LETTER FROM THE CEO

A cooperative manager recently paid NRTC the greatest compliment. Craig Gates leads both an electric and a telephone cooperative — Hill County Electric and Triangle Communications in Montana. He offered advice about deploying broadband networks during a session at NRECA’s TechAdvantage conference in Nashville:

Don’t be stubborn and think you can figure it out. There are lots of people willing to help, myself included, who are willing to answer questions. I don’t want to see anybody fail or go through hardships if they don’t have to. Just don’t believe your vendors. Again, I look at NRTC more as a partner than as a vendor. There are vendors out there who will sell you a bill of goods in a heartbeat and tell you what they want you to buy.

Thankfully, messages along the lines of Craig’s kind words have become more frequent when describing NRTC. In our newest member survey of 2017, a full 85 percent of our members believe NRTC puts member interests ahead of its own interests; three other categories showed sequential improvement as well. And there has never been a time in our 32-year history when members had greater need for a strong, and trusted, technology partner.

NRTC always has stayed on top of technology advances to help rural telephone and electric companies deploy the highest quality services to their members. But the world has changed. In the old world these technologies were quite different: Automated Metering Infrastructure (AMI) and solar power for electrics, cellular, video and ISP support for our telcos. Today, however, the lines have blurred between what is a telco technology and what is an electric technology - the need for high throughput networks and the generation, transmission, storage, and analysis of data is common to both!
The imperative now is to connect communities with technology, and with each other. Rural electric and telephone cooperatives and independent telephone companies are the natural leaders of this movement. You will connect your communities ... and NRTC strives to be connected with you.

The graphic above represents the many technologies a typical NRTC member in 2018 might need. What were once telco technologies or electric utility technologies overlap in so many ways, depending on each situation. We have assembled the equipment, networking systems and expertise to build the high-speed communications networks your communities need to thrive. We’ll be right there with you, from the conception of your project, through construction and project management, and, if you choose, we’ll help you operate it as well.

NRTC is well prepared for the future and I’m encouraged by the enthusiastic reaction our members have expressed at gatherings, like NRTC’s first TechConnect Conference in 2017. And you can expect more interesting additions ahead to the technology list.

Turning to our financial results for 2017, I must report that NRTC, for the first time in 22 years, did not report patronage income for the year. While we were on track for a reasonably good year of approximately $4 million in patronage income, two events took place which severely impacted our expectations.

First, we had to freeze our pension plan as of December 2017, with a resulting cost of $2.4 million, which we fully expensed in 2017. In addition, a long ago written off investment (for book purposes) in a solar panel producer created a $1.5 million patronage (tax) loss in 2017, as the producer closed and liquidated. We certainly do not expect these one-time items to repeat themselves going forward. Despite these items, our Board determined that NRTC remains financially very sound, and elected to retire all remaining 2003 patronage concurrent with the issuance of this annual report. NRTC has only 12 years of patronage outstanding after this retirement.

I hope you enjoy reading this annual report in which we review some of the ways that NRTC has been a good partner, and the ways we plan to help our members connect their communities for years to come.

Sincerely,

Tim Bryan, CEO
2017 NRTC BOARD OF DIRECTORS

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Tim Mergen, Secretary-Treasurer
Jeff Wilson, Chairman
Tim Bryan, CEO
Shannon Clark, Vice Chairman

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Robert (Dale) Short
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Jim Matheson
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LETTER FROM THE CHAIRMAN

In 2017, NRTC set out to do what it does best: become a trusted technology advisor for our members. We entered into new AMI relationships to serve our electric members; we acquired a company and expanded our ISP services for our telco members; and we encouraged partnerships between our electric and telco members to provide critically needed broadband service in rural America. I’m happy to say that NRTC has exceeded its goals.

In his letter, Tim Bryan talked about the imperative to build community connections — the infrastructure that binds people to technology, and the data they create together. Our NRTC members have plenty of vendors to choose from to help them do this. When a member wants to develop advanced networks or other technologies, they face a line of eager salesman queued up at their doorstep.

