spot to hot spot in 2014 as opposed to 2009, when 50 percent of the crews' time was spent responding to calls.
- Finally, there's Thompson's favorite: the comparison of overall outages from 2004 to 2016. "Our outages over that 12-year period have decreased 61 percent," the CEO says. "That's huge."

continued on page 72

Where the Wildflowers Grow

Through a strategic and selective use of low-impact herbicides, Central Virginia Electric Cooperative (CVEC) has transformed its vegetation management program to boost customer service and bring a positive ecological impact to its right-of-way.

By Ronnie Ponton
Vegetation Manager, Central Virginia Electric Cooperative

Walk along much of Central Virginia Electric Cooperative's 3,500 miles of electrical lines today, and you might notice some things that weren't there just a few years ago. You will see vibrant patches of wildflowers that have aided the growth of wild turkey, songbird and honeybee populations. Furthermore, the amount of invasive tree species that threatened electrical service for our members has been decreased considerably.

For CVEC, it's all a part of a holistic, integrated vegetation management program that we've implemented over the past several years through which we've boosted reliability while making a positive ecological impact within the right-of-way.

It was accomplished through a new approach to our vegetation management needs, developed in close collaboration with our partner, ACRT, Inc.

TROUBLE IN PARADISE

We in Central Virginia are no strangers to Chinese sumac, otherwise known as the "paradise tree," an aggressive nonnative tree species that is common to our highway and roadway corridors. The tree is well suited to urbanized areas due to its rapid growth, lack of insect problems and the ease with which its presence can be established.

For most landowners, the Chinese sumac is a nuisance for a variety of reasons. It overtakes other, more beneficial plants and emits a foul odor; its other nickname is the "stink tree."

For cooperatives and utilities, these trees grow so fast that frequent trimming is required under a traditional utility vegetation management program to keep service uninterrupted. In fact, it's almost impossible to keep up with the sumac using a traditional five-year line-clearance cycle. One of our biggest sources of reliability concerns, historically, has been line interference due to overgrown sumac.

We knew that a new approach was needed to combat the paradise tree, and we made it a priority to take action.

A COMPREHENSIVE ANALYSIS AND A NEW SOLUTION

To begin our new approach, ACRT's team helped us complete a full system analysis using their Arborcision™ tool, which uses collected data to provide intelligence for utility vegetation management programs. The information in Arborcision was critical to long-term overall planning. It showed us where we stood in terms of vegetation workload, what needed to be done and the size of the investment we'd need to make to improve our reliability through integrated vegetation management. Arborcision also provided insight into what could happen if we didn't address our workload.

Once our budget was approved, we worked to develop the solution that would help us accomplish our vegetation management goals. One aspect of any successful vegetation management program is continual work management systems.

We relied on Clarion software to ensure that our work management process flowed to all of our contracted partners. It enables work to flow to multiple channels and reports on progress to our management team on key metrics as we work through our system. A major part of the new program involved a significant expansion of our herbicide-control program to specifically target the problematic sumac growth throughout the grid, something that we had incorporated in certain areas to great success.

> "We've boosted reliability while making a positive ecological impact within the right-of-way."

In a nutshell, our program worked like this: We began by initiating a comprehensive mowing process of our entire grid, expanding our number of trimming and mowing crews to a total of five in order to tackle the entire system. The mowing is followed up by selective herbicide treatment via backpack sprayers over an annual two-month period to specifically target the sumac, approximately one year after the initial mowing. This waiting period enables our sprayers to target the early-growing leaves of the sumac before the plants have become unmanageable, enabling the herbicides to easily penetrate the root systems for effective control.

Using only backpack sprayers is a critical part of the program, allowing us to make as minimal an impact on our target areas as possible. Our goal is to maintain all the vegetation throughout our rights-of-way that isn't problematic; and with backpack crews, we can be precise and selective when targeting the sumac.

There's a twofold advantage here: Eliminating the sumac not only means that our power grid is less threatened by overgrowth but that more beneficial plant life can grow in its place, making for an ecological domino effect. Butterflies, bumblebees and other pollinators have returned in great numbers to our rights-of-way, fostering the growth of beautifying wildflowers across our service area. These areas are also a better habitat for various wildlife than the inhospitable sumac growth, and we've seen increased populations of wild turkey and quail.

ACRT has been instrumental in the implementation and coordination of the herbicide program, with ACRT forester Laura Roszell offering her expertise on the ground as the plan has been carried out.

"The program that CVEC has been able to develop is safe, effective and has brought a tremendously positive impact to the cooperative's service area," said Roszell. "It's always fulfilling to see a program make such a difference, and we've been able to accomplish that here."

THE IMPACT

Our team is very proud of the progress we've made over the past several years, and the results have exceeded our expectations. After treating nearly the entirety of our rights-of-way, we have witnessed less than 10 percent regrowth in areas we've returned to.

The effects can be felt throughout our service areas. Home and landowners across our service area have commented that the patches of land now look far more appealing, as wildflower growth continues to proliferate in the sumac's place. We're currently conducting research on how we can take our program to the next level for the benefit of local wildlife to create better habitats of our rights-of-way, seeking third-party certification for the positive ecological impact we're able to provide.

And of course, the overall reliability of our system has been improved, with reductions in outages and the overall enhanced operation of our system being felt throughout Central Virginia.

SEEING THE FOREST

Advanced visual data analytics helps co-ops stay on top of a mountain of data

BY REED KARAIM

A picture can be worth a thousand words … or tens of thousands of lines on a spreadsheet.

That's the new take on an old saying when it comes to making sense of system data.

As electric co-ops' systems build mountains of data, experts say the challenge of "seeing the forest for the trees" is becoming geometrically more complex. But one concept, advanced visual data analytics, holds promise for helping present overwhelming amounts of information in manageable ways.

Troy Schake, chief business development officer for Atlanta-based SEDC (**sedata.com**), says such advanced visual design relies on data pulled from multiple sources to build a pictographic or graphical representation of what's happening on a co-op's system. Done properly, it can make it easier to get an overview of complex operations and to grasp the connections between various elements that might otherwise be lost or overlooked.

"You're able to look at things at a much more granular level and also get a better perspective on areas where problems might be occurring," Schake says.

Data visualization is not a new concept. Many utilities have been using it as part of outage management, for example. But the push now is to integrate these visual tools with a variety of co-op applications.

In one project, SEDC worked with Jackson, Ga.-based Central Georgia EMC to develop an analytics display that allows the co-op to track line loss on a section-by-section basis.

In another case, SEDC built a dashboard that displays bill-paying behavior and identifies patterns that helped the co-op target marketing to increase mobile payments and to more efficiently assign personnel for walk-in payments.

Castle Hayne, N.C.-based Applied Technology Solutions (ATS; **ats.coop**) is working with Choctawhatchee Electric Cooperative (CHELCO) in Defuniak Springs, Fla., to build a visual data presentation that will help the co-op better track payments across its system.

"Information in tabular format can be great," says Scott Tolbert, ATS chief technology officer. "But if they could get a map and see all of their prepaid customers that are pending cut off and pending reconnect all color coded, it gives them a quick view of what's going on out in the field without having to study line after line of detail."

'NOT OLD-SCHOOL ANALYSIS'

The need for better ways of visualizing and analyzing data is growing as the spread of advanced metering infrastructure (AMI) and other smart grid technologies exponentially multiplies the amount of information that utilities can collect.

Herschel Arant, senior vice president of engineering and operations for Central Georgia EMC, says the co-op confronted this "sea of data" challenge when it tried to set up a system on its own to handle the influx of information it had coming in from 55,000 smart meters in 15-minute intervals, along with data from 260 reclosers and a variety of other sources on their system.

"Until you've attempted to take something like this on, it's easy to underestimate the difficulty of manipulating and analyzing the massive volume of data," he says. "It's not old-school analysis that you can just drop into a spreadsheet and spend a few minutes working on it. There's a completely different infrastructure required."

The more sophisticated analytics also come with the potential for significant rewards, Arant notes. He hopes to cut line loss from around 3.5 percent to as low as 2.5 percent using the new tool.

"The opportunity to reduce line loss can give a very quick and almost immediate payback," he says. "And once you identify the issues, the reduction is perpetual."

'EVERYTHING THAT'S HAPPENING'

As much as enhanced visual analytics can make system management easier, getting there can be a struggle. It requires the ability to import data from many different sources and often getting databases created by different software systems to interact with one another. That in turn requires analytics tools that have "the ability to consume data from the billing system, from the accounting system, from the GIS [geographic information system] or the SCADA system and blend it together," Schake says.

Tommie Gipson, CHELCO IT manager, says the co-op's new dynamic map that visually presents information on prepaid accounts is only the first step in what he hopes will be a system that allows a variety of enhanced visual analytics. He envisions being able to take almost any query from the co-op's databases and quickly populate a map with the resulting data.

"I can say, 'What about service orders or street light repairs?' The moment I put those on a dynamic map, first of all, I can see trends. Second, if I've got crews in the area, I make their work much more efficient," he says.

SEDC is working with another co-op to create an advanced visual display of transformer load, providing a dynamic presentation of transformer status in an easy-to-comprehend format.

"They can interact with the analytics, so once the view is built, they can say, 'Give me all the transformers that are attached to that sub," Schake says. "Or, 'I want to see everything that's happening out in the field right now.'"

ATS is also testing an enhanced visualization tool that allows co-ops to import data into Google Maps and other mapping software.

"The importance of this visualization tool is that it's flexible enough not only to suit large co-ops who have robust GIS and map-viewing tools, but also the smaller co-ops who may not have these tools at their disposal," Tolbert says. "We're trying to give them options where they can do similar things on a smaller budget."

Many of the dynamic mapping tools that do exist are database-specific or expensive. But by developing a tool that allows data to be imported to various geographic platforms, ATS hopes to make enhanced visual analytics available to a broader range of co-ops.

Ultimately, Schake says, these systems are about "providing value for the co-op."

