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RURAL ELECTRIC MAGAZINE

Rural Fiber

A small Virginia co-op's
broadband venture

The Governance Report

Starting a necessary discussion p. 18

'Safety Playbook'

Cleanup day yields an emotional find p. 38



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—Mel Coleman, CEO of North Arkansas Electric Cooperative

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OUT OF A GROWTH BOOM EMERGES A MISSOURI G&T

BY FRANK K. GALLANT



Photo courtesy NE Power

Northeast Power's South River Power Plant, 1950

Electric co-ops were growing by leaps and bounds in the years immediately following World War II. It seemed like every rural household that didn't have modern electric service wanted it "now," and every household that already had it was using more kilowatt-hours each month.

Then, suddenly, many co-ops hit a wall: There wasn't enough power supply to keep up with all this growth—at least not at a fair price.

Jim McCarty, vice president of communications at the Association of Missouri Electric Cooperatives (state-wide), tells how one co-op dealt with this problem in a history he wrote for Missouri Rural Electric Cooperative.

Missouri Rural Electric had signed a wholesale power contract with the city of Palmyra in October 1936, a month before asking for bids to build its first line. Everything went smoothly until 1944, when the city council summoned Frank Schmit, the co-op's manager, to city hall to tell him the municipal diesel plant might not be able to keep up with post-war growth.

Schmit then met with representatives of Missouri Power & Light, but the investor-owned utility's (IOU) offer was "not satisfactory," according to

continued on page 140

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JIM MATHESON, CEO

The 2018 congressional elections are a few months away, but our work on advancing the political influence of America's electric cooperatives doesn't wait for elections. It's a full-time job.

We have a particularly great opportunity to have an impact on the 2018 elections through work we can all do now. This is the time to engage voters on the issues that matter to your communities and to meet the candidates running for office.

And there are *a lot* of new candidates.

As of this writing, 63 members of the U.S. House of Representatives have retired or have announced that they



community through participation in our democracy. Co-ops Vote is about more than voting—it's about engaging in the political life of your community. The political interests of a co-op are, by definition, the interests of its membership.

In Co-ops Vote, you have everything you need to start this essential conversation. Use it to get involved in our collective political mission. Bring your members and your neighbors together with the candidates who need to know who we are and what we stand for. Invite a member of Congress to lunch with the co-op board and employees.

“By participating in the Co-ops Vote program, you will continue to send a strong message to candidates at all levels that they must put rural America's concerns front and center to earn our vote.”

will not run for re-election. So, at a minimum, the House will have 63 new members when a new Congress takes office in January, and in today's volatile political environment, that number could be a lot higher.

Most advocacy groups will await the election results before they start establishing relationships with new members of Congress. In doing so, they will have missed an opportunity. Our political strength is based on the deep ties and trust that elected officials have with their electric cooperatives. By establishing relationships now with candidates running for office, we will be in a strong position well before Election Day.

Two years ago, NRECA launched the nonpartisan Co-ops Vote program. We recognized a unique advantage: As co-ops, the civic virtue of voting is in our DNA. We show concern for

Above all, make sure our elected leaders know we expect them to represent all the people we serve.

Everything we want to accomplish as co-ops involves political advocacy for our communities. Elected officials and decision-makers across the political spectrum trust us because of the work the electric cooperative family has put into political engagement. When we all get involved, we can make things happen politically and in our communities.

NRECA is poised to support your cooperative to ensure that rural issues remain part of the national discussion—and are supported by your elected officials. By participating in Co-ops Vote, you will continue to send a strong message to candidates at all levels that they must put rural America's concerns front and center to earn our vote. **RE**



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– Vince Zagarri / Owner / Zagarri Engineering



THE SAFETY STORY YOU NEVER WANT TO HAVE TO TELL

Four years later, it still haunts Jason Siegfried.

“I’ll never forget the look on Jeremy’s face when his wife and I walked into that burn unit,” Siegfried told a crowd at NRECA’s 2018 Annual Meeting in Nashville, Tennessee.

They were there that December 2013 day to see Jeremy White, a lineman at Southern Pine Electric, who came into contact with a power line while on a service call.

White died Jan. 11, 2014. He was 36 and left behind a wife, daughter, and son.

It might not be a typical thing to hear about at the NRECA Annual Meeting, but Siegfried made clear it needs to be.

“I believe there is not a single topic to be discussed during this annual meeting that’s more important than the safety of the men and women at our co-ops,” he said to applause from the packed room.

As CEO of Taylorsville, Mississippi-based Southern Pine Electric, Siegfried called on fellow co-op leaders to “band together to annihilate complacency and place accountability front and center.” He said it’s the only way to accomplish NRECA’s goal of zero contacts.

A moving video, “A Lineman’s Call—The Story of Jeremy White,” was played at the general session. It’s told by his widow, Liz, and his colleagues.

“I want you to know that creating that video was hard. As many times as I’ve watched it, it never gets any easier,” Siegfried said.

He urged meeting participants to think long and hard about what they need to do when they return home.

At Southern Pine Electric, “we demanded that each person, no matter rank or tenure, take complete ownership in holding themselves and others accountable,” Siegfried said. “No more shortcuts. No more covering for anyone, regardless of how small or minor the violation may seem.”

He acknowledged it isn’t easy. But neither is going to a burn unit—or a funeral.

“I’ve looked some people in the eye and said some pretty harsh words about what safety violations will mean moving forward. And here today, I’d like to look you in the eye and say, this is where a movement can begin to lead this industry.”

Visit cooperative.com to watch “A Lineman’s Call.”

—Michael W. Kahn



A CO-OP ROLE IN CURBING COLORADO ‘RANGE ANXIETY’

Colorado Gov. John Hickenlooper doesn't drive his own car to conduct the state's business. But next year, when he's out of office, he wants to be able to motor across the Rocky Mountain State without worrying about whether his electric vehicle (EV) will make it to the next charging station.

So in January, he introduced a plan that “envisions a network of EV fast-charging stations along major transportation corridors that provides quick, convenient, and reliable charging and allows a driver in an EV to travel from one side of the state to the other without experiencing range anxiety.”

The document says Colorado has 53 fast-charging stations but will need 204 within the next few years and 632 by 2030 if EVs become as popular as some experts predict they will. All of the charging stations would be along major highways.

The plan calls for public/private partnerships to fund the build-out. ALT Fuels Colorado, launched in 2014, will provide grants for 50 to 60 stations. In addition, \$6.8 million from the state's Volkswagen Diesel Emissions Settlement and two other programs will be transferred to ALT Fuels.

Hickenlooper says he's counting on electric co-ops,



Photo courtesy Colorado Rural Electric Association

along with municipal and investor-owned utilities, to help drive EV adoption and see that charging stations are built and used.

Mona Neeley, editor of *Colorado Country Life*, the state-wide electric co-op consumer magazine, says several co-ops in the state are already ahead of the plan, having built local charging stations for their members or in cooperation with their communities in the last couple of years. Plans for other co-op charging stations are also underway.

SHRINKING THE DIGITAL DIVIDE BY USING TV ‘WHITE SPACES’

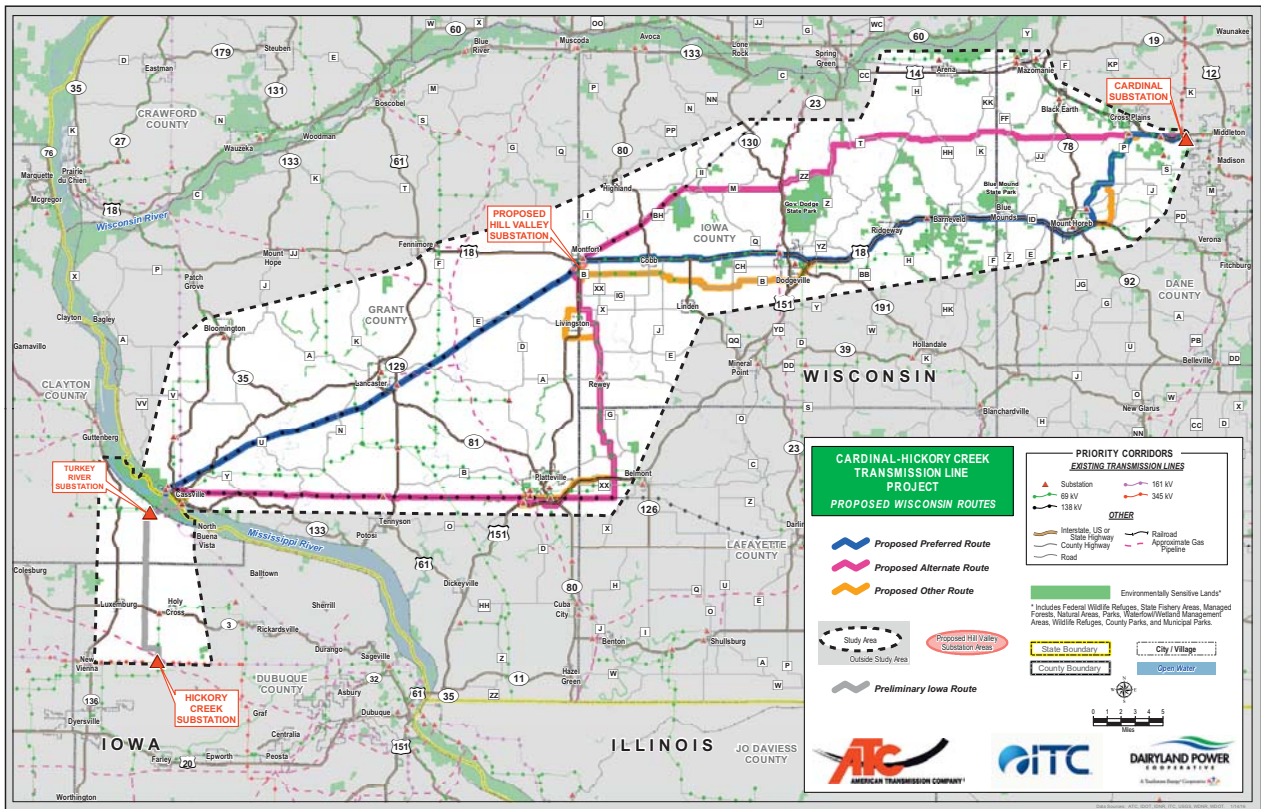
Connect Americans Now is a new coalition led by Microsoft aimed at closing the digital divide by using vacant TV channels, what is known as the “white spaces” spectrum.

“Wireless signals in this range can travel over hills and through buildings and trees and, therefore, are great for last-mile broadband access in rural areas,” the coalition claims.

Other founding partners of the coalition include the National Rural Education Association (NREA), Health and Library Broadband Coalition, Mid-Atlantic Broadcast Communities Corporation, and American Pain Relief Institute.

“There are amazing educational resources online, but students without broadband can easily fall behind their peers,” Allen Pratt, NREA's executive director, said when the coalition was launched on Jan. 2. “In rural communities, the digital divide is standing between millions of kids and the ability to research an author, watch a documentary, or just turn in assignments.”

Microsoft President Brad Smith has been promoting the use of the TV white spaces spectrum at least since last June, when the company released a white paper on the subject and announced 12 pilot projects it would have up and running over the next 12 months.



A GRID UPGRADE FOR SOUTHWESTERN WISCONSIN

After years of planning and weighing public sentiment, Dairyland Power Cooperative and two other midwestern utilities, American Transmission Co. and ITC Midwest LLC, announced their preferred and alternate routes in Wisconsin for a new transmission line, mostly in southwestern Wisconsin and connecting to Iowa.

The 345-kilovolt line would connect the Hickory Creek Substation near Dubuque, Iowa, with the Cardinal Substation near Madison, a distance of 102 to 120 miles. The utilities say the line will largely follow existing transmission and highway corridors, avoiding densely populated and environmentally sensitive areas as much as possible.

They say the line will improve electric grid reliability

locally and regionally, and it will also accommodate renewable energy development.

“Dairyland is committed to diversifying its generation portfolio with more renewable resources to benefit our electric cooperative members, and the ability to reliably transport that energy will be of great importance,” says Ben Porath, the G&T’s vice president for power delivery.

The \$500 million Cardinal-Hickory Creek Project was publicly announced in 2014. This year, applications will be filed with state regulators. Their decisions are anticipated over the next two years. The project would go into service in 2023, according to a timeline.

ELECTRIFICATION TAKES TO THE ROAD

If certain projections prove out and electric vehicles (EVs) reach price parity with internal-combustion-engine cars by 2022, sales could explode. Utilities would have just four or five years to update infrastructure, design new business models and rates, and help their customers build enough private and public charging stations to meet demand.

“The implications for co-ops are significant,” says Alan Shedd, NRECA’s director of energy solutions.

According to the Rocky Mountain Institute, there could be 2.9 million EVs on the world’s roads five years from now, and that would add 11,000 gigawatt-hours of new electricity demand. Some of that will be in the rural areas co-ops serve.

“Look for deployments and customer rebates from energy providers in the U.S. and Europe for smart grid charging systems, which allow them to remotely manage and aggregate the charging loads of EVs over time, limit the need of additional fossil fuel plants, and optimize renewable energy when it is abundant on the grid,” Preston Roper, chief marketing and operations officer at eMotorWerks, writes in an article distributed by *Greentech Media*. “Additionally, expect energy providers to target expansion in DC fast-charging, as it requires extensive new electrical infrastructure to deliver, and utilities don’t have to grant interconnection agreements to themselves.”

THE LAST NEW CREBS GO TO AN ALASKA CO-OP

Alaska's Kodiak Electric Association is adding about 25 percent more energy to its 34.5-MW Terror Lake hydroelectric plant. Construction will begin this summer, with commercial operation coming in the fall of 2020.

"This work follows our board of directors' vision to maintain 98 percent of kilowatt-hour sales with cost-effective renewable power solutions," says Kodiak Electric President/CEO Darron Scott. "Since 2014, we've basically had a 100 percent renewable portfolio, thanks to Terror Lake and our 9-MW Pillar Mountain Wind Farm. Generating green power from local sources has also helped us keep electric rates stable while eliminating fossil-fuel emissions by not having to run diesel generators."

Close to \$40 million of the \$80 million project will be paid for with New Clean Renewable Energy Bonds (CREBs) financed by the National Rural Utilities Cooperative Finance Corporation (CFC), likely the last such project in the country to take advantage of this kind of financing.

"Under the sweeping federal tax overhaul signed into law in December by President Trump, the ability of electric cooperatives to issue New CREBs to construct solar, wind, biomass, landfill gas, geothermal, and certain small irrigation and hydro power facilities was eliminated," CFC explains in a recent issue of *CFC Solutions News Bulletin*. "Approximately \$139 million of available New CREBs earmarked for cooperatives was left unused."

CREBs were created in the Federal Energy Policy Act of 2005. They allowed co-ops to issue bonds through CFC that gave them financial benefits similar to the investment tax credits for renewable energy projects enjoyed by for-profit companies.

Linda Graham, CFC's special asset portfolio manager, points out that CFC has financed 60 renewable energy projects totaling roughly \$297 million with CREBs and New CREBs bond/loan arrangements.

Kodiak Electric, which serves about 4,000 consumers on Kodiak Island, will increase Terror Lake hydropower output by diverting more snow melt and rain to the reservoir that feeds the turbines, which will require building two small dams and cutting a 1.2-mile tunnel through a mountain ridge.



Photo courtesy/ NRECA

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WARN MEMBERS ABOUT HIGH BILLS

There's not an electric utility in the world that hasn't fielded calls about high bills. But what if you warned folks ahead of time?

New research finds they'd be mighty interested in hearing from you.

For its 2016–2017 National Survey on the Cooperative Difference, Touchstone Energy® Cooperatives asked consumers to rate their interest in getting a high-bill alert when increases in their electricity use cannot be explained by the weather.

“Forty-three percent of our members raised their hands as high as they could. They gave us a 10 out of 10 and said, ‘Sign me up,’” says Tom Laing, vice president of research and member insights at TSE Services, the cooperatively owned market research organization that conducted the survey. “And if we add the eights, nines, and 10s together, 60 percent of our members are positively inclined to take advantage of such a service.”

Laing urged co-ops to take notice—and take action.

“It's a very strong result. It represents a huge opportunity for us, particularly when we think about how it reinforces those drivers of member engagement—saving energy, demonstrating that we have a goal of low cost,” Laing says. “Nothing demonstrates that better than calling a member when we think they're heading for a high bill.” **RE**

—Michael W. Kahn

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THE GOVERNANCE QUESTION

START THE DISCUSSION ON WHERE YOUR CO-OP STANDS

BY ADAM SCHWARTZ



Electric cooperative folks understand what it means to be in a 24/7 business. While individuals do get time off, the business never closes, never stops offering the vital services our members rely on.

When Federated Rural Electric Insurance Exchange introduced its “Culture of Safety” program about a decade ago, it was an effort to emphasize that the 24/7 mentality

applies to safety issues. No co-op can ever check the box and say, “We completed our safety program.” It’s a permanent, ongoing concern. And if we lose focus, we slip backwards.

I think it’s time we emphasize that the same level of intensity applies to our governance practices.

As I look at the electric cooperative industry today, I see unprecedented churn and change in nearly every facet of our business. It goes without saying that in such circumstances, the organization needs to adapt and evolve to meet the challenges.

This is no less true when it comes to governance.

“[O]ur industry and our membership are changing, and our governance practices must keep pace with those changes.”

Fortunately, every NRECA and CFC voting member now has access to an excellent conversation starter on the topic: the recently released *Electric Cooperative Governance Task Force Report*.

This thoughtful, comprehensive document addresses numerous details of co-op governance and offers observations and comments intended to spur discussion and, if needed, action. Topics include director qualifications, nominations, elections, compensation, board composition, meetings, and member access to information.

The task force, which I was honored to present to, was composed of 20 individuals from across the country. Directors, CEOs, and other leaders from distribution, G&T, and statewide organizations all had a seat at the table. The report was released in February and is available on cooperative.com.



Visit cooperative.com to read the Task Force Report at cooperative.com/governancetaskforce

I’ve seen many reports, analyses, and, in my opinion, criticisms of co-op governance over the years. I can tell you, this study is a refreshing, thorough, and honest look at the modern governance issues we all face. It goes to great lengths to avoid mandating any one governance method, dictating any best practices, or setting industry standards. It acknowledges that electric co-ops may agree or disagree with the task force, but it emphasizes that our industry and our membership are changing, and our governance practices must keep pace with those changes.

One example I thought of while reading the report: When cooperatives were first founded, and the consumer base for most co-ops was limited and local, it made perfect sense to require members to vote in person at annual meetings. Now, with larger territories, busy members, and the availability of mailed or electronic ballots, such a practice might seem old-fashioned or, worse, could be seen as an attempt to limit participation.

There are dozens and dozens of other board functions that this report will help you identify and analyze. In the end, the question for each is a simple one: “What change, if any, is in the best interest of the co-op and its members?”

When a co-op manages its governance well, it becomes second nature, like safety and reliability.

If governance gets off track, the consequences can be costly in terms of time, money, lost opportunity, and damaged reputations.

The good news is most governance failures are avoidable. Humans cause them, and humans can prevent them. **RE**

Adam Schwartz (@AdamCooperative) is the founder of The Cooperative Way, a consulting firm that helps co-ops succeed. He is an author, consultant, educator, speaker, and member-owner of the CDS Consulting Co-op. You can email him at aschwartz@thecooperativeway.coop.

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'THE BEAUTY OF FIBER'

Lessons from a small co-op's
big broadband project



By Cathy Cash

Josh Webb learned how to splice fiber to the sound of sirens warning of rocket attacks.

“It makes for an interesting work experience,” he says of his four-month stint as a contractor in Afghanistan.

Now he drives a BARC Connects truck over the back roads and rolling hills of Rockbridge County, Virginia, to check on a splicing crew.

A large red fox trots across an open pasture cordoned by a split rail fence under a sky puffy with clouds. “Now,” Webb says with a smile, “I get to look at this every day.”

Webb is the head fiber technician for the broadband subsidiary of BARC Electric Cooperative in tiny Millboro. He grew up on the co-op’s lines in Bath County, which still needs no stoplight.

New businesses bypass this rugged part of the Shenandoah Valley, bounded by the Blue Ridge Mountains to the east and the Appalachian and Allegheny mountain chains to the west. Young adults tend to pursue their dreams outside these rural vales.

Webb sees broadband internet access from co-op fiber as a way for rural communities to retain their populations and sustain their way of life.

“You will have broadband and not have to leave here,” he says. “It will allow [for] more people who want to stay in Bath County and work from home.”

BARC Connects is already creating jobs, including Webb’s.

He returned from Afghanistan to a fiber-optics career in Roanoke, Virginia. In 2015, he applied to work on a right-of-way-crew for BARC Electric so he could go home, but he was rejected as overqualified.

When BARC Electric launched its for-profit broadband subsidiary BARC Connects and prepared to build in 2017, CEO Mike Keyser gave him a call.

“I was the second person hired. Being able to build something from the ground up is a pretty big deal,” Webb says. “I saw the potential to climb the ladder, plus it got me closer to my hometown.”

Money matters

BARC Electric's service territory is hardly unique when it comes to the broadband gap. NRECA data shows that about 6.1 million households in or in proximity to electric cooperative service territories are without broadband service, which is defined by the Federal Communications Commission (FCC) as at least 25 megabits per second (Mbps) to download data and 3 Mbps to upload.

The electric cooperatives pursuing broadband through fiber to the home are delivering internet access at the fastest speeds available anywhere—up to 1 gigabit, which can download a two-hour high-definition movie in 25 seconds.

By 2024, when the \$70 million broadband build is scheduled to be complete, all of BARC Electric's 10,000 members and many non-members will have access to high-speed internet, Keyser says. And the project will not only be paying for itself but turning a profit.

BARC Connects began selling broadband service for internet, TV, and phone in July 2017. It offers free service drops to the first 1,850 customers who pay a \$100 deposit and sign a two-year commitment. Construction costs for a drop average about \$2,000 per location. By March, more than 900 had signed up—many of whom are taking higher speeds.

“We assumed most of our members would take the minimum speed of 50 mbps, given how much faster it is compared to their current service. We were pleasantly surprised to see a lot of them electing speeds of 100 mbps or greater. That shows how starved our members are for fast internet,” Keyser says.

The co-op started in 2015 with a \$240,000 grant from the FCC Connect America Fund, to be awarded over 10 years. The next year, BARC Connects got a \$20 million smart grid loan from the U.S. Department of Agriculture's Rural Utilities Service.

BARC Connects expects to see profitability in two to three years from its phase-one build and true returns nine to 10 years into the project.

With a seemingly unlimited demand for high-speed internet in BARC's service territory, Keyser can already foresee a day when BARC Connects' revenue outpaces the co-op's electric service revenue.

“Imagine getting the best internet, phone, and TV experience possible with the personalized service and responsiveness we provide on the electric side,” he says. “Our service excellence is a huge competitive advantage that becomes a game-changer when you combine it with a fiber-to-the-home network.”

Avoiding another 'black eye'

As with many U.S. electric co-ops, BARC Electric is experiencing little or no growth. On average, there are 130 new meters served and 130 service terminations a year.

With this in mind, the co-op's board of directors recognized fiber's economic benefits to the co-op and the community.





Photo by Alexis Matsui

“When they approved the pilot phase, the board had one directive: Speed up phases two and three,” Keyser says. “They don’t want our members to wait any longer than is absolutely necessary.”

BARC Electric, which has just 6.5 meters per mile, leveraged an open-access fiber network built by Rockbridge County to serve the city of Lexington, which receives electricity from Dominion Power, the investor-owned utility headquartered in Richmond. That created a 10-customer-per-mile density for the initial fiber build-out.

BARC Connects operates out of a former redbrick schoolhouse, donated by Rockbridge County in exchange for the promise of fiber to the home. A Calix E7 Optical Line Terminal cabinet, which manages the fiber signals, is out back. Community solar panels fill the front yard. Large spools of fiber, along with reels of the silver wire that’s strung between poles to form the network backbone, are fenced in a field. Stacks of fresh-cut pine replacement poles recline nearby.

This isn’t BARC Electric’s first run at broadband.

The co-op teamed with International Broadband Electric Communications to do broadband over power lines in 2010. That company went out of business at the end of 2011.

“It was a black eye,” says Keyser, who joined BARC Electric in late 2010 after serving as CEO of the American Samoa Power Authority. “We had hitched our wagon to their horse. To the customer, it was presented as a BARC Electric service. But we couldn’t control any of it.”

It was then that Keyser resolved “if we do broadband again, we do it ourselves. We control the entire customer experience.”

An online crowdsourcing effort measured interest, and with member enthusiasm and board support, BARC Electric took the plunge.

“No cable company or big telco is going to build out our area,” Keyser says. “We’re the only hope for our members—just as we were when the co-op was founded.”

‘The best experience’

Most residents in this Virginia mountain region connect to the internet through dial-up, Digital Subscriber Line (DSL), or satellite. BARC Connects will offer fixed residential and commercial packages beginning at 50 Mbps download/10 Mbps upload. Multiple downloads within a home or a business at the same speed, and without data caps, also will be a new experience.

“If a customer has a bad internet connection now, they are going to be blown away,” says Gary Sickler, general manager of BARC Connects. “People in this area now experience 10 to 15 minutes to download the local newspaper. With fiber to the home, they will have it in seconds.”

Sickler was Keyser’s first hire for the broadband subsidiary in February 2017, preceding Webb, the head fiber technician. Now it has two fiber technicians, a system administrator, an administrative assistant, and a sales director, with plans to hire more as the service takes off.



Contract Lineman Brandon Sims prepares a BARC Electric pole for installing fiber optic cables.

A 20-year veteran of the IT world, Sickler recalls the internet of the 1990s, which was considered “just for fun.”

“Now it’s a necessity. People need it for home, schools, online banking, shopping, and communications with loved ones. The user of the internet has changed so much. It’s become a lifeline,” Sickler says.

Progress in the first 12 months bodes well for the BARC Connects project. A 60-mile northern fiber ring to connect the co-op’s substations was built in five months. Construction on the 20-mile southern ring began in March. The entire phase-one build-out will encompass more than 400 miles, and by late fall, as many as 4,500 residents will have broadband access—many for the first time.

BARC Electric replaced all of its old, weathered utility poles to build the fiber rings and ensure strength and ground clearance. About 15 to 20 percent of the fiber installation will be underground, which will require state permits and rights-of-way approvals.

BARC Connects’ two data centers—the central aggregation points—are in Lexington and Ashburn, Virginia, which has a major internet hub. The data center involves hardware, circuits, and software design, and it must be robust and have power and hardware redundancy to withstand failure.

When a broadband fiber consumer uses Google, posts on social media, or sends an email, the information goes across the fiber to switches in a cabinet, and then it’s on to the data center that sends it out to the worldwide web.

BARC Connects hired Conexon, which specializes in building fiber in rural communities, as its fiber network designer, and hired a contractor to build the network. (*Visit REmagazine.coop to read a sidebar about Conexon and its deep co-op connections.*) “As part of our commitment to superior customer service, the customer’s gateway and Wi-Fi router is included for no additional charge,” Sickler says.

A technician will do a Wi-Fi analysis at the service location to find weak spots and provide the means to strengthen the signal.

“We test speed so the customer is getting what they paid for when the technician leaves their door,” Sickler says. “We really want to give our customers the best service experience possible.”

BARC Connects can “ratchet up speed for customers in seconds. There is no need for a truck roll to a house for an upgrade to increase the speed,” he says. “That’s the beauty of fiber.”

Co-Mo Electric in Tipton, Missouri, pioneered cooperative broadband in 2011 when it built a model to deliver high-speed internet to all of its members. BARC Electric’s entire board and management team visited Co-Mo in August 2017, around the time that Co-Mo was completing its fiber build-out.

“High-speed internet was life-changing for Co-Mo

members. I see a parallel story happening here at BARC,” Sickler says. “It has been an overwhelmingly gratifying experience for me over the past year. But there is so much more to do.”

Survival of electric service

Co-op leaders know that installing fiber network communications creates a smarter, more reliable, and more efficient electric system.

“Today, we rely on customers calling in their outage, and to pinpoint an outage, we patrol sections of line,” Keyser says. “With fiber, we will have sensors embedded in both the fiber network and electric grid. We will know outages have occurred and where before customers even call us.”

The perks of fiber are clear for both electric and broadband service, but the locally owned and operated co-op business model is also a boon. Members had told the co-op they were tired of frustratingly slow internet speeds and “gotcha” pricing from regional internet providers that had no stake, or even an office, in the community.

“Any modern co-op is going to need fiber for communications going forward. If we’re going to build fiber to electric facilities, it’s not that much of a leap to provide fiber to customers at the same time,” Keyser says. “The capacity is already there. That’s one of the reasons why it makes so much sense for electric co-ops to get into this.”

Overall, he says, “we have nothing to lose. The service territory is struggling. People are moving out because there are no jobs. The bigger risk to our survival is not doing anything.”

And broadband should increase the number of new members and energy sales.

“Broadband is real important to the survival of the electric side. You need growth on the electric side,” Keyser says. “That’s what companies look for when moving somewhere: Are the electric rates reasonable, and is there access to high-speed internet? We will be a one-stop shop for both of those needs.”

For Josh Webb, co-op broadband is personal.

“When I was growing up, you aspired to a job at BARC,” he says, but when he graduated from Bath County High School, there were no openings. “That was the whole reason why I left.”

Webb will continue to commute from Roanoke to his job building broadband for BARC Connects until he and his wife can buy a home in the rural community they love—inside the first phase of the project.

“I don’t want to bring the big city to the country,” Webb says. “But broadband service will allow employers to expand their businesses and advance more than they’ve been able to do in the past. It created my job, and I hope we can create a few more.” **RE**

Visit REmagazine.coop for continuing coverage, including photo galleries, videos, and additional articles.



USDA photo by Preston Kersey

BARC Connects intern Brendan Lynch (right), among the first to sign up for the company's broadband service, now sells plans door-to-door. Here he calls on Brittany Laminack of Rockbridge Baths, Virginia.

By Cathy Cash

BARC Electric Cooperative's broadband roll-out hasn't been all smooth sailing. Below are some words to the wise from BARC leaders to co-ops considering a fiber-to-the-home project.

Go to the Density

Start in the densest population area of those committing to your broadband service. That could mean blending in areas outside your electric service footprint. Let the immediate payback from the initial phase help pay for expansion into less-dense areas.

Lexington, Virginia, home to Washington & Lee University and Virginia Military Institute, gets its power from an investor-owned utility and has internet options from national companies. But customers who have signed up say they believe the co-op has better service and competitive prices.

"We did a competitive analysis of other service providers and their speed tiers. Our goal was to create a strong value proposition for customers to switch over to us," says Gary Sickler, BARC Connects general manager. "We focused on offering significantly faster speeds and free managed Wi-Fi."

Sell It

Co-ops delivered electricity 80 years ago when big utilities refused to serve rural America. Now these co-ops are reigniting that trusted relationship with broadband.

But this time, marketing will be required.

As a broadband provider, "you have to think like a competitive business and market yourselves," says Mike Keyser, CEO of BARC Electric. "Get out and sell it."

Crowdsourcing online proved inexpensive and effective in getting early commitments. Coverage by local media also helped get the word out. BARC's marketing strategy also includes a superhero husky dog mascot named Butch, and the company slogan, "More Byte," to distinguish the co-op from competitors.

Save Where You Can

A broadband subsidiary does not need gleaming offices or an

address on Main Street. A functional space with room for spools of fiber, replacement poles, trucks, and equipment will do.

BARC Connects bought an old school to house its headquarters for \$1 from Rockbridge County with the promise to preserve the building, create jobs, and deliver broadband. The front yard now sports 550kW of fully subscribed co-op community solar.

Co-op Advantage

Building a broadband subsidiary for your co-op members and beyond is a major endeavor. Keep in mind the co-op advantage. Co-ops already own trucks, substations, poles, wires, and other equipment. Upgrades for entering the broadband space improve overall service. By replacing all its poles for broadband, BARC Electric increased reliability and inventory knowledge.

Co-ops have a rich history of partnering and are willing to share lessons learned and strategies that can help others weighing the broadband business.

Plus, for-profit internet service providers have no anchor customers. "We all have a tremendous competitive advantage. The electric utility is the single-biggest customer of our internet subsidiary. It's like building a shopping mall and having Macy's already committed," Keyser says.

Being Local is Key

BARC Connects has a 24/7 call center yet customers should have all the tools and know-how to enjoy their service before the installer leaves.

"The installer will review with the homeowner how to log into the router, how to check voicemail, how to do three-way calling," Sickler says. "The technician will work with customers so they will feel confident with working their TV service."

Build on the co-op's reputation for great customer service when offering broadband, Sickler says. Most internet customers aren't used to getting personalized attention and care from their provider. High-quality service can be a major selling point for a co-op's broadband service.

Brace Your Co-op for the Broadband Challenge

By Cathy Cash

An electric co-op may have the poles and lines, but a co-op broadband requires new skillsets, resources, and timelines to avoid delays for members who have committed to this new service.

“We put in lots of long hours, weekends to make it happen as quickly as it did. We all wanted this to be a success,” says BARC Connects General Manager Gary Sickler. “If you’re doing broadband 8 to 5, don’t plan on being operational in a year.”

Tips to consider when embarking on broadband:

1. Give your co-op plenty of time to build its IT network.

“The planning fallacy is a real thing,” says Mike Keyser, BARC Electric Cooperative CEO. “Build a lot more time into your buildout plans than you want or expect. Everything takes longer than you think it will.”

The RFP process to hire a builder for your fiber network could take several months. Get a design in place, and allow ample time for the reviews and decision-making.

Set up the necessary field equipment and data centers in advance. Pre-order fiber wheels, strand, hooks, replacement poles, and other equipment to avoid build delays.

“Once you have the design down, have the equipment and people in place competent to support it,” Sickler says.

2. Create a solid customer management system.

A broadband customer management system (CMS) to do billing, receive orders, and store customer data must be built. This can require months to complete and it will involve training personnel, quality assurance testing, and customization for billing.

“Broadband bills in advance while electric bills in arrears, so if you’re planning to use your current customer information system, this needs to be considered,” Keyser says. “In our case, it made more sense to have a separate CMS and billing system for broadband.”

3. Get the right personnel.

Hiring staff with solid telecom experience can be a challenge in rural areas. That may involve contracting, recruiting, and convincing skilled workers to relocate. Call center reps must know the products backwards and forwards.

“Invest in the right type of technicians. That is not always the cheapest option,” Sickler says. “You have to have the right personnel in place to make it happen. Don’t skimp.”



Photo by Cathy Cash

CVEC Opts to Go it Alone on Broadband Build-out



Photo by Alexis Matsui

Central Virginia Electric Cooperative CEO Gary Wood talks to his team about their broadband fiber initiative.

By Cathy Cash

Central Virginia Electric Cooperative (CVEC) is launching its own broadband fiber initiative after millions of dollars in incentives for high-speed internet access were left on the table.

What happened?

“We had nobody, no company or group of companies, that provided a fully responsive solution,” says Gary Wood, president and CEO of the co-op headquartered in Lovingston.

So, armed with a feasibility study and board approval, CVEC has begun a five-year, \$100 million fiber build-out to serve its 36,000 members with gigabit-class broadband internet.

“What was driving this was our need for the electric service to have better communications from substations to downline equipment for reclosers,” Wood says.

In 2016, CVEC released a request for information for a partner to make broadband available to every member across its 14-county territory. As an incentive, the co-op offered to waive annual pole attachment fees of \$1.2 million.

Nobody bit.

Now a co-op broadband subsidiary is in the works, and initial member connections are expected by year’s end.

“Since we were unsuccessful in finding a partner, we will put it in across the entire system to serve members as well,” Wood says.

CVEC will seek support from state and county economic development funds as well as federal programs

such as the U.S. Department of Agriculture’s Rural Utilities Service and the Federal Communication Commission’s Connect America Fund.

A number of CVEC-served counties want broadband solutions to improve schools, home values, and tax bases, Wood says.

“We have had no load growth since 2009,” he says. “Part of that is the economy, but also it does not help when you don’t have the services in place for an area where people want to live. It’s about how to keep rural living as a viable choice for families. We know there are people today who turn down home purchases in our territory when there is not good broadband.”

Mid-career professionals in rural America want a chance to run a business or update their credentials online. Young people want the option to work anywhere.

Wood knows this firsthand. His daughter is in the art and technology fields. His son works in Shanghai, China. “He didn’t have to go that far, but his job depends on having good internet access,” Wood says. “That is the nature of where society is heading.”

In the end, co-ops are well-suited for the job, he notes. For-profit companies cannot wait years for a return on investment.

“Co-ops, we’re going to be here. We’re used to putting in an investment over a long period without return. We understand what to do to drive costs down,” Wood says. “We’re a good fit for this.” **RE**

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DIVERSIFICATION AND INNOVATION

G&TS ADAPT TO A CHANGING FUELS MARKET AND EVOLVING MEMBER NEEDS

BY DERRILL HOLLY

Fuel markets are changing. Consumer expectations are evolving. And the nation's G&T cooperatives are on the front lines.

With some 1.5 GW of co-op coal capacity expected to be shuttered by 2030, G&Ts are pushing to diversify and innovate.

"The U.S. electric sector continues to adapt to changing market fundamentals, and these changes in the industry are creating new economic challenges," says Paul Breakman, senior director in NRECA's Business and Technology Strategies group. "Those developments provide opportunities for the G&Ts to apply their ingenuity to foster high-value solutions by working closely with their members."

While markets, fleet economics, and environmental performance drive the transition to cleaner, more efficient natural-gas-fired generation and renewable resources, generation co-ops are also investing in emerging sectors like advanced clean coal technology to preserve coal's role in power production while protecting existing plant investments.

"The nation's 63 G&Ts are responding to changing market conditions and the needs of their cooperative members," says Dan Walsh, NRECA's senior power supply and generation director. "Millions are invested each year in clean-coal technology, combined-cycle natural gas, and other improvements, while spending on infrastructure to deliver reliable power to homes and businesses continues to increase."

RISING RENEWABLES

As costs for solar and wind technology decline, G&Ts are contracting for more renewable energy, primarily through power-purchase agreements.

Electric co-ops have about 9.2 GW of owned and purchased renewable capacity—not including about 10 GW of annual federal hydropower—and at least 1.1 GW more is planned by 2020.

Analysts project continued renewable generation growth due to improving economics, the extension of federal tax incentives, and the likely adoption or expansion of renewable portfolio standards in several states.