In fact, NRTC shares much in common with vendors — experience, knowledgeable staff, relationships with technology firms. But when a member works with NRTC, the difference becomes clear. NRTC is not a vendor. We are a partner.

Partnerships are about taking the same risks, working the same problems, and implementing solutions...together.

Of course, our members expect NRTC to seek out, investigate and provide solutions that work for them. But our members also know and expect that, like all cooperatives, NRTC must then cooperate with all other members to share learnings and best practices. This cooperative partnership is what allows NRTC, at the same time, to aggregate technology to provide economies of scale while still recognizing that no two NRTC members are alike.

Tim mentioned that our members continue to give NRTC high marks for member focus and putting member interests first. Like all of us who operate cooperatives around the nation, I’m pleased that NRTC emphasizes, as we do, that members come first. I’m also pleased that NRTC, as a cooperative owned by both telcos and electrics, is ensuring that honest and open communication occurs when potential for any conflict arises.

The dictionary defines trust as “confidence placed in someone or something; a firm belief in the ability or strength of someone or something.” My goal as Chairman of the NRTC Board is simple: I want NRTC to become the trusted technology partner for our members.

Thank you for your patronage of NRTC in 2017.

Jeff Wilson
Chairman, NRTC Board of Directors
Pickwick Electric Cooperative in southwest Tennessee had been deploying fiber for several years to support their electric system.

However, when a new state law passed in May of 2017 permitting electric cooperatives to offer retail broadband services, Pickwick knew they’d have to consider more than just connecting substations.
The 22,000-member cooperative enlisted NRTC and its Pulse subsidiary to conduct a feasibility study for offering broadband throughout their 900-square-mile service territory. The study revealed that almost 1,600 miles of fiber would be needed to get the job done.

“We’re in the infancy stages of deploying the network,” said Keith Johnson, Vice President, Engineering at Pickwick. “There’s quite a learning curve.”

While the cooperative initially looked at a model whereby they’d “do everything,” they also asked NRTC and Pulse for a second model where Pickwick would “provide the path” and a third party would provide ISP services and manage most of the consumer-facing elements.

NRTC and Pulse routinely suggest that partnership arrangements can be a workable solution and offer to help cooperatives model various scenarios to find the best fit for their situation.

With some initial help from NRTC, Pickwick is talking to three telephone cooperatives in their state who have joined forces to help electric cooperatives operate broadband networks to see if a partnership makes sense.

“These co-ops have proven track records — they have the fiber-to-the-home knowledge and experience we lack,” Johnson said. “More importantly, they share our principles and our desire to do right by the members.”

The Tennessee legislation prohibits electrics from over-building telephone cooperatives, which eliminates a source of tension between electrics and telephone cooperatives when discussing partnerships.

But, even in states where there aren’t such protections, pursuing partnerships between electric cooperatives and telephone cooperatives or independent telephone companies makes sense — for all the reasons Pickwick discovered.

Pickwick still has a lot to figure out in terms of their partnership to operate the network and offer services to members, including how the service will be branded. But, they’re excited about the thought of finally bringing broadband to their members and potentially partnering with telephone cooperatives.

“The large telcos are only interested in satisfying shareholders,” Johnson said. “These telephone cooperatives are interested in satisfying members — just like we are.”
The Value Grows from Technology Options

Powder River Energy Corporation (PRECorp) is guided by a long-term strategy — to have a visionary outlook and develop technologies that will serve its cooperative membership well into the future.

For PRECorp, a 12,000-member cooperative serving parts of five counties in northeastern Wyoming and a sliver of Montana, selecting an advanced metering infrastructure (AMI) solution was an opportunity to put that long-term strategy into action.
After an extensive evaluation process, PRECorp’s Board of Directors chose NRTC’s AMI solution for its membership. Last year, NRTC entered into an agreement with Silver Spring Networks to help electric cooperatives build communications networks that are reliable, cost-effective and scalable to meet their current and future needs.

Silver Spring’s high-performance, secure and open standards platform enables reliable two-way AMI and other future smart grid and related applications. The open standards also enable electric co-ops to choose the meter(s) they want to use.

