nrtc

Member driven. Technology focused.

2016 ANNUAL REPORT

A Letter From the CEO

We've had an eventful and productive year. In 2016, we declared that NRTC is member driven and technology focused. Then we did everything we could to live up to that standard.

NRTC acquired Pulse Broadband to meet the surging interest in fiber optic technology and broadband communications among our entire membership. Whether working with a rural electric distribution cooperative or a rural telco with extensive fiber and ISP experience, Pulse has the expertise to move fiber coverage deeper into remote, underserved corners of the nation.

Early in 2016, NRTC began its first major collaborative projects with SoCore Energy. Together, we are seeking and completing solar energy projects across the nation.

Also, in 2016, we launched Telispire Extra, which provides funding for telcos to help them finance wireless handsets and drive subscriber growth. We also made plans to enhance NeoNova's scale, leading to the acquisition of NextTech and API Digital, which both closed in 2017.

We negotiated with technology companies to put together an impressive list of demand management tools. Electric cooperatives showed high interest in methods to conserve energy and save money for their customers by reducing demand at peak hours. With an array of smart thermostats, demand response alerts and automated systems, NRTC members have the tools to increase customer satisfaction.

And we continue our ongoing efforts to promote satellite communications, mobile voice and data, smart grid, video programming and many other technologies for our members.

Tim Byran
CEO, NRTC

- Managed Broadband Solutions
- Satellite Broadband
- AMI/SmartGrid
- Workforce Management
- Fixed Wireless
- Video Solutions
- Fiber Broadband
- Wireless Solutions
- Solar

Recently I looked at what I believe is the best visual explanation of what NRTC is all about.

I shared this map at the NRTC Annual Meeting in San Diego. You will see a dot in the locations nationwide where NRTC and its members are working together to promote advanced technologies. When I say that we want to be your technology cooperative, the breadth and scope of interaction with our members you see here brings that home for me. This is NRTC.

It takes a tremendous amount of work to do these many things. I cannot express enough appreciation for the people who do all the work at NRTC, day in and day out, working with you in your communities. In this annual report, we hope to demonstrate how they approach their jobs with the overall goal of serving you. **That approach delivers solid results.**

In 2016, NRTC achieved a record gross margin of just under $30 million and cash net income of $7.3 million. We maintain a strong balance sheet. That is immensely important as we sit down to negotiate with companies like Nest Laboratories, which is owned by Google, or SoCore, which is owned by Edison International.

The year 2017 will be the twenty-third straight of paying patronage to our members and the eleventh straight year that we will retire current patronage.

I'm pleased with NRTC's patronage history and our dedication to the members—that's "Member Driven." I'm proud of the many technologies we've brought to rural America—that's "Technology Focused." Put them together—that's NRTC!

Sincerely,

Tim Bryan | CEO

The NRTC Board

Front Row, Left to Right   Jeff Wilson (Vice Chairman), Tim Bryan (CEO), Gene Dorrel (Chairman), Shannon Clark (Secretary-Treasurer)

Back Row, Left to Right   Randy Houdek, Raymond Henagan, James E. (Jim) Mangum Jr., Robert (Dale) Short, Bob Marshall, Tim Mergen, George Kitchens, Robert L. (Bob) Hance, Bryan Lightfoot, David Pierce

Not Pictured   Shirley Bloomfield, Trevor R. Bonnstetter, Jim Matheson, Sheldon C. Petersen

Gene Dorrel
Chairman,
NRTC Board of Directors

Chairman's Letter

My year as NRTC chairman will be a memorable one. 2016 was the year NRTC changed its look and feel with a logo and website, and a fresh way of presenting itself. That's the change you saw from the outside.

On the inside, from my position on the NRTC board over the years, I've seen the subtler changes that have maintained NRTC's strong financial position and its ability to remain a technology leader for rural America.