"Advanced visual data analytics helps co-ops take full advantage of the wealth of data they have available and makes their lives easier by bringing it to life." RE

> **"Until you've attempted to take something like this on, it's easy to underestimate the difficulty of manipulating and analyzing the massive volume of data."**
>
> *—Herschel Arant, Central Georgia EMC*

BY TODD H. CUNNINGHAM

ALASKA PROJECT SEEKS TO ASSIST GREEN INTEGRATION

Chugach Electric Association has launched a project it hopes will enable greater integration of renewables in its Alaska service territory. The co-op, headquartered in Anchorage, is partnering with Switzerland's ABB **(abb.com)**, which is providing a modular and containerized microgrid that will combine flywheel and battery storage technologies.

The project is designed to test scalability and improve power stability for around 300,000 people in Anchorage. The flywheel will facilitate the integration of fluctuating

Photo courtesy ABB

wind power from a 17-MW wind farm on an island about 4 kilometers off the coast of Anchorage, and the battery will be used for long-term storage.

ABB says the battery has a capacity of 500 kWh with a maximum performance of 2 MW. The company's Microgrid Plus control system will monitor the hybrid storage solution and ensure proper load sharing between the two mediums.

Paul Risse, Chugach Electric's senior vice president for power supply, says the project "shows how energy storage technology can boost renewable energy penetration in Alaska and have far-reaching implications for new renewable projects on the Railbelt as well as in smaller Alaskan communities."

Contact: Chugach Electric Association, Paul Risse, 800-478-7494; ABB, Bill Rose, 919-807-5743.

REDESIGNED DISPATCH ROOM AIDS CO-OP'S OUTAGE OPS

As challenging as major storms and other outage situations were for Blue Ridge Electric Cooperative's power lines and outside systems, they also brought disruption inside its dispatch centers.

When Blue Ridge Electric called "all hands on deck," the Pickens, S.C., co-op's dispatch workforce swelled from one or two operators to as many as 20 to field calls, manage computer systems, and dispatch linemen. This meant dismantling dispatch operations, moving them to an unused larger room, and setting them up again, says Barney Drake, supervisor of power delivery and systems support services.

So when Blue Ridge Electric decided to build a new operations center, it included a dispatch area, combining its two divisions' operations and creating space to accommodate the storm room. The co-op worked with Minneapolis-based Winsted Corporation **(winsted.com)** to develop the design and layout and used that company's Prestige Ascend line of console units, which allow operators to alternate between sitting and standing—a valuable option during emergency situations or standard 12-hour weekend shifts.

"With this setup, one operator or 20 can work comfortably and efficiently within the space," Drake says.

Contact: Blue Ridge Electric Cooperative, Barney Drake, 800-240-3400; Wayne Cook, Winsted Corp., 800-447-2257, or Robin Scherrer, Linnehan Foy Advertising, 612-238-3007.

Photo courtesy Blue Ridge Electric

Blue Ridge Electric's new operations center

Photo courtesy Washington Electric

Washington Electric's OurSolar dedication ceremony

STATEWIDE SOLAR PROJECT YIELDS NEW COMMUNITY ARRAY

Washington Electric Cooperative has commenced operations at the OurSolar community solar array on the grounds of its Marietta, Ohio, office. By grouping the panels together, the co-op notes, costs can be shared among members—a typical residential member will see an annual cost increase of 35 cents stemming from the project—and power output can be maximized.

Each of the panels at the Washington Electric site is expected to produce about 375 kWh annually, which will be fed directly into its distribution system.

The 50-kW Marietta array is the third OurSolar project to become operational. OurSolar is an initiative of Columbus, Ohio-based G&T Buckeye Power to build solar facilities for multiple co-ops throughout Ohio, with an overall capacity of 2.1 MW. Additional projects are planned for the coming year.

"Renewable energy sources are becoming more and more a viable component of electric generation," says Jack Bragg, Washington Electric's general manager. "This program gives the distribution cooperatives a low-risk opportunity to participate."

Contact: Jennifer Greene, Washington Electric Cooperative, 740-373-2141; Ben Wilson, Buckeye Power, 614-430-7805.

CENTRAL VA. CO-OP KICKS OFF BROADBAND EFFORT

Central Virginia Electric Cooperative (CVEC) has begun work toward providing broadband connectivity in its rural service territory, with the goal of making service available to all co-op members within five years of the start of construction. President and CEO Gary Wood likened the goal of overcoming today's digital divide with that of electrifying rural areas some 80 years ago.

The Lovingston, Va., co-op will work with AcelaNet LLC **(acelanet.com)**, which responded to the co-op's September 2016 request for information with a proposal for a system that combines fiber-optic cable and wireless technologies to reach members. AcelaNet CEO Lon Whelchel termed the collaboration "a natural fit," noting that using utility poles as a delivery platform "will allow us to achieve our mission along with the help and cooperation of localities and the rural residents."

The parties noted there are many hurdles—physical, financial, legal, and regulatory—to overcome to provide universal broadband service in rural Virginia.

"The timeline, logistics, and cost for the project and services will be announced after a comprehensive plan has been established," a release states.

Contact: Central Virginia Electric Cooperative, Greg Kelly, 434-263-7627; AcelaNet, Lon Whelchel, 804-306-8131.

TRANSMISSION CO-OP DEPLOYS SOFTWARE FOR RELAYS

Georgia Transmission Corporation, which plans, builds, and maintains high-voltage power lines and substations for 38 electric co-ops in the state, is subject to more than 60 North American Electric Reliability Corporation (NERC) mandatory standards.

To stay in compliance, the co-op has a formal program to do routine monitoring and provide assurance of ongoing compliance. But keeping track of an increasing number of digital relays was becoming unwieldy.

To keep everything in line, Georgia Transmission has focused on developing a workflow process to manage the units. A key component is software from Indiana-based IPS-Energy **(ips-energy.com)**, which can track the relays, find their locations and maintenance status, and validate and update settings as needed.

Additionally, when a manufacturer's bulletin or update is released, the software's central repository and query functions help locate all of the manufacturer's relays quickly so the field updates can be scheduled and implemented.

Contact: Georgia Transmission Corporation, Kevin Luke, 770-270-7287; IPS-Energy USA, Marvel Gentry Davis, 317-513-5043. RE

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[3] *Information on tax credits accurate at time of publishing; Consult your tax advisor for details on eligibility requirements for any available tax credits*

HEATING COOLING WATER HEATING

2016 NRECA Legislative and Regulatory Accomplishments

75 Years of Service
NRECA
America's Electric Cooperatives

As we welcome electric cooperative leaders to Washington, D.C., this month for our annual Legislative Conference (April 23–25), we thought it would be appropriate to offer a summary of hard-fought successes that NRECA and our members achieved over the past year on Capitol Hill and throughout the federal agencies. Last year turned out to be an active one in Washington, with multiple rules, regulations, and laws impacting or potentially impacting electric co-ops. From drones to broadband funding to our Co-ops Vote campaign, each entry in this accomplishments list represent countless hours of public and behind-the-scenes work done not only by our NRECA team but also by leaders from the statewides, G&Ts, and distribution cooperatives.

NRECA was born 75 years ago out of electric cooperatives' need for national political advocacy. We are all proud to continue that legacy. Ours is a voice that is not just *heard* in Washington, but one that achieves results. We look forward to another productive year as we seek to ensure Congress and the federal agencies act in the best interests of electric cooperatives and our member-consumers.

Kirk Johnson,
NRECA Sr. Vice President, Government Relations

Clean Power Plan—Successful Motion to Stay the Rule

On February 9, 2016, in a first-of-a-kind action, the U.S. Supreme Court stayed the implementation of EPA's Clean Power Plan until litigation over the rule is completed. The decision protects co-ops from making costly, irreversible decisions until there is certainty provided by the courts over the rule's legality. NRECA along with 39 G&Ts are litigating the rule and worked with several co-ops to provide "declarations" that provided evidence to support the Supreme Court Motion to Stay.

FEMA Agrees to Iowa Reimbursements

Officials at FEMA headquarters overturned a regional administrator's denial of reimbursement to Iowa co-ops for significant storm damage. Had the regional administrator's decision been upheld, a dangerous precedent for documenting storm damage would have been created.

RUS NEPA Rules Favorably Finalized

The Rural Utilities Service (RUS) finalized its long-awaited rules for compliance with the National Environmental Policy Act (NEPA). RUS largely reversed course from the original proposal. The final regulation was a significant improvement over the original proposal and incorporated the vast majority of NRECA recommendations. The strength of our positions on many issues is evidenced by the avoidance of litigation over the final rule.

Electrify Africa Legislation Enacted

In February 2016, the president signed into law S. 2152, the Electrify Africa Act. The law provides a coordinated strategy to prioritize current investments to create access to electricity for rural communities around the world. It also requires a flexible and fuel-neutral strategy that will reduce regulatory burdens in countries and create sustainable and cost-effective access to electricity. As global rural electrification experts, NRECA now has a permanent place in law to do what we do best. NRECA was also mentioned in the Senate committee report urging the administration to strongly consider partnering with NRECA as an expert.

Co-ops Vote: Rural America Goes to the Polls

The Co-ops Vote program ended the 2016 election cycle with a number of successes. More than 700 co-ops in 47 states took part in some aspect of the campaign to turn out the vote in communities around the U.S. One hundred and fifteen co-ops achieved 5-star status by participating in a number of activities to promote voting in their communities. And our work seemed to make a difference. Rural voter turnout was extremely high, often outpacing turnout in large cities and urban areas.

2016 ACRE® Record Year

The Action Committee for Rural Electrification (ACRE) set a record for the number of participants in the PAC and dollars raised during the 50th anniversary year in 2016. More than 35,300 individuals contributed more than $2 million to the PAC, with growth in every category except Century Club (which saw a decrease largely due to people contributing to the new Vice-Presidents Club level). Additionally, more than 60 individuals are in the unofficial "Double Presidents Club" for contributing $1,000 or more annually. Ninety-five percent of House candidates that ACRE supported won their elections, and 84 percent of ACRE-supported Senate candidates won their elections.