The addition of renewables has also been driven by consumers. Recent member surveys by several distribution co-ops indicate widespread interest in environmental stewardship, as well as affordable, reliable power. As the primary power suppliers of distribution co-ops (79 percent of distribution co-ops are members of G&Ts), G&Ts have become more innovative in addressing consumer-member concerns and business demands.

For Wabash Valley Power Association, headquartered in Indianapolis, diversification has also meant savings for members. The G&T began investing in landfill gas generation in 2002, wherein plants capture methane from decaying trash and use it to produce electricity. Wabash Valley Power owns and operates 16 landfill plants that provide 53 MW of baseload capacity, making it a Midwest leader in utility-scale landfill gas generation.



Above ground, a 1.7-MW community solar program launched by the G&T in the fall of 2017 is already being expanded because of rapid adoption. The G&T also just inked two solar projects totaling 198 MW of utility-scale solar and, by 2020, will have 210 MW of wind energy in its power supply portfolio.

Rather than claiming these renewables in its generation portfolio, the G&T sells the environmental credits to other businesses seeking to achieve their compliance goals, which supports the growth of renewables in the marketplace.

“As a result of our flexible portfolio, we’ve capitalized on market opportunities, and our average wholesale rate has dropped for four consecutive years,” says Lee Wilmes, Wabash Valley Power’s executive vice president of risk and resource management.

INNOVATION BEYOND GENERATION

While power generation options evolve, co-ops are advancing the reliability side of the business too. After a systemwide review of network schematics and identification of local transmission issues, Wabash Valley Power began an infrastructure upgrade of its existing SCADA system that will be complete this year. The initiative included a buildout of fiber-optic communication to each of its distribution co-ops’ headquarters and additional equipment to aid in enhanced monitoring of power grid health.

“The SCADA project is the first step in providing a new level of service reliability to the distribution cooperatives and their nearly 310,000 retail members,” says Rich Mullen, Wabash Valley Power’s manager of field operations. “The next step is to provide additional SCADA system functionality that benefits our 23 distribution co-ops, such

as load management and outage restoration services.”

In Texas, Golden Spread Electric Cooperative takes advantage of operating in both the Southwest Power Pool and the Electric Reliability Council of Texas. That unique position allows it to switch more than 550 MW of generation between the two regional transmission grids within one hour’s notice.

The Amarillo-based G&T serves 16 distribution co-ops in a vast territory stretching from the South Texas plains north of the Rio Grande to the Texas Panhandle. Golden Spread member co-ops also serve portions of the Oklahoma Panhandle, southwestern Kansas, and southern Colorado.

Golden Spread employs a new load-forecasting process that enables it to incorporate water table studies, the impact on irrigation, and member feedback related to agricultural and industrial demand.

“This allows for a faster, more accurate energy and demand forecast that has been utilized for power supply optimization,” says J. Jolly Hayden, Golden Spread’s chief operating officer. He notes that it’s also improved overall member satisfaction.

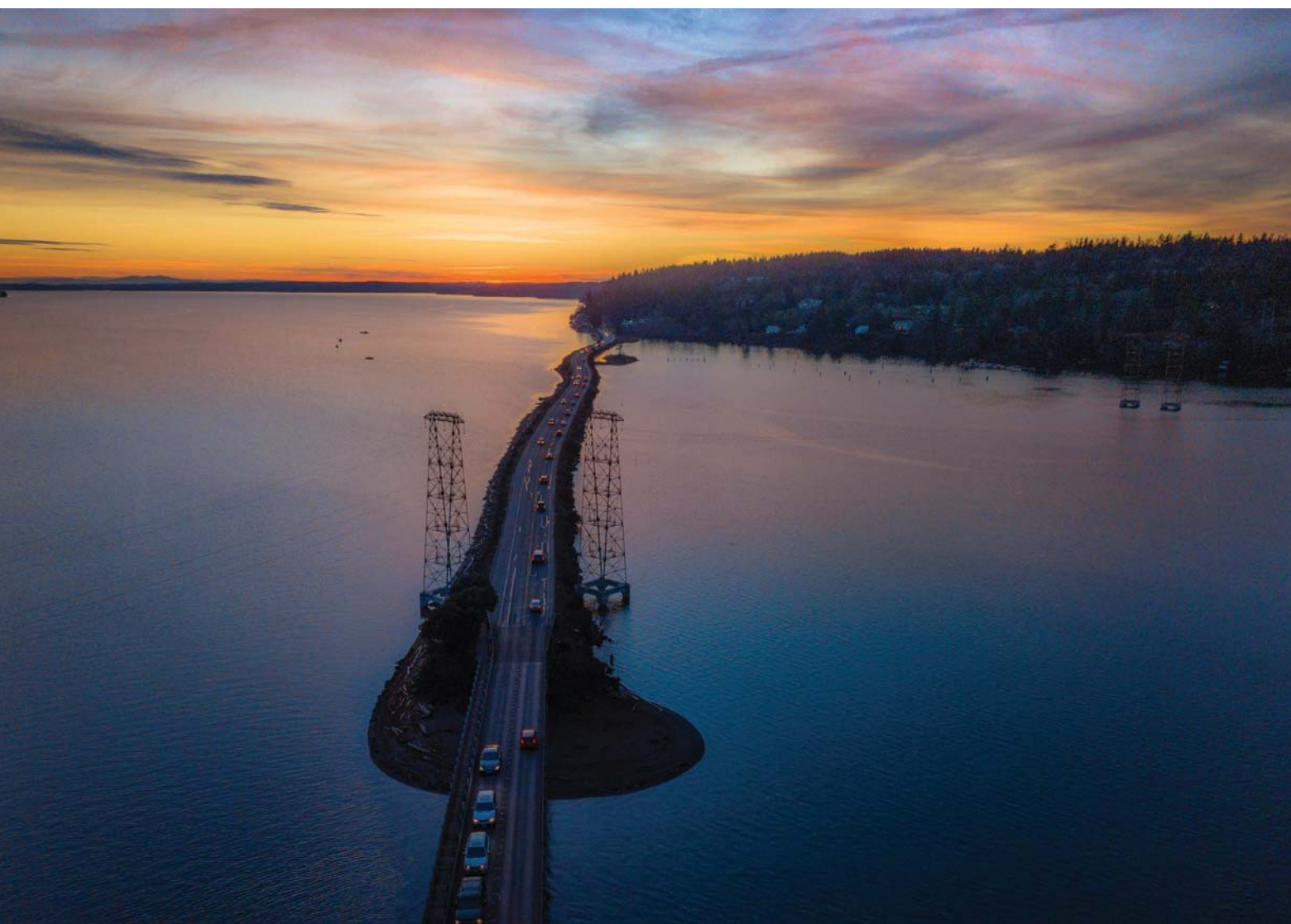
Since 2016, Golden Spread has upgraded software technology to forecast generation output, margins, and ancillary service revenue. The technology is also used to compile annual financials and budgeting, saving time and improving accuracy.

“These initiatives and tools are essential components in our continued success in fulfilling our mission for our members in this rapidly changing time in the energy space,” Hayden says, adding that the G&T is pursuing several other transmission and distributed energy resource initiatives. “We see many opportunities for us to embrace these developments to help us achieve our objectives for our member cooperatives and aid them in their mission to improve the quality of living within their communities.” **RE**

MARCH 2018 PHOTO CHALLENGE WINNERS

Congratulations to Jim Bellamy with Peninsula Light Company in Washington for “Purdy Transmission Towers” (below), winner of the March 2018 *RE Magazine* Photo Challenge with the theme “Drones.”

Congratulations as well to Todd Nelson with Southeastern Electric Cooperative in South Dakota. His photo, “The Lights Are On” (right), earned runner-up honors in the competition.



Purdy Transmission Towers

A view from above shows a causeway over Cushman Lake in Washington flanked by two transmission towers carrying lines from Cushman Dam.

Photo by Jim Bellamy



The contest themes for 2018 are:

- **May:** Tailgate Talks
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© Todd Nelson

The Lights Are On

A long-exposure drone shot captures the glow from Alcester, South Dakota, and speckles of light from farmhouses on the surrounding countryside.

Photo by Todd Nelson

STOP, THIEF!

TURNING AMI DATA INTO POWER THEFT DETECTION



BY JOHN VANVIG

Utility can do a lot with advanced metering infrastructure (AMI): spot a problem downline from a transformer and trace it back upstream to find the fault; track and analyze power-use patterns to help shape demand; monitor and improve power quality and reliability; even provide consumers with information they can use to reduce their bills.

But as more smart meters and AMI systems find their way onto co-op lines, savvy technicians are finding an additional benefit: Advanced meters are great at detecting power thieves.

"They can't hide from me very well," says Nadine Hatch, the database programmer for Delta-Montrose Electric Association (DMEA) in Montrose, Colorado. "I'll find them."

DMEA launched its meter change-out program in 2009, and it now covers all 34,000 of the co-op's accounts, says Steve Metheny, chief of power supply. He says the original selling point was remote-read capability.

"We have a very rural, mountainous service territory, and we had to go to every meter, every month, and take that reading," he says.

Power theft is not a serious problem for DMEA, Hatch says, and detection was not among the co-op's

reasons for the change-out. Nevertheless, it's not something they take lightly.

"It's pretty rare," says Andy Penfield, the co-op's controller. "But it is nice to have an automated system that monitors use on a daily basis so we can address issues fairly quickly."

READING BLINKS

The most common detection technique, according to Tony Thomas, an NRECA senior principal engineer, is to keep close track of brief power interruptions, or blinks, that smart meters report back to the co-op.

Power thieves often try the old-fashioned trick of flipping their meter upside down. With conventional meters, that had the effect of running the meter backwards, which obviously would reduce the readings of power use, he says.

But not only do smart meters read correctly no matter which end is up, their blink monitoring and two-way communication abilities mean that the co-op gets an almost instantaneous report of any interruption.

"Modern AMI readers count those blinks and send that number to the utility," Thomas says. "If you have a

lot of blinks at one house and the neighbors don't have any blinks at all, that's a very good indication that you have power theft going on. It works beautifully."

Some thieves, he adds, try a more dangerous alternative: bypassing the meter entirely with a conductor from the feeder line to the service drop. Smart meters talking to headquarters through an AMI system thwart that attempt too, Thomas says.

"First you have a lot of blinks, and then you have no usage," he says. "Then the utility gets an alarm that says the consumer's out of power. The first thing any utility does is compare that house to the next-door neighbor's. If the place is showing no power but the neighbors have power, then you've got a problem."

All of the major AMI system vendors include blink detection in their offerings, he notes.

QUALITY CODES

Hatch agrees that the blink-count method would certainly work. But she takes a different route to get the same result.

"I'm actually looking at communications and the quality of communications with the meter," she says. "If I've got something that's not talking, that tells me something."

DMEA's meters take readings every two hours, and reports back to headquarters include a "quality code" assessing the communications signal, Hatch explains. "Maybe it made a partial response, not a complete response, and the system will give me a message about a problem with the meter."

More than 34,000 meters sending back 12 readings a day will produce a lot of data to wade through, so as a further refinement, DMEA's AMI system filters and flags the problems.

"That takes 34,000 down to a dozen or so and tells us that these few reads don't balance," Hatch says. "We'll know something's going on because the readings aren't adding up how they should. For example, we can see when people install a PV [photovoltaic] system without going through proper procedures. Or if someone borrows a meter from one place and puts it in someplace else."

As more co-ops transition their systems to use new

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technologies like SCADA and advanced metering, they're being met with some trepidation by members. For co-ops like DMEA, it all boils down to member education and benefit.

"AMI systems do so much, it's hard for an average member to really understand their value," Metheny says. "It goes beyond meter readings, and it's our responsibility to make sure our members understand that by using technologies like AMI, we're able to improve the reliability and safety of our power systems. We are able to be more responsive to member needs and address outages quicker. And we are setting a solid foundation to respond to the changing dynamic of the energy industry that directly impact members, such as more distributed generation, real-time pricing, and demand response."

Hatch has been at DMEA for three years, so she's never worked without

its AMI system providing constant information.

"I don't know what we'd do without it," Hatch says, adding that a thief could have gotten away with a lot in pre-AMI days. "Until the meter reader got there and actually looked at the meter, there'd be no way of knowing."

And once again, Hatch hastens to add that most of the "dozen or so" AMI flags she looks over each day are the result of problems other than theft.

"But I've found a lot of power outages before anyone else has found them," she says. "That's what my job is, five days a week. And if we've had a big storm, it might be seven days a week." **RE**



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‘SAFETY PLAYBOOK’

MVEA’S JACOBSON PUTS OUT ALL THE (SAFETY) NEWS THAT’S FIT TO PRINT

BY JOHN VANVIG

“Every year we have a cleanup day,” the email from a Minnesota co-op to its statewide association began. “Offices, trucks, files, whatever. During file cleanout, one of our employees found this letter. I have the old accident files for this accident; this letter, however, is not in there. I’ve never seen it before. The author of the letter puts his feeling into terms like no one else could unless they’ve sat in his shoes.”

Attached to the email, Lidia Dilley Jacobson recalls, was a stark and heart-rending four-paragraph note composed on a typewriter more than 40 years earlier.

“Heard through the vine you wanted a copy of the accident report of our fatality,” the co-op’s construction superintendent at the time wrote to someone, presumably a power-line program instructor or coordinator, at a Minnesota Area Vocational Technical Institute. “It was our first serious accident we ever had in this company. It was one of my men in the Construction Department and needless to say, it hurt us deeply.”

“It was my first experience with a crisis like this, and I hope it will be my last. I went with Gary’s wife to the clinic and stayed with her til the end.”

“All I know is, if somehow all linemen could get that helpless feeling sitting with a man’s wife waiting, we wouldn’t need near as many written safety rules.”

Jacobson is the director of safety & loss control at the Minnesota Rural Electric Association (MREA, statewide) in Maple Grove, and she knew just what to do when the email and its mournful attachment landed in her inbox. She shared it, widely, with the people she works with every day at 50 co-ops across her state and beyond.

When it comes to job-related incidents in the utility industry, Jacobson says, personal stories and a resulting determination to do things better next time can be at least as effective as official reports and investigators’ findings—even when the incident occurred four decades before.

“Although it was written many years ago,” Jacobson wrote in the statewide’s member newsletter, it “remains timeless. It’s one of those letters that when you get to the end, your heart hurts. Plain and simple, it hurts. If you do one thing today, share this story with someone. It seems it was written with a purpose bigger than the author might have imagined. It was meant to be shared. I believe that is what he would have wanted.”

It’s certainly what she’s wanted, ever since she joined MREA in 2013. One of her first projects was the “Safety

Playbook,” a snappy electronic newsletter she sends out every couple of weeks to association members and co-ops in South Dakota, Wisconsin, Texas, and Missouri.

“Oftentimes, we hear stories out there, but that’s all we do is hear them,” Jacobson says. “We’re so focused on the story, but what are the outcomes of that incident at your co-op? We fail to hear that part of the story. The purpose of stories is prevention, not blame.”

Her “Safety Playbook” answers that need, she adds.

“I started the Playbook when I came on board with MREA because the linemen said they never knew what was happening around the state,” she says. “It is based on their input and what they are willing to share. I know the guys look forward to getting it, and many talk about it during the Monday morning meetings.”

The crews, it turns out, have plenty to offer, and Jacobson packs it all together in one- or two-page newsletters studded with quick, punchy accounts of foul-ups, strange occurrences, and unexpected things to watch out for, often illustrated with cellphone photos of the perils lineworkers see on the job.

Recent issues have included a wide range of hair-raising or head-shaking episodes that have gotten crews talking:

“Vehicle was DOT’d [checked by a federally certified inspector] the day before. While crew was responding to an outage, the back wheel, outside dual, passed the driver on the road. By the time he got pulled over to the side, the other wheel, inside, had come off the axle. We’re going to get torque wrenches for the crews and have them check the lugs periodically.”

“On the way to load up at the pole yard, we heard a ‘thud’ on the truck roof. We found the lock washer and nut that held the auger coupling to the gear box had come off. If we hadn’t found this, the auger could have slid off.”

“Came across this member cutting his own tree down. [An accompanying photo shows a partially extended aluminum ladder resting on a second-floor roof and reaching up into a high limb.] There is actually a step above the ladder, screwed into the tree so he could climb higher. The good news: It was nowhere near any overhead line.”

Cautionary photos of blown-out tires, frayed ropes, and badly wired electrical outlets share space with pictures of crew members’ hunting successes. A “Safety Pays!” box contains a regular reminder: “Save a life? You just might if you share your story or picture with the SLC [safety & loss control] crew today!”

February 22, 1977

Dale Smith
Jackson A.V.T.I.
401 West Street
Jackson, MN 56143

Dear Smitty,

Heard through the vine you wanted a copy of the accident report of our fatality. It was our first serious accident we ever had in this company. It was one of my men in the Construction Department and needless to say, it hurt us deeply.

It was my first experience with a crisis like this and I hope it will be my last. I went with Gary's wife to the clinic and stayed with her til the end.

All I know is, if somehow all linemen could get that helpless feeling sitting with a man's wife waiting, we wouldn't need near as many written safety rules. As in most accidents of this kind he was not wearing his rubber gloves and even if he were, if he were thinking at all, he should not have even considered touching anything.

Well, hope everything's going well for you and please say hello to the family.

Marvin Olson
Construction Supt.

MO:av
Enclosure

Photo courtesy Minnesota Rural Electric Association

Jacobson says the Playbook is meant to be a readable, engaging vehicle for learning from incidents when things go sideways.

Three serious mishaps occurred on Minnesota co-op lines last year, she says, "and people kept asking us, what can you tell us?"

"We were being asked so many times, I flipped it around and asked, what are you willing to share? But if we just tell the story, then the emphasis is on the story and not on what we can do with it. It's not just hearing the story; it's taking action," she says. "In today's world, with all the

texting and social media that goes on, people already know a little bit about the incident. We want to make sure it could also be a learning opportunity." **RE**

Know someone RE Magazine could profile for our "Front Lines" column? We're looking for co-op operations and member services staffers, from meter readers to lineworkers to engineers, who make things work at electric co-ops nationwide. Contact us at remag@nreca.coop, or you can reach writer John Vanvig directly at johnlvanvig@yahoo.com or 360-624-4595.

BY TODD H. CUNNINGHAM

MARYLAND CO-OP TAKES 'NEXT STEP' IN UPDATING GRID

Following up on its investment in advanced metering infrastructure (AMI), Choptank Electric Cooperative has taken what President and CEO Mike Wheatley termed “an important next step” in its grid modernization efforts: the deployment of voltage/VAR optimization (VVO).

The VVO solution will be deployed for Choptank’s 54,000 members on Maryland’s Eastern Shore. It will allow the co-op to manage voltage levels and reactive power, increasing the efficiency of grid operations by reducing system losses and peak demand while improving operating expenses through lower demand charges.

Choptank selected the voltage management solution from Dominion Voltage Inc. (NRECA Associate Member; dvgridsolutions.com), which teamed on the proposal with its value-added reseller for electric co-ops, NRTC (NRECA Associate Member; nrtc.coop). According to CEO Tim Bryan, NRTC’s electric and telephone members demand solutions with “a strong return on investment that can bring value immediately to the cooperative and its members.”

“More and more utilities and co-ops, such as Choptank, are looking at VVO as a ‘no regret’ investment decision to aid in managing capacity and overall energy efficiency,” adds Todd Headlee, Dominion Voltage’s executive director.

Contact: Choptank Electric Cooperative, 877-892-0001; Dominion Voltage, 855-786-3343; NRTC, 703-787-0874.

MISSISSIPPI JOINT VENTURE BRINGS SOLAR—AND MORE

Cooperative Energy is no stranger to solar energy, with five 100-kW solar sites located at member co-ops’



headquarters. But the Mississippi G&T has taken what its CEO calls “a giant step forward” with the completion of a 52-MW solar project, MS Solar 3.

The new facility, made up of 206,000 polycrystalline solar panels, is the result of a joint venture between Cooperative Energy and owner/operator Origis Energy (origisenergy.com), which will sell its output to the G&T.

“Not only is it one of the largest solar generation plants in Mississippi; it employs the most advanced solar technology available today,” says Jim Compton, Cooperative Energy’s president and CEO.

The partnership will generate more than energy, as the parties have announced a \$125,000 donation to the Mississippi Scholars and Tech Master programs. The funds, the largest single gift ever made to the programs, will help support Mississippi Scholars’ focus on science, technology, engineering, and math curriculum, and Tech Masters aims at assisting students in acquiring the skills necessary to thrive in today’s workplace.

Contact: Cooperative Energy, Christa Rouse Bishop, 601-705-6612; Origis Energy, Glenna Wiseman, 909-553-3141.

CENTRAL VIRGINIA ELECTRIC ADDING FIBER TO SYSTEM

The installation of a fiber network to its electric distribution system is a win-win proposition for Central Virginia Electric Cooperative (CVEC) and its members, the Arrington-based co-op says. It will enable CVEC to improve the efficiency of its operations while increasing reliability and expanding security. And it will greatly improve members’ internet access.

“CVEC believes that access to reliable, high-speed internet today is becoming as important as access to electricity in 1937,” says Gary Wood, the co-op’s president and CEO. “Given the great need for connectivity, CVEC will leverage its fiber network to provide a broadband internet solution that will serve the community now and in the future.”

The new fiber will be installed on, and adjacent to, existing overhead and underground electric distribution lines. CVEC is developing plans for a five-year project to install the cable across its entire 4,600 miles of distribution lines, beginning with a one-year pilot program to commence this year.

Contact: Central Virginia Electric Cooperative, Melissa Gay or Gary Wood, 800-367-2832.

Photo courtesy Cooperative Energy

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CO-OP'S BROADBAND GROWTH EXCEEDS EXPECTATIONS

Gibson EMC and its recently launched not-for-profit subsidiary, Gibson Connect LLC, are expanding their fiber-based gigabit services network over a 12-county area in Tennessee and Kentucky, with adoption rates exceeding expectations.

Access to broadband services is “a requirement for our homes and businesses,” says Charles L. Phillips, the Tennessee co-op’s vice president of engineering and technical services.

Gibson attributed the success of its broadband effort in part to Calix (NRECA Associate Member; calix.com), a leading provider of the cloud and software platforms, systems, and services. “The network we are building with Calix gives our communities the ability to compete on a global scale and keeps our residents and businesses located in our service area,” he says.

Contact: Gibson EMC, Charles L. Phillips, 731-955-4660; Calix, Neila Matheny, 707-766-3512.

SUNFLOWER STATE WILL BECOME SUNNIER STILL

After checking off a number of boxes, two Kansas co-ops are planning to buy renewable energy from a 20-MW solar project slated for construction in the Sunflower State. Sunflower Electric Power Corp., a G&T, and Mid-Kansas Electric Co., a G&T operated by Sunflower, signed a 25-year power purchase agreement with the prospective facility’s owner and operator, independent power producer Lightsource BP (NRECA Associate Member; lightsourcebp.com).

Construction of the Johnson Center Solar Project is slated to begin early next year.

“Each generation fuel type has advantages, and the benefits of solar will add diversity to our existing energy generation portfolio,” says Stuart Lowry, president and CEO of the two co-ops. The project’s location represents another benefit, selected not only for its strong generating potential, but also because it will reduce loading on an existing transmission line, thereby deferring or eliminating a costly transmission upgrade in the near future.

The National Renewable Cooperative Organization (nrco.coop) and member-owner Mid-Kansas jointly developed the project and sourced Lightsource BP as the G&T’s long-term partner. The project is “a shining example of how a partnership approach can create significant value,” says Eric Spigelman, NRCO’s director of renewables development.

Contact: Mid-Kansas Electric Co., 800-354-3638; Sunflower Electric Power Corp., Cynthia Hertel, 785-623-3341; National Renewable Cooperative Organization, Eric Spigelman, 317-344-7900.



Photo courtesy Arkansas FIRST

ARKANSAS CO-OPS SUPPORT STEM LEARNING THROUGH ROBOTICS

Numbers are significant in describing The Electric Cooperatives of Arkansas: one G&T, 17 distribution co-ops, one services co-op, and the provision of electricity to about 500,000 homes, farms, and businesses in Arkansas and surrounding states.

But the number 3,500 is also important. That’s the rough count of students, teachers, mentors, and others attending the recent robotics competition run by Arkansas FIRST (arfirst.org), a volunteer organization the co-op group supports.



Photo courtesy Arkansas FIRST

The group was founded to ensure that every student in the state has access to competitive robotics education programs, entailing science, technology, engineering, and math (STEM) skills. President Meredith Novak describes robotics programs as combining the excitement of sport with the rigors of science and technology.

“The Arkansas FIRST Robotics Competition provides great learning opportunities for students” and represents the latest element in co-ops’ STEM education efforts, says Rob Roedel, corporate communications manager for the Electric Cooperatives of Arkansas. Their goal, he says, is to get teams in all 75 Arkansas counties and eventually hold four competitions within the state “to provide students with maximum exposure to science, math, and technology.”

Contact: Electric Cooperatives of Arkansas, Rob Roedel, 501-570-2296; Arkansas FIRST, Meredith Novak, 870-404-3260. **RE**

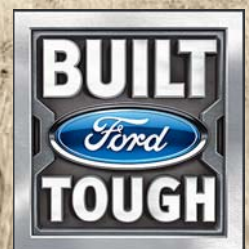
Send “Project Profiles” entries to Todd Cunningham at tcunningham03@comcast.net or 703-567-8122.

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solution unifies the functionality of ABB's Enterprise Asset Management, Workforce Management, and Asset Performance Management.

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

INTERNET OF THINGS PLATFORM

Landis+Gyr announced the launch of *Gridstream Connect*—an internet of things platform for utility, consumer, and smart city applications. Gridstream Connect is built to integrate smart devices using a variety of communication protocols and vendors. It enables utilities to push sensor technology to smart home applications and move beyond advanced metering infrastructure to leverage networks and data for distribution automation, demand response, and consumer interactions.

Contact: Landis+Gyr, Alpharetta, Georgia, 218-562-5195; dan.jacobson@landisgyr.com; landisgyr.com.

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Contact: Single Phase Power Solutions LLC, Sarasota, Florida, 877-430-5634; sales@sppowersolutions.com; sppowersolutions.com.





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Contact: Eaton, Moon Township, Pennsylvania, 440-523-4400; connieasmith@eaton.com; eaton.com/utility.

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Contact: *G&W Electric, Bolingbrook, Illinois, 708-388-5010; webmail@gwelec.com; gwelec.com.*



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Contact: *Princeton Tec, Trenton, New Jersey, 800-257-9080; ccaroleo@princetontec.com; princetontec.com.*

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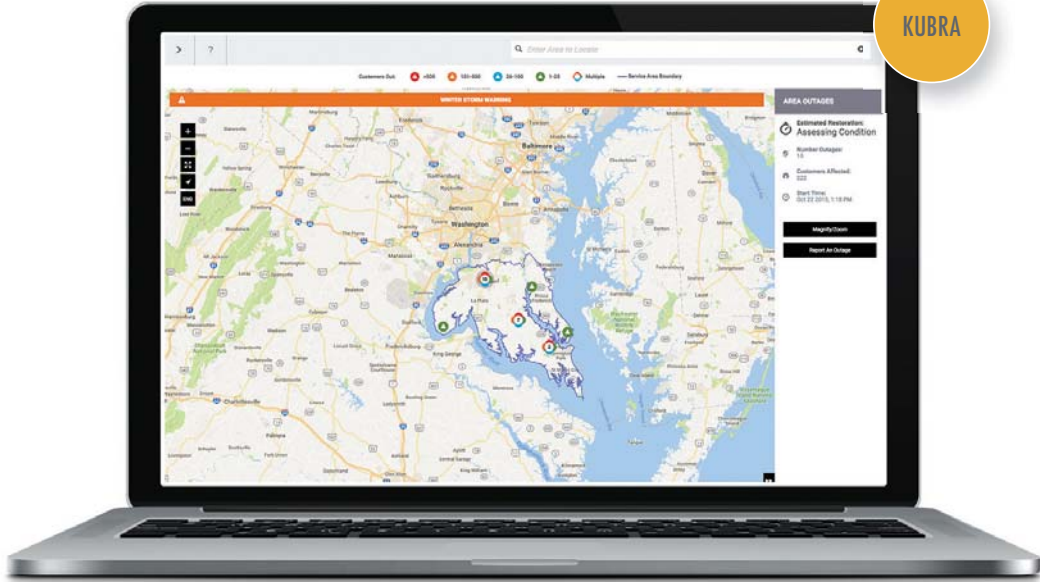


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NEW STORM CENTER OUTAGE MAP

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government officials, first responders, and regulators understand the impact of current outages as well as expected restoration progress. It provides configurable tools, standardized data formats, and automated feature updates.

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



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Brooks Utility Products is introducing two metering products: the *Keyed Barrel Lock*, to increase meter security, and the *Safety Meter Socket*, with a redesign featuring the industry's first fully dead-front meter block, significantly decreasing the risk of arc flash and other hazards. The lock and key set uses discs inside of the lock body, similar to conventional locksets found in homes and offices. The Safety Meter Socket's block and wire harness area has been redesigned so that all live parts of the meter block are fully encased and not exposed, decreasing the risk of accidental contact and helping prevent electrocution and arc-related hazards. It also incorporates finger-safe jaws and finger-safe recessed compression terminals.

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WESCO Distribution, Inc.	114

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ICF	87
Wagner Consulting LLC	114

GPS Products and Services

ACRT Services	66
Clevest	75
Davey Resource Group	77
Environmental Consultants LLC (ECI)	80
Laser Technology, Inc.	90
mPower Innovations	95
Track Star International, Inc.	110

Hazardous Waste Management, Disposal & Containment

Andax Industries LLC	70
John Deere	89

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ClimateMaster	75
ICF	87
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Smartenit, Inc.	106
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IGS Energy	88
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Human Resources Consulting Services

MDF Human Resources Consulting	92
Plus One Strategic Communications	99

Information Technology Consulting

AESI - US, Inc.	67
Anixter	70
Boardpaq	73
Centerra Corp	74
CHR Solutions	75
Clean Energy Collective	75
Conexon, LLC	76
Electsolve Technology Solutions and Services	79
EnerVision, Inc.	80
Environmental Consultants LLC (ECI)	80
Ericsson Inc.	80
Guernsey	84
GVNW Consulting	85
IDOM	88
in2lytics LLC	88
Inteleca IT Business Solutions	88
Itineris	89
JSI	90
Juniper Networks	90
Lockheed Martin Energy	91
Moss Adams	94
National Information Solutions Cooperative (NISC)	96
N-Dimension Solutions	96
Nexant, Inc.	96
On Now Digital	98
POWER Engineers Inc.	99
Power System Engineering, Inc. (PSE)	99
Professional Computer Systems, Co.	100
RAVENii	101
Systrends	108
Vantage Point	112
Veriforce	112
Wireless Data Systems, Inc.	115

Infrastructure Restoration

ACRT Services	66
Environmental Consultants LLC (ECI)	80
Ervin Cable Construction, LLC	80
Henkels & McCoy, Inc.	86
ICORP-IFOAM Specialty Products	87
Irby Company	89
John Deere	89
Laminated Wood Systems	90
Michels Corporation	94
OneSource Restoration	98
Pike Electric, Inc.	99
Quanta Services	100
T&D Solutions, LLC	108
WolfLine Construction Company	115

Insurance

Cooperative Care Planning	76
Federated Rural Electric Insurance Exchange	81
Hurtado & Associates, Inc.	87
IGS Energy	88
Lakenan	90
The Nitsche Group	97

Internet Services

Boardpaq	73
Calix	74
Cambium Networks	74
GVNW Consulting	85
Inside Information, Inc.	88
JSI	90
RAVENii	101
Systrends	108
Zyxel Communications	115

Inventory Management

Aclara	66
ACRT Services	66
Alden Systems	67
American Energy Services	70
Anixter	70
Boral Material Technologies, LLC	73
Border States Solutions	73
Ericsson Inc.	80
Ervin Cable Construction, LLC	80
Inteleca IT Business Solutions	88
Itron, Inc.	89
On Now Digital	98
Walker and Associates	114
WESCO Distribution, Inc.	114
Zerion Software	115

Legal Services

ACRT Services	66
Clean Energy Collective	75
Dentons US LLP	78
Dorsey & Whitney	78
Duncan & Allen	78
Duncan, Weinberg, Genzer & Pembroke, P.C.	78
Environmental Consultants LLC (ECI)	80
Eversheds Sutherland (US) LLP	80
McCarter & English	92

Lighting

Anixter	70
Border States Solutions	73
Cree, Inc.	77
Evluma	81
Fastenal Company	81
GreenStar Products LED	84
Horizon Solutions	86
ICF	87
Petra Systems	98
PowerSecure Lighting	100
RealTerm Energy	101
Sensus	104
Service Concepts, an AM Conservation Group Company	104
Smartenit, Inc.	106
The StressCrete Group	110
WESCO Distribution, Inc.	114

Load Management

ABB Inc.	66
Aclara	66
Border States Solutions	73
ChargePoint	75
ComRent Load Bank Solutions	76
Convergent Energy + Power	76
GRID20/20	84
Guernsey	84
Itron, Inc.	89
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Nest Labs, Inc. 96
 Nexant, Inc. 96
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 Smartenit, Inc. 106
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ACRT Services 66
 Inside Information, Inc. 88
 Service Concepts, an AM Conservation Group Company 104
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Management Consulting Services

ACRT Services 66
 AESI - US, Inc. 67
 Aldrich CPA's + Advisors LLP 67
 Anixter 70
 Boardpaq 73
 Centerra Corp 74
 Clean Energy Collective 75
 Daymark Energy Advisors, Inc. 77
 GreatCo-ops 84
 Guernsey 84
 GVNW Consulting 85
 JSI 90
 MDF Human Resources Consulting 92
 NewGen Strategies & Solutions 96
 Nexant, Inc. 96
 Rocky Mountain Institute 102
 Sargent & Lundy, LLC. 102
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 TechServ Consulting and Training, Ltd. 109
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ACRT Services 66
 Aerinet Solutions Unlimited Inc 67
 American Energy Services 70
 Applied Technology Solutions, Inc. (ATS). 70
 Cross Discipline Engineering 77
 Electric Power Engineers, Inc 79
 Ericsson Inc. 80
 Esri 80
 Futura Systems 82
 Guernsey 84
 IDOM 88
 Itron, Inc. 89
 Lewis Tree Service, Inc. 91
 Mapcom Systems. 92
 Milsoft Utility Solutions 94
 mPower Innovations 95
 National Information Solutions Cooperative (NISC) 96
 On Now Digital 98
 POWER Engineers Inc. 99
 Symbiosa 108
 TechServ Consulting and Training, Ltd. 109
 Ulteig. 112
 Vantage Point 112

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3 Degrees Inc. 66
 Clean Energy Collective 75
 Inside Information, Inc. 88
 Pivot Group 99
 Plus One Strategic Communications 99

Meter Data Management (MDM)

Aclara 66
 ACRT Services 66
 Carina Technology, Inc. 74
 Electsolve Technology Solutions and Services 79
 Honeywell Smart Energy 86
 Itron, Inc. 89
 Leidos 90
 National Information Solutions Cooperative (NISC) 96
SEDC 103
 Sensus 104
 Systrends 108
 Westar Energy Power Marketing. 114

Meter Reading Services

ACRT Services 66
 Bellwether Management Solutions. 72
 Clevest 75
 DataCol Group. 77
 Daymark Energy Advisors, Inc. 77
 Ericsson Inc. 80
 Harris Utilities SmartWorks 85
 Olameter 97
 Second Sight Systems 103
 SPIRAE, LLC 106
 TESCO - The Eastern Specialty Company. 110
 Verizon 113

Metering Equipment

Aclara 66
 Advanced Test Equipment Rentals. 66
 Anixter 70
 Border States Solutions. 73
 GRID20/20 84
Hastings Fiber Glass Products. 85
 Honeywell Smart Energy 86
 Horizon Solutions 86
 Irby Company 89
 Lumin 92
 Peak Demand Inc. 98
 Powertech Labs. 100
 Ronk Electrical Industries, Inc. 102
 TESCO - The Eastern Specialty Company. 110
 TSTM 111
 WESCO Distribution, Inc. 114

Mobile Workforce Management Systems

ABB Inc. 66
 Aclara 66
 ACRT Services 66
 Clevest 75
 Ericsson Inc. 80
 Itron, Inc. 89
 National Information Solutions Cooperative (NISC) 96
 NRTC 97
 Olameter 97
 On Now Digital 98
 Scope Services, Inc. 103
SEDC 103
 Wright Tree Service, Inc.. 115
 Zerion Software 115

Nuclear Energy

Burns & McDonnell Engineering Co., Inc. 74
 IDOM 88
 TPC Wire & Cable Corp 110

Office Equipment and Supplies

CDW. 74
 inLighten. 88
 Ripley Tools 102
 Staples Advantage 107

Outage Management Software & Systems

ABB Inc. 66
 Aclara 66
 Aerinet Solutions Unlimited Inc. 67
 Applied Technology Solutions, Inc. (ATS). 70
 CallNet Call Center Services, Inc. 74
 Clevest 75
Cooperative Response Center, Inc. 76
 DataCol Group. 77
 Electric Power Engineers, Inc 79
 Futura Systems. 82
 GRID20/20 84
 Harris Utilities SmartWorks 85
 Honeywell Smart Energy 86
 iRestore. 89
 Itron, Inc. 89
 Milsoft Utility Solutions. 94
 National Information Solutions Cooperative (NISC) 96
 Open Systems International, Inc. 98
 RAVENii. 101
 Survalent 107
 TextPower, Inc.. 110
 Trimble Energy. 111
 Zerion Software 115

Pest Control

ICORP-IFOAM Specialty Products 87

Phase Converters

Beckwith Electric 72
 Ronk Electrical Industries, Inc. 102
 Single Phase Power Solutions 104
 WESCO Distribution, Inc. 114

Pole Inspection and Treatment

ACRT Services 66
 Alden Systems 67
 Allstate Tower, Inc. 67
 American Energy Services 70
 ArborMetrics Solutions LLC. 70
 Border States Solutions. 73
 Clevest 75
 Ervin Cable Construction, LLC. 80
 Genics, Inc. 82
 ICORP-IFOAM Specialty Products 87
 Laminated Wood Systems 90
 Lonza Wood Protection 92
 Michels Corporation 94
 On Now Digital 98
 Osmose. 98
PLH Group, Inc. 98
 Polesocks LLC 99
 TechServ Consulting and Training, Ltd. 109
 Terracon Consultants 109
 TRC Companies, Inc. 111
 Wood Quality Control, Inc. 115
 Zerion Software 115