“I wouldn’t say it was any one thing that led us to this choice,” said Rich Halloran, Powder River’s Service Operations Manager, who is the project’s manager. “It was the technology, the speed and the open network. The fact that it’s not proprietary gives us lots of options. The board was very excited about that.”

NRTC helps members evaluate the Silver Spring option by, among other things, designing detailed propagation studies to identify specific build-out costs. NRTC has relationships with major meter manufacturers and can provide pricing information and technical recommendations. Finally, NRTC will manage the build-out and implementation process from start to finish.

“The NRTC team has been great to work with,” said Mike Pommarane, Powder River’s Vice President of System Operations. “They listened to our needs and have been supportive of any decisions we made. Our staff is very engaged, so the ability to choose our meter was very attractive to us. We want to have options.”

Powder River plans to pilot the NRTC/Silver Spring network solution across two circuits served by two different substations before full deployment across their 10,000 miles of distribution served by 57 substations. They’ve already shared their plans with Fergus Electric Cooperative, with whom they share a G&T, in the hopes that there may be some synergies created by using the same network.

Initially, Powder River plans to operate a distribution automation (DA) platform across the NRTC/Silver Spring network. After that, who knows where they’ll go? Part of PRECorp’s strategy is to build in a sophisticated power delivery system that will significantly drive down costs of power over the next several years.

“We’re excited about the possibilities — all the ways to take advantage of the technology and the open environment,” said Mike Easley, Chief Executive Officer at Powder River. “We’ll look at whatever’s out there that can benefit our members.”

Note: Silver Spring Networks was acquired by Itron earlier this year, and the AMI solution is now known as Itron Networked Solutions.
BEK Broadcasting Network: Uniting North Dakota and Its Telephone Providers

From Bismarck to Hankinson and everywhere in between, North Dakotans know one thing for sure: for local sports, turn to BEK Broadcasting Network. Since its launch in 2007, the live, mobile broadcasting service has grown from BEK-exclusive channel to a Roughrider State institution.
“In 2017, [BEK Broadcasting] covered 398 high school and collegiate games,” said BEK Broadcasting Chief Operating Officer Jordan Hassler. “To date, we’ve covered over 1,500 live events—mostly sports—95 percent sports. But I always make the joke that we’d broadcast your kid’s birthday party for the right price.”

Hassler wrote the original business plan for BEK’s local production service while attending the University of Mary in Bismarck and working nights at BEK Communications in Steele.

“I’d go to school from 8 a.m. to 12, and then from 12:45 to 8 p.m., I’d work at BEK,” Hassler said. “I was willing to take some risks.”

Originally, production was confined to a mobile, RV studio, and content was only available to subscribers of BEK’s video service. But as the programming became popular on BEK’s platform, BEK Broadcasting began producing content for neighboring cooperatives and telephone companies.

In total, 15 telephone companies and cooperatives have taken part in the service across North Dakota—some contributing production resources, others simply carrying local content on their systems or maintaining DCN, the North Dakota fiber ring built and owned by the group.

“Changes in technology have allowed us to transition from a 20-foot mobile production truck all the way down to a case the size of a large suitcase [for production],” said Hassler. In many cases, game coverage involves a couple of 3-4 PTZ (pan-tilt-zoom) cameras. They then transmit live coverage over DCN’s fiber network to one of three remote production studios. BEK switches live and distributes games across the state from the studios. Even the on-air voice talent sometimes provides game commentary remotely, depending on the sport.

These remote production techniques resemble the capabilities of major national sports broadcasters, such as the PAC-12 Network, and many regional sports networks.

BEK Broadcasting also distributes its content over-the-air through partnerships with local broadcasters on each side of the state. Through this partnership, BEK’s programming is available to any viewer in North Dakota, with or without a cable subscription.