Rural Energy Savings Program Progress

RUS is implementing the Rural Energy Savings Program (RESP) that was authorized in the 2014 Farm Bill. RUS sought comments on the measurement and verification component that were due June 23. RUS also issued a Notice of Solicitations of Applications seeking letters of intent from interested utilities. USDA expects RESP could leverage $52 million in loans. RESP is similar to the EECLP (Energy Efficiency & Conservation Loan Program), but would allow 0 percent interest to co-ops for efficiency programs focused on rural families and small businesses and a more streamlined lending process.

Coal Ash

Final water resources legislation passed on the last day of Congress includes a provision that provides a pathway for state regulatory agencies to assume enforcement authority over EPA's final non-hazardous coal ash regulations. Absent the legislation, enforcement would have only occurred through citizen lawsuits, resulting in a patchwork of regulatory enforcement decisions made by various Federal District Courts.

Corps of Engineers Easement Renewal Fees

Final water resources legislation passed on the last day of Congress includes a provision to prevent the Army Corps of Engineers from requiring a fee from electric cooperatives to renew an easement for our equipment crossing Corps of Engineers land. The Corps has recently started billing co-ops for easement renewals, when in the past there has never been a fee for those easements.

Electromagnetic Pulse (EMP) and Geomagnetic Disturbances (GMD)

The final Defense Authorization bill includes a slightly tweaked version of the Senate Critical Infrastructure Protection Act (CIPA, S. 1869). The language focuses on incorporating Electromagnetic Pulses (EMPs) and Geomagnetic Disturbances (GMDs) into Department of Homeland Security's planning scenarios, assessments,

research and development. The provision also clearly differentiated between EMPs and GMDs, which is lacking in other critical infrastructure protection legislation.

TSCA Reauthorization

Congress passed, and the president signed, legislation reauthorizing the Toxic Substances Control Act (TSCA), the first changes to TSCA since it was enacted in 1976. The new law is a win for co-ops because it maintains the current federal preemption of potentially more-stringent state law governing PCBs. Despite significant changes in EPA obligations for testing chemicals in commerce and broader state authority to regulate some chemicals more stringently than EPA, states will not have the authority to further limit continued use of remaining PCBs in transformers and other electrical equipment.

Expanded Co-op Access to FCC Broadband Funding

The FCC will recognize an electric cooperative's RUS Form 7 or 12 (and the comparable CFC Forms) as demonstrating sufficient technical and operational expertise to bid in the commission's auction to receive funds for rural broadband deployment. The commission had been considering requiring demonstration of two years' experience operating a broadband system as evidence. Had we not changed the commission's thinking, most NRECA members would not be eligible to participate in the auction.

The FCC determined that CFC is an eligible lender for rural broadband deployment and also reduced the duration of the letter of credit obligation for co-ops participating in the Rural Broadband Experiment, significantly reducing their costs.

NRECA and NTCA led a coalition letter to the FCC in support of our position that the commission should be funding future-proof, scalable broadband systems through the Connect America Fund Phase II Reverse Auction. The letter was signed by 35 agriculture and rural groups.

EPA Risk-Based PCB Disposal Approval for NRECA Members

EPA issued a risk-based approval giving most NRECA members (those listed in the approval) the option to dispose of non-liquid, low-level PCB remediation waste generated at secure electric cooperative assets in non-hazardous waste facilities such as local municipal solid waste landfills. NRECA sponsored a webinar on April 19 to explain the risk-based approvals and associated conditions as well as recent regulatory changes governing disposal of materials with low-levels of PCBs. You can download the presentation and recording from Cooperative.com.

PACE Program Expands Political Reach of America's Electric Cooperatives

In 2016, 15 states utilized the PACE Account, either through political ads, candidate engagement efforts, or focus groups and polling. Because of the PACE, America's Electric Cooperatives had an expanded presence at both political conventions as we work to enhance our political relationships on both sides of the aisle. The PACE Account continues to boost our collective political clout and enhance the visibility of several critical programs like Co-ops Vote and Rural Power.

Final CFTC "Trade Options" Rule

The CFTC issued a final rule on trade options that significantly reduces regulatory and reporting obligations for co-ops.

Final CFTC Exemption Order for RTOs/ISOs From Private Rights of Action

In October, CFTC finalized its order to exempt RTOs from Private Rights of Action (litigation brought by outside parties) in response to our collective advocacy and pressure from Capitol Hill. The commission had originally proposed allowing third party rights of action in the organized wholesale markets including ERCOT. This pressure included a rare joint letter from the chairmen and ranking members of both the Senate Agriculture and Senate Energy Committees to the CFTC. Also, legislative language to resolve the issue was included in the Senate Agriculture Committee-passed CFTC Reauthorization bill in April.

EPA Agrees to Settle Three Industry Coal Ash Issues

EPA agreed to settle three issues that will ease some aspects of the final Coal Ash rule: (1) EPA will remove the requirement that vegetation on a dike "not exceed a height of 6 inches above the slope of the dike" and solicit comments on what appropriate vegetative restrictions should be; (2) EPA will propose language to clarify the types and magnitude of non-groundwater release (e.g. seep or minor spill) that trigger corrective action under the rule; (3) EPA will propose other factors that can be considered with determining whether a unit qualifies for alternative closure.

No State-Law Liability For Violation of NERC Standards

The 9th Circuit Court of Appeals agreed with NRECA and found that utilities in Arizona and California are not liable under state law for outages resulting from violations of NERC standards, dramatically reducing financial risks to utilities.

Clean Water Act (CWA) Jurisdictional Determinations Are Reviewable By Court

In a unanimous decision, the Supreme Court held in Army Corps of Engineers v. Hawkes that the Corps's approved Clean Water Action (CWA) jurisdictional determination is a final agency action judicially reviewable under the Administrative Procedures Act (APA). The ruling allows co-ops to file immediate challenges on questionable CWA determinations and opens opportunities for courts to reject overreaching CWA interpretations. The long-term impact may be more consistent agency decisions. The ruling also opens CWA jurisdictional determinations to potential citizen lawsuits by groups that oppose projects.

Lesser Prairie Chicken (LPC) Successful Litigation

On May 10, 2016, the 5th Circuit Court of Appeals upheld the lower court decision finding that that Fish and Wildlife Service (FWS) had failed to consider the effect of voluntary "range wide plans" in protecting the lesser prairie chicken and therefore decided that the agency's "threatened" listing of the LPC species was arbitrary. The court therefore invalidated the listing decision. FWS has decided not to appeal that decision and formally delisted the LPC. However on November 30, the FWS initiated a new 12-month species status review to determine if a listing of the LPC is warranted.

Northern Long-Eared Bat—Special Compliance Rule for Utilities

On January 14, 2016, the FWS issued a final special "4(d)" rule for the northern long-eared bat with sufficient flexibility that cooperatives can carry out the bulk of day-to-day operations with few changes and will be able to continue to remove and manage hazardous trees or for the protection of human safety and facilities anywhere and at any time. NRECA worked with FWS so that cooperatives could meet their obligations to provide reliable electric service and to protect the bat.

Improved ESA Petitioning Process

The Fish and Wildlife Service and National Marine Fisheries Service made final changes to the procedures by which they evaluate species and critical habitat petitions under the Endangered Species Act. There is now a more favorable, rigorous process for submitting petitions to list, delist, or reclassify species or designate critical habitat. Petitions can only include one species, thus eliminating the tactic commonly used by environmental groups of filing "mega-petitions" for hundreds of species at once and use of "sue-and-settle" practices.

Pole Attachments

Under the guise of spurring broadband deployment in rural areas, the Technology Subcommittee of House Energy and Commerce Committee developed a draft bill that would have directed the FCC to impose burdensome reporting requirements for the first time on electric cooperatives regarding pole attachments. The draft bill would also have rate regulated federally owned poles for the first time, which would have negatively affected the PMAs and TVA and would have set a bad precedent moving in the direction of federal regulation of cooperative poles. NRECA worked with House Energy and Commerce Members to successfully block the language and the draft bill from moving forward.

Telephone Consumer Protection Act

The FCC loosened restrictions on automatically dialed calls and text to utility customers in response to a utility-industry petition more than two years ago. In August, the FCC issued a declaratory ruling that clarified that utility customers who provide a cell phone number when joining a co-op are deemed to have granted prior authorization to receive autodialed calls and texts that convey utility related messages. We had organized several conference calls between NRECA member customer service staff and senior FCC staff to help the FCC understand that our member owners want to hear from us.

Utility-Specific Drone Provisions Passed in Senate FAA Legislation

Congress passed an FAA Reauthorization bill that included a bipartisan amendment sponsored by Senators Inhofe (R-OK) and Booker (D-NJ) that expands allowable uses of unmanned aerial vehicles (UAVs, or drones) for critical infrastructure purposes. The amendment specifically requires the FAA to develop regulations to allow for electric energy infrastructure owners and operators to use UAVs beyond visual line-of-sight and at night for critical infrastructure inspection, maintenance, and protection. Earlier in the year, the FAA finalized a rule to expedite the commercial use of UAVs that removed the need to acquire a pilot's license to operate a drone for commercial purposes.

Promoted Consumer-Centric Utility Business Model

NRECA produced a comprehensive report promoting the Consumer-Centric Utility. The report was submitted to the Smart Electric Power Alliance's (SEPA) 51st State Initiative. Many of the ideas in the report were included in the Initiative's "Blueprints for Electricity Market Reform" report. The Consumer-Centric Utility model was also promoted during speaking engagements in nine different industry forums (many of which resulted from the publication of the paper with SEPA), including the National Association of Regulatory Utility Commissioner's summer meeting,

and Solar Power International. NRECA's report also served as the basis of several communications pieces to NRECA members as well as a pre-regional meeting training workshop.

EPA Decides Not to Regulate Storm Water Discharges From Forest Roads

EPA will not to regulate storm water discharges from forest roads. As part of a settlement agreement, the agency had agreed to consider whether it must regulate storm water discharges from forest roads under the Clean Water Act. NRECA was concerned that EPA, if it decided to regulate, would define "forest roads" to include roads in forested areas used by NRECA members to access transmission or distribution lines.