Pole Line Hardware (Insulators/Connectors)

Anixter	70
Border States Solutions	73
Custom Coating Innovations, Inc.	77
Ervin Cable Construction, LLC	80
Hastings Fiber Glass Products.	85
Hubbell Power Systems, Inc.	86
Hughes Brothers	86
Huskie Tools, A Spartaco Company	87
Irby Company	89
MacLean Power Systems	92
Nicopress	96
Peak Demand Inc.	98
PLH Group, Inc.	98
Power & Tel	99
Sherrill Inc.	104
V&S Schuler Engineering, Inc.	112
WESCO Distribution, Inc.	114

Poles and Crossarms

Anixter	70
Border States Solutions	73
CMS Utility Services, Inc.	75
DIS-TRAN Packages Substations, LLC	77
Ervin Cable Construction, LLC	80
Hastings Fiber Glass Products.	85
Highland Composites	86
Hughes Brothers	86
Laminated Wood Systems	90
Lonza Wood Protection	92
MacLean Power Systems	92
RS Technologies Inc.	102
Tech Products, Inc.	109
The StressCrete Group	110
V&S Schuler Engineering, Inc.	112
Valmont Utility	112
WESCO Distribution, Inc.	114
Wood Quality Control, Inc.	115

Power Factor Correction

ABB Inc.	66
Border States Solutions	73
Convergent Energy + Power	76
Electric Power Engineers, Inc	79
Horizon Solutions	86
QEI LLC	100
QinetiQ North America	100
Ronk Electrical Industries, Inc.	102

Power Generation Equipment

ABB Inc.	66
Advanced Test Equipment Rentals	66
Border States Solutions	73
Fairbanks Morse	81
Homewood Sales Corporation	86
Horizon Solutions	86
Iowa Wind and Solar	89
Power & Tel	99
Single Phase Power Solutions	104
TAW Power Systems	108
Today's Power, Inc.	110
Wartsila North America, Inc.	114

Power Marketing Purchase Sell Trade

ACES.	66
Nextera Energy Marketing LLC	96
Skylar Energy	104
sPower	106
TEA Solutions	108
Westar Energy Power Marketing.	114

Power Marketing: Forecasting/Data Analysis

Electric Power Engineers, Inc	79
EnerVision, Inc.	80
Guernsey	84
Nextera Energy Marketing LLC	96
SPIRAE, LLC	106
TEA Solutions	108
Westar Energy Power Marketing.	114

Power Plant Decommissioning/Dismantling

J. Ranck Electric	89
John Deere	89
On Now Digital	98
TRC Companies, Inc.	111
Waste Connections.	114

Power Plant Design & Construction

ABB Inc.	66
Border States Solutions.	73
Coronal Energy	77
Cypress Creek Renewables	77
Electric Power Engineers, Inc	79
ElectriCom.	79
Geronimo Energy	84
Guernsey	84
ibV Energy	87
IDOM	88
J. Ranck Electric	89
John Deere	89
Lightsource BP.	91
Silicon Ranch Corporation	104
Ulteig.	112
Wartsila North America, Inc.	114

Power Plant Equipment Diagnostic & Monitoring

ABB Inc.	66
Advanced Test Equipment Rentals.	66
John Deere	89
N-Dimension Solutions	96
NAES Corporation	95

Power Plant Maintenance & Operations

ABB Inc.	66
Andax Industries LLC	70
Anixter	70
Boral Material Technologies, LLC.	73
Border States Solutions.	73
Coronal Energy	77
Elliott Equipment Company.	79
Geronimo Energy	84
ibV Energy	87
John Deere	89
Lightsource BP.	91
NAES Corporation	95
NRG Energy	97
On Now Digital	98
TPC Wire & Cable Corp	110
Ulteig.	112

Wartsila North America, Inc.	114
Waste Connections.	114
Zerion Software	115

Power Plant Residual Management

John Deere	89
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Power Quality

ABB Inc.	66
Aclara	66
Beckwith Electric	72
Bluestem Energy Solutions.	72
Border States Solutions.	73
Convergent Energy + Power	76
Electric Power Engineers, Inc	79
EnerNex, LLC	80
Honeywell Smart Energy	86
Horizon Solutions	86
Itron, Inc.	89
POWER Engineers Inc.	99
Power Monitors, Inc	99
QinetiQ North America	100
S&C Electric Company	102

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Aclara	66
GRID20/20	84
Harris Utilities SmartWorks	85
Honeywell Smart Energy	86
QinetiQ North America	100
SensorLink Corporation	104

Prepaid Solutions

Ericsson Inc.	80
Today's Power, Inc.	110
Trilliant, Inc.	111

Printing

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Property Tax Consulting & Appeals

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Border States Solutions.	73
Brooks Brothers Trailers & Equipment	73
John Deere	89
Posi Plus	99
WESCO Distribution, Inc.	114

Regulatory Compliance Services

ACRT Services.	66
Advanced Energy.	66
AESI - US, Inc.	67
Clean Energy Collective	75
Conexon, LLC	76
Electric Power Engineers, Inc	79

Environmental Consultants LLC (ECI) 80
 Ericsson Inc. 80
 JSI 90
 N-Dimension Solutions 96
 RAVENii 101
 Ulteig 112
 Veriforce 112

Regulatory Consulting Services

ACRT Services 66
 AESI - US, Inc. 67
 Daymark Energy Advisors, Inc. 77
 Environmental Consultants LLC (ECI) 80
 GDS Associates Inc. 82
 GridPoint Energy Management 84
 Guernsey 84
 GVNW Consulting 85
 JSI 90
 McCarter & English 92
 NewGen Strategies & Solutions 96
 PowerPlan 100
 Ryan LLC 102
 SOS Intl 106
 Vantage Point 112
 Veriforce 112
 Wagner Consulting LLC 114

Remanufactured and Recycled Products

Boral Material Technologies, LLC 73
 EMI of KC 80
 Horizon Solutions 86
 Inteleca IT Business Solutions 88
 John Deere 89
 Utility Services of the Americas 112

Renewable Energy (all types)

3 Degrees Inc. 66
 ABB Inc. 66
 Accordant Energy 66
 Advanced Energy 66
 Altran 67
 Apex Clean Energy 70
 Azimuth Energy 72
 Bluestem Energy Solutions 72
 Border States Solutions 73
 BPL Global 73
 Burns & McDonnell Engineering Co., Inc. 74
 Clean Energy Collective 75
 Coronal Energy 77
 Cypress Creek Renewables 77
 DVI 79
 EDF Renewable Energy 79
 Electric Power Engineers, Inc 79
 Geronimo Energy 84
 GridPoint Energy Management 84
 Guernsey 84
 Hannah Solar 85
 ICF 87
 IDOM 88
 in2lytics LLC 88
 Inovateus Solar LLC 88
 Iowa Wind and Solar 89
 Itron, Inc. 89
 J. Ranck Electric 89
 John Deere 89
 Lendlease Energy 90
 Lightsource BP 91
 NAES Corporation 95
 Namasté Solar 95
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 NRG Energy 97

Posi Plus 99
 Rocky Mountain Institute 102
 Sempra Renewables 104
 Silicon Ranch Corporation 104
 Simplify Solar 104
 SoCore Energy 106
 Southern Research 106
 SPIRAE, LLC 106
 sPower 106
 Strata Solar 107
 Sunrun Inc. 107
 Tabuchi Electric America 108
 TechServ Consulting and Training, Ltd 109
 Today's Power, Inc. 110
 Tradewind Energy, Inc. 110
 TRC Companies, Inc. 111
 Ulteig 112
 Westar Energy Power Marketing 114

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Anixter 70
 Border States Solutions 73
 Smartenit, Inc. 106
 Tabuchi Electric America 108

Rigging Supplies

Border States Solutions 73
 Horizon Solutions 86
 Huskie Tools, A Spartaco Company 87
 John Deere 89
 Nicopress 96
 Sherrill Inc. 104
 WESCO Distribution, Inc. 114

Right-of-Way Clearing

ACRT Services 66
 Aerial Solutions 66
 Asplundh Tree Expert, LLC 72
 Environmental Consultants LLC (ECI) 80
 John Deere 89
 Lewis Tree Service, Inc. 91
 Sherrill Inc. 104
 Trees LLC 111
 Ulteig 112
 W.A. Kendall and Co. Inc. 114
 Wright Tree Service, Inc. 115

Risk Management

ACES 66
 ACRT Services 66
 AESI - US, Inc. 67
 IDOM 88
 Lakenan 90
 Moss Adams 94
 N-Dimension Solutions 96
 National Information Solutions Cooperative (NISC) 96
 On Now Digital 98
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Safety Equipment and Inspection Services

ABB Inc. 66
 ACRT Services 66
 Anixter 70
 Bierer Meters 72
 Border States Solutions 73
 EZ-Spot-UR Rotating Attachments 81
 Fastenal Company 81
 Guernsey 84
 Honeywell Smart Energy 86

Horizon Solutions 86
 Huskie Tools, A Spartaco Company 87
 IFD Corporation 88
 Irby Company 89
 Mid America Testing and Supply 94
Tech Products, Inc. **109**
 Zerion Software 115

Safety Training & Education

ACRT Services 66
 Anixter 70
 Bierer Meters 72
 Caterpillar, Inc. 74
 Electromark 79
 Flagger Force Traffic Control Services 82
 Horizon Solutions 86
 Lakenan 90
 Mid America Testing and Supply 94
 NAES Corporation 95
 Safe Electricity, a program of the Energy Education Council 102
 Snap-on Industrial 106
 T&D PowerSkills, LLC 108
 TechServ Consulting and Training, Ltd 109
 Utility Training Services, Inc. 112
 Veriforce 112
 Vivid Learning Systems 113

SCADA Systems

ABB Inc. 66
 AESI - US, Inc. 67
 Allstate Tower, Inc. 67
 Applied Systems Engineering 70
 Bluestem Energy Solutions 72
 Border States Solutions 73
 Cambium Networks 74
 Electric Power Engineers, Inc 79
 Guernsey 84
 Honeywell Smart Energy 86
 Horizon Solutions 86
 IDOM 88
 POWER Engineers Inc. 99
 QEI LLC 100
 QinetiQ North America 100
 Schweitzer Engineering Laboratories, Inc. 102
 SPIRAE, LLC 106
 Ulteig 112
 Wireless Data Systems, Inc. 115

Scrap Metal

John Deere 89
 Utility Services of the Americas 112

Shipping and Transportation Services

Inteleca IT Business Solutions 88
 John Deere 89
 Utility Services of the Americas 112

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Anixter 70
 Border States Solutions 73
 Electromark 79
 Horizon Solutions 86
 Powerline Tags 99
Tech Products, Inc. **109**
 WESCO Distribution, Inc. 114

Software Application Providers

Aclara	66
ACRT Services	66
Alden Systems	67
Alianza	67
Applied Technology Solutions, Inc. (ATS)	70
AriesPro	72
Boardpaq	73
BPL Global	73
Clean Energy Collective	75
Daffron & Associates, Inc.	77
DNV GL	78
EcoLayers, Inc.	79
Environmental Consultants LLC (ECI)	80
Esri	80
GE Power	82
GISbiz, Inc.	84
inLighten	88
IPS-ENERGY USA, Inc.	89
Itineris	89
Itron, Inc.	89
John Deere	89
KUBRA	90
Lewis Tree Service, Inc.	91
Mapcom Systems	92
Minerva Networks, Inc.	94
MinMax Technologies, Inc.	94
National Information Solutions Cooperative (NISC)	96
Nikola Power	96
On Now Digital	98
SEDC	103
Simplify Solar	104
Smartenit, Inc.	106
Systrends	108
Vivid Learning Systems	113
Zerion Software	115
Zyxel Communications	115

Staking and Survey

Finley Engineering Company, Inc.	81
Guernsey	84
John Deere	89
TRC Companies, Inc.	111
Trimble Energy	111
Ulteig	112
Vantage Point	112

Standby Power Equipment/Interface Equipment

Ervin Cable Construction, LLC	80
Fairbanks Morse	81
John Deere	89
Ronk Electrical Industries, Inc.	102
SPIRAE, LLC	106
Storm Services	107
TAW Power Systems	108
TPC Wire & Cable Corp	110
WESCO Distribution, Inc.	114

Strategic Planning

ABB Inc.	66
American Transmission Co.	70
Anixter	70
Bluestem Energy Solutions	72
Centerra Corp	74
Clean Energy Collective	75
Cross Discipline Engineering	77
Daymark Energy Advisors, Inc.	77
DNV GL	78
Electric Power Engineers, Inc	79
EnerVision, Inc.	80

Environmental Consultants LLC (ECI)	80
Ericsson Inc.	80
G&T Communications Inc.	82
GreatCo-ops	84
Guernsey	84
GVNW Consulting	85
HomeServe USA	86
ICF	87
IDOM	88
Itron, Inc.	89
JSI	90
Juniper Networks	90
McCarter & English	92
MDF Human Resources Consulting	92
NewGen Strategies & Solutions	96
Nexant, Inc.	96
Pivot Group	99
Plus One Strategic Communications	99
ScottMadden	103
Sunrun Inc.	107
Systrends	108

Stray Voltage

HD Electric Company	86
Ronk Electrical Industries, Inc.	102

Substation Construction

ABB Inc.	66
Border States Solutions	73
Chain Electric Company	75
DIS-TRAN Packages Substations, LLC	77
ElectriCom	79
Elliott Equipment Company	79
Henkels & McCoy, Inc.	86
Highland Composites	86
Huskie Tools, A Spartaco Company	87
IDOM	88
John Deere	89
Michels Corporation	94
PLH Group, Inc.	98
Pike Electric, Inc.	99
RS Technologies Inc.	102
Sentry Electrical Group, Inc.	104
Sherrill Inc.	104
T&D Solutions, LLC	108
Watson Drill Rigs	114

Substation Equipment

ABB Inc.	66
Aclara	66
Anixter	70
Applied Systems Engineering	70
Border States Solutions	73
Elliott Equipment Company	79
Howard Industries, Inc.	86
Hubbell Power Systems, Inc.	86
Huskie Tools, A Spartaco Company	87
John Deere	89
MacLean Power Systems	92
N-Dimension Solutions	96
On Now Digital	98
Powertech Labs	100
QinetiQ North America	100
Siemens Industry, Inc.	104
TPC Wire & Cable Corp	110
Transgard Systems, Inc.	110
Uticom Systems, Inc.	112
V&S Schuler Engineering, Inc.	112
Valmont Utility	112
Watson Drill Rigs	114
WESCO Distribution, Inc.	114

Substation Maintenance, Repair, and Testing

ABB Inc.	66
Altran	67
Anixter	70
Bierer Meters	72
Border States Solutions	73
Elliott Equipment Company	79
Huskie Tools, A Spartaco Company	87
ICORP-IFOAM Specialty Products	87
John Deere	89
Michels Corporation	94
OMICRON electronics Corp. USA	98
On Now Digital	98
PLH Group, Inc.	98
Powertech Labs	100
RIDGID	102
Sparks Energy Inc.	106
Team Fishel	108
TPC Wire & Cable Corp	110

Substation Security Products & Services

ABB Inc.	66
AESI - US, Inc.	67
Anixter	70
Border States Solutions	73
ComNet	76
Cooperative Response Center, Inc.	76
Delta Star, Inc.	77
Ericsson Inc.	80
Fiber Instrument Sales Inc.(FIS)	81
GreenStar Products LED	84
John Deere	89
Juniper Networks	90
Transgard Systems, Inc.	110
Ulteig	112
WESCO Distribution, Inc.	114

Supply Chain Solutions

Anixter	70
Border States Solutions	73
Ervin Cable Construction, LLC	80
Fastenal Company	81
Horizon Solutions	86
Irby Company	89
Walker and Associates	114
WESCO Distribution, Inc.	114

Surge Protection

ABB Inc.	66
Border States Solutions	73
Horizon Solutions	86
IGS Energy	88
John Deere	89
Power & Tel	99
RS Technologies Inc.	102
WESCO Distribution, Inc.	114

Switchgear Enclosures

ABB Inc.	66
Anixter	70
Border States Solutions	73
Horizon Solutions	86
Howard Industries, Inc.	86
Power & Tel	99
Powertech Labs	100
Ronk Electrical Industries, Inc.	102
TAW Power Systems	108
TPC Wire & Cable Corp	110
WESCO Distribution, Inc.	114

System Protection Equipment

ABB Inc. 66
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 Border States Solutions. 73
 Horizon Solutions 86
 Huskie Tools, A Spartaco Company 87
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 Irby Company 89
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 Polesocks LLC 99
 POWER Engineers Inc. 99
 Schweitzer Engineering Laboratories, Inc. 102
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Systems Integration

ABB Inc. 66
 AESI - US, Inc. 67
 Anixter 70
 DNV GL 78
 Electric Power Engineers, Inc 79
 Environmental Consultants LLC (ECI) 80
 Ericsson Inc. 80
 Honeywell Smart Energy 86
 IDOM 88
 Itron, Inc. 89
 Leidos 90
 Milsoft Utility Solutions 94
 On Now Digital 98
 Sargent & Lundy, LLC. 102
 Sensus 104
 Spatial Business Systems, Inc. 106
 SPIRAE, LLC 106
 Symbiosa 108
 Systrends 108
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 Walker and Associates 114
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 Wireless Data Systems, Inc. 115

T&D Line Construction/Maintenance Equipment

ABB Inc. 66
 Bierer Meters 72
 Bluestem Energy Solutions. 72
 Border States Solutions. 73
 Brooks Brothers Trailers & Equipment 73
 Diversified Products 78
 ECP Utility 79
 Elliott Equipment Company. 79
 Ervin Cable Construction, LLC 80
 HD Electric Company 86
 Horizon Solutions 86
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 Huskie Tools, A Spartaco Company 87
 ITC Holdings Corp. 89
 J. Ranck Electric 89
 John Deere 89
 LUG-ALL 92
 MacLean Power Systems 92
 McWane Poles 92
 Michels Corporation 94
 Peak Demand Inc. 98
PLH Group, Inc. **98**
 Powertech Labs. 100
 RIDGID 102
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Watson Drill Rigs 114
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T&D Line Construction/Maintenance Services

ABB Inc. 66
 ACRT Services 66
 American Energy Services 70
 American Transmission Co. 70
 Bluestem Energy Solutions. 72
 Center Phase Energy LLC 74
 Chain Electric Company. 75
 ECP Utility 79
 Ervin Cable Construction, LLC 80
 GridLiance 84
 Henkels & McCoy, Inc. 86
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 ICORP-IFOAM Specialty Products 87
 IDOM 88
 ITC Holdings Corp. 89
 J. Ranck Electric 89
 John Deere 89
 MasTec North America 92
 McWane Poles 92
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PLH Group, Inc. **98**
 Power Consulting Associates LLC 99
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 Sentry Electrical Group, Inc.. 104
 Sparks Energy Inc. 106
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T&D System Equipment (Switchgear/ Reclosers)

G&W Electric 82
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Aldrich CPA's + Advisors LLP 67
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Telecommunications

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3 Degrees has over a decade of experience assisting co-ops and utilities across the country with all aspects of utility-led voluntary renewable energy programs such as Green Power Programs and Community Solar. We work closely with our clients to understand their goals and constraints, then utilize our breadth of experience to design a renewable energy program that will achieve a successful outcome. In addition to program design, 3 Degrees also provides subscription forecasting, program implementation, marketing, and customer acquisition services to our utility partners.

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Accordant Energy is a fuel technology company offering an innovative, renewable fuel—ReEngineered Feedstock—to enable cleaner coal power generation with improved environmental performance.

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ACES is a nationwide energy risk management company. The company helps its members and customers manage energy more efficiently and with less risk. ACES' members and customers operate in all of the major electricity markets in the U.S. and have a collective portfolio of over 50,000 MW of both load and resources. ACES provides services "as agent," representing its members and customers in the marketplace to help manage their energy risk. Because ACES does not buy or sell energy on its own behalf, it avoids conflicts of interest and ensures consistent and complete alignment with the best interests of the organizations it serves.

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Aclara is a world-class supplier of smart infrastructure solutions (SIS) and services to more than 800 water, gas, and electric utilities globally. Aclara SIS offerings include smart meters and other field devices, advanced metering infrastructure, and software and services that enable utilities to predict and respond to conditions, leverage their distribution networks effectively, and engage with their customers. Visit us at aclara.com, follow us on Twitter @AclaraSolutions, or read our blog.

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ACRT Services offers expert, independent consulting solutions to cooperatives, including vegetation management consultation and training, customized safety courses, technology solutions, and utility metering services. ACRT Services supports three wholly owned subsidiaries—ACRT, ACRT Pacific, and Bermex. We assess and monitor systems for liabilities, consult with decision-makers on planning and budgeting, represent cooperatives, and train personnel to be safety-focused leaders. We're exclusively offering Arborcision, a proactive vegetation management tool that empowers cooperatives to prioritize workloads, analyze costs, and make more effective decisions to improve reliability.

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Advanced Energy's primary business is energy efficiency. We were organized to provide energy efficiency services to the electric utilities in North Carolina, including our co-ops. Since 1996, we have been delivering energy efficiency services to utilities, manufacturers, and governments across the U.S. Advanced Energy has been providing energy efficiency services to cooperatives since 1980. Our primary services are program design, implementation, training, and consulting to multiple markets, including residential, commercial, industrial, renewables, and electric transportation.

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Since the company's inception, in the founder's garage, ATEC has demonstrated commitment to our customers by continually improving and providing a superior equipment rental experience. Our primary focus is to deliver a complete rental solution of test and measurement equipment to industries like aerospace, defense, communications, EMC, and more. Our breadth and depth of inventory, complete custom solutions, flexible rental terms, and superior customer support differentiate us from the others as a total solution for all test and measurement needs.

NRECA Silver Associate Member

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Aerial Solutions helps utilities provide safe, reliable service by side trimming trees along rights-of-way using a saw suspended under a helicopter. Using this saw allows us to easily overcome constraints, such as rough terrain, wetlands, and inaccessible locations that challenge ground crews.

NRECA Silver Associate Member

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Aerinet Solutions is an innovative software company that provides advanced analytical and benchmarking tools for evaluating outage data and distribution reliability metrics, such as SAIDI, SAIFI, and CAIDI for electric utility companies. We specialize in customized state-of-the-art tools that are powerful yet easy to use, providing advance analysis and results in a short amount of time. Our unique "out-of-the-box" tools are designed to import data seamlessly from almost any source, deliver reports, and compare your company to nationwide benchmarking results in a matter of minutes via the desktop, internet, and mobile apps.

NRECA Silver Associate Member

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AES Distributed Energy Inc. a wholly owned subsidiary of The AES Corporation, is a trusted energy partner delivering reliable and affordable solar power and storage solutions to our customers. We specialize in developing, owning, and operating utility and distributed generation solar photovoltaic (PV) projects on a stand-alone basis or paired with storage, through a mutually agreed upon power purchase agreement (PPA). We have broad access to global capital markets to offer efficient project financing structures. AES has more than a decade of solar, wind, and storage development and operating experience and offers a variety of financing solutions that address a wide range of PV and storage projects.

NRECA Silver Associate Member

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AESI is an engineering and management consulting firm serving electric utilities since 1984. We provide utility management and engineering, North American Electric Reliability Corporation compliance (CIP and non-CIP), SCADA/energy management systems/advanced distribution management systems, system integration, cybersecurity, microgrid, and risk management services to cooperatives and G&Ts. Our depth of knowledge from the ground-up—as engineers, management, and consultants—allows AESI to offer a strong team with proven credentials, enhancing relationships and delivering technical, feasible, and practical solutions. AESI's clients benefit from access to industry-leading expertise, reliability improvements, and lower costs.

NRECA Silver Associate Member

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Serving the electric utility and communications industries since 1995, Alden Systems is committed to building better communities through better infrastructure. Alden assists in transforming infrastructure asset data into valuable, informed business decisions. Our software, services, and solutions ensure the safety of infrastructure assets. Alden One, the first centralized asset management system for joint use, provides the essential tools to seamlessly connect asset owners and attachers. Automated workflows facilitate joint-use processes in a central location: attachment permitting, make-ready work, pole transfers, NESC inspections, contract management, and inventory updates in real-time.

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The Aldrich Group includes a Top 100 accounting firm, nationally providing tax, advisory, and consulting services to businesses and individuals. We also work closely with business owners and individuals to manage their financial, wealth, and tax planning strategies. We serve clients with deep industry expertise in telecommunications, utilities, and a variety of privately held companies and individual clients. Our utilities services group serves water, wastewater/sewer, solid waste, and electric throughout the west. We understand the challenges utility providers face in providing essential services to the public while maintaining rates at an affordable level.

NRECA Silver Associate Member

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Alianza makes cloud communications radically better for service providers. Our cloud voice platform is a web-scale, turnkey virtualized software solution that enables cable, mobile, telco, and other broadband providers to rapidly customize, launch, and profit from voice over IP and UC services. With our software-as-a-service solution, voice becomes a robust broadband application, and service providers realize massive simplification, new service possibilities, and a lower total cost of ownership. This new way to deliver voice untangles service providers from the restraints of old-school voice networks and accelerates innovation and growth.

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Allied Telesis delivers reliable, intelligent connectivity for everything from enterprise organizations to complex, critical infrastructure projects around the globe. In a world of smart grid and the internet of things, networks must evolve to meet new challenges. Our smart technologies, such as Autonomous Management Framework (AMF) and Enterprise SDN, ensure that network evolution can keep pace and deliver efficient and secure solutions for people, organizations, and "things"—both now and into the future. Allied Telesis is universally recognized for innovating the way in which services and applications are delivered and managed, resulting in increased value and lower operating costs.

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Full service tower manufacturer and fabricator. Tower maintenance, inspections, and structural analysis. Substation civil and concrete work. Microwave, antennas, and path alignments. Water tank maintenance and fabricator. Tank painting.

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Since 1986, Altran has provided electrical, mechanical, civil/structural, and chemical engineering, design, and project management services for our expanding customer base. Our areas of expertise include transmission and distribution; fossil, nuclear, and renewable power generation; process engineering; and facilities design. Our world-class Materials Science and Engineering Center offers forensic analysis and root-cause analysis of materials and mechanisms used in the energy industries.

NRECA Silver Associate Member



Fiber to the Home – Investing in the Future of Rural Families

By Nestor Carrillo

High-speed internet has emerged as a major stimulant for rural economic activity by providing employment opportunities to rural families across the country. Successful companies depend on reliable broadband access, and many businesses will not consider settling in a rural community without it. The absence of broadband can be very costly—research indicates that a high percentage of rural American households without reliable access to broadband face economic hardship and earn lower median household incomes than urban counterparts.

With economic opportunity so closely tied to broadband access, late-adopting rural communities risk losing families that will form the next generation of rural America. Many electric cooperatives recognize this challenge and have

taken the necessary steps to meet current and future technological demands. CoBank, a national cooperative bank, has partnered with Northeast Oklahoma Electric Cooperative (NOEC) to meet broadband challenges in Northeast Oklahoma with a unique fiber-to-the-home project.

Introducing Broadband to Northeast Oklahoma

NOEC began deploying broadband service to its members in 2014 through its subsidiary, Northeast Rural Services, Inc. (NRS). They launched BOLT Fiber Optic Services, a fiber-to-the-home (FTTH) project formed to offer gigabit internet, HD television programming, and VoIP telephone service.

“We created BOLT Fiber Optic Services because our members

“CoBank supports NOEC’s commitment to revitalizing the Northeast Oklahoma rural economy and their efforts to improve the standard of living for communities they serve.”

Tamra Reynolds, Southern Regional Vice President for Electric Distribution, CoBank

asked for it,” says Anthony Due, general manager of BOLT Fiber Optic Services. BOLT was an instant success, and members from all over Northeast’s service territory quickly signed up for the high-speed internet service.

“When we started BOLT, our members were ecstatic. The take-rate has been phenomenal—BOLT currently has over 7,200 customers, and about 400 of those are commercial customers. We’re adding both residential and commercial customers daily,” says Due.

The BOLT network is configured with fiber optic cables running from NRS’s headend at their Vinita, Oklahoma, office all the way to each member’s network interface box that is placed on their home or business. BOLT’s unique FTTH setup provides steady, reliable access to broadband compared to many legacy fiber networks that only carry fiber to the node of a customer’s network, which can result in inconsistent, asymmetrical bandwidth with limited reliability.

“CoBank supports NOEC’s commitment to revitalizing the Northeast Oklahoma rural economy and their efforts to improve the standard of living for communities they serve,” says Tamra Reynolds, CoBank’s regional vice president for electric distribution in the southern region, who helped NOEC obtain financing for the BOLT Fiber project. “CoBank and USDA’s Rural Utilities Service are providing the financing for the BOLT FTTH project, which will expand its fiber network to cover much of the 1,558 square miles of rural areas in Northeast Oklahoma.”

“We appreciate CoBank working with us on the fiber project, and we value our longstanding relationship,” says Due.

Economic Development in Northeast Oklahoma

With the rollout of BOLT Fiber Optic Services, Northeast Oklahoma



“When we started BOLT, our members were ecstatic. The take-rate has been phenomenal—BOLT currently has over 7,200 customers, and about 400 of those are commercial customers. We’re adding both residential and commercial customers daily.”

*Anthony Due, General Manager,
BOLT Fiber Optic Services*

experienced a boom in economic development. One example is the Shangri-La, an 8,000-square-foot meeting and conference space with a 120-room hotel that was recently constructed in BOLT’s service territory.

“The owner of the new hotel and convention center on Monkey Island said he would not have built either without access to high-speed internet,” says Due. “So we know that BOLT was instrumental in bringing those businesses here.”

Other businesses such as Ferra Aerospace, an Australian aviation assembly company, have greatly benefitted from the high-speed internet that BOLT provides. Due notes that ongoing discussions are taking place with new businesses currently looking to move into the Northeast Oklahoma area.

Finding a Financial Partner

The BOLT Fiber Optic Services project demonstrates how electric co-ops can successfully partner with CoBank to help deploy broadband in their rural communities and invest in the future of rural families. “We understand that no two co-ops are the same, and that there is no one-size-fits-all solution, so we continuously look at new ways to work with our customer-owners,” says Reynolds.

Electric cooperatives are a logical option for delivering rural broadband, particularly given lack of incumbents providing service in these areas. Co-ops have existing, beneficial relationships with their members and a history of reliable, cost-effective service, in addition to a proven record of project management and construction experience. With their unique qualifications and the necessity of broadband in rural communities, the number of electric co-ops investing in broadband projects, and therefore rural families, is likely to continue growing at steady rates. CoBank’s team of financial experts are committed to the success of rural America and are available to help start your co-op’s broadband project. ■

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American Energy Services Inc. (AES) is staffed by people who have decades of experience in pole inspection and related maintenance fields. We helped pioneer the sonic-and-bore pole inspection method that is the backbone of many of America's power suppliers' pole maintenance programs. Since American Energy Services' first year, 1984, we have nondestructively tested millions of poles, saving our clients millions of dollars. This is due in part to the utility industry's growing acceptance of sonic testing and also because of vigorous efforts by AES to promote this alternative to hammer-sounding, excavating, and boring. One of the fastest-growing areas of service is overhead transmission line inspection. American Energy Services has been doing this type of work for various utilities since 1987. This comprehensive overhead transmission inspection is accomplished by either climbing or using aerial trucks.

NRECA Silver Associate Member

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American Tower is a leading provider of wireless and broadcast communications infrastructure, with over 144,000 communications sites globally. Our solutions also include in-building and outdoor distributed antenna systems, managed rooftops, and services that speed network development.

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American Transmission Co. is a Wisconsin-based company that owns and operates the electric transmission system in portions of the Upper Midwest. ATC is a member of the MISO regional transmission organization and provides nondiscriminatory service to all of its customers, supporting effective competition in energy markets without favoring any market participant. As the nation's first multi-state, transmission-only utility, ATC's sole focus is transmission. ATC serves utilities that procure primary network transmission service. Public power is represented on ATC's board of directors, and 22 of its 28 owners are public utilities. This model can benefit utilities nationwide.

NRECA Gold Associate Member

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AWG specializes in cable for renewable energy and electric utilities, offering a complete line of collection system underground cables in 15 kV-35 kV TR-XLPE/EPR, overhead bare aluminum transmission and distribution conductors (ACSR/AAAC/AAC), industrial power cables, bare copper conductor, copper clad steel, static wire, guy wire, aluminum clad steel, substation control cables, and fiber. AWG is proud to offer our exclusive patented cable for the renewable energy industry, TowerGuard CCA 2 kV, which weighs and costs approximately 35 percent of conventional DLO cables.

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Amino Communications is a global leader in innovative hybrid TV and cloud solutions that enable service providers to connect with consumers. As pioneers of IPTV, and with over 7 million devices sold worldwide, Amino has a proven track record for rock-solid reliability, innovation, and best-in-class customer care. Over 1,000 of the world's leading service providers across 100 countries have relied on Amino to provide a seamless delivery of rich entertainment experiences.

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Andax Industries LLC manufactures top-quality leak- and spill-control products and secondary containment systems for leaking pole and pad-mount transformers, insulator bushing containment, and flange containment with remote monitoring. We are also a distributor for Streamlight flashlights; Pelican cases, flashlights and remote area lighting systems; and Surefire flashlights.

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Apex Clean Energy develops, constructs, and operates utility-scale wind and solar power facilities across North America. Our mission-driven team of more than 200 renewable energy experts uses a data-driven approach and an unrivaled pipeline of projects to create solutions for the world's most innovative and forward-thinking customers. For more information on how Apex is leading the transition to a clean energy future, visit apexcleanenergy.com.

NRECA Silver Associate Member

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Kalkitech offers a line of products and services that securely bridge the data communications gap between power utility field devices and head-end systems across multiple vendors, supporting IT/OT transformation. By simplifying and accelerating accessibility to real-time data and analysis, our solutions help utilities improve system reliability and operational efficiencies while extending the life of legacy SCADA systems.

NRECA Silver Associate Member

Applied Technology Solutions, Inc.

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ATS, a highly qualified and experienced software provider, was built upon innovation and technological advances that have revolutionized the way distribution utilities function in today's marketplace. ATS' OpenOne Enterprise Suite delivers an integrated solution that can be tailored for exact needs and functionalities of the always changing, and ever unique, utility industry. OpenOne IS integration—enter data once using a web interface, accessed through Synergy, your corporate intranet portal, and share it throughout the entire organization. ATS' nimbleness is our greatest strength, and we remain small enough to know our clients, but large enough to serve them!

NRECA Platinum Associate Member

ArborMetrics Solutions LLC

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ArborMetrics (AMS) is a vegetation management mobile workforce focused on work planning, landowner notification, quality control, and right-of-way program management for

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electric cooperatives. ArborMetrics' proven vegetation management software, Arbor-Line, is bundled with professional foresters to capture all the right-of-way work requirements and can deliver the information into detailed map books or electronically to a smart device for a tree crew to execute the work. One of ArborMetrics' guiding principles is to implement the science of project management to ensure all projects meets defined scope, cost, and time constraints. AMS has offices throughout the United States and Canada.
NRECA Silver Associate Member

AriesPro

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AriesPro is a systems integrator and data analytics services firm delivering enterprise analytics solutions to cooperatives nationwide. Our core solutions, with no licensing or installation fees, focus on engineering, operations, outage management, advanced metering infrastructure and smart grid, and member services demand response and energy efficiency functions for co-op.
NRECA Silver Associate Member

Asplundh Tree Expert Company

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Celebrating its 90th year of proudly serving the utility industry, Asplundh continues to specialize in efficient, safe, and cost-effective vegetation management. A family-owned and managed corporation, Asplundh employs over 34,000 service professionals throughout the United States. As a full-service vegetation management contractor, Asplundh performs tree pruning or removals; right-of-way clearing and maintenance with specialized equipment; and integrated vegetation management with herbicides. Whenever a storm-related emergency occurs, Asplundh crews can be quickly mobilized to remove downed trees from power lines and roadways. The clear choice for vegetation management is Asplundh.
NRECA Platinum Associate Member

Azimuth Energy

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Azimuth Energy is an engineering, construction, and development support services company focused on the implementation of renewable energy solutions. As a licensed engineering corporation, we are committed to delivering solutions through our professionalism, attention to detail, and understanding of industry best practices. This process, along with our expertise as constructors, allows us to provide a variety of solutions in the design, development, and installation of distributed generation renewable energy systems.

We take pride in being a cut above in our approach. Our departmental leaders are veterans of both the solar industry and general building construction.

NRECA Silver Associate Member

B

Beckwith Electric

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Founded in 1967, Beckwith Electric introduced the first solid state tap changer control in 1968 and was the first to develop the microprocessor protective relay in 1981. Today, Beckwith Electric has thousands of protection and control units in service worldwide, with a reputation for cutting-edge technology, defined by its customers and refined by Beckwith. This success starts with Beckwith Electric employees and their commitment to quality in the products, all 100 percent designed and manufactured in Largo, Florida, U.S.A.

NRECA Silver Associate Member

Bekaert Corporation

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When your business involves power transmission, utility, telecommunications, or solar, Bekaert can contribute to sustainable, safe, high-performance, and cost-efficient operations. We offer American made products in ACSR, guy strand, static wire, fasteners, or animal mitigation. Bekaert is a global market and technology leader in steel wire transformation and coating technologies. To be the preferred supplier of steel wire products and solutions, we consistently deliver superior value to our customers worldwide.

NRECA Silver Associate Member

Bellwether Management Solutions

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Bellwether Management Solutions provides meter-related services, including advanced metering infrastructure and automated meter reading implementation, meter audit/site surveys, contract manual meter reading, project management, inventory management, GPS data collection, and field services (disconnects, reconnects, and collections). Load management device installation services are also provided.

NRECA Silver Associate Member

Bierer Meters

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Bierer Meters is the world's leader in the manufacturing of high-voltage and phasing test equipment and the highest-quality grounding and jumper assemblies. Founded in 1985, and located in Blythewood, South Carolina, Bierer provides the absolute value and performance state-of-the-art portable test equipment for use by electric utilities, contractors, and industrial and commercial businesses. Bierer ensures product accuracy, efficiency, reliability, factory support, and most importantly ... safety! Check out our full product line at bierermeters.com or call our customer service at 803-786-4839, and someone will assist you in determining which Bierer Meter appropriately fits your specific requirements.