Take NRTC's long history in ISP support services. When I first joined the board, NRTC performed these functions in-house—and did them well. But, as scale became more important, we looked for partnerships to help deliver advanced monitoring, cyber security and customer-facing tools. This eventually led to the acquisition of NeoNova. The synergies created by combining these two companies led us to two more acquisitions—NextTech and API Digital—to further expand our services and capabilities. This effort offers valuable technology solutions—and scale—to telco members.

A similar evolution can be seen in NRTC's smart grid technology solutions. Once, NRTC was focused on meters. Today, staff is helping members deploy communi-cations networks, perform higher-level data analytics, harness advanced energy solutions and implement cutting-edge demand management. Even NRTC's decisive entry into fiber support services through its Pulse acquisition is evidence of this evolution. Fiber networks enable advanced grid applications and offer the promise of extending broadband deeper into rural areas, at times in partnership with rural telcos who have been delivering these services for decades.

One way to stay on top of the changes going on in rural America is to maintain close relationships with industry groups that are as close to their membership as NRTC is to its member electric and telephone companies. NRECA, NTCA and CFC are represented on the board and are valued partners in broadband and other projects.

I'm proud to introduce this year's NRTC Annual Report. Please enjoy reading more about NRTC's technology-focused solutions through the talented and dedicated NRTC staff who are driving them.

Sincerely,

Gene Dorrel

Gene Dorrel | Chairman, NRTC Board of Directors

NRTC's Team Continues to Expand, But Remains Focused On— and Driven By—Members' Technology Needs

The definition of team sounds very clinical—a number of persons associated together in work or activity. Nothing too inspiring. **It's the mission that breathes life into the team and gives it focus and a sense of purpose.**

"Member Driven. Technology focused." is NRTC's mission stated in simple, straightforward terms. Since we debuted that tagline in June of 2016, it has provided even sharper focus for NRTC's efforts and has brought our team closer together.

That team now includes more than 400 employees anchored in four headquarters facilities with significant field staff scattered throughout the country to be closer to the members and the communities they serve.

But, whether you're an NRTC project manager in Herndon, VA; a NeoNova customer service agent in Raleigh, NC; a Telispire marketing specialist in Wichita Falls, TX; or a Pulse financial analyst in St. Louis, MO; you know NRTC's priorities and what's expected of you—a commitment to members brought to reality through the development and implementation of technology solutions that benefit them.

We're excited to tell NRTC's story through the talented and dedicated people who write that story with members every day. We've assembled a talented team and continue to add resources based on, and to meet, member needs.

But, the employees tell the story; they are not the story. The story is our members. The work that electric cooperatives, telephone cooperatives and independent telephone companies are doing in their communities makes a real difference in the lives of the members and customers they serve.

NRTC staff is driven by these members and their commitment to community and customer. And, we focus on technology to deliver value to, and support, our members.

NRTC's technology focus is based on members' needs and member input.
- We offer electric utility solutions, including smart grid, smart communications, advanced analytics and advanced energy.
- We deliver broadband solutions, including managed networks services and infrastructure technologies such as fiber and satellite.
- And, we support wireless and video solutions that enable members to meet customers' ever-changing demands.

We're pleased to tell our story in the pages of this annual report.

Helping Members Manage Customers' Evolving Needs

NRTC has a long history of providing subscriber services, network management, and help-desk solutions to its rural broadband service provider members. In 2013, NRTC acquired NeoNova to better serve members through scale and by investing in an expanded set of residential, commercial and enterprise services. Now, NeoNova, with NRTC's financial support, is making a similar move to further enhance its capabilities.

Jason McGinnis
CEO, NeoNova

Building the Smart Grid Network Today, Laying the Foundation for Tomorrow

NRTC recently advanced its metering strategy to focus on smart grid communications networks. Speedy and accurate data transmission meets current co-op needs and facilitates future utility activities, such as demand response, distributed automation, alternative energy systems and others. Chad Dose, Director of AMI Solutions, is one of NRTC's closest contacts with the member during an AMI project.