Clean Power Plan—Clean Energy Incentive Program

NRECA submitted comments on EPA's proposed Clean Energy Incentive Program (CEIP; a CPP follow-on proposal to incentivize accelerated deployment of renewables and energy efficiency to meet the CPP) to further mitigate the impacts of the CPP on cooperatives. Earlier this year, EPA had adopted several improvements recommended by NRECA when we had commented on the CEIP framework.

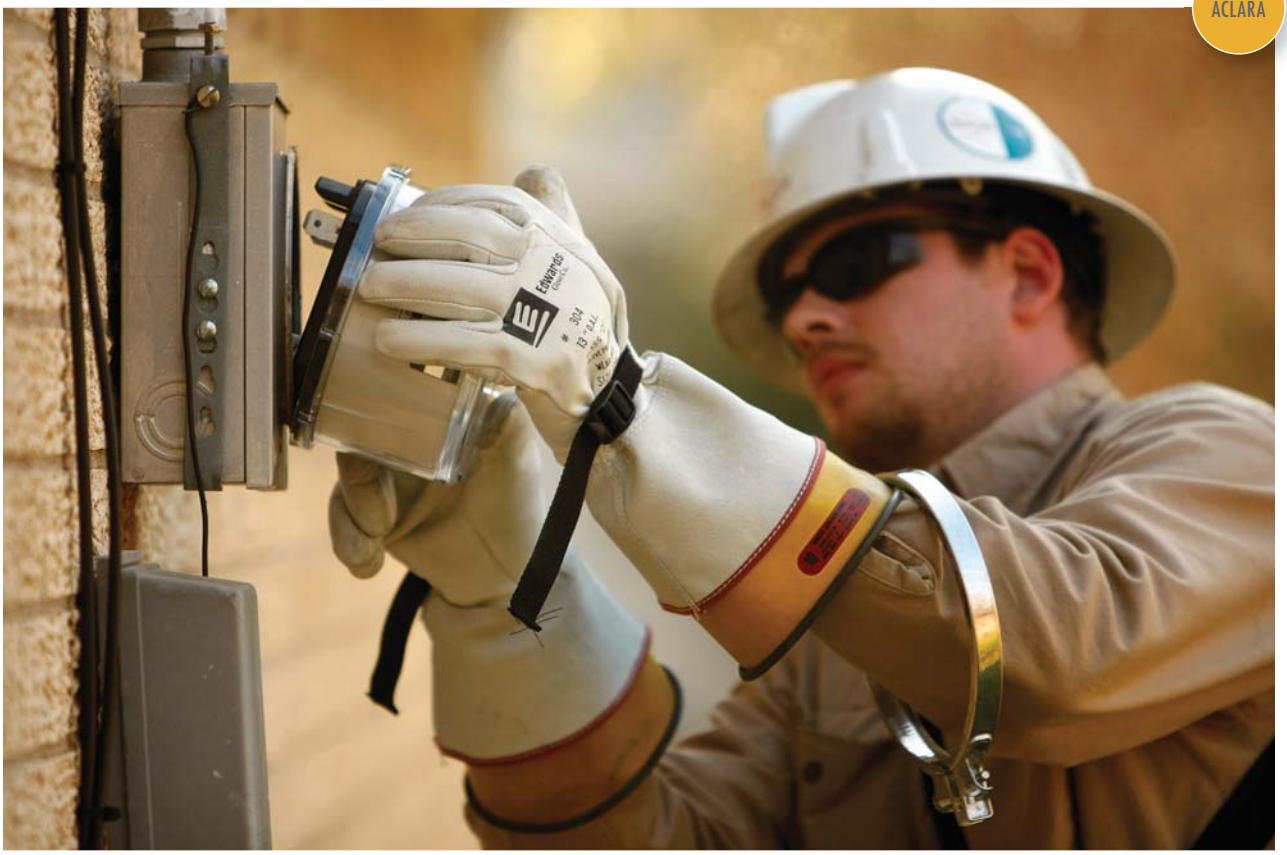
FERC Rules on Critical Energy Infrastructure Information

On November 17, 2016, FERC adopted its final rule regarding Critical Energy Infrastructure Information (CEII). The final rule incorporates and adopts several of NRECA's requests, including one that the definition of CEII should continue to include generation and non-Bulk Electric System distribution and transmission, and that material treated as CEII under FERC's current regulations should continue to qualify as CEII. FERC also acknowledged NRECA's arguments that FERC had no legal authority to compel an administrative appeal before seeking judicial review and that the proposed rule similarly failed to provide a process for an administrative appeal.

AMI ROLLOUT MANAGEMENT SOFTWARE

Aclara Technologies LLC recently acquired the *Smart Grid Solutions (SGS) division* of Apex CoVantage LLC, which included ProField mobile workforce management technology that is specifically designed for efficiently handling advanced metering infrastructure (AMI) rollouts. It provides both the big picture view and real-time status details on project teams and tasks, productivity metrics, quality documentation, and asset location. Team members can collaborate and communicate, balance workloads, and optimize installation crews' daily routes.

Contact: Aclara, Hazelwood, Mo.; 314-895-6400; dwoltz@aclara.com; aclara.com.

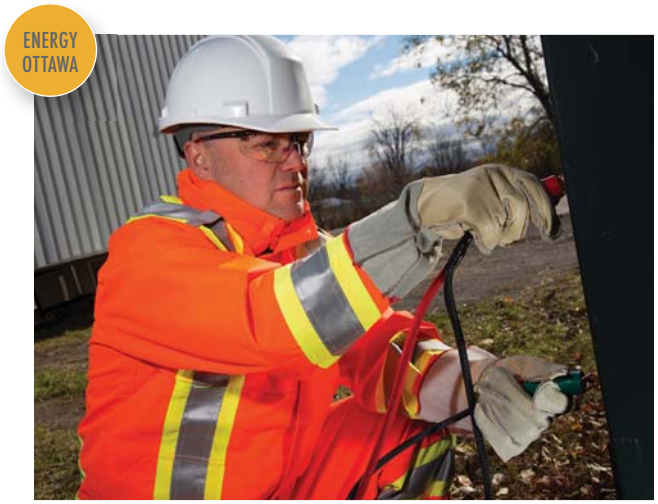


LTE CELLULAR GATEWAY

ABB is focusing on *enabling a digital grid,* bringing all of its digital products and services under a new platform called ABB Ability. One of those products is ABB's new ARG600 industrial-grade LTE cellular gateway, which provides broadband speeds and secure VPN connections for monitoring and controlling distribution network devices in remote locations. It offers instant TCP/IP-based communication between devices with no additional infrastructure needed beyond the existing cellular network. Cyber security is addressed with its built-in firewall, private addressing, and secure VPN connection.

Contact: ABB Inc., Raleigh, N.C., 919-807-5743; bill.rose@us.abb.com; abb.com.

NON-DESTRUCTIVE CABLE TESTING



Energy Ottawa offers a *non-destructive cable measurement system* for the assessment of medium-voltage distribution cables. The company has partnered with the National Research Council Canada to diagnose the health of XLPE cables without damaging the cable. Based on the DC Polarization/Depolarization Current Measurement principle, it applies a maximum of 30 percent of the cable's voltage rating where other health diagnostic tests often apply 150 percent of rating, further stressing cables and accelerating deterioration.

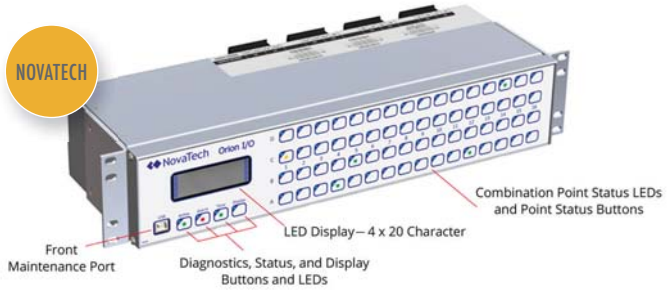
Contact: Energy Ottawa, Ottawa, ON, Canada, 613-229-6211; glennmagill@energyottawa.com; energyottawa.com.

OUTAGE MAP

KUBRA, a provider of outage map solutions, has released a new *Storm Center Swift product*. This new multi-tenant edition of Storm Center automatically displays a mobile-friendly layout using HTML5, which is especially important during outages, when a mobile device may be the only way your consumers can access the Internet. With its optional Outage Reporting and Status Tool, consumers can log in to view outage status information or report an outage. Another feature called Notifi provides outage alerts by email, text message, voice message, or mobile app push notification.

Contact: Kubra, Tempe, Ariz., 480-584-3041; sales@kubra.com; kubra.com.