NRECA Gold Associate Member

Big River Communications

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Big River Communications is a wholesaler of digital voice telephone service, managed services, and wireless solutions to the electric cooperative industry. Our cloud-based managed services allow our partners to quickly deliver a telecommunications offering to business and residential customers without the capital cost usually impacting a traditional telephone provider. If you are looking for a way to increase the revenue on your existing infrastructure, building a fiber-to-the home offering, or looking at a wireless offering to integrate into your network, then talk with Big River about how quickly you can get these services launched.

NRECA Silver Associate Member

Bluestem Energy Solutions

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Bluestem Energy Solutions (BES) is developer, owner, and operator of renewable assets. BES focuses on providing affordable, reliable, and sustainable solutions for our partners by identifying, developing, and implementing local energy solutions for our partners. The Bluestem business model is concentrated around value-based solutions that help improve the long-term economics of our partners' electric power distribution services and supply. The electric utility industry is experiencing rapid change through new opportunities, customer preferences, and technology options. Our model customizes specific solutions, unique to the situation of each one of our energy partners.

NRECA Silver Associate Member

BoardPaq

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BoardPaq is an affordable, easy-to-use, secure iPad and web (PC/Mac) app for boards of directors and planning, running, and managing board meetings.

NRECA Silver Associate Member

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Boral Material Technologies (BMT) and its predecessors have over 40 years of experience in marketing and managing coal combustion products (CCPs) for the power utility industry. BMT is committed to promoting, preserving, and increasing the sustainable, beneficial uses of CCPs. BMT has engineered many collection systems, as well as designed and managed on-site landfill operations. BMT manages over 5 million tons of CCPs at more than 23 locations nationwide. BMT also maintains a 160 car rail fleet to support our customers' needs of maximizing off-site use of CCPs. It is our mission to support all of your CCP needs.

NRECA Silver Associate Member

Border States Electric

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Border States Electric is a wholesale distributor of residential and commercial electrical construction supplies; industrial automation and maintenance, repair, operation, and safety products; and electric, natural gas, and telecommunications utility equipment. The company specializes in distribution automation (smart grid), transmission, and substation materials. With more than 2,200 employees-owners, its mission is to provide value to its customers by delivering innovative product and supply chain solutions. For more information on Border States Electric, visit its website: borderstates.com.

NRECA Platinum Associate Member

BPL Global

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BPL Global serves electric utilities by offering connected energy solutions for the following domains. Demand management: high-definition demand management with solutions for peak load reduction, peak shifting, load limiting, and energy arbitrage leveraging

commercial and industrial, agriculture, and residential. Controlled loads include irrigation, HVAC, hot water, and pool pumps. Grid management: solutions for volt/VAR control, outage management, and anomaly alerting. Distributed energy resource management: solutions for utility-grade management and control of photovoltaic, wind, electric vehicles, and storage, including integration to behind-the-meter distributed energy resource. Data analytics: report, track, analyze, predict, and prescribe via advanced data mining and machine learning.

NRECA Silver Associate Member

Brooks Brothers Trailers & Equipment

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Our vast line of equipment includes pullers, pole trailers, and reel trailers of various types—from self-loading to multiple turret. Our combo trailers and reel trailers have the capacity to be equipped with tensioning brake assemblies along with hydraulic drive retrievers that can be powered from a truck's hydraulic tool circuit. Or if needed, we can provide the necessary onboard power pack. For pulling overhead and underground conductor, we offer a 3,500-pound single drum, turret puller, and four-drum pullers (2,000-pound, 2,500-pound, 3,000-pound,

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NRECA Gold Associate Member

Burns & McDonnell Engineering Co. Inc.

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Burns & McDonnell is a 100 percent employee-owned engineering firm with deep roots in the power generation industry. We provide a full range of integrated energy solutions that take you from project financing, siting, and permitting to detailed engineering design, turnkey construction, and startup. Our portfolio of experience includes supercritical coal-fired, integrated gasification, combined cycle, gas turbine, and nuclear plant engineering. Renewable energy projects include wind, solar thermal, solar photovoltaic, biomass, and geothermal. Burns & McDonnell has significant expertise in high-voltage transmission line design, as well as substations and distribution and telecommunications systems.

NRECA Silver Associate Member

C

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Cabot is owned by 1,100 dairy farm families throughout New York and New England, employing over 1,000 people who make our award-winning cheeses, butter, and cultured products. The best premium butter is churned in West Springfield, Massachusetts. In Cabot, Vermont, we make award-winning cheddars, rich Greek-style yogurt, cottage cheese, and sour cream. As a cooperative, Cabot honors the same principles that guide co-ops around the world. We value community, member equity, democratic governance, and local ownership. Concern for community is an important principle to our farmer-owners, whom you'll find volunteering in every aspect of their communities. Your purchases mean the world to our future.

NRECA Silver Associate Member

CalCom Solar

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CalCom Solar provides energy solutions for commercial agricultural operations and water management organizations. Ranked No. 3 in the Inc. 500, the success of the company reflects CalCom Solar's sustainability ethic and strong conviction that a company can provide customers with reliable energy solutions, provide stable jobs in disadvantaged areas, maintain profitability, and have

a positive impact on the community and the environment.

NRECA Silver Associate Member

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Calix is a leading global provider of broadband communications access systems and software. Electric cooperatives leverage Calix fiber access expertise to become the broadband service provider of choice to their subscribers. The Calix Unified Access portfolio allows service providers to connect to their residential and business subscribers and deploy virtually any service over fiber- and copper-based network architectures. With a growing customer base whose networks serve over 100 million subscriber lines in total, Calix is at the forefront of enabling the innovative ways that communications service providers deliver advanced broadband services and value to their customers.

NRECA Gold Associate Member

CallNet Call Center Services Inc.

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CallNet Call Center Services is a live-agent call center specializing in electric cooperative and municipal utility outage, dispatch, and customer service. MultiSpeak-compatible transfer of data between CallNet and the co-op outage management system, customer information system, and metering systems is available. Please call us to talk about your after-hours phone coverage.

NRECA Silver Associate Member

Cambium Networks

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Cambium Networks is a leading global provider of wireless broadband solutions that connect the unconnected. Through our extensive portfolio of reliable, scalable, and secure Wi-Fi and wireless broadband point-to-point and point-to-multipoint platforms managed by cloud-based software, we make it possible for companies to build powerful communications networks, reach users, and intelligently manage their infrastructure through end-to-end network visibility and actionable analytics.

NRECA Gold Associate Member

Carhartt

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Since 1889, Carhartt has been making durable, quality workwear for people who take on the most rugged corners of the earth. Starting with only two sewing machines and

five employees, Hamilton Carhartt sweated the details to build clothes that would help people do their jobs a little better and make their jobs a little easier—gear that would always stay true to the core elements of being authentic, functional, wearable, and having enduring value.

NRECA Silver Associate Member

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Carina manufactures hardware and software for an intelligent water heater controller that shifts, stores, valley fills and schedules ancillary services with zero discomfort for the customer

NRECA Silver Associate Member

Caterpillar Inc.

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NRECA Silver Associate Member

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Headquartered in Vernon Hills, Illinois, CDW is a leading provider of technology solutions for business, government, education, and health care.

NRECA Platinum Associate Member

Centerra Corp.

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Centerra specializes in five main areas of expertise: efficiency analysis, renovating processes and procedures (continuous improvement process), BSS/OSS comparative RFPs, project management, and efficiency excellence.

NRECA Silver Associate Member

Center Phase Energy

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Center Phase Energy LLC is a family-owned business headquartered in Oklahoma City, specializing in emergency power restoration and damage assessment for independently owned utilities, cooperatives, municipalities and other industry participants.

NRECA Silver Associate Member

Chain Electric Company

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Chain Electric provides superior utility services with uncompromising safety, quality, and efficiency. Chain Electric specializes in overhead and underground distribution construction and maintenance, transmission construction and maintenance, emergency storm restoration, and marine work.

NRECA Silver Associate Member

ChargePoint

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ChargePoint brings electric vehicle (EV) charging to more people and places than ever before with the world's largest and most open EV charging network. We design, build, and support all of the technology that powers this network, from charging station hardware to energy management software to a mobile app. Our work transforms transportation and energy use by helping more people choose to drive electric.

NRECA Gold Associate Member

Charles Industries

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Charles manufactures innovative enclosed solutions for protecting electronics at remote locations. Products include a comprehensive line of outdoor and indoor cabinets and shrouds, building terminals, pedestals, housings, and below-grade enclosures for fiber and copper networks, made in the USA.

NRECA Silver Associate Member

CHR Solutions

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CHR is the leading provider of engineering services, BSS/OSS software solutions, and managed IT services to communications and utility service providers. Our team of industry experts help companies grow revenue and improve operations. Our clients include telephone, electric, cable TV, broadband, and city municipalities. Our staff helps you apply current and emerging technologies to replace eroding revenue. We can help with your network planning to connect all available devices, applications and content to provide a quality customer experience.

NRECA Silver Associate Member

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Cintas helps businesses of all kinds and sizes get ready for the workday. We do this by providing a wide range of products and services that enhance our customers' image and help keep their facilities and employees clean, safe, and looking their best. Cintas is the largest provider of managed flame-resistant clothing (FRC) programs. Over half a million wearers choose their FRC program from Cintas—making us the most trusted source for FRC apparel in North America. With unparalleled service and diverse options, we offer FRC products from manufacturers who engineer them to be more durable, more comfortable, and lighter than other garments of their type.

NRECA Silver Associate Member

Clean Energy Collective

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Clean Energy Collective (CEC) is the nation's leading developer of community solar solutions. CEC founded the model of delivering clean power generation through medium-scale solar photovoltaic facilities accessible to all utility customers. Since establishing the country's first community-owned solar array in 2010, CEC has built or has under development more than 130 RooflessSolar projects within 33 utility service territories across 15 states, serving thousands of customers and representing more than 350 MW of community solar capacity. CEC is also the leading provider of community solar software and services to the utility, development, and financial industries through its Community Solar Platform.

NRECA Silver Associate Member

Clevest

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Clevest provides software for mobile workforce automation and smart grid/advanced metering infrastructure (AMI) operations exclusively for utilities. Over 200 utilities worldwide have chosen Clevest to transform their field operations by harnessing the power of our software and deep domain knowledge of mobile computing and cooperative operations. Clevest's award-winning platform powers a product suite that includes mobile workforce management and field service work, automatic vehicle location, storm response, damage assessment, AMI deployment, AMI network services, smart grid visualization, meter reading, asset investment planning, and a patent-pending graphical configuration tool.

NRECA Platinum Associate Member

ClimateMaster

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ClimateMaster's role as a domestic energy and geothermal heating and cooling leader extends back to the late 1950s, when the company was founded in Florida. ClimateMaster was later relocated to New York, where it started manufacturing water loop heat pump systems, and finally moved its headquarters to Oklahoma City, where it continues to thrive today. Throughout its history, ClimateMaster has continued to invest in the value of its U.S.-patented technologies and expansion of its American manufacturing facilities. Today, the company remains committed to its "engineered and assembled in the USA" heritage by operating a 510,000-square-foot cutting-edge plant in Oklahoma City.

NRECA Gold Associate Member

CME Wire and Cable

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CME Wire and Cable Inc. was established in the U.S. in 1994 as a subsidiary of Viakable to serve customers in the U.S. and Canada. Through its three divisions and five strategically located distribution centers, CME serves its customers in residential, commercial, institutional, utility, industrial, and OEM markets. For the energy division, the customers include a select group of cooperatives; municipalities; investor-owned utilities; transmission companies; engineering, procurement, and construction companies; and industrial companies.

NRECA Silver Associate Member

CMS Utility Service, Inc.

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CMS provides design and construction management services for utility service facilities, including pole yards, and is the manufacturer of the CMS Portable Utility Pole Rack System. CMS is a partner in integrated facility solutions formed to provide "single source service" for all your facility needs.

NRECA Gold Associate Member

CoBank

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Cobank is a national cooperative bank.

NRECA Service Member

Collaborative Efficiency

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Beneficial electrification is an exciting new strategy that helps co-op members cut overall energy costs as they increase purchases of electricity. Converting propane heat to heat pumps and using electric vehicles are two approaches with big potential. Beneficial electrification also reduces environmental impacts. Collaborative Efficiency's main focus is electric co-ops. We help co-ops explore or implement beneficial electrification and other demand-side strategies. We are an affordable and understanding partner to co-ops, G&Ts, or to the organizations that support co-ops, such as statewide associations, nonprofits, and NRECA.

NRECA Silver Associate Member

Comnet Communications Networks

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ComNet is a fiber-optic communication and Ethernet product manufacturer. ComNet focuses on providing networking solutions to the energy, power, and transmission markets. The product line consists of fiber-optic transmission as well as a broad line of fiber-optic, copper, and wireless Ethernet products.

NRECA Silver Associate Member

ComRent Load Bank Solutions

Sales, Load Bank Expert
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ComRent is your single source for electrical and thermal load testing. Load bank testing is the most flexible testing method to validate the operating condition and output of diesel and gas turbine generators, UPS, batteries, and CRAC systems. Look to us for resistive load tests—mimics the operational load that a power source will see in the actual application; reactive load tests—provides a lagging load to accurately simulate electric motor and pump function; and capacitive load tests—provides a leading power factor to compensate for power factor correction on the utility. The bottom line: ComRent can test any load from 50-plus MW to less than 1kW at low or medium voltage.

NRECA Silver Associate Member

Conexon LLC

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Conexon works exclusively with rural electric cooperatives to bring fiber-to-the-home (FTTH) to rural areas and communities. We work with our clients to analyze economic feasibility, secure financing, manage

construction, train employees, optimize business performance, and determine optimal partnerships. We will be with you from project conception through long-term sustainability. Conexon counts among the projects of its rural electric cooperative clients: the first to provide rural gigabit service; the first to build FTTH to 100 percent of members; the first FTTH network built completely with no government assistance; and the first FTTH co-op networks operating profitably. Join us and connect rural America.

NRECA Silver Associate Member

Convergent Energy + Power

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Convergent Energy + Power provides energy storage solutions to reduce operating costs, guarantee power quality and reliability, and solve infrastructure problems. Are you experiencing one or more of the following challenges: costly upgrades to meet new peak load or to replace aging infrastructure; budget constraints and increasing capital investment requirements; or regulatory and technology uncertainties that complicate long-term decision-making? Convergent Energy + Power offers energy storage assets to solve expensive and time-consuming infrastructure problems; firm, dispatchable capacity to manage system peak loads and reduce market costs; full development scope; and risk-management solutions.

NRECA Gold Associate Member

Cooperative Building Solutions

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Cooperative Building Solutions (CBS) was established to provide a complete turnkey approach to the planning, design, and construction of rural electric cooperative facilities. Backed by over 100 years of unique industry experience, Gary Hobson leads CBS and his team of industry professionals.

NRECA Silver Associate Member

Cooperative Care Planning Services LLC

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Cooperative Care Planning Services provides long-term care programs for members and associate members of NRECA. Community-based long-term care specialists conduct board presentations, employee meetings, and consumer seminars, as well as individual planning sessions for those interested in a customized proposal. Discounts are available for members.

NRECA Silver Associate Member

**Cooperative Response Center Inc.**

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CRC offers utilities across the country seamless contact center and alarm-monitoring solutions, including call management; line crew dispatch; advanced metering infrastructure, customer information system, and outage management system integration; CRCLink outage communication software; and alarm monitoring. CRC also offers outage texting services, substation video monitoring, and a Payment Card Industry—compliance solution that uses live agents for billing calls. From outage calls to billing calls, disconnects to emergency locates, and more, CRC is there for its membership 24/7/365. By partnering with CRC, members find peace of mind as well as a cost-effective solution to their call-handling needs.

NRECA Platinum and Service Member

Copperweld

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Copperweld replaces theft-prone copper cables for grounding. Proper grounding saves electric grids from severe damage during lightning or fault conditions. Copperweld's metallurgical bond provides owners, developers, and contractors with a cost-efficient solution to copper theft.

NRECA Silver Associate Member

**CORNING**

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Corning is one of the world's leading innovators in materials science. For more than 160 years, we have applied our unparalleled expertise in specialty glass, ceramics, and optical physics to develop products that have created new industries and transformed people's lives. Within the telecommunications industry, our optical fiber, wireless technologies, and connectivity solutions enable high-speed communications networks. With global demand for bandwidth exploding, we are leading the way in connecting businesses, buildings, homes, and people at the speed of light.

NRECA Platinum Associate Member

Coronal Energy

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Coronal Energy, powered by Panasonic, is a leading provider of solar energy solutions tailored for diverse enterprise customers across North America. It unites the financial strength of a Fortune Global 500 company (No. 110) and Panasonic's award-winning history of solar innovation and sustainability leadership with the project development, finance, engineering, construction, and asset management experience of Coronal Energy. The result is smarter solar that translates to smarter business for customers. The collective experience of Coronal Energy, powered by Panasonic, includes projects in 40 states totaling 2.3 GW, with more than 3.4 GW of greenfield and brownfield projects in development.

NRECA Silver Associate Member

Cree Inc.

Danielle Bauer, Outdoor Lighting Marketing Manager

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Providing electrical power is often a balancing act between cost and reliable light quality. With Cree indoor and outdoor LED lighting, you can achieve the savings you need and give your customers the better light they expect. Since 1987, Cree has been a market-leading innovator of lighting-class LEDs and lighting solutions. We are committed to advancing LED technology that transforms the way people experience light. Better light can improve productivity. So we'd all get a little more done at work—while using less energy. Better light even makes us safer on the drive home and more comfortable once we get there. Better light changes everything, and thanks to Cree, it's only getting better.

NRECA Silver Associate Member

Cross Discipline Engineering LLC

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We are an exceptional team of professionals supporting electric utilities nationwide. We support all aspects of transmission and distribution systems, including line design; station design; 3-D modeling and visualization; LiDAR; geospatial; asset management; automation; right-of-way acquisition; construction management; engineering, procurement, and construction; environmental; compliance; planning; and analytical solutions—rate design, cost of service, and more. We strive to provide world-class service with a down home feel and exceed expectations in all we do.

NRECA Silver Associate Member

Custom Coating Innovations Inc.

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We manufacture plastic (ultraviolet standard gray, black, electrical orange, or gray plastisol) cutout covers, insulation boot covers, and avian protection covers, caps, grips, and tubes for power utility companies. We also coat ferrules, cable hooks, brackets, channels, and other tools for the power utility industry.

NRECA Silver Associate Member

Cypress Creek Renewables

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MARKET LEADERSHIP—Cypress Creek Renewables is a national provider of local solar with well over \$1.5 billion raised and invested and over 4 GW of local solar farms deployed or in development. LOCAL STEWARDSHIP—we partner with communities and utilities to provide widespread access to clean energy. Our local solar farms produce energy at or below market costs, making solar power an option for everyone. EXECUTION EXCELLENCE—as the fastest-growing developer of local solar farms, our development methodology is proven, repeatable, scalable, and actualized by one of the most experienced teams ever assembled.

NRECA Silver Associate Member

D**Daffron & Associates Inc.**

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Daffron provides tightly integrated utility software solutions, including customer information systems and billing, customer self-service web and mobile, financial management, workflow management, prepaid metering, meter data management, and field solutions. Daffron also provides application and data hosting and information technology services.

NRECA Platinum Associate Member

DataCol Group

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DataCol provides smart meter data collection services and technology that help utilities gather and manage field data from meters and other measurement devices across the electricity, water, and gas sectors. Even if you're using multiple automated meter reading vendors' hardware and endpoint products on your network, DataCol can combine it all into one data feed for your business.

This flexibility has effectively extended the life of our customers' networks and equipment without the requirement for expensive upgrades. By being smart, our solutions are saving customers millions of dollars in deferred capital expenditure and providing more efficient tools for meter data collection and management.

NRECA Silver Associate Member

Davey Resource Group

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Solutions are our specialty. Davey achieves proven results by integrating cutting-edge technology with highly qualified, experienced people. For inventories and inspections, as well as reliability, and to improve the management of your distribution system, the Davey Resource Group is your complete resource.

NRECA Gold Associate Member

Daymark Energy Advisors Inc.

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Daymark Energy Advisors Inc. is a leading provider of integrated policy, planning, and strategic decision support services to the North American electricity and natural gas industries. We work closely with each client, applying our knowledge, experience, and technology to deliver the highest quality, actionable analysis and advice to support efficient and sustainable decisions under uncertainty. We are proud of our reputation and accomplishments, and we have established a strong reputation for sound analysis and objective advice. Our work for electric cooperatives has included studies for renewable resource and energy efficiency potential.

NRECA Silver Associate Member

Delta Star Inc.

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Delta Star has been proudly serving the electrical manufacturing industry for over 100 years. We pride ourselves on creating quality power transformers and mobile substations that provide our customers with long-term service and valued investments. Delta Star is capable of constructing transformers that are 315,000 volts and below in both single- and three-phase ratings through 900 BIL rating. Performance, reliability, and durability are attributes addressed in every product design and at all levels of the manufacturing process. Each transformer is handmade by craftsmen who understand that quality is what makes Delta Star the choice for power companies around the world.

NRECA Silver Associate Member

Dentons U.S. LLP

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Dentons is the world's largest law firm, delivering quality and value in more than 158 locations serving 66 countries. Dentons has a top-ranked global energy practice, named "Energy Firm of the Year" by Who's Who Legal for 2017, 2016, and 2015. With more than 1,000 energy lawyers worldwide, we are truly a one-stop shop for clients seeking a talented, globally seamless team of energy professionals. And with our extensive experience with all types and stages of power project development, acquisition, and financing, including strategy-setting, capital raising, deal structuring, and regulatory compliance, we provide added value while offering our services on a very cost-efficient basis.

NRECA Silver Associate Member

DIS-TRAN Packaged Substations LLC

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With well over 100 substation projects every year, we're well-practiced at executing our finely honed process to generate peak results for our customers. By using state-of-the-art 3D technology, we offer our customers tangible benefits like our new product line of DIS-TRAN PFB (Pre-Fabricated Bus), XPS (eXpress Power Substation—skid-mounted substations), and FBS (factory-built substations).

NRECA Silver Associate Member

Diversified Products

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Diversified designs and manufactures job-specific utility products by collaborating with the people on the front line of the utility industry. Our line lifters, phase lifters, pole pullers, three-phase boom lifts, man baskets, and insulated work platforms are field-tested and proven to make your job more efficient, productive, and safe. For over 19 years, Diversified Products has been proud to be developing the utility products of the future—today. You can always count on Diversified to keep you moving down the line!

NRECA Silver Associate Member

Diversified U.S.

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Diversified builds artfully designed and comprehensively managed network and

media technology solutions. If your company can visualize a media integration scenario, we can create it.

NRECA Silver Associate Member

DNV GL

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At DNV GL, we unite the strengths of DNV, KEMA, Garrad Hassan, and GL Renewables Certification. DNV GL's 2,500 energy experts support customers around the globe in delivering a safe, reliable, efficient, and sustainable energy supply. We deliver world-renowned testing, certification, and advisory services to the energy value chain, including renewables and energy efficiency. Our expertise spans onshore and offshore wind power, solar, conventional generation, transmission and distribution, smart grids, and sustainable energy use, as well as energy markets and regulations. Our testing, certification, and advisory services are delivered independently from one other.

NRECA Silver Associate Member

Dorsey & Whitney LLP

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Dorsey & Whitney's cooperative law practice group consists of more than 60 lawyers with 20 years' experience in solving simple to complex problems for cooperatives and other ag-related businesses. Our practice with farm supply and agricultural co-ops helps us provide unique experience and deeper knowledge of rural concerns. Our team approach enables us to draw on a wealth of experience and knowledge throughout our firm while keeping one person responsible for ensuring that clients' needs are met, at a reasonable cost. Services include project development and finance; mergers; acquisitions, joint ventures, and securities; antitrust; cooperative tax issues; employment and employee benefits; e-commerce; trademarks; environmental; land use; and permits.

NRECA Silver Associate Member

Dow Chemical

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Dow is a leading global provider of materials for the manufacturing of cable systems and accessories. Our broad portfolio of solutions and industry expertise enables us to deliver comprehensive systems solutions for transmission, distribution, low-voltage, and fire-resistant applications. Understanding that collaboration is essential to success, Dow

works together with cable-makers, co-op utilities, industry suppliers, testing institutes, and industry associations to help develop solutions and create mutual value that will sustain the industry for years to come. For more information, visit dow.com/electrical.

NRECA Silver Associate Member

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Duff & Phelps is the premier global valuation and corporate finance adviser with expertise in property tax, complex valuation, dispute consulting, M&A, and restructuring. Duff & Phelps treats tax services as business opportunities by uncovering ways property tax can be used to positively impact the bottom line. With more than 100 cooperatives in our portfolio, we specialize in identifying tax-saving opportunities by reviewing their tangible property portfolio and associated property tax assessments and liabilities. Property tax services include valuation appeals; uniformity and general consulting studies; pre- and post-acquisition due diligence; litigation support; exemptions; and compliance.

NRECA Silver Associate Member

Duncan & Allen

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For 40 years, Duncan & Allen attorneys have successfully assisted and represented electric cooperatives and public power entities in entity formation and organization; joint ventures; planning, resource acquisition, contracts, and rates for power supply, transmission and distribution; financing; regulatory proceedings and compliance; and litigation, arbitration, and administrative proceedings. We apply thoroughness, excellence, and dedication to our clients' missions.

NRECA Silver Associate Member

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Since its founding in 1971, Duncan, Weinberg, Genzer and Pembroke PC has provided a broad range of counseling, regulatory, litigation, and legislative services to clients in every region of the country. The firm's principal office is in Washington, D.C., and it also maintains an office in Sacramento, California. The firm's practice includes energy and utility law, environmental law, communications law, municipal law, and intellectual property law. The firm has attained a prominent and highly regarded position in these practice areas by developing innovative approaches and achieving precedent-setting results for its clients.

NRECA Silver Associate Member

Dur-A-Lift, Inc.

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We speak bucket truck. Dur-A-Lift Inc. is a leading manufacturer of telescoping articulating personnel and material handling aerial lifts for what is better known as a bucket truck. The experience, quality, and dependability shows in every product that leaves the factory floor.

NRECA Gold Associate Member

DVI Grid Solutions

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DVI is a leading provider of grid analytics and control technology, providing solutions for energy efficiency, demand response, volt/VAR control, and system reliability.

NRECA Gold Associate Member

E**Eaton**

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Eaton's Electrical Automation Solutions division provides a range of power delivery and reliability, automation and control, advanced metering (AMI) and demand response (DR) solutions, engineered systems and turnkey solutions integrated with enterprise level software and secure communications enabling customers to manage energy consumption, increase productivity, optimize asset efficiency, improve system reliability, and reduce costs while keeping personnel, equipment and data safe. Eaton's EAS division serves customers in the utility, commercial, and industrial markets. For more information on Eaton's end-to-end smart grid solutions, visit www.eaton.com/smartgrid.

NRECA Platinum Associate Member

EcoLayers Inc.

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Tree Asset Manager (TreeAM) is a web-based suite of data management, geographic information system, workflow, and decision support tools for intelligent utility vegetation management. Utilities can select any combination of these tools to specify their custom software package that can be brought online quickly and cost-effectively. TreeAM will provide utilities with a wide range of data capture and management tools, from manual keypad entry to unmanned aerial vehicles; the tools to implement all vegetation management programs, such as line clearance, herbicide, and tree

growth regulators, in a single software environment; custom analytics and business rules to optimize planning and decision-making; and a complete asset management system in use at Fortune 100 companies.

NRECA Silver Associate Member

ECP Utility

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ECP manufactures a complete line of helical guy anchors and tower support helical piles. These products provide our customers with the very best solutions for their piercing and anchoring needs. ECP's customer service, engineering support, and on-time delivery of American-made products has created a new standard within our industry. Our product lines include resistance piers, cross plate anchors, utility guying anchors, lighting, and solar foundations.

NRECA Gold Associate Member

EDF Renewable Energy

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EDF Renewable Energy is a national leader in renewable energy that offers a turnkey service for cooperatives. Our strength is grounded in the extensive experience gained over nearly 30 years: We have developed over 9 GW of wind, solar, storage, biomass, and biogas projects throughout North America.

NRECA Silver Associate Member

Electric Power Engineers Inc.

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Electric Power Engineers Inc. (EPE) is a full-service power engineering firm. EPE provides engineering and consulting services to generation owners and developers, municipalities, electric cooperatives, and investor-owned utilities, both in the United States and internationally. Our services include transmission and distribution planning; smart grid development; interconnection testing and commissioning; North American Electric Reliability Corporation compliance services; energy market analysis; system design; and integrated resource planning. When it comes to delivering excellence to our generation, transmission, and distribution clients, we make not only engineering but also economic sense. Simply put, we treat each project as our own.

NRECA Gold Associate Member

ElectricCom

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ElectricCom's power division has been constructing facilities since its inception in 1960. Our highly trained crews and experienced supervisors offer safe, reliable power builds that yield superior quality and performance. ElectricCom takes great pride in both the safety and training of its workforce. We have a staff of four safety professionals and a full safety department. ElectricCom also has a telecom division, specializing in building both buried and aerial fiber networks, and a right-of-way division, helping to minimize service outages. We realize the importance of becoming certified tree care experts. We also have several certified arborists on staff. Storm team—we are only a phone call away.

NRECA Silver Associate Member

Electromark Co.

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Electromark provides identification solutions for harsh, outdoor environments. Over 45 years of utility knowledge enables us to create tailor-made products that fit both your most unique and basic requests. We do more than just sell durable signs, labels, and tags. Electromark provides expert sales support, innovative solutions, and unparalleled service.

NRECA Silver Associate Member

ElectSolve Technology Solutions & Services, Inc.

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ElectSolve's uCentra meter data management system is a data management and integration platform for managing utility data. uCentra captures data from advanced metering infrastructure, customer information systems, SCADA, outage management systems, geographic information systems, and other utility systems. uCentra provides a complete analytic view of the utilities data with management, analysis, and reporting.

NRECA Silver Associate Member

Elliott Equipment Company

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Elliott Equipment Company, founded in 1948, is a family-owned manufacturer of telescopic truck-mounted aerial work platforms, cranes, and digger derricks. We engineer, build, and support heavy-duty, multi-functional machines that let you do more with a single piece of equipment. We can satisfy your needs by drawing on the largest range of product offerings in the industry, or by developing a custom solution to fit your application.

NRECA Silver Associate Member

EMI of KC

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Environmental Management of KC LLC (EMI) was founded in 1997 to meet the needs of utilities with all aspects of used transformer oil management. EMI provides the highest-quality services in the collection and recycling or re-refining of all non-hazardous transformer oil; re-refinement of transformer oil to ASTM 4387 standard; and retro-filling field services.
NRECA Silver Associate Member

EnerVision Inc.

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EnerVision provides tailored energy solutions to electric utilities. Our spectrum of services includes planning for and meeting member-consumers' total energy needs, encompassing power supply, demand response, and energy efficiency. Other services include strategic planning, smart grid technology, and rates strategies and designs. EnerVision has successfully assisted clients in over 30 states to effectively resolve energy industry issues, lower their operating costs, and increase their value to their members-consumers.
NRECA Silver Associate Member

EnerNex LLC

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EnerNex provides consulting and engineering services to the electric power industry. EnerNex is known for its trusted advice and work in grid modernization, studies, micro-grid analysis, and distributed and renewable energy resource integration.
NRECA Silver Associate Member

Environmental Consultants LLC (ECI)

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Environmental Consultants LLC (ECI) has for 45 years led the utility vegetation management industry in North America. ECI provides cooperatives with International Society of Arboriculture-certified foresters to help manage or develop your right-of-way program. ECI has approximately 450 contract foresters, environmental specialists, I.S. architects, and geographic information system technicians. ECI has conducted utility arboricultural research for the Electric Power Research Institute, NRECA, and CEATI research organizations, and it has

written the NRECA Vegetation Management Manual. ECI provides highly experienced, impartial services that are focused on your cooperative's goal of providing safe, reliable, and cost-effective electric service to your members.

NRECA Silver Associate Member

Ericsson Inc.

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Ericsson is the world's leading provider of communications technology and services. We are enabling the networked society with efficient real-time solutions that allow us to study, work, and live our lives more freely in sustainable societies around the world. Our offerings include services, software, and infrastructure within information and communications technology for utilities, telecom operators, and other industries. Today, more than 40 percent of the world's mobile traffic runs over Ericsson networks. We support customers servicing more than 2.5 billion subscribers. Today, Ericsson operates in 180 countries and employs more than 100,000 people.
NRECA Platinum Associate Member

Ervin Cable Construction LLC

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Ervin Cable Construction LLC (ECC) is a full service provider of phone, cable TV, and fiber optics. It has expanded its capabilities significantly in the phone, cable, gas, and electric industries, having installed over 15,000 miles of plant wiring, completed over 200 engineering projects, worked in 28 states, and successfully expanded into the federally funded fiber-to-the-home and Rural Utilities Service and American Recovery and Reinvestment Act project arenas. With national capacity, large bonding capabilities, experienced management, and time-tested procedures, ECC is the turnkey provider that will complete your project on time, on budget, and with unsurpassed quality.
NRECA Silver Associate Member

Esri

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Location powers the co-op of the future. Esri enables co-ops to use the power of location to save time, lower costs, and satisfy members. ArcGIS technology delivers powerful tools that help manage, update, and analyze information about members, network assets, work orders, and more. The ArcGIS platform can be deployed in every organization, from an individual desktop to a service-oriented architecture and a globally distributed network. Use, make, and share maps from any device, anywhere, anytime.

Esri developed the ArcGIS Data Model for MultiSpeak, a ready-to-use geodatabase template that conforms to the latest release of the widely used, industry-standard MultiSpeak specification.

NRECA Platinum Associate Member

ETI

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ETI (often known as Equipment Technology) is a rapidly growing U.S. manufacturer of aerial lifts, headquartered in Oklahoma City. Our growth is a direct result of our commitment to meeting and exceeding customer expectations. As a manufacturer of both aerial devices and utility truck bodies, we can offer higher-quality units because of the integrated design process. ETI is growing into a commanding force as a member of the Palfinger family. Palfinger is a leading manufacturer of hydraulic lifting, loading, and handling equipment that has 4,500 employees worldwide and 2010 sales of \$900 million.
NRECA Silver Associate Member

EventTracker

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EventTracker is an award-winning solution for your IT security and compliance needs. Also available as a managed service, SIEM Simplified is perfect for electric co-ops in need of security expertise. Reduce audit times by up to 90 percent with built-in compliance workflow; real-time alerts, prioritized by risk; user and activity monitoring; behavior analysis to detect new or anomalous activity; integrate with threat intelligence sources. Available as an affordable managed service: SIEM Simplified.

NRECA Silver Associate Member

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Sutherland Asbill & Brennan LLP has a nationally recognized electric cooperative practice, working on the leading edge of this rapidly changing industry to solve challenging business problems. We have experience in all areas of importance to electric cooperatives, including capital markets, Rural Utilities Service, and all other financing; indentures; construction and joint ownership; power supply and power marketing; renewable energy; Renewable Energy Credits and carbon credits; natural gas supply; mergers; asset acquisitions; new wholesale power contracts; diversification; energy litigation; tax planning and controversy; Dodd-Frank implementation and compliance; reliability compliance; and Federal Energy Regulatory

F

Commission and state regulatory and enforcement matters. Representative clients include numerous G&Ts and distribution cooperatives, investment bankers, lenders, and other industry participants.

NRECA Silver Associate Member

Evluma

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Committed to developing long-lasting and environmentally low-impact LED lighting solutions for the outdoor lighting market, Evluma is more than a lighting company. We are a technology and engineering company dedicated to finding cost-effective solutions for our customers.

NRECA Platinum Associate Member

Exacter Inc.

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Exacter Inc. is a company that focuses on electric utilities worldwide. Exacter has created a platform technology for providing unique visibility into grid health, identifying areas of safety and system risk, and informing asset management and intelligence-based reliability initiatives.

NRECA Silver Associate Member

Exponential Engineering Company

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Since 1993, Exponential Engineering Company has provided electrical engineering consulting services to co-ops across the country.

NRECA Silver Associate Member

EZ-Spot-UR Rotating Attachments

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ezspotur.com

EZ-Spot-UR is the manufacturer of rotating skid steer and heavy equipment attachments with a dedicated line to the utility industry. From setting poles to pulling poles to augering holes to spooling up wire, we have an attachment to meet your needs. Our attachments are proven in the field to increase safety and productivity and are built to withstand the abuse of all weather conditions. Please visit our website, ezspotur.com, or call 877-433-5733 to make your work EZ!

NRECA Silver Associate Member

Fairbanks Morse

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Fairbanks Morse is the critical power solutions expert—a strategic partner and a trusted source for application-specific, fuel-flexible power systems that deliver optimal performance in mission-critical applications. These applications include power generation—base-load and standby power plants, and emergency backup power for nuclear plants—and ship propulsion and shipboard power for the United States Navy and Coast Guard and commercial vessels. Fairbanks Morse's reliable engine drive solutions also can be found in a wide range of municipal, institutional, and industrial applications.

NRECA Silver Associate Member

Farmer Mac

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The Federal Agricultural Mortgage Corporation, commonly known as Farmer Mac, was created by Congress to establish a secondary market for agricultural mortgage and rural utility loans to increase the availability of long-term credit at stable interest rates to segments of rural America. As a stockholder-owned, publicly traded corporation, Farmer Mac (along with its subsidiary, Farmer Mac II LLC) conducts these activities through three programs: Farmer Mac I, Farmer Mac II, and Rural Utilities. Farmer Mac is not a direct lender; rather, it works with lenders that work directly with borrowers throughout the United States.

NRECA Platinum Associate Member

Fastenal Company

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Fastenal is an industry-leading, full-line national industrial supplier with locations in the USA, Canada, and Mexico. Fastenal offers over 500,000 products in 20 MRO product categories on line at www.fastenal.com and through local service from our 2600 stores. Fastenal has a fleet of trucks and delivery vehicles to offer the highest level of service in the industry. Fastenal operates 14 major distribution centers and delivers to our stores four to five days per week. The Fastenal business model is built on customer service and value-added programs, including vendor-managed inventory; industrial vending; and industrial services, including custom manufacturing and an e-business initiative.