Chad Dose
Director, AMI Solutions

What Does Managed Network Services actually mean?

A managed network is a communication or service network that is built, operated, secured and/or managed by a third-party service provider. NeoNova was created to provide world-class network, help desk and subscriber services to enable broadband service providers to focus on what they do best—delighting their customers and bridging the digital divide. We empower hundreds of rural broadband providers with leading-edge subscriber services, network management and help-desk solutions.

As demands change and the industry evolves, what has been the biggest thing that NeoNova has had to focus on or develop to continue to provide value to service provider members/customers?

As the industry changes, the needs of our customers have evolved. Subscribers expect more support for the devices they have in the home (laptops, tablets, phones, smart TVs, gaming systems, etc.), and we have developed our support model so it can evolve to meet those needs. We also understand that our customers' networks are growing and getting more complex, so our back office support is continually evolving as well. All of this must be done economically so we can ensure we're providing our customers with the best possible value, in both support and services, for their money.

You recently acquired API Digital. How does that help you continue to provide world-class managed network services to members/customers?

There's no question that scale is important. Rural service providers come to us because the cost to manage these services in-house doesn't pencil out. The more end subscribers we're supporting, the better we can manage costs to our members/customers. Equally important, this acquisition enables us to expand our capabilities and offer more in-depth levels of support, such as tier 2 support, enhanced customer care and more comprehensive monitoring service. It also expands our networking services with the addition of a 24x7x365 full-service NOC.

How have metering solutions evolved over the years?

Over the past 15 years, NRTC has deployed nearly 3.5 million advanced metering infrastructure (AMI) endpoints, using a variety of technologies and solutions. It wasn't too long ago that the goal was to automate meters so cooperatives didn't have to send a staff member into the field to read meters manually. Now, we're looking to extract huge amounts of data on a real-time basis to enhance outage management, analytics and other advanced applications. Ultimately, we see standards-based communications networks being a gateway to the home, empowering a variety of utility and consumer-focused applications, including AMI.

What's NRTC's focus when it comes to supporting members with metering solutions?

First and foremost, it's to stay ahead of technology to make sure our electric cooperative members have access to all the options available and can make the best decisions for themselves and their members. Each cooperative is different, so the solutions that are best for them will vary. Second, it's to help them implement their communications solution and integrate it with their AMI, other infrastructure and systems. Lastly, it's to enable them to maximize their metering investment by harnessing data and looking at applications that complement their metering platform.

What value does NRTC's new AMI partnership bring to members?

We believe that Silver Spring's end-to-end IPv6 platform combines network infrastructure, software and services to enable a range of smart grid applications. Enabling two-way communications with modern electricity meters is fundamental to building the smart grid. You get greater efficiency, more reliable service delivery and improved member satisfaction by empowering customers to monitor and manage energy consumption. By focusing on the network first, NRTC hopes to offer members more options and flexibility to build the grid and pursue applications that best meet their—and their members'—needs.

Home Is Where the Fiber Build Is

NRTC believes the broadband challenge in rural areas is best solved through multiple technologies working together to meet a community's need. Pulse chief operating officer Shawn Sweeney has been deeply involved in supporting members with due diligence and building support for fiber deployments—and he has a unique way to ensure he's "hands-on" at member locations.

Shawn Sweeney
COO, Pulse

Can you describe your role with NRTC members who are looking at or currently deploying fiber?

Originally, I was focused on the feasibility reports—developing the financials and making sure all the elements of the report fit together so the members could make sound decisions. Now, I'm spending my time helping organize the fiber build—making sure the team on the ground has the resources they need to do the job well, managing the budget on behalf of the member, and conducting financial and timeline reviews with the member to make sure they're comfortable.

You have a challenging travel schedule. Can you talk about how you manage that?