SECURITY-COMPLIANT SUBSTATION RTU



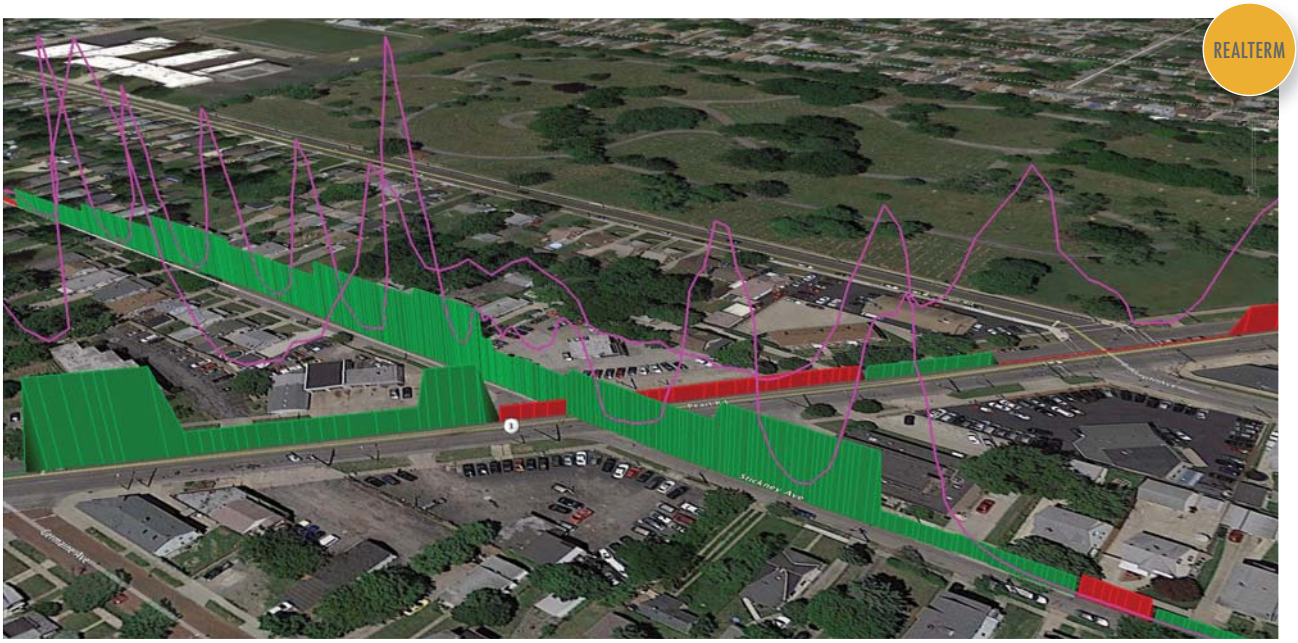
The new **NovaTech** *Orion I/O* for substations provides NERC CIP-compliant security. It can operate as an independent RTU but is usually connected to other substation RTUs. Security features include a Linux operating system; secure boot for whitelisting; secure protocols—HTTPS, SSH, SFTP; strong passwords and password rules; remote authentication with LDAP; a built-in firewall; automatic backup; and security event logging with "Syslog."

Contact: NovaTech LLC, Owings Mills, Md., 410-753-8392; caroline.fricks@novatechweb.com; novatechweb.com.

STREET-LIGHTING DATA

RealTerm Energy delivers cost-effective and energy-efficient turnkey LED street lighting solutions. Its *Lux Mapping* methodology yields accurate performance data for each light in a service area in real time. A red bar indicates an under-lit street section, while GPS-based data-gathering technology measures individual light levels. Both pre- and post-LED conversion, lighting levels can be measured to ensure accuracy, identify impediments, and assist in highlighting any necessary corrections to under-lit areas.

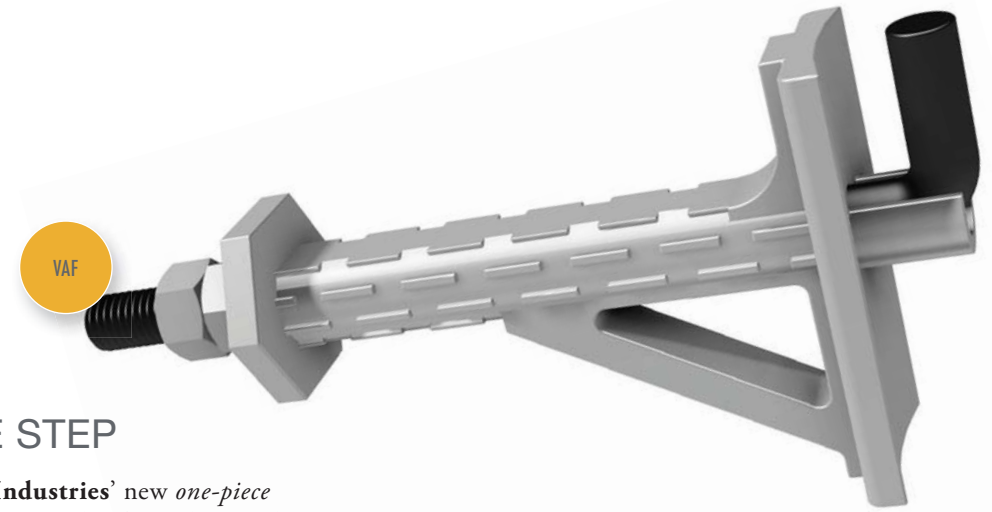
Contact: RealTerm Energy, Annapolis, Md.; 866-422-5202; svokey@realtermenergy.com; realtermenergy.com.



THREE-PHASE POWER TRANSFORMER TESTING

OMICRON's new *portable, three-phase test system* supports all common electrical tests on power transformers. Weighing 44 lbs., it is ideal for routine and diagnostic testing on site and during factory acceptance tests. Reducing wiring efforts cuts testing to one-third of the normal time compared to conventional single-phase testing. Just three cables have to be connected: one to the high-voltage side, one to the low-voltage side, and one to the tap changer. It is equipped with an emergency stop button as well as safety and warning lights.

Contact: OMICRON, Waltham, Mass., 800-664-2766; martina.stieglmeier@omicronenergy.com; omicronenergy.com.



POLE STEP

VAF Industries' new *one-piece pole steps* are made of stainless steel or aluminum with a wide body step that has a flat standing platform and non-slip nodules to improve safety. They also meet OSHA and ANSI requirements for fall-protection strength and have a 5,000-lb. rating. They're designed for use on steel or composite poles using an easy-to-install "J" bolt blind installation, and mount into 1-in.-diameter openings. Pole color matching is available.

Contact: VAF Industries, Escondido, Calif., 760-214-5405; info@vafindustries.com; vafindustries.com.

CAMOUFLAGED COPPER GROUNDING CONDUCTOR

Copperweld LLC has introduced its *CAMO line of grounding conductors* that eliminate the copper look of copper-clad steel and make it look like weathered steel. CAMO reduces a thief's interest because its scrap value is unrecognizable. Copperweld began selling its grounding conductors to utilities directly and through distributors in 2016 and is Rural Utilities Service-listed and laboratory-verified ASTM compliant.

Contact: Copperweld BiMetallics LLC, Brentwood, Tenn.; 615-377-4177; dsmith@copperweld.com; copperweld.com.

RUGGED WINDOWS 10 TABLET

Handheld Group, a manufacturer of rugged mobile computers and tablets, released a new *Algiz 8X ultra-rugged Windows 10 Enterprise LTSB tablet computer* built for field workers. It meets MIL-STD-810G military standards. Features include LTE and dual-band WLAN communications, along with an 8-in. projective capacitive touchscreen that is ultra-bright and built for outdoor use. Glove mode or rain mode allows for seamless operation in changing weather. It has a stylus and a rear-facing 8 MP camera with autofocus and LED flash.

Contact: HANDHELD GROUP AB, Corvallis, Ore., 541-752-0313; a.urban@handheld-us.com; handheld-us.com

UNINTERRUPTIBLE POWER SYSTEM

Power management company **Eaton** has added new 700-1,500 volt-ampere (VA) models to its line of *9PX uninterruptible power system (UPS) products*. They are designed to integrate into a variety of applications, from IT to industrial, and work seamlessly with other Eaton power management solutions. Eaton's new 9PX 700-1500 VA UPS models offer flexible deployment options, a graphical LCD menu, rack and tower form factor, integration with Eaton's Intelligent Power Manager software, remote management and alarms, and data for historic trending and analysis.

Contact: Eaton, Raleigh, N.C.; 800-356-5794; eaton.com/powerquality. **RE**

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Cooperative.com has a free service for members to post job announcements themselves Details may be found in the HR Professionals section under Career Center.

SYSTEM PLANNING ENGINEER

Choptank Electric Cooperative is seeking an experienced electrical engineer to work on all aspects of electrical utility planning and distribution design. An acceptable candidate must be able to perform engineering studies to ensure adequate capacity, perform contingency studies to ensure adequate reliability, and plan construction projects with related budgeting to successfully accommodate future growth. This is a high level position requiring excellent project management and interpersonal skills. **Minimum Qualifications:** BS in Electrical Engineering; 7 or more years' experience in electrical utility engineering; experience in short and long range planning; working knowledge of the National Electric Safety Code, National Electrical Code and OSHA regulations. **Preferred Qualifications:** Maryland PE license or ability and desire to obtain within 1 year; personnel management skills; GIS experience. **Company Overview:** Choptank Electric is an electric distribution cooperative with 52,000 members headquartered in Denton, Md., on the beautiful Eastern Shore of the Chesapeake Bay in the heart of "The Land of Pleasant Living." We offer a truly unique East Coast location with an excellent quality of life in unspoiled rural areas and small towns yet only a short drive to Philadelphia, Baltimore, Washington, D.C., and Maryland and Delaware's coastal beach resorts. As one of the area's most desirable employers, we offer competitive compensation, a rich comprehensive benefit package, professional development and a friendly, enjoyable work environment. To be considered for this position and a rewarding career at every level, please e-mail your resume and cover letter to hrgroup@choptankelectric.coop.

CONGRATULATIONS TO
ANNA POLITANO

and the staff of *Oklahoma Living* for winning the
2016 George W. Haggard Memorial Journalism Award

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Iowa
Wisconsin

Region 6
Minnesota
North Dakota
South Dakota

Region 7
Colorado
Kansas
Nebraska
Wyoming

Region 8
Arkansas
Louisiana
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Oklahoma

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NATIONAL

MANON RETIRES

Myk Manon's recent retirement as a country director for NRECA International wrapped up a 40-year career of bringing power to unserved rural areas worldwide. "I've had a very rich and rewarding life," Manon told NRECA International's **Zuraidah Hoffman**. "Through my work with NRECA, I played a part in bringing the gift of electricity to the world's less fortunate and enjoyed seeing how their lives have changed." Among those changes, he said, were refrigerators, radios, TVs, and electric lights. "And, of course, cold beer."

Seven co-op communications professionals from as many states earned Certified Cooperative Communicator status recently after completing the rigorous requirements of the NRECA-sponsored program. The new CCCs are **Hillary Cherry**, director of communications at Corn Belt Energy Corporation, Bloomington, Ill.; **Rachel Frey**, communications specialist at Sam Houston Electric Cooperative, Livingston, Texas; **Scott Gates**, senior editor at *Carolina Country* magazine, North Carolina Association

of Electric Cooperatives (statewide), Raleigh; **Laura Palzkill**, member services assistant at Price Electric Cooperative, Phillips, Wis.; **Teresa Sampson**, key accounts coordinator at Duck River Electric Membership Corporation, Shelbyville, Tenn.; **Julie Schramek**, executive assistant/corporate communications manager at Cooperative Response Center (service), Austin, Minn.; and **Rebecca Schwartz**, communications & marketing representative at Heartland Power Cooperative, Thompson, Iowa.