NRECA Silver Associate Member

Federated Rural Electric Insurance Exchange

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Federated Rural Electric Insurance Exchange is the leading provider of property and casualty insurance for rural electric cooperatives in 42 states. Our primary goal is to offer our members affordable coverage over the long term so they can focus on serving their communities and making them better, safer, and more vibrant places to live.

NRECA Service Member

Felling Trailers Inc.

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Felling's Utility and Telecom Division provides trailer solutions for a broad customer base that includes major and regional electric, natural gas, water, and telecommunication companies. From standard models to custom designs, the end result is a trailer that meets your needs. Felling has been providing innovative trailer solutions to the transportation industry for over 40 years. With over 100 years combined industry sales experience, we have the answers to your specialized trailer needs. Felling manufactures 5,000-plus trailers a year, ranging from a 3,000-pound utility trailer to a 120,000-pound hydraulic gooseneck trailer, with 240 standard models. Felling Trailers Inc. is an ISO 9001:2015-certified company.

NRECA Silver Associate Member

Fiber Instrument Sales Inc. (FIS)

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FIS is a manufacturer and full-line distributor of communication fiber optics, test equipment, connectors, cable and cable assemblies, tools and toolkits, fiber-optic consumable products, category 5e and 6 cabling products, active network equipment, and fiber-optic security systems and components.

NRECA Silver Associate Member

Finley Engineering Company Inc.

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Finley Engineering Company, established in 1953 in Lamar, Missouri, is a multi-discipline organization offering professional engineering, surveying, mapping, environmental, and right-of-way services to electric utility, communications, and related industries. The management and professional staff have extensive experience with public, private, and government organizations. Finley has offices in Lamar, Missouri; Bismarck, North Dakota;

Slayton, Minnesota; Johnston, Iowa; Kansas City, Missouri; Lexington, Kentucky; Omaha, Nebraska; Minneapolis, Minnesota; and Springfield, Illinois, with a staff of more than 300 full-time professional, technical, and field personnel.

NRECA Gold Associate Member

Fitch Ratings

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Fitch Ratings is a leading provider of credit ratings, commentary, and research. Dedicated to providing value beyond the rating through independent and prospective credit opinions, Fitch Ratings offers global perspectives shaped by strong local market experience and credit market expertise. The additional context, perspective, and insights we provide help investors to make important credit judgments with confidence.

NRECA Silver Associate Member

Flagger Force Traffic Control Services

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Flagger Force specializes in short-term traffic control and safety services. Various companies and contractors need access to work while impeding on normal traffic patterns. Flagger Force meets that need with our safety-driven approach to traffic control, which distinguishes us in our safety record, commitment to quality, and emphasis on professional personnel backed with extensive training and experience. Every Flagger Force professional field worker exceeds state training requirements, completing our rigorous in-house training program, Flagger Force Academy, prior to their first field assignment.

NRECA Silver Associate Member

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Ford Motor Company is a global automotive and mobility company based in Dearborn, Michigan. With about 203,000 employees and 62 plants worldwide, the company's core business includes designing, manufacturing, marketing, and servicing a full line of Ford cars, trucks, and SUVs, as well as Lincoln luxury vehicles. To expand its business model, Ford is aggressively pursuing emerging opportunities with investments in electrification, autonomy, and mobility. Ford provides financial services through Ford Motor Credit Company. For more information regarding Ford and its products and services, please visit corporate.ford.com.

NRECA Platinum Associate Member

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Fujitsu partners with co-ops to expand and modernize communications networks. We combine the best of wireline, wireless, and software technology with multi-vendor services, delivering end-to-end network integration. Our vendor-agnostic approach provides solutions for smart grid and fiber-to-the-x projects.

NRECA Silver Associate Member

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Futura Systems provides mobility-centric geographic information system (GIS) solutions to hundreds of electric distribution utilities across the United States. As an Esri Gold Business Partner, Futura Systems excels at employing the ArcGIS foundation to develop mapping, staking, and outage management tools that deliver powerful, user-friendly functionality. Our suite of tools extends the level of collaboration between the GIS and the customer information system by providing intuitive, single-screen access to critical operational intelligence, empowering you to make informed decisions that will improve your overall service to your consumers. Our suite includes mapping, staking, outage management system, inspection, asset/project management, FieldPro Mobile, and Catalyst analytics.

NRECA Silver Associate Member



G&T Communications Inc.

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G&T Communications Inc.—the go-to people in co-op communications—is a full-service public relations and advertising firm that specializes in working with cooperatives across the nation. With an almost 20-year history of award-winning service and results, we provide a wide range of communications support, based on strategic planning, creativity, and a focus on results. Clients include distribution cooperatives, G&Ts, and statewide associations.

NRECA Silver Associate Member

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G&W Electric Company is a global supplier

of power solutions. G&W Electric has been a global supplier of electric power equipment since 1905. Our products are designed to the latest industry standards and backed by over 105 years of engineering expertise.

NRECA Gold Associate Member

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GDS is a multi-service consulting and engineering firm with expertise geared to electric co-ops. Services include power supply planning, financial/rate analysis, load forecasting, transmission, demand side management and energy efficiency, and more. GDS serves clients throughout the U.S. with offices in Georgia, Texas, Alabama, Florida, Wisconsin, New Hampshire, and Maine.

NRECA Silver Associate Member

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GE Power is a world energy leader that provides technology, solutions, and services across the entire energy value chain, from the point of generation to consumption. Grid solutions is part of GE Power.

NRECA Silver Associate Member

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Generac Power Systems (NYSE: GNRC) is a leading manufacturer and marketer of power equipment serving residential, light commercial, industrial, and construction markets. Under the Generac brand, the company sells portable and stationary backup power systems from 100 watts to 9 megawatts. Generac's Guardian Series is the No. 1 selling residential backup power system on the market. Generac power systems are available through a broad distribution network of more than 4,000 dealers, including several electric and gas utilities.

NRECA Gold Associate Member

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Genics uses proven, safe, and internationally recognized elemental compounds (boron and copper) to form unique products in patent-protected delivery systems. Cobra products are designed to remain in the desired treatment zone, not leaching into the surrounding area.

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CORNING

Geronimo Energy

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Geronimo Energy is a full-service renewable energy development company headquartered in Minneapolis, Minnesota, with satellite offices in southwest Minnesota, North Dakota, South Dakota, Illinois, New York, and Michigan. Geronimo Energy provides custom renewable energy solutions for utilities and corporations looking to harness renewable energy for business growth. Geronimo Energy has developed over 1,600 MW of renewable energy projects that are either operational or under construction. Geronimo Energy has a multi-gigawatt development pipeline of wind and solar projects in various stages of development throughout the United States.

NRECA Silver Associate Member

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We offer iPad-based field inspections and work management software to electric cooperatives. Our geoOrganizer software is used on iPads and iPhones by distribution and transmission utilities for field asset inspections, pole inspections, damage assessments, service orders, aerial surveys, vegetation management, etc.

NRECA Platinum Associate Member

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Graybar, a Fortune 500 corporation and one of the largest employee-owned companies in North America, is a leader in the distribution of high-quality electrical, communications, industrial, security, and networking products, and it specializes in related supply chain management and logistics services. Through its network of more than 260 North American distribution facilities, it stocks and sells products from thousands of manufacturers, serving as the vital link to hundreds of thousands of customers. For more information, visit graybar.com or call 1-800-GRAYBAR.

NRECA Silver Associate Member

GreatCo-ops

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GreatCo-Ops focuses exclusively on leadership development and strategic planning for electric co-ops. We help those managing cooperatives thrive in their roles and create co-ops with healthy cultures that deliver unsurpassed member satisfaction. We work

hard to earn the trust and respect of our clients by combining decades of experience, an obsession for unrivaled service, and an unwavering commitment to ethical conduct. Our interactive workshops, one-on-one coaching, and strategic planning services leverage experience-tested, data-driven techniques and tools to give our clients powerful insights and skills they can use to address their greatest challenges.

NRECA Silver Associate Member

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Greenlee Communications offers a complete line of innovative and industry-leading test and measurement solutions for communication service providers, utilities, and governments. Our innovative test solutions address all stages of network deployment, enabling the development, installation and maintenance of cable, Ethernet, fiber optic, SCADA, TMS transmission, DS1-DS3 transport, xDSL, and wireless networks. With over 150 years of manufacturing, research, and development experience, Greenlee has emerged as the leading provider of next-generation test and measurement solutions in the global communications industry. We serve customers across the globe from the Americas, Europe, Africa, and Asia.

NRECA Silver Associate Member

GreenStar Products LED

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At GreenStar, we are focused on designing, testing and producing highly advanced and robust LED luminaires for the commercial, industrial and public sectors around the world. Our products are thoughtfully designed to offer exceptional performance while maximizing the entire value chain from raw material suppliers to the end customer.

NRECA Silver Associate Member

GRID20/20

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GRID20/20 provides best-in-class, patented distribution transformer monitoring solutions. Our plug-and-play sensors are the fastest to install in the market. Supported by a robust software platform, the OptaNODE DTM solution continuously provides vital, actionable intragrid information for utility operators. This turnkey offering yields a growing list of value propositions, including power theft identification, distributed energy resource-initiated reverse energy monitoring, timely voltage and current monitoring, conservation voltage reduction enhancement, asset management, and outage notification, thus yielding cost

savings and energy conservation benefits. Automated alert messaging and exception reporting maximizes user efficiency.

NRECA Silver Associate Member

GridLiance

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GridLiance partners with electric cooperatives, municipal utilities, and joint action agencies to identify and implement unique electric transmission solutions that benefit your customers. We're the first independent transmission company primarily focused on collaborating with electric cooperatives.

NRECA Platinum Associate Member

GridPoint

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Gridpoint is a smart buildings technology leader that makes site optimization simple. The platform provides visibility into facility operations to help customers automate and control sites. Lower energy spend and proactively manage day to day operations. Gridpoint's customers include four of the top 10 retailers by total sales, three of the top 10 casual dining restaurants, five of the top 20 quick service restaurants, leading commercial and industrial enterprises, and major government and educational institutions. Powered by the best data, GridPoint is validated in 120,000 locations.

NRECA Silver Associate Member

Guernsey

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Guernsey is a multi-discipline firm, employing engineers, architects, planners, consultants, environmental scientists, designers, analysts, accountants, and managers. Because we offer all these services under one roof, we are able to collaborate efficiently, giving you access to expert advice in cost of service; rate analysis; power system planning; fuel and load forecasting; substation, transmission and distribution engineering; acquisition and contract negotiation; cyber security; security vulnerability analysis and risk assessment; environmental, architectural, interior and engineering design services; and much more.

NRECA Silver Associate Member

Guzman Energy

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Guzman Energy is a multi-faceted energy

services company that brings together leading minds around the domestic energy and power industries. We are registered with the Federal Energy Regulatory Commission and participate in CAISO, ERCOT, PJM, and MISO. As a commodities marketer and advisory firm, Guzman Energy leverages the research of leading academic minds with the practical skills of industry experts. In its role as a wholesale energy distributor, the company focuses on electric power, renewable energy, and natural gas, along with a host of environmental products. Advisors work with clients in three key areas: energy hedging and risk management, project finance and advisory, and executive training. Guzman Energy has offices in Coral Gables, Florida, and Denver, Colorado. Guzman Energy is an affiliate of Guzman & Company, a boutique investment bank focused on the energy and power industries.

NRECA Silver Associate Member

GVNW Consulting

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GVNW Consulting is well-positioned to provide a blueprint, determine the best path, reduce risk, and position your company as the broadband provider of choice in your underserved market. Our primary services include business planning, technology and

network management, product development, and marketing. With over four decades of experience partnering with rural broadband providers, GVNW can bring your electric co-op the expertise required to enhance the delivery of broadband services and offer a cash-positive solution to your members. For over 40 years, we've been passionate about achieving better results for our clients. Bring us your challenges. We will find solutions.

NRECA Silver Associate Member

H

Hannah Solar LLC

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Hannah Solar is a full-service solar integrator dedicated to providing the very best in engineering, products, installation, and operations and maintenance of solar arrays, electric vehicle charging stations, Tesla Powerwall 2 storage systems, and Generac backup generators. Our team is composed of NABCEP-certified solar experts; licensed master electricians in Georgia, Alabama, Mississippi, North Carolina, South Carolina, and Tennessee; project management professionals; business development managers; designers; and installers, working together to serve our

clients as a reliable and experienced resource in sustainable energy integration.

NRECA Silver Associate Member

Harris Utilities SmartWorks

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SmartWorks is the innovation engine of Harris Utilities, a company with over 35 years of experience in utility technology. SmartWorks is a leading provider of smart grid technology.

NRECA Silver Associate Member



Hastings Fiber Glass Products

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0-5/10/20 kV thump
1000 joules all outputs
Up to 400 mA Burn
Internal TDR/Radar filter



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0-9/18/36 kV thump
1600/3200 joules all taps
Up to 280 mA Burn Internal
TDR/Radar filter



VT33 - VLF/Thumper

VLF: 0-33 kVac peak
Load: 1.0 uF @ 0.1 Hz
Burner: VLF Burn Mode
Thump: 0-13 kVdc @ 760 J
Internal TDR/radar filter



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hot line tools and equipment. Today, we're a worldwide supplier with products in use in more than 50 different countries. Over the last 50-plus years, our reputation for quality, dependability, and long-lasting product life has been field-tested in all 50 states and around the world. When you see our name, expect the best—because at Hastings, hot line tools are our only business.

HD Electric, A Textron Company

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HD Electric Company, a Textron company, offers test, measurement, and control solutions for everything on the electrical power system. For over 85 years, HDE has provided the electric industry with a complete range of quality, field-proven, and dependable products. Our test, measurement, and safety products offer a comprehensive line for testing electrical apparatus, such as voltage detectors, voltmeters, phasers, ammeters, capacitor testers, and transformer testers. Our controls and system-monitoring products include capacitor controls that provide control and measurement of electricity with precision and accuracy in real-time field conditions.

NRECA Silver Associate Member

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Henkels & McCoy Inc. (H&M) is a leading utility construction firm providing critical infrastructure for the power, communications, oil and gas pipeline, and gas distribution markets throughout North America. Founded in 1923, H&M adapts 90-plus years of experience to the dynamic and evolving infrastructure needs of today. We consistently rank in the top 10 of *Engineering News-Record's* Specialty Contractors and have been recognized with an E. I. DuPont Safety Excellence Award. H&M is also a founding member of the ET&D Partnership, a collaborative industry partnership working to reduce fatalities, injuries, and illnesses in the electric line construction industry.

NRECA Silver Associate Member

Highland Composites—Intelli-Pole

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Highland Composites manufactures INTEL-LI-POLE, a sectional composite utility pole that hardens the grid while decreasing installation and life-cycle costs. Safer and easier to install in the field rapidly, by hand, with no special tools required. Made in the USA.

NRECA Gold Associate Member

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Highway Manufacturing is the producer of truck- and track-mounted pressure diggers and foundation drills.

NRECA Silver Associate Member

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HomeServe is a leading provider of utility-sponsored home repair solutions serving over 3 million customers across North America. Started in 2002, HomeServe protects homeowners against the expense and inconvenience of gas line, electrical, water heater, HVAC, and other home emergencies by providing affordable coverage and quality local service. Our customer focus and best-in-class repair plans drive positive brand attribution to our 500-plus municipal, utility, and association partners.

NRECA Silver Associate Member

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Homewood Sales Corporation specializes in the manufacture and sourcing of genuine Westinghouse industrial and power distribution products.

NRECA Silver Associate Member

Honeywell Smart Energy

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Together, Honeywell Smart Energy, its partners, and its customers are fundamentally reshaping the way the world uses energy. Honeywell Smart Energy is enabling utilities to deploy advanced capabilities that transform operations, reliability, and environmental sustainability while also providing solutions to engage their customers in a more meaningful way. With the acquisition of Elster, Honeywell is now, more than ever, a global leader in connected solutions, from generation to consumption, delivering advanced capabilities and services that enable energy companies and their customers. Honeywell Smart Energy dynamically manages energy and improves efficiency and reliability cost-effectively.

NRECA Gold Associate Member

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Horizon Solutions is a wholesale distributor serving industrial, commercial, and institutional customers. Horizon Solutions enables customers to be more productive, efficient, and safe through our deep domain expertise and best-in-class electrical, industrial, automation, safety, and energy solutions. Our customers include industrial end-users, electrical contractors, equipment manufacturers, and commercial, institutional, and municipal facilities across New England and upstate New York.

NRECA Silver Associate Member

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The Utility Products Division of Howard Industries is a leading manufacturer of electrical transmission and distribution equipment used by utilities and by commercial and industrial companies worldwide. Our products include distribution transformers, substation power transformers, medium-voltage dry-type transformers, voltage regulators, switching/sectionalizing cabinets, junction enclosures, and OEM transformer components.

NRECA Gold Associate Member

Hubbell Power Systems Inc.

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 hubbellpowersystems.com

Hubbell Power Systems Inc. (HPS) manufactures a wide variety of transmission, distribution, substation, OEM, and telecommunications products used by utilities. In addition, HPS products are used in the civil construction, transportation, gas, and water industries. Products include construction and switching products, tools, insulators, arresters, pole line hardware, cable accessories, test equipment, transformer bushings, and polymer precast enclosures and equipment pads.

NRECA Platinum Associate Member

Hughes Brothers

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 hughesbros.com

Hughes Brothers (HB) stands for quality in American manufacturing. As a leader in the electric transmission and distribution industry, HB knows the meaning of reliability, strength, and resilience. A century of service, experience, and innovation is reflected in every HB product. HB honors hard work, accountability, and community. It is evident in the pride

employees take in forging the tools that power America. It shows in their commitment to the integrity of HB product. The distinguishing presence of HB defines Seward, Nebraska. Three generations, one family, century tested, here to serve. We are HB.

NRECA Silver Associate Member

Hurtado & Associates Inc.

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hurtadopower.com

Hurtado & Associates Inc. has over 30 years of experience insuring rural electric cooperatives and power distribution facilities. We offer an all-lines specialty insurance program, which includes a dedicated claims unit, on-site loss control, and risk management services.

NRECA Gold Associate Member

Huskie Tools, A Spartaco Company

Larry Kotars, Executive Vice President of Sales

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Glendale Heights, IL 60139-2025
Phone: 800-860-6170
chayes@spartacogroup.com
spartacogroup.com

For 40 years, Huskie Tools has provided the utility industry with hydraulic cutting and compression tools. Our battery-operated line of tools are among the lightest, fastest, and most ergonomically designed on the market. We have tools for overhead, underground,

substations, distribution, and transmission projects.

NRECA Silver Associate Member

ibV Energy Partners

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ibV Energy Partners is a utility-scale solar photovoltaic developer and investor, with a focus on electric cooperatives and small- to medium-sized utility customers. We provide customized solar power plant solutions to deliver optimized systems to our offtake clients. We use our own capital and deploy in-house project development, finance, and technical and engineering teams to develop and construct our highly efficient power plants.

NRECA Silver Associate Member

ICF

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ICF (NASDAQ:ICFI) is a global consulting services company with over 5,000 specialized experts, but we are not your typical

consultants. At ICF, business analysts and policy specialists work together with digital strategists, data scientists, and creatives. We combine unmatched industry expertise with cutting-edge engagement capabilities to help organizations solve their most complex challenges. Since 1969, public and private sector clients have worked with ICF to navigate change and shape the future.

NRECA Silver Associate Member

ICORP-IFOAM Specialty Products

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IPOLE offers solutions to fix structural damage caused by woodpeckers to wooden poles, as well as other pest-deterrent solutions for substations and transmission and distribution networks. IPOLE-WPK uses a fiberglass-reinforced expanding epoxy concrete to structurally repair and strengthen damaged wood poles. Through an exclusive patented process, it kills decay and prevents its continued deterioration. Then, its encapsulated proprietary essential oil blends confuse woodpeckers, termites, and virtually all other pests from returning without harming them or utility crews. In addition, it's climbable, requires NO bulky mechanical equipment, and can be completed single-handedly within minutes.

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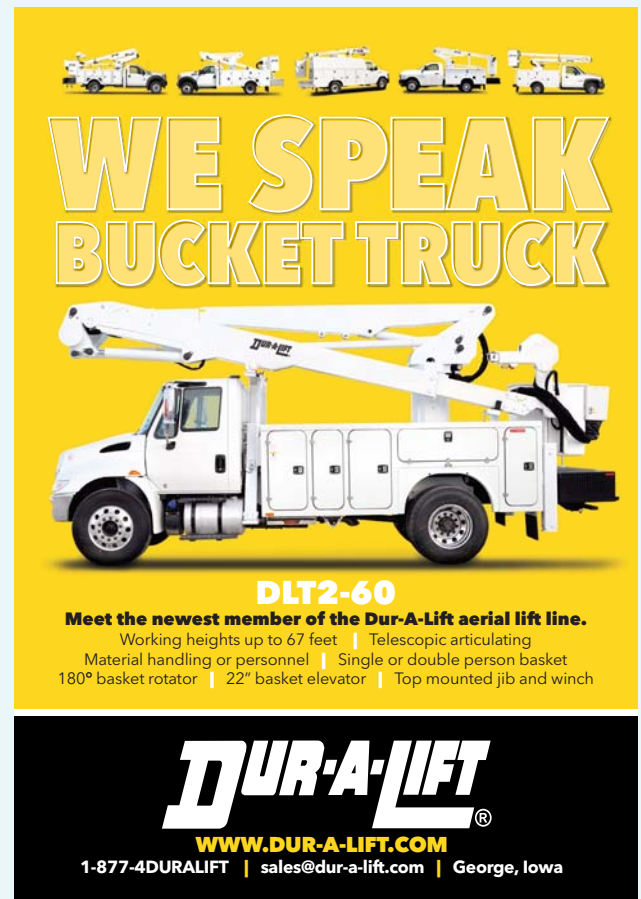
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IDOM is a 3,000-plus worldwide employees independent company providing integrated professional services in the fields of engineering, architecture, and consultancy. One-hundred percent of the firm's capital is distributed among current employees. Expertise on state-of-the-art technologies in renewable energy, storage, microgrids, transmission, distribution, and conventional power generation, including nuclear. IDOM provides for the power delivery sector full engineering assistance in 30-plus states in the U.S. and four Canadian provinces, including feasibility studies, preliminary design, environmental, detailed design, procurement support, works supervision, quality control, project management, and more.

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IFD Corporation

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 ifdcorporation.com

The IFD sensor is a simple, cost-effective internal fault detector installed in pole-top and pad-mounted distribution transformers. By detecting and indicating the presence of an internal transformer fault, the IFD helps prevent linemen from re-energizing faulted transformers. It's a unique device that improves safety for linemen and the public, simplifies the troubleshooting process, and speeds up outage restoration. Over 1.3 million IFDs are installed by over 500 safety and cost-conscious utilities across North America and are trusted to deliver enhanced safety standards, improved system reliability (SAIDI and SAIFI), and operating savings.

NRECA Silver Associate Member

IGS Energy

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 igsenergy.com/home-protection

IGS Energy has been a leading advocate for change in the energy industry through supplying natural gas, electricity, and home protection products to more than 1 million customers. Our suite of superior home protection products each come with a 12-month guarantee on any repairs as well as a built-in network of vetted local contractors to offer professional service. Our plans cover repairs on normal wear and tear issues to electric, water, sewer, and gas lines both inside and outside the house and on HVAC systems like furnaces, heat pumps, boilers, air conditioners, and water heaters. Our plans have recently expanded to include surge and appliance protection.

NRECA Silver Associate Member

IMCORP

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IMCORP provides power cable reliability assessment services for medium- and high-voltage power cable systems for both new cable installations and aged cable assets. IMCORP's cable system improvement process is a proactive approach designed to be integrated into a client's existing reliability program. IMCORP's factory-grade assessment is proven to dramatically improve cable reliability at a significantly lower cost than conventional cable replacement.

NRECA Silver Associate Member

in2lytics LLC

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In2lytics is a B2B software solutions company with a time-series data integration platform and analytics tools designed to save companies time and money. We specialize in helping electric utilities and co-ops understand and make sense of their volumes of disparate grid data. In Hawaii, we are helping to achieve the Hawaii Clean Energy Initiative goal of 100 percent renewable energy by 2045 by providing the situational insight needed to incorporate renewable energy and improve their grid reliability and efficiency while reducing costs.

NRECA Silver Associate Member

inLighten

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inLighten is a leading provider of digital media solutions, including traditional and interactive digital signage, self-service kiosks and tablets, on-hold and environment audio, speech privacy systems, and more. inLighten's intuitive, cloud-based management system enables creation, scheduling, and distribution of dynamic content from inLighten's hosted network. Over 2,000 institutions in the U.S. and across the world engage their audiences with inLighten products each day.

NRECA Gold Associate Member

Inovateus Solar

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Inovateus Solar LLC is a worldwide turnkey installer of commercial and industrial solar systems. Inovateus Solar has been involved with the installation of many high-profile rooftop, carport, and ground-mount photovoltaic systems in the United States and abroad. As a distributor and integrator for many of the world's largest photovoltaic manufacturers, Inovateus Solar offers the most competitive

pricing for turnkey installations while providing a wealth of experience in system design, specification, procurement, and project management. Inovateus Solar continues to expand its scope of operations, with new projects going live from Massachusetts to the Caribbean.

NRECA Silver Associate Member

Inside Information Inc.

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Inside Information Inc. is a solutions company that exists to help cooperatives understand and serve their members. With a team of client-focused employees serving as an extension of your staff, we provide information on demand to assist you with meeting your goals. We specialize in surveys, member-targeted communication, and website management services. Since 1995, we have helped more than 300 cooperatives with energy efficiency program implementation, fiber feasibility research, satisfaction research, employee surveys, transactional follow-up surveys, annual meeting notification, outage communication, grassroots engagement, and all types of program promotion.

NRECA Silver Associate Member

Inteleca IT Business Solutions

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Inteleca represents all major brands, such as Cisco, Juniper Networks, Extreme Networks, Brocade, HP, Dell, IBM, and Lenovo. In addition, the company is an industry leader in all aspects of the secondary IT hardware market, particularly optical networking products. With in-depth product knowledge and the expertise to implement network design for the most demanding IT environments, Inteleca's certified technicians pass each piece of equipment through a rigorous inspection and testing process in its in-house laboratory. Inteleca has such a high level of confidence in its testing procedures that it not only offers a 90-day warranty for resellers, but also a lifetime warranty for end users.

NRECA Silver Associate Member

Inteliquent

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As a broadband-based telecommunications company, Inteliquent is equipped to provide customers with a superior network experience through industry-leading voice quality, a reliable and expansive network footprint, and advanced features—all supported by a team of market experts.

NRECA Silver Associate Member

J

Iowa Wind and Solar

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Iowa Wind and Solar specializes in working with electric cooperatives to evaluate their options when considering renewable energy like solar and wind. We offer a variety of solutions focused on the goal of ensuring that the cooperative always remains the primary provider for its members. Learn more about our partnership with other cooperatives, such as Farmers Electric Cooperative, at follow-farmers.solar.

NRECA Silver Associate Member

IPS-ENERGY USA Inc.

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ips-energy.com/en/consumer-owned
IPS-ENERGY systems are designed by electric power professionals for electric power professionals to provide full technical asset management (asset repository, work content definition using maintenance templates, planning, scheduling, field execution/data acquisition and analytics) with broad functionality for relay setting and testing management. The software can be licensed or offered as a service in the IPS-Cloud. Field execution can be done completely mobile or connected to the server using a web interface. Interfaces to other systems and access to other data sources can be configured using the IPS-SmartGridDI system, which also provides robust asset analytics.

NRECA Platinum Associate Member

Irby Utilities

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Irby Utilities is a service and solutions provider offering a complete portfolio of products from the industry's leading manufacturers. Additionally, we provide a range of value-added services, which includes transmission and substation packaging, high-voltage testing and repair services, storeroom and logistics management, metering and automation support, lighting system design and layout, customized e-commerce portals, and complete integrated supply capabilities. Irby Utilities provides its products, services and solutions in all utility business segments—distribution, transmission, substation, generation, and renewable energy.

NRECA Silver Associate Member

iRestore

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iRestore offers a suite of graphic, easy-to-use

smartphone, iPad, and desktop apps designed specifically for utilities to provide "eyes-on-the-scene" to greatly improve situational awareness, first responder partnerships, damage assessment, inspections, community relations, crew management, and safety.

NRECA Silver Associate Member

ITC Holdings Corp.

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ITC Holdings Corp. (NYSE: ITC) is the nation's largest stand-alone electric transmission company. Based in Novi, Michigan, ITC invests in the electric transmission grid to improve reliability, expand access to markets, allow new generating resources to interconnect to its transmission systems, and lower the overall cost of delivered energy. ITC owns and operates high-voltage transmission facilities in Michigan, Iowa, Minnesota, Illinois, Missouri, Kansas, and Oklahoma, serving a combined peak load exceeding 26,000 MW along approximately 15,600 circuit miles of transmission line. For information about ITC and its grid development efforts, visit itc-holdings.com.

NRECA Platinum Associate Member

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Itineris is a global technology company focused on delivering IT solutions and services that strengthen the customer care capabilities and operational performance of utilities. A Microsoft Gold Partner, Itineris is the developer of UMAX, a customer information system and enterprise resource planning solution fully integrated with and leveraging the power of Microsoft's Dynamics AX platform. UMAX customers include leading utilities from each sector: Dakota Electric Association, city of Baltimore, city of Georgetown, Texas, Cape Fear Public Utility Authority, E.ON, GDF SUEZ, De Watergroep, Eneco, and more. With offices in North America and Europe, Itineris is composed of more than 250 utility and IT professionals.

NRECA Silver Associate Member

Itron Inc.

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Itron is a world-leading technology and services company dedicated to the resourceful use of energy and water. Our portfolio includes electricity, gas, water, and thermal energy measurement devices and control technology; networking and communications systems; managed and consulting services; and cloud-based and on-premise software. We serve utilities and smart cities all around the world. Through technology and innovation, we are working to create a more resourceful world.

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J.J. Kane Auctioneers is a nationwide auction company conducting 30-plus live, absolute public auction sales and 27 timed, online-only auctions each year. We offer the choices fleet owners need to easily and effectively remarket their surplus. Auction sellers include electric membership cooperatives, rural electric associations, investor-owned utilities, other utilities, manufacturers, contractors, lenders rental fleets, and more. We specialize in utility, power line, underground and construction equipment, fleet vehicles, and unique equipment assets used within the electric utility industry. Contact us to learn more about how our team can help yours!

NRECA Gold Associate Member

J. Ranck Electric

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J. Ranck Electric's (JRE) primary work with cooperatives is in the renewable energy market. We have been a go-to engineering, procurement, and construction (EPC) contractor for some of the largest co-op-owned solar arrays in Michigan. JRE is also a contractor of choice for privately held utilities in Michigan for construction projects, maintenance, and storm response. Services include electrical and communication construction and service, specializing in power distribution, renewable energy, EPC services, and storm response.

NRECA Silver Associate Member

John Deere

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Since its founding in 1837, John Deere has seen many changes in its business, its products, and its services. Change always comes with opportunity. And Deere has always been ready and willing to embrace it. Yet through it all, John Deere's mission is still dedicated to those who are linked to the land of farmers and ranchers, landowners, builders, and loggers. And Deere has never outgrown, nor forgotten, its founder's original core values. Those values determine the way we work, the quality we offer, and the unsurpassed treatment you get as a customer.

NRECA Silver Associate Member

Jordan Transformer LLC

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jordantransformer.com

Jordan Transformer specializes in

remanufacturing, rewinding, and repairing substation transformers, as well as mobile substation, GSU, auxiliary, station power, start-up, and furnace transformers up to 200 MVA and 230 kV. Additionally, Jordan Transformer now designs and manufactures entirely NEW mobile substations, mobile transformers, and mobile regulator trailers. Our testing is conducted per ANSI/IEEE standards, including impulse, partial discharge, and temperature rise tests. We offer full field-service capabilities, including turnkey projects, oil processing, new installations, gasket repair, load tap changer repair, and more.

NRECA Silver Associate Member

JSI

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With more than five decades of experience in the rural telecom industry, JSI is uniquely qualified to assist electric co-ops expand into the broadband arena. We can help you: understand and meet the regulatory and reporting requirements; develop smart business plans; launch the products and services that customers want; set competitive prices; assess new markets and technologies; and maximize profits through forecasting and financial planning. JSI also works hand in hand with its strategic partners to provide marketing and communications services (Plus One Strategic Communications), cloud computing and hosting services (Codero), and merger and acquisition services (JSI Capital Advisors LLC).

NRECA Silver Associate Member

Juniper Networks

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Juniper Networks challenges the status quo with innovative products, solutions, and services critical to businesses by transforming the economics of networking in the connected world. We create highly scalable, secure, and cost-effective networks for unprecedented choice, agility, efficiency, and value.

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Kubra

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KUBRA offers the most comprehensive customer experience management solutions available to the utility industry today. KUBRA offers a full suite of meter-to-cash and outage communications solutions, including billing and payments, utility mapping, mobile apps, and proactive communications.

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Lakeland Industries

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Lakeland Industries is the world's largest manufacturer of protective clothing. Lakeland's products range from disposable and chemical protective clothing, to reflective vests and rainwear, along with hand and arm protection, as well as flame-resistant and arc flash-protection products. With the broadest selection of fabrics and products available, no one else in the protective apparel industry offers such a comprehensive choice of product and fabric choices—or the expertise to guide you.

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Lakenan

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As a multi-faceted independent insurance broker, Lakenan is committed to NRECA members with dedicated resources, products, and expertise to assist you in reducing costs and securing assets. As your NRECA partner, Lakenan concentrates on analyzing and minimizing risks and exposure, offering a wealth of expertise and resources to provide the best coverage protection and practices for the maximum value per premium dollar.

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Laminated Wood Systems Inc.

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LWS offers E-LAM laminated wood utility structures available for use in tangent, unguyed angle, switch, and substation applications. LWS also offers the patented PhaseRaiser structure lifting system, the PoleEnforcer groundline reinforcement system, and the PRS Pole Reclassification System.

NRECA Gold Associate Member

Landis+Gyr Inc.

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Landis+Gyr is the leading global provider of integrated energy management solutions for the utility sector. The company delivers comprehensive solutions that include smart metering, distribution network sensing and automation tools, load control, analytics, and energy storage.

NRECA Platinum Associate Member

LAPCO FR

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LAPCO Manufacturing, Inc. is a respected manufacturer and an innovative leader in the flame-resistant and industrial workwear sectors. Workers in the oil and gas, electric utility, refining, and petrochemical industries have worn LAPCO Premium Workwear products since 1989. Our Mission "Doing our utmost to make our customers' experience so positive, that they will not consider an alternative."

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Laser Technology Inc. (LTI)

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NRECA Gold Associate Member

Leidos

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Leidos is a global leader in the integration and application of information, technology, and systems working to solve the world's toughest challenges. Our experts work alongside energy, manufacturing, transportation, and government clients to take on complexities in grid modernization, energy efficiency, energy asset finance and development, systems and controls, critical infrastructure protection, and environmental science. We leverage industry expertise, technology insight, and data science to help organizations activate both meaningful results and forward thinking.

NRECA Gold Associate Member

Lendlease Energy

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We develop, build, and finance comprehensive energy solutions for a wide range of customers throughout North America. We provide our services to communities, businesses, government entities, and utilities to improve sustainability, lower energy costs, and reduce grid dependency. We have a proven record in establishing and maintaining longstanding, successful relationships with our customers and the communities in which our projects are located.

NRECA Gold Associate Member

Lewis Tree Service Inc.

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As one of North America's largest providers of utility vegetation management, Lewis Tree provides transmission and distribution utility line clearing and outage response services that leverage innovative vegetation management technology (i.e., intelligent vegetation management). Clearion, a sister company, is a leader in end-to-end technology solutions designed to help vegetation managers radically transform their work environments, strengthen communication among work groups, and serve their customers more effectively. Wilderness, a sister company, is a vegetation control company that provides precision spraying (rate and mix control) and tracking to rail, highway, and utility customers.

NRECA Platinum Associate Member

Lightsource BP

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Lightsource BP develops, owns and operates solar energy power plants for cooperative, municipal and investor-owned electric utilities. We offer cost-effective, turnkey solutions and

manage all requirements for project development, funding, construction and long-term operations. Lightsource BP also specializes in the deployment of large-scale energy storage to optimize solar generation and to provide reliability and resiliency to the electric grid. Founded by industry veterans with deep solar and energy storage development experience and backed by one of the largest energy companies in the world, Lightsource BP is committed to delivering creative and dependable solar energy solutions.

NRECA Silver Associate Member

Litra Manufacturing

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Litra Manufacturing is a national supplier of custom-made cable products. We offer a full line of U.S.-sourced fiber-optic, coaxial, and twisted pair assemblies.

NRECA Silver Associate Member

Lockheed Martin Energy

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No matter what energy challenge you face, Lockheed Martin Energy can help you solve it. We help utilities, commercial businesses,

industrial enterprises, and more with energy solutions across the entire value chain, from customer services, energy generation, and transmission to distribution.

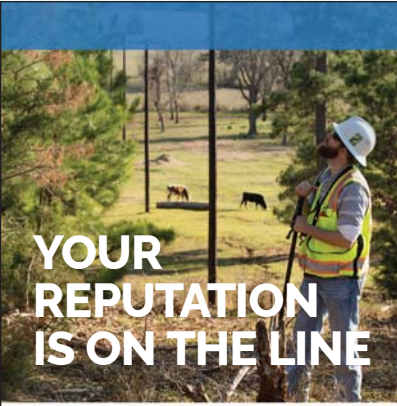
NRECA Silver Associate Member

LogoStoreUSA


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In business since 1967, LogoStoreUSA has been the trusted cooperative resource for branding and promotional needs for over 20 years. Whether your needs are to recognize and inspire employees, show your members appreciation or educate and enlighten your local community, we have solutions to fit any budget. Looking for the BEST OF THE BEST? That's what you'll find at LogoStoreUSA and Co-opLogoStoreUSA, featuring only the most popular selection of cooperative annual meeting and key account gifts, employee recognition gifts, custom calendars, and branded energy efficiency and safety products. You'll also find a link to CustomWeaversUSA, which features our made-in-the-USA custom afghan throws.


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Lonza Wood Protection

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Lonza Wood Protection provides Wolmanac CCA and Chemonite ACZA preservatives for the production of durable, long-lasting treated wood poles and crossarms. Our ET oil emulsion makes poles easier to climb. Our FireSheath products protect against fire.