“Cooperative people are a different kind of people. [We’re always trying] to find ways to grow revenue. But we’re still a co-op, and we hold those co-op values at heart,” Hassler said. “Co-ops take care of the community. And this is one more way to do that.”
The Right Tools for a Critical Job

Many cooperatives in Texas and the southeast region felt the destructive power of hurricanes in 2017. Thousands of rural residents were without power as powerful storms passed through. NRTC was able to assist two Georgia utilities — Excelsior Electric Membership Corp., and Altamaha EMC — in the aftermath of Hurricane Irma in September.
NRTC has developed a technology called WISER, which allows cooperatives to use data from AMI and other utility systems to pinpoint outage points on GIS mapping of the cooperative service areas. Also, using vehicle-locations systems from NRTC partner Clevest, cooperatives can track and organize work crews, both home-based and guest crews, as they work continuously to restore power.

As Hurricane Irma hit Florida and Georgia, Doug Lambert, NRTC’s Director of Technical Solutions, sent emails to co-ops throughout the region and offered to help. First, he embedded himself with the staff at Metter, GA, when Excelsior EMC responded. Then he went to nearby Lyons, GA, to work with Altamaha.

“We wanted to demonstrate how we can make these systems talk to one and other without suddenly throwing an additional learning curve on our co-ops’ dispatchers,” Lambert said. Excelsior and Altamaha dispatchers were able to view real time map images of the storm-affected areas throughout the recovery process.

At the same time, crews in the field had access to the same map views, as the WISER system distributed information to iOS and Android mobile devices.

“Our method, working with Doug, was to have those feeds coming in from the meters, link it to the maps, and you could see outage areas,” said Altamaha EMC’s Phil Proctor. And as the process went on, Lambert and staff at the cooperatives were able to learn and improve the efficiency of the process as the emergency operation progressed. Lambert’s intimate knowledge of the MultiSpeak program language, which is a key component of the WISER system, helped ensure that multiple sources of utility data integrated well.

“It’s a pleasure to spend time with creative, passionate, and resourceful people who have such a concern for their communities,” Lambert said soon after the emergency. Real-time images of cooperative assets and work crews are a useful tool for electric cooperatives at any time. The rapid, easy-to-install nature of WISER made it invaluable during an emergency.
Going Well Beyond Mobile Phone Service

Smithville Telecom offers mobile phone service not just in its home town of Ellettsville, but nearly the entire state of Indiana, with retail stores and an e-commerce portal. It is an operation that has grown steadily over the last 10 years and the company gives NRTC’s Telispire a lot of credit.

Smithville’s portal is "a 24/7 marketing and CSR" tool that "legitimizes the service and helps us compete with the big guys" ... the large national mobile phone carriers, said Ryan Lentz, operations supervisor for the retail outlets. People have come to expect an online resource to pick out a phone and activate the service, and Smithville’s portal does the job as efficiently as any large carrier.

“We have kind of an extended service area,” Lentz said. “For remote customers, it’s kind of hard to serve them over the phone. [E-commerce] helps in those areas.”

The portal includes online smartphone sales — iPhone and Galaxy — and a full line of accessories. The company learned how to build a portal during a Telispire Forum years ago and Telispire helps the company maintain the portal through access to affordable mobile devices, superior back-office systems and, of course, resale of high-quality mobile phone service with nationwide coverage.

“The thing that Telispire does really well is that it works with us on promotions and things that are specialized to help us grow our business,” he said. “There are options to do custom promotions and buying devices directly through Telispire just makes the whole process much easier.”

Lentz said Telispire back-office systems, handling service authorizations and billing, has improved recently. “It’s a lot more user-friendly. It’s pretty simple for new hires with new training modules that walk them through how to do things.”

Those same back-office systems have proven to be an especially useful asset, which NRTC has applied to other businesses outside of Telispire mobile service.

Working with Telispire, in fact, helps Smithfield Telecom manage its entire communications operation. “We’re busy with some fiber projects,” Lentz said. “They take [several mobile service details] off of our plate and let us focus on other things as well.”
Finding and Creating New Technology Combinations

NRTC heartily agrees with its former board chairman, Luis Reyes, CEO of Kit Carson Electric Cooperative in Taos, NM. “At some point, and if not today, relatively quickly, electric communications is going to have to be interconnected. There’s no way you can run today’s modern utility without some kind of communication technology,” he said at the 2018 TechConnect Conference.
Kit Carson EC is deploying a fiber optic network to provide high-speed internet to its rural members. At the same time, it is responding to member interest by investing heavily in solar generation. What Reyes would like to do is get the most value out of his fiber optic capacity by connecting solar facilities, transmission lines and battery storage systems to the network.