Tom Halverson has been named CEO at CoBank (service), Denver, Colo. Halverson joined the farm and rural utility lender in 2013 after 16 years with Goldman Sachs. "We are delighted to have Tom formally in his new role and leading CoBank forward into the next chapter of its history," said **Everett Dobrinski**, a former board chair at Verendrye Electric Cooperative, N.D., who now chairs CoBank's board.

REGION 1
NEW SUSSEX CHIEF

Christopher Reese has moved into the top staff slot at Sussex Rural Electric Cooperative, Sussex, N.J., taking over from **James Siglin** following Siglin's recent departure to become COO at Adams Electric Cooperative, Gettysburg, Pa. Reese has been at Sussex Rural Electric for 25 years, starting as staff engineer and moving through the ranks to become director of corporate services before taking the president/CEO post. He was also vice president of the co-op's electrical contracting subsidiary.

Mecklenburg Electric Cooperative, Chase City, Va., takes a pretty hard line on safety, as President & CEO **John Lee Jr.** made clear during a presentation at NRECA's recent Safety Leadership Summit. "I've had the occasion to tell an employee, 'I'd rather fire you than bury you,'" Lee

John Lee Jr.

told summit participants. "That sends the message that no matter how good you are at what you do, or how hard you work, if you don't follow the safety rules, you've got to go." **Ron Campbell**, the co-op's safety coordinator, and **Paul Underwood**, a lineman/serviceman who chairs the co-op's employee-staffed safety committee, also attended the summit. Campbell said Lee's emphasis on safety has hit home at the co-op. "Our team recognizes safety is a core value," he said.

"Furthermore, it's a value that ensures everyone goes home. When expressed in those terms, hard-earned values are never a burden."

Gary Zajac has retired as vice president of marketing & communications at Carteret-Craven Electric Cooperative, Newport, N.C., after nearly 40 years on the co-op's staff. Zajac had only recently graduated with a degree in business accounting when he landed the energy advisor's job at Carteret-Craven Electric, and he went on to work in meter reading, load management, and energy efficiency programs. He also worked with the co-op's charitable foundation and played a leading role in creating the co-op's **Harold Anderson Jr.** Memorial Fund, established in honor of a Carteret-Craven Electric lineman who died while restoring power after a hurricane.

Four staffers have taken on new duties at Central Electric Cooperative, Parker, Pa. **Fred Terwilliger** has been named assistant general manager/COO, but he'll also continue to oversee the co-op's engineering & operations department. **John Evankovich** has taken the operations manager post, with **Bill Betros** backing him up as newly named assistant operations manager. And **Sheila Morrison** was recently promoted to purchaser & warehouse supervisor, in addition to her purchasing and accounts payable chores. Also at the co-op, **Bill Eichner** has earned Director Gold status through NRECA's rigorous director training and certification program.

Joe Slater had been on the job at Southern Maryland Electric Cooperative (SMECO), Hughesville, Md., for barely three months when tragedy struck during storm recovery efforts at the co-op. Two linemen lost their lives, and Slater says the incident seared him with a "never again" attitude. Slater became the co-op's president/CEO in 2002 and was recently named one of seven "CEOs Who Get It" by the National Safety Council. "The best leaders lead by example, and so we salute the 2017 'CEOs Who Get It' for going above and beyond in creating a culture of safety by focusing on what matters most," said **Deborah Hersman**, the council's president & CEO. In addition to attending and presenting at employee safety meetings, opening an office workout center, and establishing a co-op family health center for employees, retirees, and their family members, Slater's safety accomplishments as listed by the council include that he "personally wear-tested an approved flame-resistant company uniform while performing maintenance activities at his home to assess the comfort of the garment."

Staffers at Washington Electric Cooperative (WEC), East Montpelier, Vt., said farewell recently to two veteran co-workers after one of them took a job with an investor-owned utility far to the south. **Scott Martino**, safety & environmental compliance specialist and a 25-year co-op employee, moved to Atlanta, Ga., to become a safety & health consultant at Georgia Power. His wife, **Cathie**

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Vandenberg, WEC's plant accountant and a 24-year employee, followed him south. "Scott and Cathie will always be part of the WEC family," board President **Barry Bernstein** wrote in his column in the co-op's member newsletter. "We wish them well in their new home, but we will surely miss them here." **Josh Diamond**, the co-op's legal counsel for the past 18 years, has also moved on, taking a deputy position with the newly elected state attorney general. **Ron Shems** from Diamond's former firm will take his place.

REGION 2

'THE BEST WEEK'

Jeff Brewington, CEO at Glades Electric Cooperative, Moore Haven, Fla., said he had "the best week of my career" when capital credits refund time rolled around recently. "We personally delivered capital credits refund checks to past and current members. I am still reeling from it," Brewington wrote in the co-op's local pages of the statewide consumer magazine. Thanks to a decision in the 1980s by a commercial member that was going out of business, the co-op was able to provide some serious support for scholarship funds in two counties it serves. "We presented $48,000 to each of these school boards' scholarship funds," Brewington told his members. "What made that really special is Hendry County was, at the time, trying to establish its fund and wondering where the money would come from." It had been some time, he went on, since the co-op was in a position to refund capital credits. "With the unwavering support of the board, innovative business activities, and focused work of all employees, we achieved required milestones. Community. That's what a rural electric cooperative is all about, and it does your heart well."

Gulf Coast Electric Cooperative, Wewahitchka, Fla., recently handed out memorial awards and service pins to 19 employees. The co-op's **Alfredia Owens** Member Service Award went to **Betty Horne**, while **Francis Hinson** received the **Tomica Lowery** Memorial Award, and **Brennis Smith** accepted the **Tony "T-Bone" Turner** Hustle Award. Service pins went to **Gary Whitfield**, 15 years; **Pam Burns**, **Shannon Hill**, and **Lorie Jackson**, 10 years; **Bob Logan**, **Lindsay Peak**, **Josh Pitts**, and **Jim Vickers**, five years; and **Hassan Abdelhalim**, **Jason Curry**, **T.J. Davis**, **Matthew Fleming**, **Issac Madrid**, **Jacob O'Bryan**, **Jay Shiver**, and **Steven Ward**, one year.

Staffers at Georgia Electric Membership Corporation (statewide), Tucker, and their counterparts at co-ops across the state recently welcomed two newcomers to the statewide operation. **Lauren Price**, who joined the economic development team as a project developer, has worked for two Georgia co-ops, most recently at the natural gas

subsidiary of Coweta-Fayette Electric Membership Corporation, Palmetto. **Jenna Saxon** came from the Georgia Farm Bureau Federation to a position that opened on the statewide's government relations team after **Heather Teilhet** moved to Oglethorpe Power Corporation (G&T), Tucker. Also at the statewide, **Jason Bragg** was named vice president of government relations.

Two employees with a combined total of more than 65 years of experience retired recently at Aiken Electric Cooperative, Aiken, S.C. **Bobbie Cook**, member services coordinator, joined the staff in 1987 and has "served more members in our communities than she could have ever realized," the co-op said in its member newsletter. **Chris Turner** started out as a meter reader and lineman "but was crew chief for most of his 35 years with Aiken Electric," the newsletter said.

REGION 3
NANNEY RETIRES

More than three and a half decades of dedicated service to Alcorn County Electric Power Association, Corinth, Miss., drew to a close with the recent retirement of **James Nanney Jr.** as general manager. The board named **Eddie Howard** to take Nanney's place. **Nancy Roland** also retired recently after 35 years on the co-op's staff, while **Sean McGrath** was promoted to CFO. In the co-op's board room, **J.B. Darnell** was recognized for 40 years of service and **Bobby Roberts** was honored for two decades on the board.

Her co-workers at West Kentucky Rural Electric Cooperative Corporation, Mayfield, Ky., saluted **Lori Sheridan** when she recently celebrated 25 years on the co-op's staff.

Cumberland Electric Membership Corporation, Clarksville, Tenn., recently joined 10 employees in marking major service anniversaries. The honored veterans were **Allen Powell**, 40 years; **Dean Bertram**, **Tim Black**, **Pam Dabbs**, and **Gary Peterson**, 20 years; **Vicki Bostain**, **Josh Gill**, and **Danny Smith**, 15 years; **Stephen Fitzhugh**, 10 years; and **Jay Kesler**, five years.

REGION 4
SMITH'S ADVANCE

Roger Yoder has retired as president/CEO at Union Rural Electric Cooperative, Marysville, Ohio, after 37 years on the co-op's staff and 25 in the top job. He said farewell to co-op members in his local pages column in *Country Living*, published by Ohio's Electric Cooperatives (statewide/G&T), Columbus, but he kept the focus on his successor. "Having had the privilege of serving our members for close to four decades, I wholeheartedly endorse the board's selection of **Anthony Smith** as president/CEO," Yoder wrote. Smith has been a co-op employee since 1992 and vice president of engineering, operations, and Honda affairs since 2007. Board chair **Jeff Wilson** credited Smith's "industry experience and knowledge, coupled with his well-earned comprehension of both Honda and member expectations" for the board's unanimous choice. Taking Smith's vice president slot is **Matt Zarnosky**, who's been at Union Rural Electric since 2014. Also at the co-op, **Cindy Stoppa** was promoted recently from member services representative to billing coordinator, while **Bill Cox** advanced to warehouse & purchasing coordinator following the retirement of **Ken Hartley**. **Max Oyer** signed on as the co-op's new warehouse assistant, and **Caleb Bellville** joined the operations department.

Three employees at North Western Electric Cooperative, Bryan, Ohio, are settling into new jobs following their recent promotions. **Pearl Rakes** moved up from communications/public information specialist to director of marketing & communications. **Debra Towne**, formerly a human resource specialist, advanced to director of human resources. And **Tracey Carter** was named communications specialist after three years as a member service representative.