NRECA Platinum Associate Member

LUG-ALL

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lug-all.com

For over 40 years, LUG-ALL, the original lever ratchet hoist company, has manufactured web strap pullers designed for overhead maintenance and construction of energized lines.

NRECA Silver Associate Member

Lumin

Kevin O'Shea, Co-founder and Chief Commercial Officer

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kevin.oshea@luminsmart.com
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NRECA Silver Associate Member

M

MacLean Power Systems

Dennis Poteat, Marcom Manager

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macleanpower.com

MacLean Power Systems (MPS), a MacLean-Fogg Company, is a leading manufacturer of products used by utilities for building transmission and distribution lines and substations. MPS product families include hardware and connection products as well as insulation and protection products. With global raw material sourcing capabilities, MPS produces over 10,000 items in seven domestic production facilities.

NRECA Silver Associate Member

Mapcom Systems

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mapcom.com

Mapcom Systems is the developer of M4 Solutions - a visual operations platform for

managing communications networks, including outside and inside plant at the physical and logical levels.

NRECA Silver Associate Member

Marmon Utility LLC (Hendrix Wire & Cable)

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Marmon Utility is the parent company of Hendrix and Kerite. Providing the transmission and distribution industry reliable cable for over 150 years, respectively. Hendrix offers aerial cable systems (15kV to 69kV) and underground medium-voltage cable (5kV-46kV), along with molded insulator products. Kerite offers medium- and high-voltage cable (5kV to 138kV) along with cable services. Together, Hendrix and Kerite offer not just cable, but the expertise in solving unique and common installation issues that arise within the overall project planning. Our experience from cable design, application design, and on-site installation surpasses industry requirements.

NRECA Gold Associate Member

MasTec North America

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mastec.com

MasTec companies have been involved in some of the largest and most complex infrastructure construction projects across the country. Our experience has given us a deep and comprehensive understanding of the markets we serve, as well as the ability to effectively manage people and projects.

NRECA Silver Associate Member

MCA Architecture Inc.

Jack Hicks, Business Development Manager

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designmca.com

MCA Architecture is a multi-discipline design firm serving a broad range of clients throughout the country. At MCA, we help our clients realize their vision through a unique partnered-bid process, combining the best elements of a collaborative client/architect design approach with dependable estimating procedures and the competitive bidding of all building elements. MCA has extensive experience in the electric cooperative market: corporate headquarters and administrative buildings (27); operations, maintenance, and dispatch facilities (39); data centers (51); call centers (67); fiber-optic hub facilities (11); high-security communications facilities (9); and tower installations (3).

NRECA Silver Associate Member

McCarter & English

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McCarter & English attorneys have more than 30 years of experience in representing consumer-owned utilities, such as rural electric cooperatives and municipal utilities, along with state consumer advocates and other state agencies, in electric and natural gas supply matters before the Federal Energy Regulatory Commission (FERC), state public utility commissions, and federal and state courts. Our attorneys have participated in every major energy policy and rulemaking proceeding before FERC over the past three decades. They have handled nearly every sort of rate, certificate, and compliance matter.

NRECA Silver Associate Member

McWane Poles

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mcwanepoles.com

McWane Poles manufactures high-quality ductile iron utility poles. McWane Poles offers engineered strength, dimensional consistency, and natural corrosion resistance. Ductile iron poles are impervious to rot, insects, and woodpeckers and are highly fire resistant. These poles are less expensive to transport and install because they are approximately 30 percent lighter than wood and 80 percent lighter than concrete. McWane Poles is a division of McWane Inc. a 95-year-old company with 5,500 employees on five continents. McWane started in the iron foundry business and is now a diversified manufacturer, offering water infrastructure product, fire suppression equipment, and compressed gas cylinders.

NRECA Silver Associate Member

MDF Human Resources Consulting (HRC)

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mdfhrconsulting.com

MDF HRC is a full-service human resources consulting firm. We have been providing solutions nationwide to the not-for-profit utility market for over 15 years. Our consultants provide time-tested solid solutions customized to fit your operating environment. All of our solutions are fully scalable and have been successfully implemented in organizations ranging from 13 employees to over 400. Featured services include, but are not limited to, base compensation plan design; executive compensation; group incentive plans; performance management; strategic planning; process mapping; succession management; and executive search. We serve over 100 organizations in 37 different states—what can we do for you?

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MGS Inc. is a national enterprise focused on supplying high-quality, custom trailers to electric utilities. Trailers are specifically engineered for your needs. We design and build products to suit a customer's specific needs. One of our greatest strengths is the ability to integrate your material, safety, and functional specifications into a finished product that meets all of your needs. Our real strength is the support package behind the product. MGS Inc. provides experienced sales staff, engineering capabilities, product standardization, product documentation, product support, and a parts program. Elements that blend to form a matrix that provides the BEST TOTAL SOLUTION for our customers.

NRECA Silver Associate Member

Michels Corporation

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Michels builds overhead and underground transmission and distribution lines. We perform bare-hand maintenance and storm restoration. Substation experience includes greenfield construction and brownfield maintenance.

NRECA Silver Associate Member

Mid America Testing and Supply

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Mid America Testing and Supply is a full-service high-voltage testing laboratory and distribution center. Our prompt professional service and state-of-the-art equipment allows us to test your equipment efficiently and effectively. We are in compliance with all applicable standards and regulations to help keep you and your employees safe. Our distribution warehouse carries a full line of utility-grade products, in stock, and ready for distribution. Our mobile testing service will help you save money on shipping and testing costs. We work with your schedule to keep your crews out in the field when needed. We provide testing from the truck to the hand and anything in between.

NRECA Silver Associate Member

Milner Technologies Inc.

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contactus@milner.com
milnertechnologies.com

As the leading provider of document workflow and imaging solutions, our users benefit from our experience in integrating document-centric processes with main-line business software providers, including CSA, Daffron, National Information Solutions Cooperative, and SEDC. We have over 30 years of experience and more than 200 cooperatives.

NRECA Silver Associate Member

Milsoft Utility Solutions

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milsoft.com

Utility solutions software has enabled thousands of electric utilities to do their jobs better. Equip your teams to plan and operate an electric distribution system with the economy, reliability, efficiency, and customer service that you require. Offerings include engineering analysis, outage management systems, geographic information systems, interactive voice response, and staking.

NRECA Platinum Associate Member

Milspec Industries

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milspecind.com

Milspec Industries manufactures the finest electrical wire and cable in the world. Milspec Industries also offers a complete line of connectors and wiring devices. Quality construction at no extra cost.

NRECA Silver Associate Member

Milwaukee Electric Tool Corporation

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Milwaukee Tool is an industry-leading manufacturer of heavy-duty power tools, accessories, and hand tools for professional users worldwide. Since the company began in 1924, Milwaukee Tool has led the industry in both durability and performance. With an unwavering commitment to the trades, Milwaukee continues to lead with a focus on providing innovative, trade-specific solutions. Whether it is through their leadership in lithium-ion technology—as seen in the M12, M18, and M28 systems—time-saving accessories, or innovative hand tool products, Milwaukee is dedicated to delivering a steady stream of advanced solutions for the trades that offer increased productivity and unmatched durability.

NRECA Silver Associate Member

Mimosa Networks

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Mimosa Networks is the leader in next-generation, hybrid fiber-wireless fixed access broadband solutions. Mimosa's access, backhaul, and client solutions empower service providers to deliver ultra-broadband connectivity in suburban, urban, and hard-to-reach rural areas at a fraction of the cost of fiber, driving new industry competition and closing the global connectivity gap. Mimosa's technology demonstrates unprecedented levels of efficiency, sharing scarce spectrum concurrently across

an entire network. Founded in 2012, Mimosa is based in Silicon Valley and deployed in over 130 countries worldwide.

NRECA Silver Associate Member

Minerva Networks, Inc.

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Minerva enables telco's and cable operators to transform their legacy pay TV systems into a next generation video delivery solution faster and more cost effectively. The Minerva platform has been deployed to over 300 operators worldwide. Minerva offers a full range of multiscreen clients to deliver a compelling and consistent user experience that includes premium features such as DVR, VOD, pay per view, network DVR, catch-up and restart TV, and customizable Internet content. These features are available across a wide range of devices, including set-top boxes, tablets, smartphones, PC's and other consumer electronics devices. At Minerva, we are the future of connected entertainment.

NRECA Silver Associate Member

MinMax Technologies Inc.

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MinMax provides a cloud-based software tool for a complete asset management and inspection system for transmission, substation, and distribution assets. The tool allows utilities of all sizes to achieve superior asset performance at lower operating costs while fulfilling North American Electric Reliability Corporation and other compliances.

NRECA Silver Associate Member

Moss Adams

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mossadams.com

We help clients determine risk factors and critical business functions in order to develop and implement a detailed plan of action to ensure your business achieves its continuity of operation objectives before, during, and after a disaster. Our business continuity and disaster recovery services are customized based on your unique needs and incorporates Moss Adams' proven methodology to secure a well-managed and focused business continuity management program: rapid assessment and roadmap; emergency operations plan development and implementation; facilitate emergency operation plan exercises; risk evaluations and controls; update emergency response procedures; and crisis communications plans.

NRECA Silver Associate Member

mPower Innovations

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mPower Innovations develops advanced geographic information system (GIS) and asset management solutions for utilities across the nation. We empower our partners by offering cost-effective solutions paired with superior customer service. Our user-friendly suite of GIS, work management, and outage management solutions are easy to use and affordable.

NRECA Silver Associate Member**Mycoff, Fry & Prouse, LLC**

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NRECA Silver Associate Member**MultiSpeak**

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The MultiSpeak Software Integration Initiative is a collaboration of software vendors

and utilities, administered by NRECA, that has developed a standard defining interface among software applications used by electric distribution utilities, to facilitate interoperability.

N**NAES Corporation**

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naes.com

NAES is an independent services company dedicated to delivering value to facilities across the power generation, oil and gas, and pulp and paper industries. For 35 years, we have drawn on our expertise in operations, maintenance, fabrication, construction, and engineering to build, operate, and maintain facilities that run safely, reliably, and cost-effectively. We operate over 150 power plants across the U.S., Canada, and Mexico. With the strength of 4,000 people, our growing family of companies—E3 Consulting, Greenberry Industrial, Gridforce, Olsson Industrial Electric, PurEnergy, and NAES Power Contractors—now addresses the entire life cycle of power and industrial plants.

NRECA Gold Associate Member**Namasté Solar**

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namastesolar.com

Namasté Solar is a solar photovoltaic (PV) integrator with a 12-year track record of solar PV project design and implementation. The company's headquarters is in Boulder, Colorado, with service centers in Long Beach, California, Denver, Colorado, and New Paltz, New York. They have installed more than 5,000 stand-alone systems, totaling over 75 MW in 40-plus permitting jurisdictions and seven states. Namasté Solar's mission is to propagate the responsible use of solar energy, pioneer conscientious business practices, and create holistic wealth for the community. A pillar of its values-based business model is employee ownership. Namasté Solar has over 80 co-owners, each with an equal ownership share in the company.

NRECA Silver Associate Member**NASCO Industries**

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NRECA Gold Associate Member

National Information Solutions Cooperative (NISC)

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National Information Solutions Cooperative (NISC) is a leading provider of software solutions and services for utilities and telecoms. NISC offers advanced integrated solutions featuring automated workflows, electronic approvals, and more in billing and customer service, accounting, engineering and operations, meter data management, payment channels, cyber security, and e-services and apps. Over 20 million consumers in 50 states receive utility or telecommunications services from over 820 companies using NISC advanced solutions.

NRECA Service Member

N-Dimension Solutions

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n-dimension.com

N-Dimension is a market leader in the development of innovative cybersecurity products that protect utility networks from cyber attacks, improving system reliability and safeguarding critical infrastructure, data, and assets. The company offers N-Sentinel, a cloud appliance doing real-time threat detection and alerts—a service that uniquely combines utility community insights and security intelligence. The N-Sentinel is also capable of doing vulnerability assessment scans. The N-Sentinel provides easy-to-use actionable steps in a report format via a customer portal for remediation of issues found. Expert cybersecurity support is provided with the N-Sentinel services.

NRECA Silver Associate Member

Nelson Tree Service Inc.

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nelsontree.com

Nelson delivers complete distribution and transmission line clearance services. Whether it's regular maintenance or critical storm support, delivering quality response and service with our customer service-trained

workforce, or our innovative safety program, protecting the reputation of our customers is foremost.

NRECA Silver Associate Member

NESCO Rentals

Jameson Ringger, Executive Vice President of Sales

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Phone: 800-252-0043
rentals@nescorentals.com
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NESCO provides everything linemen need to get the job done, from aerial devices, boom trucks and cranes, diggers, pressure drills, and stringing gear to blocks, repair parts, tools, and accessories. NESCO maintains one of the industry's largest rental fleets and service networks in the country. NESCO has over 45 locations in North America, Canada, and Mexico, has 25-plus years of industry experience, and is an authorized distributor for the industry's most trusted manufacturers: Terex, Hogg and Davis, Sherman + Reilly, Skylift, Manitex, and more. NESCO's extensive fleet and knowledgeable staff offer the right rental equipment and service you need to get the job done.

NRECA Silver Associate Member

Nest Labs Inc.

Brad Davids, Head of Demand Response Partnerships

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Nest makes thoughtful hardware and software for the connected home, including the Nest Learning Thermostat and the new Nest Thermostat E. Dozens of electric and gas utilities, including numerous electric cooperatives, are partnering with Nest to achieve member-friendly load management, cost-effective energy efficiency, and exceptional customer engagement and satisfaction, through customized demand side management programs designed to meet their specific objectives. Nest has established a partnership with NRTC to provide cooperatives with discounted pricing on Nest's thermostats, as well as our demand response and load management solutions.

NRECA Silver Associate Member

NewGen Strategies and Solutions LLC

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NewGen is a management and economic consulting firm specializing in serving the utility industry and market. We provide financial, valuation, strategy, expert witness, stakeholder, and sustainability consulting services to public power clients across the country. Our expertise includes litigation support in state and federal regulatory proceedings, utility business and financial planning, and strategic planning for electric, water, wastewater, solid waste, and natural gas utilities.

NRECA Silver Associate Member

Nexant Inc.

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Nexant is a recognized leading global provider of utility energy efficiency and demand response program delivery services to electric and gas utilities. For over two decades, our practitioners have applied their expertise to the entire life cycle of demand side management programs. Nexant specializes in offering turnkey energy consulting services to a variety of utilities (municipal, cooperative, public utilities, investor-owned utilities, etc.) to help achieve increased energy efficiency, optimize system operation and peak demand, and help utility customers adopt state-of-the-art technologies, thereby increasing customer engagement and customer satisfaction.

NRECA Silver Associate Member

Nextera Energy Marketing LLC

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nexteraenergyresources.com/what/marketing.shtml

NextEra Energy Marketing is one of the nation's leading electricity and natural gas marketers and a key player in energy markets in the United States and Canada. NextEra Energy Marketing is also responsible for electricity and fuel management for all of NextEra Energy Resources' generation fleet, which includes the largest renewable energy portfolio in North America. NextEra Energy Marketing provides a wide range of electricity and gas commodity products as well as marketing and trading services to electric and gas utilities, municipalities, cooperatives, and other load-serving entities, as well as to owners of electric generation facilities.

NRECA Silver Associate Member

Nicopress (The National Telephone Supply Co.)

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NRECA Gold Associate Member

Nikola Power

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Nikola Power is a technology and project development company in solar and energy storage.

We develop solar, storage, and solar + storage projects and possess patented battery algorithms that can optimize the performance and lifespan of energy storage assets.

NRECA Silver Associate Member

The Nitsche Group

Patty Brown

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utilityinsurance.com

The Nitsche Group has serviced the needs of the Utility Industry since 1989 by providing complex insurance solutions to distribution and G&T Cooperatives across the United States. While bringing you the experience and resources you deserve, we'll never change our commitment to the one-on-one model of doing business. Founded on integrity, authenticity, and expertise, these values still drive us today.

NRECA Silver Associate Member

Novinium, Inc.

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novinium.com

Novinium is the undisputed innovator at the forefront of the utility and secondary networks market. Novinium's featured products include Cablecure—a revolutionary injection-fluid technology that provides the longest extension of

cable life available—with a 40-year warranty, and PreVent—a new manhole event prevention system.

NRECA Gold Associate Member

NRG Energy

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NRG is the leading integrated power company in the U.S., built on the strength of the nation's largest and most diverse competitive electric generation portfolio and leading retail electricity platform. A Fortune 200 company, NRG creates value through best-in-class operations, reliable and efficient electric generation, and a retail platform serving residential and commercial businesses. Working with electricity customers, large and small, we continually innovate, embrace, and implement sustainable solutions for producing and managing energy.

NRECA Platinum Associate Member

NRTC

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NRTC leads and supports its more than 1,500 members by delivering advanced technology

solutions. NRTC offers smart grid, demand management, next-generation energy, and broadband solutions that strengthen member businesses and promote economic development in rural America.

NRECA Service Member

O

OFS

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OFS is a world-leading designer, manufacturer, and provider of optical fiber, fiber-optic cable, connectivity, fiber-to-the-subscriber (FTTx), and specialty fiber-optic products. Focused on safety, loyalty, customer service, and a dedication to research, OFS has helped lead the way in pioneering innovative fiber-optic solutions for more than a decade. We provide forward-looking, advanced products and solutions in several areas, including communications, medicine, industrial automation, sensing, aerospace, defense, and energy. We provide reliable, cost-effective fiber-optic solutions that help our customers meet the needs of consumers and businesses today and into the future.

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Olameter

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Olameter provides comprehensive utility solutions to North American utilities, municipalities, and energy retail/management entities. Solutions include meter data management, work-force/ticket management software, geospatial, IT/technology, billing, call center, print/stuff/mail, meter services, and damage prevention.

NRECA Silver Associate Member

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OMICRON develops innovative power system testing solutions for these application areas: test instruments for protective relays and recloser controls, power and instrument transformers, and circuit breakers. Monitoring solutions for generators, motors, and cables. Specialized tests include partial discharge and dielectric frequency response. Support services include test result analysis, training, application support 24/7, customer knowledge base. OMICRON has customers in over 150 countries. New for 2017: ARCO 400 is a universal plug-and-play recloser control test set. TESTRANO 600 is an all-in-one, three-phase power transformer test set.

NRECA Silver Associate Member

OneSource Restoration (OSR)

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OSR provides utilities across the nation with additional storm response resources. Quality damage assessment, wire-down guards, distribution line crews, two-person service units, and logistic support are all vital to safe and timely power restoration. Quality resources are key! We have you covered.

NRECA Silver Associate Member

On Now Digital

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On Now Digital delivers intuitive software solutions making complex data simple. On Now Digital pursues high-trust relationships with every utility client. We enable clients to easily monitor and analyze the health of their core electrical assets. Capabilities include: field inspection app, barcodes, laboratory and diagnosis automation, equipment condition-based monitoring, speech-to-text integration, IoT/IIoT, streaming device integration, systems integrations among CMMS, ERP, work orders, inventory, accounting, inspections, GIS/GPS, lab equipment, infrared, test devices, etc. Using our packaged and custom software solutions,

our clients increase convenience, timeliness, and accuracy.

NRECA Silver Associate Member

Open Systems International Inc. (OSI)

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Open Systems International provides open, state-of-the-art, high-performance automation solutions to utilities worldwide. These solutions include systems for Supervisory Control and Data Acquisition, network management, energy management, distribution management, outage management, generation management, substation automation, data warehousing (historian) analytics, and situational awareness, as well as individual software and hardware products and smart grid solutions for utility operations.

NRECA Gold Associate Member

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Osmose provides professional inspection, maintenance, life extension, and rehabilitation services designed to help build resiliency into transmission and distribution infrastructure. Osmose also provides corrosion mitigation and engineered repairs for steel structures, structural load analysis, and a variety of turnkey infrastructure enhancement and upgrade solutions. From the structure top to below grade, Osmose offers products and services designed to preserve, protect, repair, and restore in-service wood utility poles. With 80 years of diverse experience as a foundation, Osmose proudly serves America's cooperatives as they manage aging infrastructure and build tomorrow's intelligent utility.

NRECA Gold Associate Member



Peak Demand Inc.

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Peak Demand Inc. is a manufacturer of transmission and distribution electrical products for utility and OEM customers. Based in Wilson, North Carolina, Peak Demand specializes in metering current transformers (CTs); bushing CTs; switchgear CTs; distribution insulators (pin, post, spool, and deadends); medium-voltage and high-voltage bushings; and custom switchgear components. Peak Demand and its partners operate four global factories, including one in the U.S., designed to eliminate the hassle of procurement by providing high quality, cost-effective products without the supply chain headaches.

NRECA Silver Associate Member

Penske Truck Leasing

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A global leader in transportation services, Penske Truck Leasing operates more than 266,000 vehicles and offers leasing, comprehensive fleet maintenance, truck rental, and logistics services with more than 1,000 locations in North and South America, Europe, Asia, and Australia. Penske offers skilled technicians with the latest training and diagnostic technology to service local electric cooperatives' and utilities' bucket trucks and other vehicles. Penske can provide maintenance services either at its own facilities or on site at the customer's location. Current customers range from rural electric cooperatives to large metropolitan utilities with more than 1,000 vehicles.

NRECA Silver Associate Member

Petra Systems

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Petra Systems Inc. is a leading global technology provider delivering remotely managed networks for smart city infrastructure, leveraging core expertise in power electronics, controls, and communications. With over 250,000 installed systems, Petra combines technology innovation and competitive financing to help mobile carriers, municipalities, utilities, and transportation authorities transform streetlights into valuable assets that deliver the highest level of cost savings and revenue streams and enable the best return on asset to streetlight owners.

NRECA Gold Associate Member



PLH Group, Inc.

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PLH Group is a leading provider of construction services to the electric power delivery industry, with six business units serving utilities, renewable energy developers, and regional cooperatives. Power Line Services and Edison Power provide transmission, substation and distribution construction and maintenance. Air2 provides helicopter-assisted services for transmission line construction, maintenance, and inspection services. Auger Services provides complete foundation drilling and construction. TTR Substations is a full service substation contractor. R.B. Hinkle specializes in underground utility installation. All of these business units provide emergency response services.

Pike Electric Inc.

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Pike is one of the largest full-service providers of energy solutions, serving more than 300 investor-owned, municipal, and cooperative utilities. Expertise includes planning, siting, engineering, construction, and maintenance of substation, transmission, and distribution infrastructure.

NRECA Gold Associate Member

Pivot Group

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Pivot is a customer engagement agency that helps our clients comprehend their markets through research, connect to their audiences through creative and effective marketing, and convert leads into sales through customer experience training. Where do you want to go? Pivot stands ready to help.

NRECA Gold Associate Member

Plus One Strategic Communications

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Plus One Strategic Communications is a consulting firm specializing in marketing, communications, and business development for rural communications, utilities, and related industries. Plus One has a decade of experience providing integrated marketing services to our clients, including web design and development, messaging and brand, marketing content and campaigns, surveys and analysis, business strategy, sales and customer service representative training, and internal communications. Whether customers need short-term project assistance or ongoing support, Plus One develops and executes comprehensive strategies to position each customer as the top choice in an increasingly competitive ecosystem.

NRECA Silver Associate Member

Polesocks LLC

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Polesock is a stainless-steel wire mesh (nonchemical) physical barrier that blocks subterranean termites from attacking wood poles below grade. The fine stainless steel mesh is fabricated into a "sock" or "boot" and is slipped over the base of the wooden pole. The polesock extends above ground level to provide a visual inspection zone on the pole. Subterranean termites can cause initial damage to the wooden pole, facilitating and

accelerating the wood rot process in the pole. By placing a Polesock over the butt of the pole, the life cycle of the pole can be extended both from termite and wood rot damage, and thus delaying the expensive change-out process.

NRECA Silver Associate Member

Posi Plus

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Posi-Plus manufactures the highest-quality, least-expensive aerial devices and cable handlers in the world. Our products are built to exceed the needs in the areas of safety and productivity. Posi-Plus builds heavy material handlers: manlifts, cable placers, and cable handlers. We are leaders in hybrid technology; we build systems that can work all day on battery power and provide the customer with a substantial return on investment.

NRECA Silver Associate Member

Power & Tel

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Power & Tel is an industry leader in the procurement, sales, material management, and distribution of product solutions to the worldwide telecommunications marketplace. Our supply chain expertise and extensive distribution network provide an efficient solution to build and maintain your entire network. Power & Tel's portfolio includes products and solutions for fiber to the X, IP TV, voice over IP, central office/headend, open settlement protocol, wireless, customer premise, home networking, testing, and much more.

NRECA Silver Associate Member

Powerline Tags, LLC

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Powerline Tags makes Phase ID products for the electric power industry. As a 24-year cooperative employee, serviceman/troubleshooter, I designed and make highly reflective pole and crossarm tags and, UG tags that attach to the concentric tie back on UG primary cables. We also carry reflective phase stickers for UG transformers, cabinets, etc. Our phase ID tags are a great tool for troubleshooting, engineer studies, and load balancing. The reflective pole and crossarm tags can be seen a 1/2 mile at night with just the headlights of a vehicle. They **work** day and night. That equates to 24 hour a day performance. These products increase awareness and enhance the culture of safety at your cooperative.

NRECA Silver Associate Member

Power Consulting Associates LLC

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The PCA team has been called upon by a diverse client base, ranging from small facility operators to the largest electric utility in the U.S., to provide a host of services for the transmission and distribution of energy.

NRECA Gold Associate Member

POWER Engineers Inc.

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POWER Engineers is an international leader in power delivery. We bring strength, depth, and expertise to utilities facing system upgrades, multi-faceted projects, or unique space, capacity and performance issues. From overhead and underground transmission lines and substations to electrical system studies, testing and energization, utility automation, and comprehensive program management, our teams are proficient in the design and implementation of power delivery systems. Whatever your power delivery requirements are today—and whatever challenges you might face tomorrow—POWER stands ready to provide the engineering services you need to be successful in the ever-changing energy market.

NRECA Silver Associate Member

Power Monitors Inc.

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Power Monitors Inc. (PMI) is a utility-focused product design and manufacturing firm based in Mt. Crawford, Virginia. PMI assists customers in solving problems by working with them to design and manufacture an array of power monitoring, quality, control, and communication tools.

NRECA Silver Associate Member

Power System Engineering Inc. (PSE)

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Power System Engineering Inc. (PSE) is a full-service consulting firm for electric utilities. The professionals at PSE include engineers, IT experts, utility strategy experts, economists, and financial analysts. Our team has extensive experience in all facets of the utility industry. Our services include communications (fixed and mobile), technology work plans, strategic plans, construction work plans, long-range plans, sectionalizing studies, load forecasting, line design, rates and financial planning, substation automation, and many others.

NRECA Gold Associate Member

PowerPlan Inc.

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PowerPlan software provides financial insight into how complex rules and regulations impact your organization—empowering you to make credible decisions. The integrated solution provides complete visibility starting with asset management and asset investment planning, through project execution to eventual retirement.

NRECA Platinum Associate Member

PowerSecure Lighting

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EnergyLite and Solais are brands of PowerSecure Lighting (PSL), a division of PowerSecure, Inc. PowerSecure Lighting is a fast-growing, technologically relevant, market-driven manufacturer that pushes the innovation envelope to create LED products that replace traditional lighting technologies with zero compromise to aesthetics and performance. PSL's products provide quality lighting for its retail, hospitality, supermarket, museum, commercial, and utility client list that includes the world's leading brands.

NRECA Gold Associate Member

PowerServices Inc.

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PowerServices is a utility consulting firm providing electrical and civil engineering for generation, substation, and transmission and distribution facilities. Services include traditional design, planning management, financial, consulting, utility acquisition, regulatory, rates, North American Electric Reliability Corporation CIP compliance, and grid modernization.

NRECA Silver Associate Member

Powertech Labs

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Powertech Labs is one of the largest testing and research laboratories in North America. Our 11-acre facility offers 15 different testing labs for a one-stop-shop approach to managing utility generation, transmission, and distribution power systems. Powertech is home to a broad range of scientists, engineers, and technical specialists, with capabilities in electrical testing, cable condition assessment, mechanical and materials engineering, software technologies, power system studies, chemical analysis, gas systems engineering,

and smart utility services. Additionally, we have the capability to derive and develop nonstandard testing methods and setups based on client requirements.

NRECA Silver Associate Member

PowerTrunk Inc.

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PowerTrunk presents a broad portfolio of critical communication solutions for the transportation, public safety, utilities, and industrial sectors based on TETRA, P25, and LTE technologies.

NRECA Platinum Associate Member

Professional Computer Systems Co.

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PCS has been serving utilities since 1982. Solutions include customer billing, accounting, customer, and employee portals. PCS is a trusted integration partner working with many smart grid vendors for a complete enterprise solution. All solutions can be delivered at the utility or hosted from PCS.

NRECA Gold Associate Member

PTI

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PTI's manufacturing capabilities include: Small, medium and large power transformers up to 575MVA and 525kV nominal; mobile transformers; integrated substation solutions (PODS); high voltage padmount transformers (HVPT); shunt reactors - single phase and three phase; GSU transformers up to 600MVA and 525kV; auto transformers up to 600MVA and 525kV; grounding transformers - zig-zag and two winding; three phase regulating transformers; visible break transformers; phase shifting transformers; HVDC converter transformers parts and Services include: FPE legacy components; field services including transformer installations, repairs and testing

NRECA ?? Associate Member

Pulse Broadband

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Pulse Broadband, an NRTC company, works with rural electric cooperatives, rural telcos, and rural municipalities to evaluate, design, build, launch, and operate fiber and fixed wireless networks for electric and broadband telecommunications purposes. Pulse begins with a comprehensive feasibility study. Pulse offers

professional services, consulting to clients who wish to offer internet, voice, video, and other broadband services to consumers. Pulse also helps integrate back-office, network management, provisioning, programming, billing, service, and support systems for superior customer service. Pulse is recognized as a fiber-to-the-home top 100 company.

NRECA Silver Associate Member



QEI LLC

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QEI is a leader in providing software, products, and systems for monitoring, controlling, and automating your electric and water systems. Our software and services help utilities deliver operational data to all levels of the organization to increase reliability, efficiency, and customer satisfaction.

NRECA Silver Associate Member

QinetiQ North America

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LineWatch Sensor systems provide utilities with a quick, safe, and low-total-cost-of-ownership solution for monitoring the distribution grid. LineWatch sensors measure voltage, current, and phase angle on the conductor and derive many additional values, including power factor, kWh, and harmonics (up to the 13th) that provide utilities with the visibility to manage their distribution grids more efficiently. LineWatch installs very quickly, using standard equipment. Both devices can be integrated with any communications platform. LineWatch helps utilities address a multitude of smart grid applications, including asset management, grid automation, legacy substation monitoring, load flow analysis, and more.

NRECA Silver Associate Member

Quanta Services

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Quanta Services is the leading integrated infrastructure solutions provider for the electric power, pipeline, and telecommunication industries. As a team of entities operating with the efficiencies of one powerful company, Quanta Services is the premier provider in the industry it serves.

NRECA Gold Associate Member

R

RADWIN

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RADWIN is a leading provider of point-to-multipoint and point-to-point broadband wireless solutions. Incorporating the most advanced technologies, such as a beam-forming antenna and an innovative air interface, RADWIN's systems deliver optimal performance in the toughest conditions, including high interference and obstructed line of sight. Deployed in over 170 countries, RADWIN's solutions in power applications include back-haul, broadband access, private network connectivity, and video surveillance transmission, as well as delivering broadband for trains and metros.

NRECA Silver Associate Member

RAVENii

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RAVENii provides continuous threat and

vulnerability management, firewall management, managed endpoint protection, and incident response; as well as a robust SIEM technology. We leverage the collective intelligence of security experts across the globe and monitoring the entirety of the IT environment, RAVENii moves beyond the sphere of security breaches; providing the most comprehensive discovery, analysis and mitigation of threats associated with an organization's presence.

NRECA Silver Associate Member

RealTerm Energy

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RealTerm Energy specializes in designing and delivering intelligent LED streetlighting systems that deliver exceptional energy and maintenance savings. We have provided cost-effective conversions to over 170 communities of all sizes across North America. RealTerm Energy makes it easy for cooperatives to convert their streetlight network to LED by choosing from our menu of services: a complete turnkey solution, procurement or project management consulting, and innovative geomatics and design services. We build capacity in every cooperative and municipality we work with by training local labor on leading-edge GPS applications and installation techniques.

NRECA Silver Associate Member

Reelstrong Utility Fleet

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Reelstrong Utility Fleet manufactures reel, pole, and pulling trailers that offer Safelock, Powerlock, Autolock, Securelock, and ACME-CLAMP Reel Arbor and Tongue-Securing safety technologies. Our units are hands down the safest, easiest to use, and lowest maintenance trailers in our category.

NRECA Silver Associate Member

Reliaguard

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Reliaguard offers a comprehensive portfolio of animal guards that protect your equipment and reduce the potential for animal-caused outages on distribution lines. In order to effectively protect equipment, it is common to pair guards with GreyEEL conductor cover to offer superior protection.

NRECA Silver Associate Member

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Rheem Water Heating

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Rheem is a manufacturer of Rheem, Ruud, Richmond, and Marathon brand water heaters for residential & commercial applications.

NRECA Gold Associate Member

RIDGID

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RIDGID, headquartered in Elyria, Ohio, is a global manufacturer of more than 300 dependable and innovative tools, trusted by the professional trades in over 140 countries. RIDGID products are designed to help professionals in the demanding commercial, industrial, and energy markets install and maintain the world's infrastructure with greater certainty and efficiency. RIDGID is proud to provide purpose-built solutions for electricians and utility contractors and service providers, including cable termination tools, knockout tools, utility locators, and many more.

NRECA Gold Associate Member

Ripley Tools

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Ripley is the leading global manufacturer of wire and cable preparation tools, serving linemen, technicians, and installers for over 30 years. Ripley's full product line of high-quality wire and cable prep tools and accessories is distinguished by three brands: Miller, Utility Tool, and Cablematic.

NRECA Silver Associate Member

Rocky Mountain Institute

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Rocky Mountain Institute's nonprofit Shine program helps electric co-ops procure distribution-scale solar. Shine has helped co-ops in Colorado, Texas, New Mexico, and North Carolina. We have helped Otero County Electric Cooperative realize a 4.5 cent-per-kWh price for a 3-MW project completed in 2017. We have helped six Colorado co-ops receive prices between 4 and 5 cents per kWh for 1-MW systems. In Texas, we're helping Bluebonnet Electric Cooperative and CoServ to procure solar and storage. Our vision is that every co-op in the United States can sign solar deals that save money. We help co-ops by modeling the economic value of solar; publishing an RFP to leading national and local

developers; and guiding buyers to successfully sign power purchase agreements.

NRECA Silver Associate Member

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Ronk has been serving the co-op markets since 1950, manufacturing both static and rotary phase converters to handle most all applications in the field where three phase is required and only single phase is available. Manual transfer switches with meter sockets help your customers with their backup power needs. A full line of low-voltage power factor correction capacitors improves power factor for both you and your customers' benefit. The "BLOCKER" is a stray voltage isolator primarily used in the dairy industry. All of these products are proudly manufactured at our Illinois facilities. Automatic transfer switches and meter sockets now round out our line.

NRECA Silver Associate Member

RS Technologies Inc.

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RS Technologies Inc. designs, engineers, and manufactures composite fiberglass utility poles. The engineered high performance poles are used in distribution, transmission, and communication applications. Using a modular design, they offer a lighter and more durable solution over wood, steel, and concrete alternatives. RS poles provide a long-lasting solution to grid-hardening applications and are backed by a 41-year limited warranty. In many instances, the environmentally friendly poles deliver the lowest installed and life-cycle total-cost solution of any pole on the market. RS is ISO 9001:2008 registered.

NRECA Gold Associate Member

Ryan LLC

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Ryan provides an integrated suite of federal, state, local, and international tax services on a multi-jurisdictional basis.

NRECA Silver Associate Member



S&C Electric Company

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As a leader in medium-voltage switching and protection, S&C Electric Company is committed to helping keep the lights on for

billions of energy consumers around the world. S&C has a proven track record of 100-plus years of developing new, innovative grid protection and reliability solutions.

NRECA Gold Associate Member

Safe Electricity, A Program of the Energy Education Council

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Safe Electricity is the award-winning program of the Energy Education Council (EEC), a nonprofit organization dedicated to promoting electrical safety and providing information on energy efficiency and renewable resources. EEC members, who include more than 400 utilities across the country, receive a wealth of materials and communications tools for consumer education and outreach, including videos, news releases and articles, a high-resolution photo library, social media posts, professionally designed consumer handouts, posters, and banners, and much more. EEC's Safe Electricity program helps utility employees with the knowledge to use electricity safely and efficiently.

NRECA Silver Associate Member

Samson Rope

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Today, Samson is the worldwide leader in the development and manufacture of high-performance ropes, with a focus on research and development and solving specific customer applications.

NRECA Silver Associate Member

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Sargent & Lundy LLC provides comprehensive development, permitting, consulting, engineering, design, procurement, construction management, and commissioning services to electric power generation and power delivery projects worldwide.

NRECA Silver Associate Member

Schweitzer Engineering Laboratories Inc. (SEL)

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SEL invents, designs, and builds digital products and systems that protect power grids around the world. This technology prevents

blackouts and enables customers to improve power system reliability and safety at a reduced cost. A 100 percent employee-owned company headquartered in Pullman, Washington, SEL has manufactured products in the United States since 1984 and now serves customers worldwide. Our mission is simple: to make electric power safer, more reliable, and more economical.

NRECA Gold Associate Member

Scope Services Inc.

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Scope Services is the nation's premier utility solution provider specializing in smart grid projects, outsourced workforce solutions, and maintenance construction services.

NRECA Silver Associate Member

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ScottMadden is a leading management consulting firm with practice areas in energy, sustainability, and clean tech; shared services; and federal government. We have served the energy industry for more than 25 years and assisted more than 200 energy clients, including 90 percent of the top 20, performing thousands of successful projects. ScottMadden provides broad, deep energy expertise, coupled with practical business acumen, honed over decades of experience in this industry. We have helped energy industry companies, both large and small, develop and implement their strategies, plan their businesses, improve their processes, restructure their organizations, and produce results.