"In deploying 35 megawatt arrays for the next five years, we're going to need communication to those arrays so that we can look at [alternative energy system status] in real time," Reyes said.

NRTC is always interested in exploring new technology combinations. SoCore Energy, NRTC’s solar and electric storage system partner, typically uses cellular communications to connect its components, but has experience connecting many different utility communications systems to reach high efficiency.

"A limitation we do have [with wireless links] that perhaps could be resolved by fiber is the cost of cellular for large data loads," said Paul Happy from SoCore’s Performance and Diagnostics section. "Things like live video feeds to sites or continuous high-speed data with our current cell modem plans quickly become prohibitively expensive."

Could fiber connections to alternative energy end points become a routine process for future installations of co-op fiber and solar technologies? NRTC’s Pulse Broadband says it is looking at solar/fiber end points. They could one day be included in its fiber feasibility studies.

With input from innovative leaders like Luis Reyes, NRTC enjoys transforming good ideas into productive realities.
NRCTC has amassed a wide range of technology solutions for rural service providers and our chief mission is to work with our members to assemble them into the most effective combination. When we have a chance to sit down with members to discuss ideas and possibilities, innovative solutions often result.
In 2017, NRTC created a new forum to share innovative technology ideas. On Nov. 14-16, TechConnect in Jekyll Island, GA, brought well-known high-tech executives together with electric and telco managers. It gave all a chance to review NRTC’s many broadband, utility solutions, internet solutions, wireless, and video solutions. Here are just a few of the highlights from the information-packed event:

- Charlie Ergen, Founder and Chairman of Dish Network praised NRTC members as being “well positioned” to meet future demand because they have made investments in broadband infrastructure and are ready to provide a wide array of wired and wireless services.

- Ron Litzinger, then-chairman and president of California’s Edison Electric (recently retired), discussed how several technologies are transforming the way electric companies do business. “The trends we are seeing are declining loads; people want cleaner power; people want choice, and technology has enabled all that,” he said.

- Microsoft VP Paul Garnett detailed Microsoft’s Rural Airband Initiative, a program for partners in rural America to establish fixed wireless broadband services using the former broadcast TV channels known as digital white spaces.

- Rural electrics and telcos had the opportunity to break into groups for in-depth discussion on a variety of topics, including:
  - Broadband technology details, financing and video content;
  - NRTC’s satellite broadband participants looked to future advancements through the Viasat-2 satellite;
  - Internet services and network management;
  - Ideas for ecommerce, new mobile devices and marketing tips for rural wireless businesses, and
  - Advanced analytics for rural electrics.

At the same time, there was time for those attending TechConnect to network with fellow NRTC members in enjoyable, historic settings on the Georgia coast.

Member reaction to TechConnect was so positive NRTC is making plans for another meeting of members to review new technology directions and possibilities, in Austin, TX, in the Spring of 2019.
DISCOVER THE BENEFITS OF MEMBERSHIP

As a member of NRTC, you will join more than 1,500 other rural electric and telephone utilities that have a stake in development of products and services that can help you grow your business, get closer to your customers and build revenue. NRTC proudly serves the advanced technology needs of its members.

MEMBER OWNED AND CONTROLLED

Our Board of Directors is comprised of representatives from the national rural electric and telephone industries, the CEO of the National Rural Electric Cooperative Association (NRECA), the Governor and CEO of the National Rural Utilities Cooperative Finance Corporation (CFC), and the CEO of NTCA, The Rural Broadband Association.

CAPITAL CREDIT RIGHTS

All members and affiliates are eligible for payment of capital credit refunds based on the volume of business each patron conducts with NRTC during the fiscal year.

FOR MORE INFORMATION

To learn more about NRTC membership or our products and services, please contact NRTC at (866) 672-6782.

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