Four newcomers have joined the staff at Ohio's Electric Cooperatives (OEC, statewide/G&T), Columbus. **Nicole Ashba** is a human resources consultant; **Devin Braun** is a power generation performance analyst; **Alex Schmauder** is OEC's new accounting manager; and **Bethany Schunn** signed on as a plant operations & maintenance engineer.

Longtime co-workers have said farewell to **Betty Baute**, who recently retired from the member services department at Jackson County Rural Electric Membership Corporation, Brownstown, Ind. In the course of 40 years at the co-op, Baute worked on the monthly member newsletter, youth programs, and 4-H.

REGION 5

PIONEER HONORED

The Quincy (Ill.) Area Chamber of Commerce chose wisely when it recently inducted the late **Dean Searls** into its Business Hall of Fame. Searls served for 40 years as the first general manager at Adams Electric Cooperative, Camp Point, Ill., before retiring in 1981, and as the co-op noted in nominating him for the chamber's hall of fame, he was "committed to the cooperative, the community, and to bettering the lives of others worldwide." He grew up on an Illinois farm that didn't have power and made a career of bringing it to others. The United States entered World War II shortly before Searls arrived to take the Adams Electric manager post, when materials for building lines were being diverted to the war effort. He and a group of the co-op's directors even made a trip to the War Allocation Board in St. Louis to plead for used tires for the co-op's trucks. He also helped organize the Adams Telephone Cooperative, allowing it to use Adams Electric lines, and sat on the phone co-op's board from 1959 to 1981, including two years as its president. "My greatest pleasure in life has come from providing electric power to older couples who have longed for the convenience and luxury for most of their lives," Searls once said. "The smile and the twinkle in the eye, which comes to those who waited a lifetime for this great blessing, is compensation which has no monetary value." Searls died in 1999 at age 84.

Ben Grapa has retired as crew foreman at Price Electric Cooperative (PEC), Phillips, Wis., closing out a nearly 40-year career on the co-op's lines. He'd been on the job for less than two months in 1977 when a Fourth of July storm hammered the co-op, prompting nearly a month of 16-hour days as PEC struggled to recover. "Ben stated that he learned a lot that first year," **Greg Bortz**, editor of the co-op's local pages in the statewide magazine, reported dryly. "He remarked that he is grateful as an employee, a co-worker, and a member of PEC for the others who work hard and are dedicated to keeping the lights on."

Southwest Iowa Rural Electric Cooperative, Corning, Iowa, mourned the recent passing of **Richard Fast**, a 10-year member of the co-op's board who served a year as its president. "Rich helped guide and direct us through the many changes we have encountered in our industry," the co-op's member newsletter, *Southwest Lines*, said in an obituary. "Rich will be missed by all who knew him." Fast was 59.

Darrell Jensen, a board member at Farmers Electric Cooperative, Greenfield, Iowa, who represents his co-op on the board of the Iowa Association of Electric Cooperatives (statewide), Des Moines, has added another board to the list: Jensen recently joined 17 other board members at the Iowa Institute for Cooperatives.

REGION 6
A FAMILIAR FACE

Jesse Goehring, an apprentice lineman at Capital Electric Cooperative, Bismarck, N.D., was recently chosen to represent his state as one of the nation's "50 Faces of Apprenticeship." He was nominated for the honor, part of the U.S. Department of Labor's campaign to highlight on-the-job training, by the co-op's operations department and the safety services staff at the North Dakota Association of Rural Electric Cooperatives (statewide), Mandan. "We've employed many apprentices over the years," said **Rick Dressler**, Capital Electric operations supervisor, "and in turn have seen our co-op grow, our productivity skyrocket, and our employee turnover significantly decrease. I highly encourage those in our business community to establish an apprenticeship program within their own organization."

"Everyone's favorite buddy" has retired as cashier/receptionist at Mor-Gran-Sou Electric Cooperative, Flasher, N.D. **Laverne Seehafer** had worked a lot of different jobs at the co-op, starting as a part-time payroll clerk in 1980, **Carmen Devney** reported in *Current*, Mor-Gran-Sou Electric's local pages in *North Dakota Living*, the consumer magazine published by the North Dakota Association of Rural Electric Cooperatives (statewide), Mandan. "When you work for a cooperative family, you can't beat it," Seehafer told Devney. "It's a whole other family. We need every one of us in order to make the world go around. The group we have, everybody pitches in, regardless of whether or not it's in their job description."

Employees at Basin Electric Power Cooperative (G&T), Bismarck, N.D., said farewell recently to two veterans who retired with a combined total of more than six decades of service. **Keith Witt** had 36 years in when he retired as a water treatment operator at the G&T's Laramie River Station in Wyoming, while **Mike Ruckman** retired as lead electrician at that station after 26 years with Basin Electric.

Michael Heidemann has been named CEO at Brown County Electrical Association, Sleepy Eye, Minn. He takes over from **Wade Hensel**, who retires this month after 15 years with the co-op. Heidemann has been the co-op's operations & engineering manager for the past 10 years and its COO since last summer. "Mike has done a great job for the last 10 years, and I look forward to working with him," said **Jim Mickelson**, board president.


Michael Heidemann

REGION 7
HALL OF FAMER

Earl Watkins, who retired as president & CEO at Sunflower Electric Power Corporation (G&T), Hays, Kan., in 2011 after 34 years at the co-op, will join the Kansas Cooperative Hall of Fame this month. It's a well-deserved honor, according to

his former colleagues. "Earl took very seriously the responsibility entrusted to him by Sunflower's board to be one of the co-op voices at the local, state, and national levels and to protect the way of life in rural Kansas," **said Stuart Lowry**, the G&T's current president & CEO. **Bruce Graham**, CEO at Kansas Electric Cooperatives (statewide), Topeka, added, "Earl's career left an indelible mark on more than just Sunflower and its employees. He dedicated time and energy to improving the quality of life in rural Kansas, national projects of importance such as ACES, and many legislative initiatives. He is a deserving choice for the Kansas Hall of Fame."

Stan Bray has announced plans to retire this summer as a safety & loss prevention consultant for Federated Rural Electric Insurance Exchange (service), Lenexa, Kan. Bray's 45-year rural electric career began as an apprentice lineman at Lane-Scott Electric Cooperative, Dighton, Kan., in 1972, and he joined Federated in 2004. "I have had the privilege to visit more than 170 different cooperatives in 19 states," he said. "It has been an honor to meet so many great cooperative people."

A new certificate hangs on **Bruce McAntee**'s office wall at Kansas Electric Cooperatives (statewide), Topeka. McAntee, a loss control, safety & compliance instructor for the statewide, recently completed NRECA's safety internship to become a Certified Loss Control Professional. "This certification most benefits our membership and employees in providing a well-rounded instructor that has specific working knowledge and technical expertise in the utility industry," said **Larry Detwiler**, the statewide's loss control, safety & compliance director.

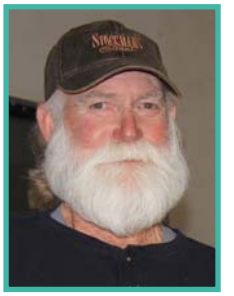
Folks at Doniphan Electric Cooperative Association, Troy, Kan., were sorry to learn of the recent death of **Bernard "Pete" Walter Sr.**, a retired member of the co-op's board. Walter served as a trustee from 1975 to 1992.

Veteran staffers at Midwest Energy, Hays, Kan., mourned the recent passing of **Gary Miller**, who served as the co-op's safety manager for 20 years before retiring in 2007. "One of the highlights of his safety career was winning the Kansas Governor's Safety & Health Award for the company, working one million hours without a lost day," the co-op's employee newsletter *Shop Talk* reported. Miller was 72.

Their new co-workers at Yampa Valley Electric Association, Steamboat Springs, Colo., have welcomed **Daniel Curtis** and **Don Jensen** into their ranks. Curtis signed on as a facilities maintenance technician, and Jensen is a journeyman lineman.

REGION 8
'HARD TO REPLACE'

Lee Cansler's recent retirement as a working foreman at Harmon Electric Association, Hollis, Okla., closed out a 47-year co-op career, most of it at Harmon Electric. Cansler started out at Southwest Rural Electric Association, Tipton, Okla., in 1970 and moved to Harmon Electric in 1974. "Lee has been a great asset for Harmon Electric and takes with him a wealth of knowledge about the entire Harmon Electric service territory that will be hard to replace," the co-op said in announcing his retirement.


Lee Cansler

Her co-workers at Lake Region Electric Cooperative, Hulbert, Okla., said farewell recently to **Phyllis Clinton**, who retired recently after 16 years on the staff. Clinton started out as a cashier/receptionist at the co-op's Wagoner office and retired as office cashier. "Clinton was the face of the Wagoner office," the co-op reported in its member newsletter, but it added that she was best known for her cooking—especially the dinners she helped prepare for hungry crews in the aftermath of the 2007 ice storm.

Ralls County Electric Cooperative, New London, Mo., has received the Innovation Award from the Tri-State Development Summit for the co-op's six-year-old initiative to bring high-speed broadband internet service to its members. "We saw the effects of not having broadband," said **Lynn Hodges**, the co-op's CEO/general manager. "People were moving away, and business didn't want to move in. Now that has been reversed." The Tri-State Development Summit is a group of community leaders working to boost the economy in 36 Missouri, Iowa, and Illinois counties. Hodges said 68 percent of Ralls County Electric members have signed up for the co-op's fast internet service.

Two board members and 13 employees rounded major service milestones recently at Crawford Electric Cooperative, Bourbon, Mo. The two board veterans are **Jim Cottrell**, 30 years, and **Ken Crowder**, 15 years. The staffers earning service awards were **Rick Adams** and **Ken Staples**, 30 years; **Steve Ives** and **Bruce Robertson**, 25 years; **Dan Butyenek** and **Grant Stack**, 20 years; **Brent Sappington** and **Janice Spurgeon**, 15 years; **Troy Frizzell**, **Terry Gordon**, **Brett Palmer**, and **Lori Philpot**, 10 years; and **Jason Kisner**, five years.