NRECA Silver Associate Member

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SSS is a leading provider of industrial communications and utility field services. SSS designs, engineers, implements, and manages industrial communication systems. We specialize in utility engineering services, wireless data systems, and tower maintenance. We are also a GE MDS full-service partner.

NRECA Gold Associate Member

SEDC

SEDC

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SEDC has been a leader in the development of innovative utility software solutions for nearly four decades. We're committed to providing our

users with customer information systems and billing, accounting, capital credits, engineering, and operations applications configured to meet their unique needs. We understand that your success depends on effective communication between a variety of groups and departments, and we strive to deliver software that connects your entire organization. Our enterprise software suite provides the most advanced tools available, including AutoCue IVR and customer communications, ReportIQ data analytics, meter data management, prepaid metering, mobile workforce, document imaging, and work management, among others.

NRECA Service Member

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- Damage Assessment
- Pre-Event Planning

ASPLUNDH.COM ■ 1-800-248-TREE

ASPLUNDH

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Sempra Renewables is a leading U.S. developer of renewable energy. Our experienced team has proven capabilities in the development, design, construction, and operation of large-scale renewable energy infrastructure. Together with our partners, the company owns and operates nearly 2,600 MW of renewable capacity fueled by the sun and wind, enough energy to power over 600,000 homes and businesses in 11 states. Sempra Renewables is a subsidiary of Sempra Energy, a Fortune 500 energy services holding company based in San Diego, with 2016 revenues of more than \$10 billion. The Sempra Energy companies' more than 16,000 employees serve approximately 32 million consumers.

NRECA Silver Associate MemberGold

Sensorlink Corporation

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sensorlink.com

Primary voltage meters, recorders, and smart grid sensors. The meters read current, voltage, power factor harmonics, and micro-ohm resistance. The recorders collect current and power factor load profiles.

NRECA Gold Associate Member

Sensus

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sensus.com

Sensus helps a wide range of public service providers, from utilities to cities to industrial complexes and campuses, do more with their infrastructure to improve quality of life in their communities. We enable our customers to reach farther through the application of technology and data-driven insights that deliver efficiency and responsiveness. We partner with them to anticipate and respond to evolving business needs with innovation in sensing and communications technologies, data analytics, and services.

NRECA Platinum Associate Member

Sentry Electrical Group Inc.

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sentryelec.com

Incorporated in 2006 as an electrical contractor offering medium-to high-voltage construction services to electric utility and private power companies, the company has built a culture of safety with an ERM of 0.73, reflecting safety as a strong core value.

NRECA Silver Associate Member

Service Concepts, an AM Conservation Group Company

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Service Concepts, created by co-ops for co-ops, serves hundreds of co-ops nationally with energy- and water-efficient products, kits, and programs. As part of the AM Conservation Group of companies, Service Concepts provides value-added solutions with your members in mind.

NRECA Gold Associate Member

Sherman+Reilly Inc., A Textron Company

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sherman-reilly.com

Since 1927, Chattanooga-based Sherman + Reilly, a Textron company, has been a leading manufacturer of tools and equipment for the underground and aerial transmission and distribution of electric power and communications systems, including a complete line of bundle blocks, pullers, tensioners, and reel trailers.

NRECA Gold Associate Member

Sherrill Inc.

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Sherrill Inc., founded in 1983 and headquartered in Greensboro, North Carolina, is the world's leading manufacturer and distributor of tree-care and work-at-height equipment. In 2016, Sherrill launched the Notch and Rope Logic brands, which offer the highest-quality tree-care tools and spliced goods available on the market today. Sherrill's vision is to become the world's leading supplier to professionals and athletes who "work elevated." These consumers depend on Sherrill's ropes, technical equipment, and clothing to work and pursue their passions safely, efficiently, and comfortably, high above the ground.

NRECA Silver Associate Member

Siemens Industry Inc.

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The medium-voltage portfolio enables an economical and responsible use of electric power through the use of smart grids. An integrated approach to power distribution is the basis for green cities; energy-efficient infrastructure, buildings, and industrial applications; and high-supply reliability.

NRECA Silver Associate Member

Silicon Ranch Corporation

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Silicon Ranch is one of the largest independent solar power producers in the United States, with a portfolio that spans coast to coast and includes more than 1 GW of photovoltaic systems that are contracted, under construction, or operating. The company is a proud Platinum Associate Member of NRECA. Silicon Ranch considers the importance of cooperatives' member relationships and works to tailor solutions that support the cooperative principles. The company is proud to have established productive partnerships with prominent co-ops across the country and is especially proud that, for the second straight year, the Smart Electric Power Alliance has named a Silicon Ranch co-op partner its Electric Co-op Utility of the Year.

NRECA Platinum Associate Member

Simplify Solar

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Simplify Solar provides utilities with a platform-as-a-service model to streamline the entire solar integration process and effectively engage and retain customers. The Simplify Solar platform is a one-stop online marketplace that brings all the elements needed to complete the purchase and installation of a residential solar power system. We bring together our trusted partners that include product suppliers, certified installers, and financiers on to one easy-to-use platform that enables utilities to provide their customers a seamless process to go solar.

NRECA Silver Associate Member

Single Phase Power Solutions (SPPS)

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singlephasepowersolutions.com

SPPS Written-Pole single-phase motors are the largest single-phase electric motors available in the market today. These are not phase converters, but true single-phase motors. The application of SPPS Written-Pole technology allows these revolutionary motors to operate on existing single-phase distribution, eliminating the need for three-phase power.

NRECA Gold Associate Member

Skylar Energy

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skylarenergy.com

An energy trading and marketing organization focused on term structured transactions.

NRECA Gold Associate Member



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Smartenit

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smartenit.com

Smartenit is a holistic internet of things solutions provider with three focus areas—energy, water, and security. Our protocol-agnostic solutions include utility-grade, high-capacity metering load controllers; approved gateways; electric vehicle chargers; various sensors; and controllers for irrigation, lighting, appliances, and security equipment. Smartenit is a one-stop shop for things, platforms, apps, and end-to-end solutions.

NRECA Silver Associate Member

Snap-on Industrial

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Snap-on Industrial is a direct supplier of the company's diagnostics, shop repair equipment, and information and management systems software, along with hand and power tools and tool storage. We provide a broad range of services, from complete CAD shop layout and installation of new facilities, including work stations, vehicle lifts, etc., to training in heavy-duty diagnostics, tool safety, and torque. We manufacture custom tools that allow access to fasteners in difficult repair situations and regularly interface with electric utility management and tool committees. Snap-on Industrial services our products on site at the customer location and provides competitive pricing.

NRECA Silver Associate Member

SoCore Energy

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SoCore Energy develops solar energy installations for commercial, industrial, utility, and public sector customers throughout the United States—with a client list that includes rural electric cooperatives, Fortune 500 retailers, industrial operators, municipalities, and academic institutions. SoCore Energy is a wholly owned indirect subsidiary of Edison International, one of the largest energy holding companies in the nation.

NRECA Silver Associate Member

SOS Intl

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SOS Intl, a leading provider of training and consulting to the power industry, rigorously tracks and interprets North American Electric Reliability Corporation (NERC) Reliability

Standards for system operations. We expertly translate the standards into customized education and compliance solutions, helping entities manage risk and ensure reliability for the North American power grid. SOS offers instructor-led and online courses, accompanied by sophisticated computer simulation. All are designed using the latest systematic approach to training, as required by NERC.

NRECA Silver Associate Member

Southeast Lineman Training Center

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Southeast Lineman Training Center (SLTC) is the premier training school for apprentice training, consistently producing an elite group of highly trained and certified graduates. We accomplish this through a training style and philosophy that is unlike that of any other program offered in the country. SLTC offers an intense 15-week program, the Electrical Lineworker Program (ELP). In the ELP, students learn how to climb wood and steel structures, install cross arms and hardware on poles, install conductors and pole line equipment, operate the equipment, and use various tools of the trade in simulated conditions.

NRECA Silver Associate Member

Southern Research

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We are a leading nonprofit research organization focused on innovative technology solutions for clean energy, clean air, and clean water. We objectively assess new technologies and provide process development support to private-sector clients, including inventors, technology providers, and financial investors. We develop and test air and water emissions-control technologies for leading electric power utilities, industrial manufacturers, municipal water utilities, and related trade organizations. We partner with private sector firms and government agencies to develop new-to-the-world technologies that transform energy generation, chemical synthesis, and air and water purification.

NRECA Silver Associate Member

Sparks Energy Inc.

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Sparks Energy Inc. was founded in 2007 to address a growing need by both investor-owned utilities and electric co-ops for a quality workforce to perform storm response and energy restoration services. The Sparks Energy Inc. team has over 35 years of experience in utility construction and management. Sparks is a committed leader in energy restoration management. Our crews are qualified for

overhead and underground distribution, transmission, substation, and right-of-way operations. We are composed of both union and non-union crews. Our crews remain unassociated with mutual aid, giving us the ability to move throughout the U.S. without having to request Regional Mutual Assistance Group releases.

NRECA Platinum Associate Member

Spatial Business Systems

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Spatial Business Systems Inc. provides software and services solutions to help their clients leverage the power of location-based data from CAD, geographic information systems, and other information systems. They provide innovative offerings that allow organizations to streamline their business processes and reduce costs.

NRECA Silver Associate Member

SPIRAE LLC

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Spirae's Wave control platform provides a scalable architecture for integrating and managing high levels of renewable and distributed energy resources (DER) at the edge of the grid. Wave intelligence allows customers to monetize multiple DER value streams from end-use optimization to energy market participation. Based in Fort Collins, Colorado, Spirae has developed, refined, and validated its control platform and its menu of market-driven applications through numerous full-scale and pilot projects in North America and Europe since 2002.

NRECA Silver Associate Member

sPower

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spower.com

Headquartered in Salt Lake City, sPower is the largest owner of utility-scale solar assets in the U.S. with 150-plus projects and more than 5GW of projects under development. sPower is led by a seasoned management team with a 20-year track record of successful work in the energy sector. The same team founded EnergySolutions (NYSE:ES) and ISG Resources (sold to Headwaters; NYSE:HW). This team now includes experts across all phases of the development chain—from land purchases to interconnection to operations and everything in between. sPower is committed to providing economically responsible power tailored to the needs of its clients. We are the renewable energy company that delivers on its promises.

NRECA Silver Associate Member

Sprint

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Manager

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sprint.com/save

Great news for members of NRECA! Welcome to the Sprint Discount Program! The best value in wireless just got even better. As a member of NRECA, you are now eligible for EXCLUSIVE savings on select Sprint products and services. Both new and current Sprint users can take advantage of these specially negotiated savings. Experience Sprint's award-winning network. And as for competitive claims, the "better" that some other national carriers claim about reliability is really less than a 1 percent difference. Does anyone even really notice a difference of less than 1 percent? But when it comes to saving money, Sprint is by far the best choice for consumers.

NRECA Silver Associate Member

SPX Transformer Solutions Inc.

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One of the largest U.S. manufacturers of power transformers and valued supplier of complete transformer service solutions for almost any manufacturer's units. Provides transformer, load tap changer, and circuit breaker components and offers a variety of substation-applicable training classes for all skill levels.

NRECA Silver Associate Member

Stanley Consultants

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stanleyconsultants.com

Stanley Consultants, a global engineering service provider, focuses on power generation, transmission, distribution, and substations. We bring global knowledge, a century of experience, and multi-disciplinary capabilities to serve our private and public clients.

NRECA Silver Associate Member

Staples Advantage

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Staples Advantage, the business-to-business side of Staples, partners with you as a trusted adviser and to make your workday a little easier. Whatever you need—supplies, technology, MPS, cleaning products, safety, coffee and breakroom, furniture, print, logoed items, and more—Staples has it.

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Storm Services LLC

272 Oak Hill Rd.
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stormsl.com

Storm Services offers full basecamp services, including sleep trailers and tents, showers, laundry, catering, ice, porta-johns and service, gray water removal, management, tower lighting, generators, hand-washing units, communication, garbage disposal, air conditioning and heating, freezer and refrigerated trailers, and dry storage trailers.

NRECA Silver Associate Member

Strata Solar

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Since 2008, Strata has been at the forefront of the solar industry, inventing new ways to bring more solar to more communities across the country. Our experience enables us to navigate changes in the market and identify opportunities to partner with our customers so that together, we can bring more successful projects on-line. We are proud to be transforming the solar industry through collaborative partnerships that allow us to develop, build, and operate quality projects nationwide. Strata offers turnkey financing, development, engineering, procurement, and construction, operations and maintenance, and asset management for a wide variety of solar applications. We also curate custom solutions for customers who only need certain services.

NRECA Gold Associate Member

Summit Group

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Summit Group LLC is a results-driven company that provides innovative business solutions across three core competencies: branded merchandise, engagement and recognition programs, and marketing creative services. Summit Group LLC is driven by the success of our clients, and we maintain the highest standard of internal excellence for every aspect of a solution. Specialties include branded merchandise, engagement and recognition, marketing communications, and promotional products.

NRECA Silver Associate Member

Sunrun Inc.

Todd Maki, Director, Business Development

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Sunrun (Nasdaq:RUN) is the nation's largest dedicated residential solar, storage, and energy services company with a mission to create a planet run by the sun. Since establishing

the solar-as-a-service model in 2007, Sunrun leads the industry in providing clean energy to homeowners with little to no upfront cost and at a savings to traditional electricity. The company designs, installs, finances, insures, monitors, and maintains the systems, while families receive predictable pricing for 20 years or more. The company also offers Sunrun BrightBox solar power generation with smart inverter technology and home battery storage.

NRECA Silver Associate Member

SureBill

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SureBill manufactures, sorts, and mails millions of paper bills, electronic bills, and statements each month. All work is done in-house. We manufacture 1 million envelopes daily, along with all of the inserts and paper and electronic bills. Our complete control of the manufacturing process allows SureBill to offer excellent prices combined with the best possible service, quality, and flexibility. We physically sort the mail and commingle by ZIP code to get the best possible postage rate. As a "detached mail unit," the U.S. Postal Service is on site, ensuring fast delivery. Financially strong and growing; family owned for 35 years. Large enough to provide economies of scale and small enough to provide you the service you deserve!

NRECA Silver Associate Member

Survalent Technology

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Survalent is the most trusted provider of advanced distribution management systems for electric, transit, gas, and water/wastewater utilities across the globe. Over 600 utilities in 30 countries rely on the Survalent-ONE platform to effectively monitor, analyze, and restore operations.

NRECA Gold Associate Member

Survey & Ballot Systems

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The foundation of a successful cooperative is member trust and involvement. A major factor in that success is a fair election process that gives all members the ability to vote. Since 1990, Survey and Ballot Systems has helped plan and manage cooperative elections across the country. As a trusted election partner, we provide expert consultation while streamlining the voting process. Whether you need traditional paper balloting, online voting, on-site voting, or a hybrid election, we have the expertise to make it happen. Let us be

the independent third party to administer your election or provide you with the tools to run it yourself. Contact us today for more information on your next election!

NRECA Silver Associate Member

Symbiosa

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Symbiosa hosts and professionally manages utility geographic information system (GIS) data infrastructure along with the configurations and complex interfaces needed to maintain the data. We develop your GIS using available data sources and provide continuing management, maintenance, and technical support to your utility staff.

NRECA Silver Associate Member

Systrends

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Systrends is an information systems company with 20-plus years of experience that provides a full range of software and services for customer information management, enrollment, billing, metering, and a comprehensive customer information system software suite; compliance management, tariff filing and management, regulatory reporting, and internal compliance; and cybersecurity, North American Electric Reliability Corporation CIP auditing, consulting, and software.

NRECA Silver Associate Member



T&D PowerSkills LLC

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T&D PowerSkills is a comprehensive 78-title video- and workbook-based lineman training program geared to instruct electric utility line-workers with up-to-date, safety-related work practices and technical skills related to the installation, maintenance, and removal of transmission and distribution systems. The individual units can be structured to support any type of company-designed lineworker apprenticeship or journeyman refresher program from apprentice to journeyman level, and it can be used as a four-year, 8,000-hour apprenticeship program. Over 350 utilities and power line contractors use the T&D PowerSkills material.

NRECA Silver Associate Member

T&D Solutions LLC

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T&D Solutions takes pride in providing utility services to numerous investor-owned, rural cooperative, and municipal utility systems. Our services include distribution, transmission, substation, telecommunications, industrial, and commercial. With over 1,200 resources reaching from the Carolinas to Texas and Kentucky to Louisiana, we are proven to be the solution to our customers' needs, but small enough to care.

NRECA Gold Associate Member

T&R Electric Supply Co. Inc.

Brent Nelson
P.O. Box 180
308 SW 3rd St.
Colman, SD 57017
Phone: 605-534-3555
brent.nelson@trelectric.com
t-r.com

"THE TRANSFORMER PEOPLE"—we buy, sell, rent, and repair distribution and power transformers through 30 mVA, 138 kV along with related high-voltage switchgear.

NRECA Silver Associate Member

Tabuchi Electric America

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Tabuchi Electric America manufactures and distributes smart inverters and solar-plus-storage solutions for the renewable energy industry. The company is a 90-year-old manufacturer of high-quality power conversion devices serving the renewable energy, aerospace, health care, and automotive industries. Ranked by IHS as a top six global manufacturer of photovoltaic inverters, Tabuchi is leading the industry with fully integrated and dispatchable power management systems delivering solar-plus-storage capabilities. Thousands of the company's plug-and-play Eco Intelligent Battery Systems have been installed. Tabuchi has become a world leader in the rapidly growing electric storage industry.

NRECA Silver Associate Member

Tantalus

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Tantalus provides TUNet, an award-winning, multi-purpose technology platform that enables smart grid applications like advanced metering infrastructure, load management, and grid optimization for electric, water, and gas cooperative and municipal utilities. TUNet utilizes IP and RF communications for a cost-effective hybrid network that delivers

proven performance across rugged terrain and low meter densities. Tantalus helps utilities improve reliability and reduce operational cost through applications that leverage distributed computing capability embedded at every endpoint.

NRECA Silver Associate Member

TAW Power Systems

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No industry can afford to be off-line. It's why more companies are turning to TAW Power Systems for all their emergency generator needs. TAW Power Systems' services range from new engine-driven generator sales to repairing existing generators. TAW Power Systems is the most trusted name in the southeast, providing service, sales, and support for emergency generator systems. TAW is the only authorized distributor for KOHLER Power Systems, and we proudly distribute first-class power system services and products throughout five southeastern states: Florida, Alabama, Mississippi, Louisiana, and southern Georgia.

NRECA Silver Associate Member

TEA Solutions Inc.

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TEA Solutions is a national energy marketing and risk management services provider with offices in Jacksonville, Florida, and Seattle (Bellevue), Washington. TEA Solutions leverages the talent, systems, and tools of The Energy Authority, which provides trading and risk management services to over 50 clients with combined generating assets of over 29,000 MW. **Our roots:** Because we were created by and exist to serve community-owned utilities, TEA Solutions takes the time to understand your unique values and objectives. We then focus on creating strategies to manage your risk and help you accomplish your goals.

NRECA Gold Associate Member

Team Fishel

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Team Fishel offers engineering, construction, installation, and maintenance services for substation, transmission, and distribution systems. Services include overhead reconductoring, underground cable replacement, and emergency storm restoration, backed by 81 years of experience and 2,200-plus team-mates nationwide.

NRECA Gold Associate Member



Tech Products Inc.

Daniel D. O'Connor, Vice President
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Phone: 718-442-4900
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techproducts.com

Tech Products Inc. is your local source for identification tags, including distribution pole tags, phase marking, transformer labels, substation signs, and transmission tower aerial observation tags. Since 1948, Tech Products has been innovating great new products to mark everything from underground distribution cable to overhead phasing. We helped Cass County Electric Cooperative in Fargo, North Dakota, become ANSI-compliant using our Everlast sign technology and graphics department. This product has continually proved it will not fade, saving you a great deal of labor and cost by not having to replace signs, tags, and markers. We look forward to serving you.

NRECA Gold Associate Member

TechServ Consulting and Training LTD

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TechServ is a recognized leader of contract services due to the assurance of quality that exceeds client expectations. TechServ has the resources and financial stability to complete projects of any size and is fully insured for most client requirements. A progressive company with experienced management and staff, TechServ provides an innovative business approach to the unique needs of the utility and general industry. Services provided are most all distribution- and communication-related services (including design and project development, construction oversight and coordination, joint-use administration, and work order inspections), and transmission construction oversight and coordination.

NRECA Silver Associate Member

Terex Utilities

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terex.com/utilities

When it comes to utility equipment, our priorities are the same as yours. Safety, reliability,

cost, and return on investment are at the top of that list. For over 70 years, Terex has been listening and turning challenges into solutions that keep you up and working, day in and day out. When your crews are out in the harshest conditions, providing the services people depend on, you need to know you can depend on our equipment to do the job. We know utilities need the toughest, most reliable equipment and service support. Terex equipment is built for the unique demands of your work.

NRECA Gold Associate Member

Terracon Consultants Inc.

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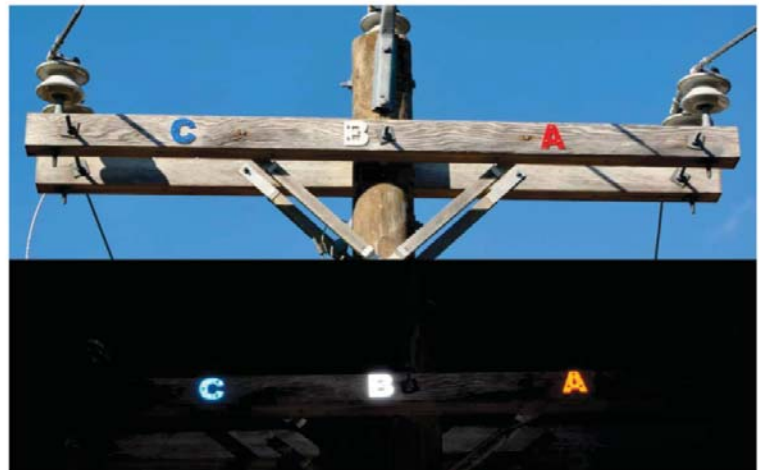
Terracon is an employee-owned consulting engineering firm that has provided quality services to clients since 1965. From its roots in geotechnical engineering, Terracon has evolved into a successful multi-discipline firm specializing in geotechnical, environmental, construction materials, and facilities services. Last year, Terracon provided these services throughout the country to more than 400 transmission and substation projects in the electric power industry. Terracon has consistently achieved growth above the industry average and ranks 41 in *Engineering*

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Tom Lawton, President
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Bristol, PA 19007

Phone: 215-785-2338

tom.lawton@tescometering.com

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TESCO has been the trusted source for electric meter testing equipment and metering accessories for over 100 years. TESCO develops and delivers artificial loads and burdens, test switches, watt-meter test accessories, and a full range of operational and advanced metering infrastructure support needed in today's competitive and changing market. Today, these products—combined with engineered solutions like advanced metering infrastructure meter farms, multi-position watt-hour test boards, TESCO meter manager software, and a wide variety of meter services and engineering support for special projects and reporting to regulating agencies and public utility commissions—help to make TESCO the preferred supplier for utilities worldwide.

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TextPower Inc.

Mark Nelson, Executive Chairman

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San Juan Capistrano, CA 92675

Phone: 818-222-8600

mark@textpower.com

textpower.com

TextPower provides dozens of electric cooperatives around the country with text-messaging solutions designed specifically for the utility industry. Whether you are looking for two-way outage notifications that allow members to text in when they have an outage; sending "beat the peak" alerts; notifying members of severe weather conditions, overdue invoices, or low balances on prepaid accounts; or improving communications with your field personnel, Textpower's SmartAlerts provide you with field-tested solutions. TextPower has been chosen by a number of key providers in the electric cooperative industry to be integrated with their systems, including Milsoft, Daffron, and Cooperative Response Center.

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The StressCrete Group

Chris Dawley, Vice President & General Manager

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Phone: 205-339-0711

cdawley@stresscrete2.com

stresscretegroup.com

The StressCrete Group offers spun prestressed concrete poles for utility, transmission, street and area lighting, sports lighting, and specialty poles for the electric, communications, and utility industries. We also produce a comprehensive line of high-performance decorative outdoor luminaires, decorative metal poles and arms, and site amenities, including bollards, benches, and receptacles.

NRECA Silver Associate Member

Today's Power Inc.

Jennah Denney, WOW Coordinator

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Little Rock, AR 72219

Phone: 501-400-5548

jdenney@todayspower.com

todayspower.com

Owned by electric cooperatives, Today's Power Inc. (TPI) was created to serve our members who had a desire to offer community solar to their members. Today's Power can provide solar power systems and pass along the tax incentives to electric cooperatives and reduce the cost of solar to their members. Fellow cooperatives in neighboring states quickly learned of our program and wanted a known business partner to provide their solar power system, and now we're an integral part of helping the cooperatives and public power sector serve their members interested in solar and emerging technologies. As an integral part of the electric cooperatives, TPI has access to a wide range of expertise and resources.

NRECA Gold Associate Member

TPC Wire & Cable Corp.

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TPC Wire and Cable provides a wide variety of electrical and electronic cables, including flexible medium-voltage substation cables, 5kV to 35kV; flexible medium-voltage cable assemblies, terminated to your specs, electrically tested, and delivered ready to use; cable storage and deployment solutions; power and control cables in a wide variety of configurations; high-temp wire and sleeving products; and in-house engineering services.

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Track Star International Inc.

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Tradewind Energy Inc.

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Tradewind Energy is one of the largest wind and solar project development companies in the U.S. We deliver long-term power projects that tap into nature's resources to produce sustainable energy for our nation. We've earned a reputation for innovation in the market, for our highly skilled and passionate team, and for our deeply held respect for the people, environment, and communities where we develop our projects.

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Transgard Systems Inc.

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Transgard Systems Inc. manufactures and installs an animal-deterrent system to eliminate substation outages caused by animal intrusion. The patented system is specifically designed to prevent climbing animals, such as squirrels, raccoons, and snakes, from gaining access to substation equipment. The modular design makes the system easy to install and easy to use. In less than one day, the system can be installed, with the substation energized, and the substation equipment will be protected. With over 2,500 installations in the U.S. and Canada, Transgard has a proven track record of eliminating outages and saving money. In most cases, one outage prevented will cover the cost of the entire system.

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TRC Companies Inc.

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mhall@trcsolutions.com
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TRC is a national engineering, environmental consulting, and construction management firm that delivers full life-cycle solutions—from power system and critical issues studies to permitting, engineering, construction, air measurements, auditing, operational support, and decommissioning—to help our electric cooperative clients provide safe, reliable power. As your trusted advisor, our expert staff get to know you, your conditions, goals, and business requirements to become a seamless extension of your team. We work with electric co-ops every day across the nation on a wide range of issues and services, including substation, distribution, and transmission engineering and construction.

NRECA Silver Associate Member

Trees LLC

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trees-llc.com

Trees LLC is a provider of professional vegetation management services to utility and municipal customers nationwide. As the company has grown over the past 60 years, so has the scope of the services we provide in order to continually meet the changing needs of our customers. Trees is one of the largest utility vegetation management service companies in the United States. As a market leader in the industry, Trees has developed a reputation for professionalism, quality, safety, and dependability among some of the nation's largest utility companies. Trees offers dependable service at competitive prices. Our certified arborists are available to discuss your total vegetation management needs.

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Trilliant Inc.

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Trimble Energy delivers high-performing technology solutions for electric co-ops, from outage management to staking and maintenance to mobility. Learn how Pedernales Electric Cooperative is leveraging solutions from Trimble.

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TSTM Inc.

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Sioux Falls, SD 57107
Phone: 605-334-2924
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Ulteig delivers comprehensive design engineering, program management, and technical and field services that strengthen infrastructure vital to everyday life. Ulteig is an employee-owned company that provides its expertise to a wide range of public and private clients. The company is ranked in the top 500 engineering design firms in the nation by *Engineering News Record* and is considered among the top firms in electrical transmission and distribution services. With a strong focus on grid modernization, asset renewal, operational excellence, regulatory compliance, and transmission right-of-way optimization, our innovative solutions help utilities keep up in a rapidly evolving market.

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Uticom Systems Inc.

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Uticom Systems Inc. has been assisting our clients for more than 25 years in the development, manufacturing, and monitoring of their hazard alerting and utility graphics standards, procedures, and products. Our mission of compliant and durable graphics is accomplished through the Uticom compliance monitoring program.

NRECA Silver Associate Member

Utility Services of the Americas (USofA)

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 Phone: 855-855-2001
 mmittleman@utilityrecyclers.com
 utilityrecyclers.com

USofA provides customized services for the packaging, transport, and recycling of electric, gas, and water meters and traffic and street lighting. We also recycle obsolete electrical equipment, cable, wire, ballasts, etc., and are interested in purchasing assets, mineral oil, and scrap transformers less than 50 ppm PCB.

NRECA Silver Associate Member

Utility Training Services Inc.

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 Phone: 404-890-5514
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 utshome.com

Utility Training Services Inc. (UTS) is a privately owned small business enterprise, providing technical and professional training services to electric utility personnel nationwide. Our curriculum advisors, instructors, and program managers help utilities achieve both short and long-term goals through certification programs that have served as career planning guides for many utility managers and employees. UTS technical courses are designed with strict adherence to National Electrical Safety Code guidelines, with a strong emphasis on safety first. A combination of theory and practical application provide a comprehensive training curriculum for individuals seeking to become experts in power system planning and design.

NRECA Silver Associate Member

V

V&S Schuler Utilities Group

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V&S Schuler, an industry leader for more than 60 years, supplies rural cooperative, municipal, and investor-owned utilities with galvanized and weather steel substations, transmission, and distribution structures and engineered substation packaging solutions. We are AISC and ISO 9000:2008-certified.

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Vaisala Inc.

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Valmont Utility

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 cevans@valmont.com
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Valmont Utility is the industry leader in custom engineering and manufacturing of steel, concrete, and hybrid pole structures for electric transmission, substation, and distribution applications. Operating globally, Valmont Utility has 12 North American facilities and three in global regions.

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Vantage Point

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Vantage Point Solutions (VPS) is a national provider of engineering and consulting services for broadband providers and data network operators. VPS combines professional engineering, technical expertise, and regulatory expertise to provide a full range of solutions for the unique business challenges facing cooperatives providing broadband. Our comprehensive services range from financial and regulatory consulting to engineering and cybersecurity to outside plant staking, mapping, and inspection. Our teams work seamlessly to provide peerless service and expertise to our clients.

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Vaughn Thermal Corporation

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Vaughn Thermal Corporation produces high-efficiency, large-capacity electric thermal storage water heaters for load management, demand side management, and demand response programs across the country. We specialize in grid-enabled and grid-interactive applications for water heating and renewable energy storage.

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Veriforce

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Verizon is a global leader in delivering innovative communications and technology solutions that improve the way our customers live, work, and play. Verizon is a leader in internet of things technology in a wide range of verticals, such as energy, smart cities, agriculture, health care, and others. Verizon Grid Wide Utility Solutions is simplifying grid modernization.

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Versalift

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Time Manufacturing Company is the global leader in the manufacture of aerial lifts. The Versalift product line is custom-built and serves the utility, telecommunications, tree care, and sign and lighting industries. It is Time's unfailing commitment to offer our customers the finest equipment available.

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Virginia-Georgia Transformer designs and manufactures products for power generation, transmission, and distribution. It's a U.S. company manufacturing power transformers to 1,400 MVA, 500 kV, and offering a full range of aftermarket services: installation, maintenance, refurbishing, and transformer field repair.

NRECA Gold Associate Member

Vivid Learning Systems

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Vivid's Electrical Worker Training program is the only online option for handling annual 1910.269 safety requirements. From aerial lift safety to arc flash, National Fire Protection Association 70E, and human resources, we've got over 130 courses for Occupational Health and Safety Administration training requirements. Courses for 1910.269 average 20 minutes to completion and are mobile-ready for training in the

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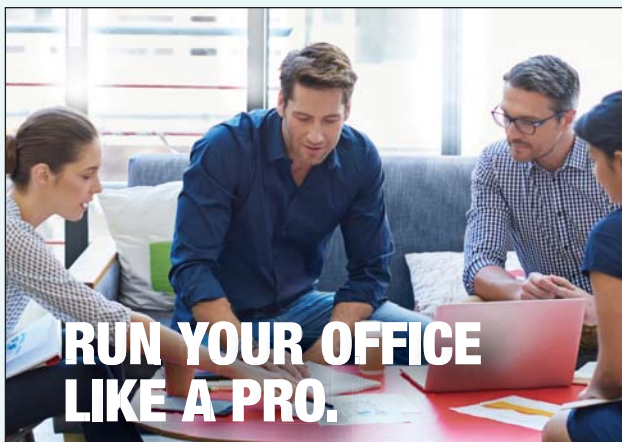
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Wagner Consulting LLC

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Wagner Consulting's Missouri Division provides expert management and regulatory advice and support to cooperatives and a variety of other industries. We specialize in supporting our co-op clients in deployment of optical carrier or fiber and wireless communications networks before state and federal regulatory agencies. We focus on licensing, compliance, and reporting that is required in deployment of advanced communications networks throughout our co-op clients' electric service territories and beyond. We achieve success either by working with our clients' legal and management staff or by assembling multi-disciplinary teams to optimally address each client's specific needs.

NRECA Silver Associate Member

Walker and Associates

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Walker and Associates is a nationally recognized WBE-certified telecommunications equipment distributor of telecommunications products supporting network operators, by simplifying network deployments with expert installation, systems integration, and managed services. Providing products and solutions since 1970, Walker remains a recognized industry leader, offering products supporting leading-edge technologies, such as switching, routing, Wi-Fi, microwave, network functions virtualization, carrier ethernet, voice over IP, wavelength division multiplexing, reconfigurable optical add-drop multiplexers, packet optical networking, software defined networking, access technologies, active ethernet, fixed wireless, DSL, and more.

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Wartsila North America Inc.

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Wartsila's flexible and efficient energy solutions enable the transition to a more sustainable and modern energy infrastructure, including solar and wind power. Our highly dependable smart power generation plans guarantee that your investment is always ready to generate value, from day one.

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Waste Connections

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WaterFurnace International

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WaterFurnace International has moved geothermal heat pumps into the internet of things with the new Symphony platform. Loading over 100 data points to the cloud every 10 seconds, Symphony-equipped heat pumps are ideal for load shedding, peak load control, proof-of-performance, and total system awareness for co-ops and owners alike. With dedicated utility industry resources and total system reliability, WaterFurnace is aimed squarely at delivering the ideal solution for co-ops and their members: 50-year fuel certainty, peak load reductions, load growth, renewable thermal energy harvesting, and the highest-efficiency heating and cooling solution in the world. With geothermal federal tax credits reinstated through 2021, WaterFurnace is proud to be an ideal solution for co-op members and a co-op partner.

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Watson Drill Rigs

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Westar Energy Inc.

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Wireless Data Systems Inc. (WDS)

Rick Greene, President
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Phone: 217-303-8720, ext. 103
rgreene@teamwds.net
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WDS offers turnkey wireless and IP networking, including site surveys, system design and engineering, network designs, network and radio equipment sales, tower construction, installation, and integration services for advanced metering infrastructure, automated meter reading, SCADA, WAN, broadband, security, and private network extensions. We offer system support, monitoring, and maintenance. WDS serves the U.S. with offices in North Carolina and Kansas. Primary product offerings include Ceragon Networks, Proxim, RAD, Radwin, Bridge-Wave, RadioWaves, Cisco, Juniper, and Rohn towers.

NRECA Silver Associate Member

Witt O'Brien's

Bill Riley, Managing Director
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Washington, DC 20005
Phone: 508-425-9080
briley@wittobriens.com
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Our utility practice includes electric, natural gas, nuclear, hydroelectric dams, water, wastewater treatment, and telecommunications clients. Our team of experienced industry professionals have decades of experience in emergency management planning and program development, and it offers an extensive list of both pre- and post-disaster services. We work with clients to take an all-hazards approach to prepare for single or multiple events and threats, customized to ensure an adequate state of preparedness. We offer a complete range of planning, mitigation, and prevention services to better prepare your organization before a crisis happens.

NRECA Silver Associate Member

Wolf Line Construction Company

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Phone: 803-636-5304
cgarner@wolflineconst.com
wolflineconst.com

Wolf Line Construction specializes in the install installation of fiber optic cable, and is dedicated to providing the highest quality services to utilities across the U.S., both in rural and urban areas. Our team is comprised of electrical construction professionals with over 125 years of combined experience in the industry. From design to installation, we have the knowledge and experience to do what it takes to get the job done right. The safety and health of each Wolf Line employee is a core value of our company and is our highest priority.

NRECA Silver Associate Member

Wood Quality Control Inc. (WQC)

James Carter, Executive Vice President
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Lexington, SC 29072
Phone: 803-359-2218
james.carter@nreca.coop
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An NRECA subsidiary and the only Rural Utilities Service (RUS)-approved quality assurance program for the purchase of treated wood poles and cross arms. A multi-tiered system combines carefully qualified treating plants; on-site and destination product inspection carried out by experienced, well-trained inspectors; and an independent, consumer-owned overview of the performance of both producers and inspectors to assure utilities they are receiving the highest-quality treated wood products available in the industry today. WQC is also dedicated to being the go-to technical resource for cooperative inquiries regarding poles, preservatives, RUS wood product specifications, and product inspection.

Wright Tree Service Inc.

Will Nutter, President and Chief Operating Officer
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Des Moines, IA 50306
Phone: 515-271-1112
wnutter@wrighttree.com
wrighttree.com

Wright Tree Service is an employee-owned company offering the entire package of vegetation management services, including integrated vegetation management, storm restoration, and work planning services to utility companies and their communities across the country. Our operations are guided by a set of values: safety, integrity, quality, teamwork, innovation, and family. Since our founding in 1933, our commitment to safety has always been our highest value.

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Z**Zerion Software**

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jschwartz@zerionsoftware.com
zerionsoftware.com/electric

Zerion Software creates paperless, mobile solutions for field service teams to capture business-critical data on mobile devices. Rural electric cooperatives rely on Zerion for mobile data collection and reporting for pole, transformer, and substation inspections, job briefing, fleet inspections, lineman safety, vegetation management and disaster response dispatching. Zerion is on a mission to empower electric cooperatives to do more with less, allowing them to focus on creating value, efficiencies, and savings for their members.