REGION 9
ANZA BOARD SHIFT

Joel Carlisle has resigned from the board at Anza Electric Cooperative, Anza, Calif., following his recent move out of the district he had represented since 2008. His seat will be filled in board elections this summer. Anza Electric board member **Michael Machado** was appointed to take Carlisle's place on the board of the Grand Canyon State Electric Cooperative Association (statewide), Tempe, Ariz.

Four board members at Columbia Rural Electric Association, Dayton, Wash., have become Credentialed Cooperative Directors under NRECA's rigorous training and certification program. **Duane Depping**, **Jay DeWitt**, **Tom Hildreth**, and **Greg Knowles** recently earned their certificates. Also at the co-op, the board saluted **Tim Pettyjohn**, who retired as a director recently after 15 years of service. "Tim's knowledge and experience have been invaluable to the cooperative and have served our members well," said **Katie Wooldridge**, board president.

Jennifer Hogan got a big round of applause from her co-workers when she recently celebrated 15 years of service at McCone Electric Cooperative, Circle, Mont. Hogan, the co-op's plant accountant, "does a fantastic job of keeping track of all departments," the co-op reported in *Power Talk*, its member newsletter. "Her knowledge and experience is invaluable to all of us at McCone Electric. Jennifer's good mood is always refreshing, and we thank her for her 15 years of service."

Shadowing her father for "Take Your Kid to Work Day" at Salem Electric, Salem, Ore., must have made an impression on **Courtney Charnetzki** because

she eventually ended up working there, too. **Jon Charnetzki** is a line crew foreman and 30-year employee at the co-op. "I was an SE [Salem Electric] kid," Courtney Charnetzki said. "I remember going to 'Take Your Kid to Work Day' with my dad when I was in elementary and middle school. My sister job-shadowed my dad out in the field, while I helped in the office, stuffing envelopes and pasting postage." She joined Salem Electric as a customer service representative in 2014 and moved up to member services coordinator a year later. "Following in her father's footsteps, Courtney has taken to heart what he applied to his career and gave to his daughters as advice: 'Make your job something you love to do,'" the co-op's member newsletter reported in an employee profile on her. Also at Salem Electric, **Paul Nelson** retired recently as senior customer credit representative after more than 37 years on the staff. "Through the years, Paul has shown patience and compassion working with members who are having a hard time paying their electric bill, and he warmly visits with members who just need a little human connection in their day," the newsletter said.

Stuart Parks has been appointed to the board of directors at Chugach Electric Association, Anchorage, Alaska. An engineer and long-time Anchorage resident, Parks succeeds **Bruce Dougherty**.

REGION 10
BUCKNER DEPARTS

Kerry Buckner has retired from Rusk County Electric Cooperative, Henderson, Texas, after more than 32 years on the staff, most of it as a meter reader. He spent about three years in the early 1990s as a data processing operator but returned to reading meters in 1993 and never looked back. "Kerry has had the opportunity to work in the community and meet a lot of nice people while reading and checking meters," the co-op said in announcing his retirement. "He has lots of memories and stories he will hold dear, with the exception of the day he was mauled by two angry pit bull dogs and ended up in the emergency room. We will miss Kerry but wish him and his family the best!"


Kerry Buckner

The recent retirement of **Dennis Kouts** as operations manager after 40 years on the staff at Graham County Electric Cooperative, Pima, Ariz., triggered two promotions. Line Superintendent **Rusty Sherman** moved up to take the operations manager slot, and Line Foreman **Trent Bingham** stepped in as line superintendent.

Roosevelt County Electric Cooperative, Portales, N.M., recently recognized seven staffers for rounding major service milestones. **Jerry Partin**, general manager & executive vice president, led the group with 40 years of service, followed by **Debbie Goff** and **Herman Gutierrez**, 25 years; **Cade Standifer** and **Rick Wilcher**, 20 years; **Annette Salguero**, 15 years; and **Glenn Barleben**, five years.

Co-op leaders in New Mexico and around the country mourned the recent passing of **Fred Lackey**, the retired general manager at Continental Divide Electric Cooperative, Grants, N.M., who served for 12 years on the NRECA board and as its president from 2001 to 2002. Lackey joined Continental Divide Electric as office manager in 1969 and took over as general manager six years later. He retired in 2001. "Fred Lackey was a co-op leader here in New Mexico when I became statewide manager," said **Keven Groenewold**, executive vice president & general manager at the New Mexico Rural Electric Cooperative Association (statewide), Santa Fe. "He was always quick to advise and encourage." Lackey joined the NRECA board in 1991, when the electric utility industry was just entering a turbulent time. "During the tumultuous Enron-deregulation and California energy-crisis days, Fred helped guide the rural electrification program with confidence," said **Mel Coleman**, CEO at North Arkansas Electric Cooperative, Salem, Ark. "He championed policies member co-ops used to operate successfully amid changing wholesale market conditions." A native of New Mexico, Lackey was 81.

Joe Vicente III has been named to the board at Central New Mexico Electric Cooperative, Moriarty, N.M. A rancher and lifelong resident of the area, Vicente succeeds the late **Leandro Abeyta**. RE

CO-OP TECH
FROM PAGE 37

And all of the figures come together when he presents the budget to his board.

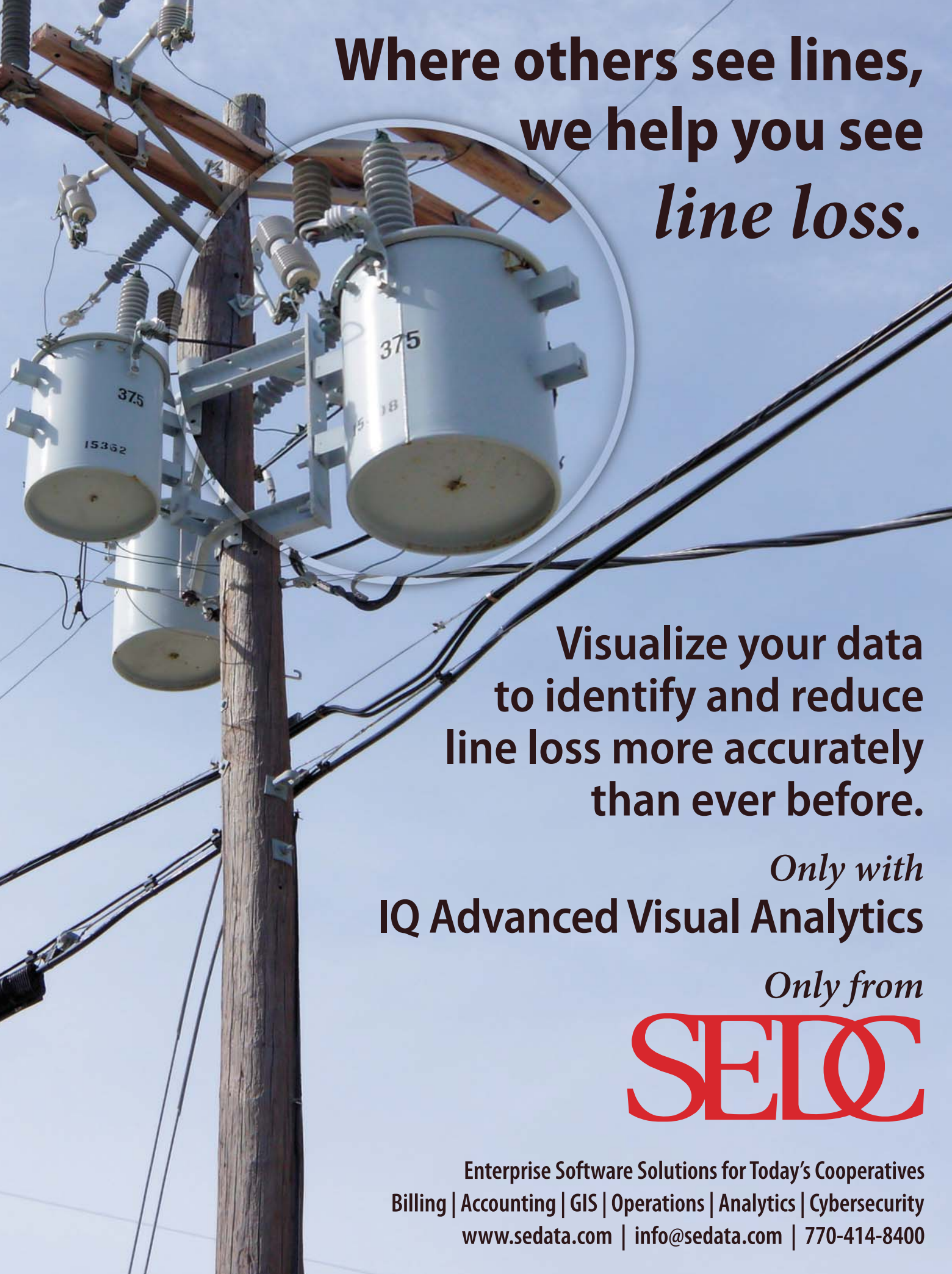
"We're spending a lot of money on tree clearing, and we want to make sure we're optimizing that spend. All I know is that when I'm in the boardroom and we're in the budget process, it's no longer a guess; it's a pretty scientific number."

Members have definitely noticed, he adds, from the farmers who run big operations in the fertile Red River Valley on the western fringes of the co-op's territory to those seasonal members who spend weeks every summer on the wooded lakeshores.

"We have lake association meetings that we attend, with probably 60 or 70 people showing up," Thompson says. "We were asked to speak at those meetings, and we brought pictures of what we'd done. I don't mean to brag, but they clapped after our presentation. The improvements are real, they're visible, they're noticeable."

Most of all, they're noticeable in lines that are safer for crews to work on and for kids at play during a summertime visit to the lake.

"From a safety and reliability standpoint, it's huge," he says. "Safety and reliability are the most important things." RE



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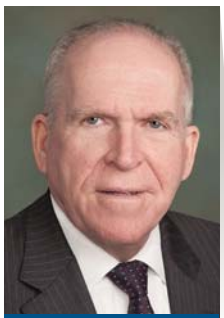

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