NRECA Silver Associate Member

Zyxel Communications

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zyxel.com/us/en

Zyxel, a pioneer in IP technology for over 25 years, provides a complete portfolio of multi-service LTE, fiber, and DSL broadband gateways, home connectivity solutions, smart home devices, enterprise-class Ethernet switches, security, and Wi-Fi equipment for small to mid-size businesses. Zyxel offers integrated, interoperable networking solutions based on open standards. Headquartered in Anaheim, California, Zyxel offers its partners service-rich solutions backed by a domestic team of logistical, sales, and technical support professionals and broadband solution engineers.

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 South Dakota

Region 7
 Colorado
 Kansas
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 Wyoming

Region 8
 Arkansas
 Louisiana
 Missouri
 Oklahoma

Region 9
 Alaska
 California
 Hawaii
 Idaho
 Montana
 Nevada
 Oregon
 Utah
 Washington

Region 10
 Arizona
 New Mexico
 Texas

NATIONAL NRECA'S AWARD WINNERS

Two former NRECA presidents received the association's highest honor, and the Oklahoma co-op consumer magazine earned top recognition for a rare second consecutive year in a row, as more than 6,000 rural electric leaders from across the country gathered in Nashville for the NRECA Annual Meeting.

The **Clyde T. Ellis** Award, named for NRECA's founding general manager and presented to co-op stalwarts for exemplary contributions to the progress of rural electrification, went to **Mel Coleman**, CEO at North Arkansas Electric Cooperative, Salem, and **Mike Guidry**, the retired CEO of South Louisiana Electric Cooperative Association, Houma. Coleman presided over the NRECA board from 2015 to 2016, and Guidry was its president from 2011 to 2012.

"As past NRECA presidents, Mel and Mike helped lead our association with distinction," said **Phil Carson**, their successor as the association's current president and board

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vice president at Tri-County Electric Cooperative, Mount Vernon, Illinois. As he presented the prestigious awards, Carson added: “They remain two of our industry’s top leaders, and it is a great privilege to work alongside them.”

Coleman has been at North Arkansas Electric since 1988 and has represented his state on the NRECA board since 2004. “I couldn’t be more pleased to accept this award from my exceptional colleagues on NRECA’s board,” he said. “As not-for-profit businesses, electric cooperatives are driven by a desire to exceed their member expectations. I look forward to watching that focus continue to shape the electric cooperative movement in the coming decades.”

Guidry served on the NRECA board for 14 years, capping a 34-year co-op career by leading the national association to become a more member-driven organization. “It is an honor to have played a small part in shaping the electric cooperative movement over the past three decades,” he said. “The co-op

movement is driven by a grassroots, member-first focus. As the 21st-century energy industry evolves, I’m excited to watch the next generation of leaders guide co-ops to power local economies and lead the energy future.”

Another retired co-op CEO received NRECA’s President’s Award for outstanding leadership during a special celebration, action, or event.

Bob Occhi, who concluded a 42-year career co-op career when he retired a year ago as president/CEO at Coast Electric Power Association, Kiln, Mississippi, was recognized for his dedication and leadership at the state and national levels and for his role in south Mississippi’s recovery from Hurricane Katrina in 2005.

“Bob’s leadership was put through a battery of tests after Hurricane Katrina,” Carson said. “Many of us remember his sure hand and ability to guide his co-op and community through those immense challenges.” The Coast Electric board president, **Gilbert Arceneaux**, remembered Occhi’s steadfast efforts. “There was never talk of defeat or giving up; there was only the sure and steady work of getting things done and of living up to the mission and vision of Coast Electric.”

A Mississippi co-op peer also reflected on Occhi’s example of co-op leadership. “Bob has been a tremendous mentor for me,” said **Kevin Doddridge**, CEO at Northcentral Mississippi Electric Power Association, Byhalia, and the state’s representative on the NRECA board. “His cooperative is one of the largest in the country, yet he could tell you in detail the business and personal lives of the employees. I have yet to see a CEO so loved and respected by his employees.”

Oklahoma Living, the consumer magazine published by the Oklahoma Association of Electric Cooperatives (statewide), Oklahoma City, became the first such publication in more than a quarter-century to win the **George W. Haggard** Memorial Journalism Award two years in a row. NRECA CEO **Jim Matheson** presented the prestigious award to **Anna Politano**, the magazine’s editor.

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“*Oklahoma Living* showcases the value of relevant local journalism while doing an outstanding job of highlighting the cooperative principles through compelling coverage and engaging content,” Matheson said.

Politano said she and her staff were “honored and humbled” to receive the award. “It takes a lot of teamwork to produce a publication that is effective and endearing to its audience,” she said. “I’m proud of each *Oklahoma Living* contributor for their passion and hard work.”

Chris Meyers, the statewide’s general manager, echoed that pride. “Receiving the respected George W. Haggard Memorial Journalism Award is a testament to their hard work,” he said. “This publication is well-regarded by readers across the state and does an outstanding job at conveying the cooperative message.”

NRECA’s **William F. Matson** Democracy Award for outstanding accomplishments through political action, education, and participation recognized the 24 distribution cooperatives in Ohio, which are leaders in the association’s Action Committee for Rural Electrification (ACRE®). “Ohio’s electric cooperatives have fully embraced their role as active participants in state and federal politics,” Carson said. “I applaud their commitment and look forward to their continued involvement in our ACRE efforts.”

The association’s International Award was presented to **Steve Rhodes**, CEO at Choctawhatchee Electric Cooperative, DeFuniak Springs, Florida, and **Myk Manon**, the retired country director in Haiti for NRECA International. “Steve is well known for his relentless effort to raise awareness about the need to help bring electricity to those around the world who live without it,” Carson said. “Myk is an icon in the international development community, and his work ethic and passion were impossible to miss throughout his four decades of work in 11 countries.”

And two Ohio co-ops received NRECA’s Cooperative Purpose Award to

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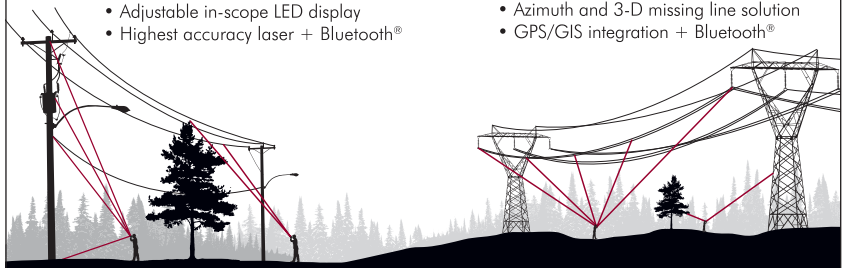
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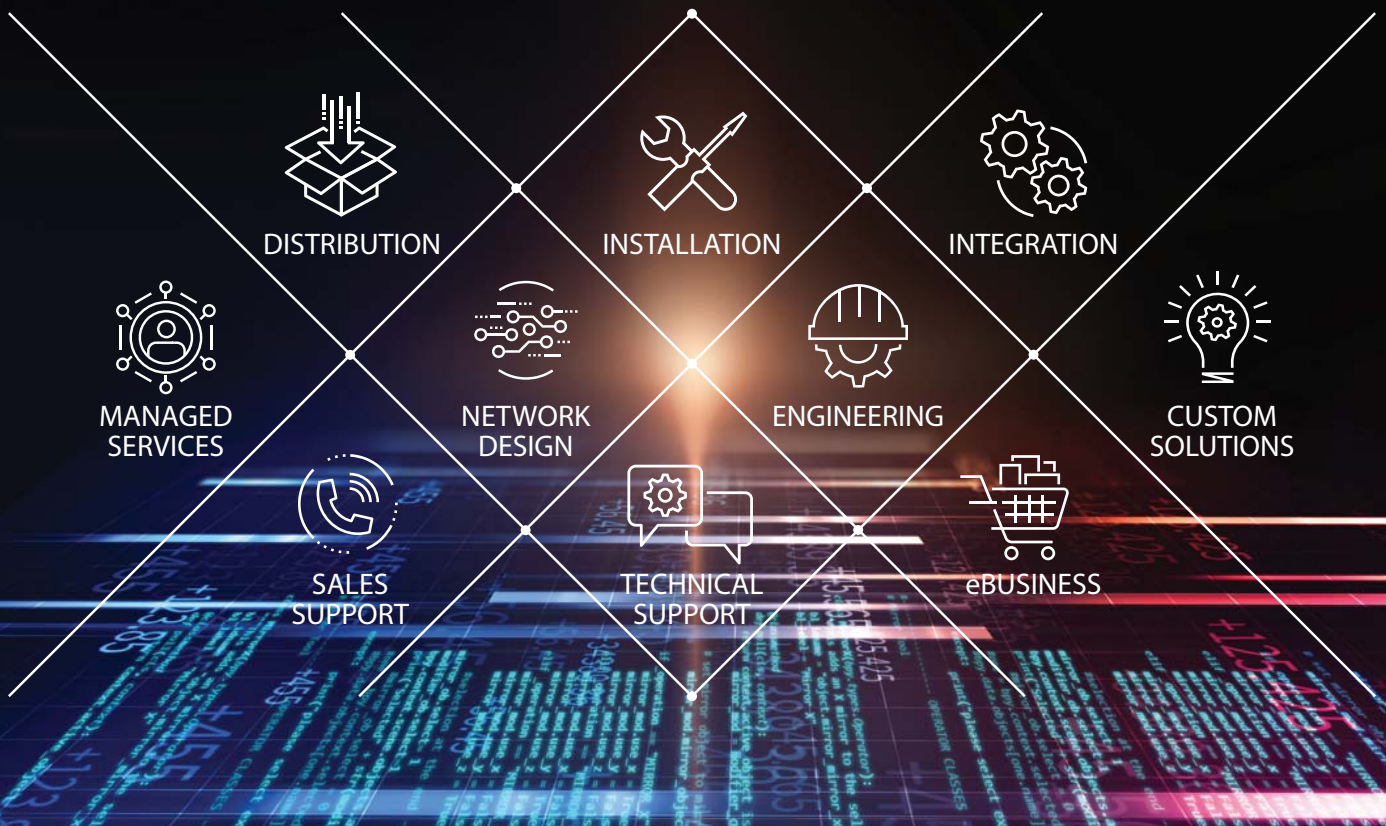
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spotlight the co-ops' support of "honor trips" for local military veterans. Holmes-Wayne Electric Cooperative, Millersburg, and Pauling Putnam Electric Cooperative, Paulding, enlisted member and community help to fund honor flights for veterans of World War II, the Korean War, and the Vietnam War. "Be engaging their local community and giving back to our nation's veterans, these co-ops clearly demonstrated their concern for community," Carson said.

REGION 1 HALLQUIST'S NEXT STEP

Christine Hallquist has resigned as CEO at Vermont Electric Cooperative, Johnson, Vermont, to seek another CEO job: governor of her state. "The values of cooperation among cooperatives and concern for community are a great basis for leadership at the state level," Hallquist told NRECA News. "The power of people who want to do good, working together, is more powerful than their individual skills." Hallquist joined the co-op in 2000 as manager of distribution engineering and became its CEO in 2005. "Christine has done a tremendous job leading the organization through complex times in the electric utility industry and is leaving the co-op on firm footing," said **Dan Carswell**, board chair. Her move reflects a nationwide co-op tradition, according to **Kirk Johnson**, NRECA's senior vice president of government relations. "It's no surprise that

we've had former co-op leaders make the transition from private service to public service by being elected to serve in state legislatures, the U.S. House, and the U.S. Senate," he said. "Co-ops are good breeding grounds for leaders at the local, state, and federal level because we know what it means to make a difference in our communities." **Vickie Brown**, Vermont Electric's general counsel since 2011, has been named interim CEO.

Central Electric Cooperative, Parker, Pennsylvania, has promoted **Laura Hensley** from member service representative to member energy specialist. Also at the co-op, **John** and **Mitzi Evankovich** both recently completed NRECA's demanding **Robert I. Kabat** Management Internship Program. John Evankovich is the co-op's manager of operations, and Mitzi Evankovich was recently named project & training manager.



Marcus Harris

The board of directors at Old Dominion Electric Cooperative (ODEC, G&T), Glen Allen, Virginia, has chosen **Marcus Harris** as its new president & CEO. Harris took over recently from **Jack Reasor**, who retired after 19 years in the post. He comes to ODEC from Kansas Electric Power Cooperative (G&T), where he had served as executive vice president/CEO

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since 2014. “The ODEC CEO job is a premier position at a premier generation and transmission cooperative and accordingly attracted highly qualified candidates from throughout the country,” said **John Lee Jr.**, president & CEO at Mecklenburg Electric Cooperative, Chase City, Virginia, who chaired the ODEC board’s search committee. “Mr. Harris rose to the top of a very impressive list of candidates.”

Virginia Business magazine and the Best Companies Group have named Mecklenburg Electric Cooperative (MEC), Chase City, Virginia, as one of the 100 Best Places to Work in the commonwealth. MEC employees **Peter Burke**, **Brad Clark**, **Kristine Martin**, and **Bernie Niemeier** represented the co-op in accepting the award at a recent presentation ceremony, and President & CEO **John Lee Jr.** said the co-op’s staff was instrumental in earning the distinction. “I congratulate MEC, its board of directors, membership, and management

for making every effort to do the right thing by the cooperative’s most valuable asset, its employees,” he said. “Our employees, in turn, have responded by doing the right thing by our members and making our cooperative renowned for its great relationship with its membership, its ability to safely get the lights back on after major weather events, and for its outstanding customer service.”

REGION 2 COBB’S NEW CEO

Peter Heintzelman has taken the helm at Cobb Electric Membership Corporation, Marietta, Georgia, following the recent retirement of **W.T. “Chip” Nelson** as the co-op’s president & CEO. Heintzelman brings years of management experience at energy and finance companies, the co-op noted in announcing his arrival. “Through his experience in operations, investment banking, trading, and business development across the globe, Heintzelman brings a unique perspective to one of the nation’s largest electric cooperatives,” it said in a press release. That makes him a worthy successor to Nelson, according to **Tripper Sharp**, who chairs the co-op’s board. “Peter’s vast experience, coupled with an impressive record of achievement, will help us continue to identify new and innovative ways to serve our members,” Sharp said. “As we embark on this next chapter, our board of directors would like to thank Chip Nelson for his 45 years of service to Cobb EMC.”



Peter Heintzelman

A couple of co-op members came to the rescue when about 300 fellow consumers at Peace River Electric Cooperative (PRECO), Wauchula, Florida, lost power midway through the Super Bowl and the co-op’s line truck got stuck in the muck. **Buddy Mongiovi**, a service technician, and **Kegan Kieffer**, a probationary line

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technician, had repaired a blown lightning arrestor and replaced a downed neutral, but their truck had sunk into soft mud alongside the ditch, and they couldn't get to the substation to close the circuit. Mongiovi left Kieffer with the truck and flagged down a ride. "This older couple stopped and agreed to take me a mile up the road so I could finish restoring power," he said. "We may not have saved the game for our members, but we did get service restored in time for them to see the highlights. In my 32 years with PRECO, I've met a lot of members who are more than happy to help out if it means we can get power on more quickly."

SECO Energy, Sumterville, Florida, is the Sumter County Chamber of Commerce's choice for Outstanding Large Business of the Year. Credit for the honor was widely shared, according to **Jim Duncan**, the co-op's CEO. "This accolade is a credit to SECO's board of trustees' governance, the executive team's leadership, and our employees' dedication and hard work," he said. Also at the chamber's recent "Celebrate Sumter Annual Dinner and Awards Gala," **Hank Bolduc**, the co-op's key accounts consultant, was sworn in as a member of the chamber's board.



Jim Duncan

Gulf Coast Electric Cooperative, Wewahitchka, Florida, recognized three employees for outstanding performance and handed out service-anniversary honors to 20 others recently. The three high-performance workers each received awards named in honor of former employees: **Manuela Heyn**, energy services representative, earned the **Alfredia Owens** Member Service Award; **Andy Dick**, manager of operations, accepted the **Tomica Lowery** Memorial Award; and **Tony Morrell**, staking technician, received the **Tony "T-Bone" Turner** Hustle

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Award. Those rounding major service milestones were **Terry Myers**, 35 years; **Johnny Hutto**, 25 years; **Becky Kent**, 20 years; **Rupert Brown**, **Kristin Evans**, and **Jerry Miles**, 15 years; **Angie Morris**, **Shannon Newsome**, and **Brennis Smith**, 10 years; **Frank Bailey**, **Peyton Gleaton**, **Francis Hinson**, **Jeremy Horton**, **Ralph Jamerson**, **Baylen Price**, and **Matt Salvo**, five years; and **Sheila Alston**, **Theo Baxter**, **Rebecca Green**, and **Mindy Maddox**, one year.

REGION 3

A FAREWELL TO COBB

His longtime co-workers at Owen Electric Cooperative, Owenton, Kentucky, were sorry to say farewell to **Mike Cobb** when he retired recently as senior

vice president of member & corporate services. “Very few people can boast a supervisor who is a leader, a mentor, and a friend,” said **Whitney**



Mike Cobb

Prather Duvall,

manager of communications. “He led by example and has always kept the members of Owen Electric in the forefront of its member service goals and the mission to provide reliable, affordable electric service.” Cobb worked at the co-op for 30 years.

PowerSouth Energy Cooperative (G&T), Andalusia, Alabama, announced three high-level promotions recently. **Brian Matheson** was named director of power production in anticipation of **David Powell**’s planned retirement as vice president of power production later this year. Matheson, a 21-year employee at the G&T, previously served as director of engineering. **Joe Armstrong**, formerly transmission operations & maintenance manager and a 17-year PowerSouth staffer, moved up to succeed Matheson as director of engineering. Taking Armstrong’s place as transmission operations & maintenance manager is **Josh Hilburn**, another 17-year employee who previously served as distribution engineer & assistant to the engineering director. “These gentlemen have done outstanding work for PowerSouth,” said **Gary Smith**, president & CEO. “Their promotions are well-earned and well-deserved.”

Electric co-ops and the Tennessee Valley Authority (TVA, power marketing agency), Knoxville, Tennessee, must continue their long tradition of working together, a co-op CEO told the TVA board recently. “Our industry stands at a crossroads, and together, with a commitment to all the people of the valley, we will continue to be a leader in innovation and energy solutions,” said **T. Michael Partin**, president/CEO of Sequachee Valley Electric Cooperative, South

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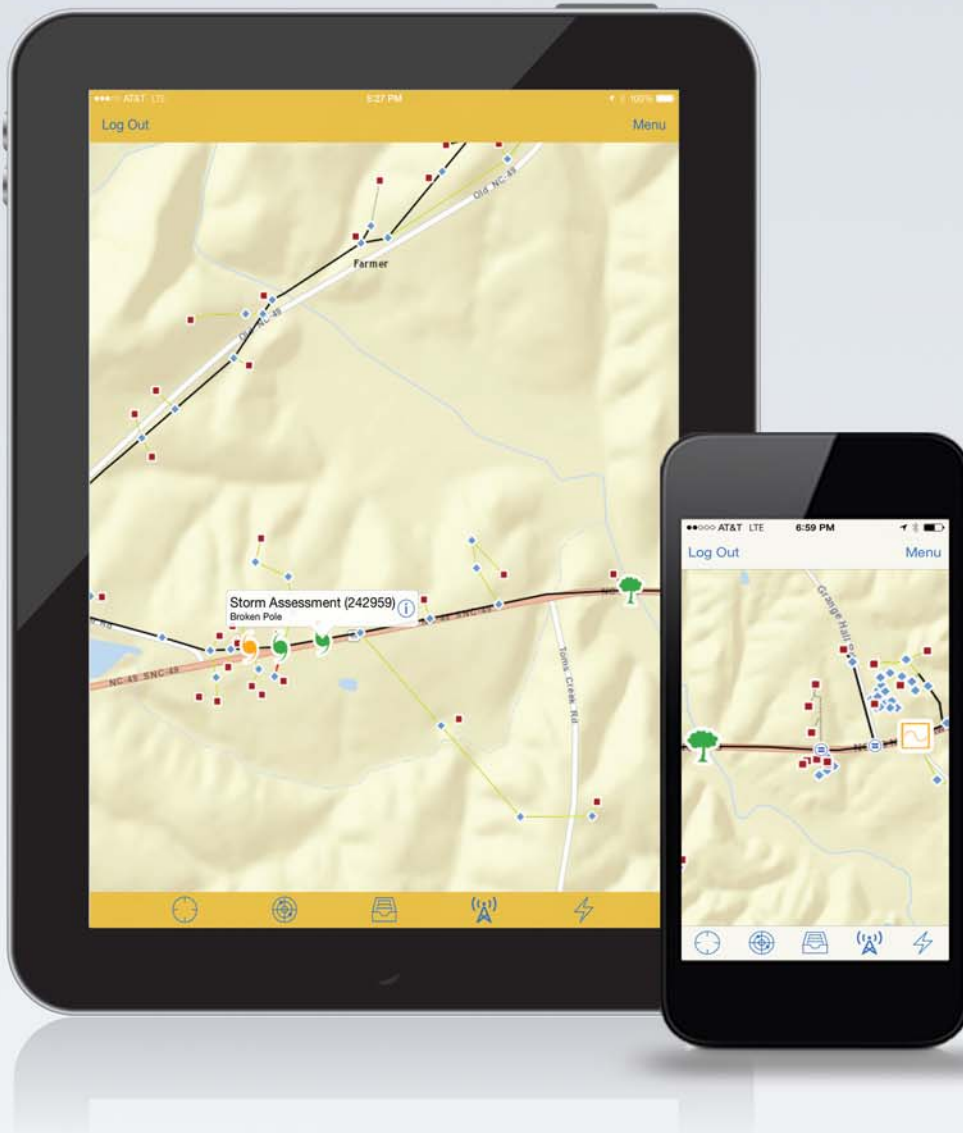
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Ron Barnes, president/CEO at Coast Electric Power Association, Kiln, Mississippi, has been named one of the state’s top CEOs by the *Mississippi Business Journal*. Barnes has held the co-op’s top job for little more than a year, having moved up from vice president of marketing, member services & public relations in March 2017. “Barnes has already demonstrated his ability to take Coast Electric to the next level and his desire to improve the quality of life for his fellow south Mississippians,” the co-op said in announcing the honor. The business publication’s top CEO listing recognizes executive leadership in building their organizations and making an impact on their communities. Barnes clearly qualified for the list, according to **Gilbert Arceneaux**, Coast Electric’s board president. “This honor is well deserved, and we look forward to seeing what the future has in store for our members with the helm,” Arceneaux said.



Ron Barnes

REGION 4 350 YEARS

Northeastern Rural Electric Membership Corporation, Columbia City, Indiana, celebrated three and a half centuries of combined service when a dozen dedicated employees marked major employment anniversaries recently. The honorees were **Bruce Coyle**, 40 years; **Diane Johnson**, 35 years; **Steve Elkins**, **Mike DeFreeuw**, **Doug Ferrell**, **Doug Sauers**, and **Rod Zorger**, 30 years; **Scott Snyder**, 25 years; **Brad Brown**, **Chad Jones**, and **Rick Stephens**, 20 years; and **Karmen Hoefelmeyer**, 15 years.

The Rural Electric Apprentice Program (REAP) at Indiana Electric Cooperatives (statewide), Indianapolis, recently graduated a dozen new lineworkers from nine Indiana co-ops, the statewide, and a contracting company. The newly minted apprentices are **Nicholas Barker**, Tipmont Rural Electric Membership Corporation, Linden; **Troy Burton**, Newton County Rural Electric Membership Corporation, Goodland; **Ryan Butler**, Electricom Inc.; **Chris Frank** and **Jesse Webb**, Kankakee Valley Rural Electric Membership Corporation, Wanatah; **Albert Hawkins**, Kosciusko Rural Electric Membership Corporation, Warsaw; **Dan Hoch**, Indiana Electric Cooperatives; **Adam House**, Heartland Rural Electric Membership Corporation, Markle; **Matthew Huck**, NineStar Connect, Greenfield; **Tyson Jones**, Carroll White Rural Electric Membership Corporation, Monticello; **Mason Quickery**, Jay County Rural Electric Membership Corporation, Portland; and **Vance Stwalley**, Warren County Rural Electric Membership Corporation, Williamsport. “Lineworkers are the backbone of our operations, and their dedication to the member-consumers of Indiana’s electric cooperatives is outstanding,” said statewide CEO **Tom VanParis**. “We are proud to have these hardworking individuals as part of the cooperative family.”

Ohio’s Electric Cooperatives (statewide/G&T), Columbus, welcomed four new staff members and said its goodbyes to a retiring veteran recently. The newcomers are **Kurt Helfrich**, general counsel; **Michael Austin**, senior counsel; **Satish Rathod**, project engineer; and **Avery Gatchell**, staff accountant. And employees gathered for a retirement party when **Phil Carter** closed out 37 years of service as a communications & electronics engineer.

Presque Isle Electric & Gas Cooperative, Onaway, Michigan, expanded its senior leadership team recently. **Randy Stempky**, previously the co-op’s supply

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chain management director, joined the team as CFO. **Dawn Cryderman's** promotion to director of administration & controller brought her into the executive ranks, and **Mairé Chagnon-Hazelman**, director of communications & member services, joined the leadership team as well.

REGION 5 MARIENAU'S ARRIVAL

The board at Prairie Energy Cooperative, Clarion, Iowa, has chosen **Tim Marienau** to take over as CEO/general manager, succeeding **Belva German**, who officially retired as the co-op's interim manager when Marienau took charge. Marienau comes to Prairie Energy from Clarke Electric Cooperative, Osceola, Iowa, where he was manager of finance & office services. Rural

electric co-ops "are like family," he said. "You grow together and you struggle together, but at the end of the day you are one."

Central Iowa Power Cooperative (G&T), Cedar Rapids, has named **Dawn Sly-Terpstra** as its new vice president of corporate communications. She comes to the G&T after 13 years with Grinnell Mutual, an Iowa-based insurance company, where she most recently helped steer a wide-ranging rebranding effort and led the company's digital campaigns. She also previously worked in marketing and communications for an agricultural cooperative.

Four Iowa co-op employees recently completed the demanding **Robert I. Kabat** Management Internship Program offered by NRECA. The new graduates are **Kippen Glenny**, executive assistant/communications coordinator at Consumers Energy, Marshalltown; **Abbey Sprague**, communications & marketing coordinator, Midland Power Cooperative, Jefferson; **Doug Steward**, assistant manager at Pella Cooperative Electric Association, Pella; and **Gabrielle Stokes**, system engineer at Access Energy Cooperative, Mount Pleasant.

Staffers from Corn Belt Energy Corporation, Bloomington, Illinois, swept the individual safety awards when the Association of Illinois Electric Cooperatives (statewide), Springfield, sponsored its recent Safety Supervisory Technical Conference. The awards went to **Adam Brendsel**, underground foreman; **Daren Deverman**, manager of safety & forestry; and **Norm Dunlop**, area serviceman. The co-op also earned a safety leadership award, along with Clinton County Electric Cooperative, Breese, and Tri-County Electric Cooperative, Mount Vernon.

REGION 6 WIPF RETIRES

The recent retirement of **Roger Wipf** as warehouse/materials coordinator at Slope Electric Cooperative, New England, North Dakota,



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concluded a 44-year career at the co-op. He felt lucky to get a warehouse job with the co-op in March 1974, he told **Carmen Devney** for a story in the co-op's local pages of the statewide magazine, *North Dakota Living*. "Back then, work was tough to get and jobs weren't lucrative like they are now," Wipf said. "When you got a job, you hung onto it and didn't jump from job to job." He also offered one piece of advice for co-workers still on the job: "Watch what you do, and what the other guys are doing, and make sure they are safe. Then they'll get to enjoy their retirement years too."

Troy Tweeten has settled into his new job as plant manager of a Wyoming power plant owned by Basin Electric Power Cooperative (G&T), Bismarck, North Dakota. Tweeten, who took over as manager of the Laramie River Station near Wheatland, Wyoming, following **Brian Larson's** recent retirement, previously served as operations superintendent at Basin Electric's Dry Fork Station near

Gillette, Wyoming, and has almost three decades of power plant experience. The G&T also recently recognized 16 longtime employees who had service anniversaries: **Curt Pearson**, 40 years; **Ted Chick**, **Jeff Dietz**, **DeLonce Eberle**, **Darrell Kelsch**, **Roger Reed**, **Keith Stiefel**, and **Gerald Wolf**, 35 years; **Toni Daede**, **Shawn Deisz**, and **Jerry Ryan**, 30 years; **Mike Davis**, **Mark Ost**, **Ron Roehrich**, and **Mark Thompson**, 25 years; and **Mark Hartwig**, 20 years.

Two board members and 10 employees recently earned a round of applause for reaching service milestones at Southeastern Electric Cooperative, Marion, South Dakota. **John Ostraat** has served on the co-op's board for 25 years, and **Daryl Terveen** joined him at the board table 15 years ago. Staffers marking employment anniversaries were **Dick Luke**, 45 years; **Doug Bartling** and **Bob Schrag**, 40 years; **Caralee Miller**, 25 years; **Jayson Bogenreif** and **Dean Moller**, 20 years; **Jen Weber**, 15 years; **Monica Chase**, 10 years; and **Jayme Juhnke** and **Zach Sorensen**, five years.

REGION 7 GOECKEL MOVES UP

The recent retirement of **Robert Reece** as general manager at Flint Hills Rural Electric Cooperative Association, Council Grove, Kansas, brought a promotion for **Charles Goeckel**, the co-op's assistant manager since 1995. Goeckel graduated from NRECA's **Robert I. Kabat** Management Internship Program in 2014.

Mark Doebele is the new assistant general manager at Lyon-Coffey Electric Cooperative, Burlington, Kansas. An employee of the co-op since 1999, he'll continue to serve as its director of operations in his new post. "Mark's leadership skills and thoughtful decision-making will be of great benefit as he assumes his new role," said **Scott Whittington**, general manager/CEO.

Rural electric veterans across Nebraska mourned the recent passing of **George Cunningham**, who retired as general manager at Butler Public Power District, David City, in 2003.

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Cunningham spent his adult life working his way up from lineman to operations manager to chief executive at public power districts across the state. He was 76.

La Plata Electric Association (LPEA), Durango, Colorado, has announced the addition of one staffer and the promotion of another. **Monica Rodriguez** joined the staff as assistant controller. A CPA, she'll handle finance and accounting support and take over purchasing agent duties following **Larry Redman's** recent retirement after 39 years of service. Rodriguez has worked for the co-op's telecom subsidiary, FastTrack Communications, for the past four years. "This is a wonderful transition to bring her into the LPEA family," said CFO **Dennis Svanes**. **Jeannette Simpson**, a 16-year employee who served most recently as a payroll specialist, was promoted to human resources & payroll specialist. "This is a great opportunity," she said. "I'm enjoying the challenge of learning more about human resources, and I continue to appreciate LPEA's practice of filling positions and promoting from within."



Monica Rodriguez



Jeannette Simpson

REGION 8

BISHOP'S GOODBYE

Nearly two decades of service to PC Electric, New Roads, Louisiana, drew to a close with the recent retirement of **Joanie Bishop** as director of member services & communications. "I have truly enjoyed my 18 and a half years at the co-op and getting to know many of you," Bishop said in announcing her

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retirement to her co-op communications peers nationwide. “PC Electric, as well as so many of you, have been a blessing in my life. And for that, I am most thankful.” Bishop’s assistant, **Jill Copeland**, was promoted to take her place. “She has not only been my right-hand person for many years, but is a good friend,” Bishop wrote. “She will continue as always to do a fantastic job for PC Electric.”

Central Electric Cooperative, Stillwater, Oklahoma, got a lot of attention during a recent Awards Gala staged by the Stillwater Chamber of Commerce. CEO **David Swank** received the chamber’s first-ever Leading Edge Award for innovative and entrepreneurial approaches to business. “This award is much more about the caliber of individuals who are employed at Central than it is about me,” he said. **Gary McCune**, who took office as the chamber board’s new chair, is a 10-year member of the co-op’s board and represents Central Electric on the board of the Oklahoma Association of Electric Cooperatives (statewide), Oklahoma City, where he just finished a term as president. And **Garrett Cundiff**, an apprentice lineman, was honored as a recent graduate of Leadership Stillwater.

Three staffers at Barry Electric Cooperative, Cassville, Missouri, earned a place in the spotlight recently when they celebrated a combined total of nearly a century of service to the co-op. “We at Barry Electric would like to thank **Teresa Harrison, Albert Pendergraft, and Marty Henry** for 30

years of dedicated and excellent service to our cooperative,” the co-op said in a tribute in its local page of the statewide consumer publication, *Rural Missouri*. “You are each an intricate thread in the fabric of Barry Electric.”

REGION 9 HANSON GOES GOLD

Jay Hanson, a board member and past president at Fall River Rural Electric Cooperative, Ashton, Idaho, has earned Director Gold status under NRECA’s director training and certification program. A 12-year member of the co-op’s board who also sits on the board of National Rural Utilities Cooperative Finance Corporation (service), Dulles, Virginia, Hanson spent 33 years as an agricultural Extension agent in Idaho and Wyoming. He’s a former president of the Idaho Association of County Agricultural Agents who served as board president for the Eastern Idaho Agricultural Hall of Fame.

Oregon Trail Electric Cooperative, Baker City, Oregon, welcomed three new employees recently. **Andrew Cutler**, who joined the staff as manager of communications & public relations, comes to the co-op after five years with *The Observer* in La Grande, Oregon, where he was managing editor/publisher. **Matt Haggerty**, the new superintendent of the co-op’s Northern Division based in La Grande,



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previously worked as a supervising foreman for the Grant County Public Utility District, Ephrata, Washington. And **Todd Hendrickson** came aboard as an energy program representative for the co-op's Baker City and La Grande districts. He brings 12 years of experience with a Washington contractor, where his work included energy upgrades for commercial and residential buildings.

Douglas Hardy, general manager/CEO at Central Montana Electric Power Cooperative (G&T), Great Falls, Montana, has been elected president of the board of Mid-West Electric Consumers Association (service), Denver, Colorado. He'll serve a two-year term at the head of the association's board table.

Mark Grotbo, general manager of Ravalli County Electric Cooperative, Corvallis, Montana, has taken a seat at the board table of National Information Solutions Cooperative (NISC, service), Lake St. Louis, Missouri. He represents members of the data and information technology co-op in NISC's District 9.

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REGION 10 LANE PROMOTED

Jeff Lane has moved up to assistant general manager at Trinity Valley Electric Cooperative, Kaufman, Texas, adding that position to his former role of chief communications officer. Lane joined the co-op's engineering department in 1988.

Staffers, board members, and consumers at Nueces Electric Cooperative, Robstown, Texas, were saddened by the recent passing of **Curtis Smith**, a journeyman lineman for the co-op. "He was a great man, a dedicated employee, and one of the happiest, most sincere people you had ever met," the co-op said in an

obituary. "It is a true understatement to say he will be dearly missed by all who knew him."

Board members at Lea County Electric Cooperative, Lovington, New Mexico, appointed **Jason Swann** to join their ranks following **Terry Davis'** recent retirement after 33 years of service as a director. "Terry Davis will be greatly missed," said **John Graham**, board president. Swann's background as a bank senior vice president and agricultural lending director make him a good fit for the board, Graham added. "We as a board are confident that Jason is the right person to continue to serve the best interest of the members."

Benjamin Leyba has retired as executive vice president/general

manager at Northern Rio Arriba Electric Cooperative, Chama, New Mexico, after 16 years in the post. A former middle school teacher and coach, Leyba



Benjamin Leyba

was a member of the co-op's board in 2002 when **Emery Maez** retired from the top staff job, and his fellow trustees recruited him to take the post. A decade and a half later, he said, it's time to spend more quality time with "the five most important people in my life: my wife, my three adult children, and my granddaughter." **RE**

FLASHBACKS

FROM PAGE 9

board minutes McCarty dug up. Two years passed. The city asked Missouri Rural Electric to sign a new contract, for 10 years. But the federal Rural Electrification Administration (REA), the co-op's banker, said that was too long.

On Dec. 5, 1946, the city council passed a resolution giving the co-op six months to find a new power supplier.

"The increasing use of electrical appliances, both in the city and on the farms, has at times strained the Palmyra plant's producing facilities, new records of use being often recorded," reported the *Herald-Whig* of Quincy, Illinois, the biggest newspaper in the area. The story also said the co-op would soon be adding 200 farms to its lines.

Schmit traveled to Washington, D.C., to ask REA for help. Then he tried to negotiate a deal with IOU Union Electric, which had a delivery point in Palmyra.

A short-term solution was found at the eleventh hour: Missouri Rural Electric built a line to Monroe City and used a substation owned by neighboring Ralls County Electric Cooperative to take delivery of another allotment of municipal power.

Meanwhile, Lewis County Rural

Electric Cooperative, another north-east Missouri neighbor, filed a lawsuit to prevent the city of Canton from shutting off its power supply. All three co-ops were faced with interrupting service to their members at peak times.

A stopgap measure, and a desperate one, as McCarty tells it, was to build a line to a nearby military ordnance plant with an idle generator. U.S. Rep. Clarence Cannon had to introduce special legislation in Congress to pave the way.

Missouri Rural Electric reached the point where it was going between \$600 and \$700 in the red each month due the high cost of wholesale power. The problem was "growing more critical day by day," co-op member R.D. Pennewell told the *Rural Electric Missourian*.

Squeezed out by municipal utilities who gave priority to customers within their city limits, and frozen out by IOUs that wanted their business only at inflated prices, the northeastern Missouri co-ops realized that until they controlled their own power-supply destiny, they would continue to be starved for power and see their growth stunted. Their response was to create a generation and transmission

co-op, Northeast Power, which today is part of Associated Electric, the statewide G&T.

Northeast Power received its first loan from REA in 1948 and, over the next few years, built the South River Power Plant on the west bank of the Mississippi River near Palmyra. It comprised a 7,500-kilowatt diesel plant and a 15,000-kW coal plant—enough power for every farm and rural home or business that wanted electricity. The diesel plant was fired up in 1951, the coal plant in 1953.

Northeast Power also built 400 miles of transmission line to deliver power to 26 load centers within the service territories of six distribution systems (the three already mentioned and three more that joined the G&T later). By 1955, those co-ops were serving 23,500 consumers.

At the dedication of the South River Power Plant, Rep. Cannon praised the co-ops for their hard work and foresight and then warned against IOU leaders who wanted to destroy co-ops and double or triple the price rural consumers paid for electricity:

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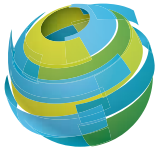
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