I usually visit each of our on-going projects two to three times per year for a week at a time. That helps me successfully oversee the construction, bring the different departments together and work through any issues. Last year, my wife and I purchased an RV. We home-school our five kids, so they're able to join me on many of these trips. So far, we've logged more than 13,000 miles visiting Anamosa, IA; Taos, NM; Kanab, UT; Hulbert, OK and Cassopolis, MI.

What's the most gratifying part of your work with members?

Being a small part of something truly transformational in a community. Our electric and telephone members are deploying fiber because there's a real need and no one else has stepped up to deliver a solution. That dynamic really brings the staff together. It's really fun when I show up expecting a two-person meeting, and they've gathered eight to ten team members to tackle a project.

Demand Management Delivery for Co-ops and Their Members

One of NRTC's goals over the past year has been to build a suite of demand management solutions both at the consumer level, with devices like smart thermostats, and at the co-op level, with automation software ideas. Dick Martin, Director of Demand Management Solutions, switched hats from the sales side so that he could be at the center of this new technology direction.

Dick Martin
Director, Demand Management Solutions

Why do co-ops have interest in demand management?

Most co-op utilities, I'd say 80 percent, have in their wholesale rate a demand charge. Every kilowatt that they reduce lowers that charge and saves money for their members. For example, we're using smart thermostats where a co-op installs the unit and offers members an annual incentive payment to join and stay in the program. The utility controls that thermostat during peak demand times. Most folks don't even notice the temperature change. But the cumulative of thousands of thermostats adjusting at the same time allows co-ops to save quite a bit on their demand charge.

Are there other ways to reduce the demand charge?

Yes, we are working with a company that has a program to manage the distribution voltage on the feeders during peak usage. For every volt that users drop, you might get three-quarters of a kilowatt reduction. The big advantage is that the program links with AMI data. It lets the utility know if its voltage is in danger of going too low on a given feeder. It regulates voltage closely from the substation all the way out to the last customer and does not disrupt the member in any way. That saves utilities thousands…maybe hundreds of thousands of dollars in demand charges. We have other solutions that further reduce demand charges and we're always looking for more.

What's unique about the cooperative approach to demand management?

Co-ops are very focused on managing the electric system in a way that's beneficial to all of their members. That requires us to develop comprehensive solutions rather than piecemeal approaches. That's a fun challenge—and well worth the effort.

A Tool to Help Co-ops Make WISER Decisions

Having worked for electric cooperatives for more than 20 years, Doug Lambert, Director of Technical Solutions, knows the operational challenges they face. Upon joining NRTC, Lambert's goal was to find ways co-ops can use data to better address outages, cybersecurity and weather emergencies. Last year, NRTC introduced Web Services Integration Solution with Enterprise Reporting (WISER) with that goal in mind.

Doug Lambert
Director, Technical Solutions

Telispire Expands to Serve NRTC Members

NRTC's Telispire gives rural mobile voice and data providers a national footprint, back-office services, marketing assistance and much more. Telispire chief operating officer Nicholas Aldi had an eventful 2016 when he added management of Mobi PCS, NRTC's newly acquired mobile phone company in Hawaii, to his regular duties.

Nicholas Aldi
COO, Telispire

Briefly, what is WISER?
WISER is a software tool that looks at data from AMI meters and displays the various events on maps. It automatically sends out alerts of potential outages where necessary. It also provides a secure web portal so that the utility can monitor potential problems in the field. WISER really is a low-cost solution and a way for electric utilities to make the most of their investments in AMI.

Can you give us a real-world situation when a cooperative would use WISER?
During everyday use, AMI data and some customer information from the billing system feeds into the secure web portal and, using the MultiSpeak standard, WISER integrates the data to display events on a computer screen in near real time. If the co-op doesn't have an outage management system, WISER will record outage events. An email alert will go out when an outage occurs. The co-op can access details about the outage from the portal and at the same time generate a map from Google Earth highlighting the locations of all the outage calls received.

We understand that there is a cybersecurity component to the system.
NRTC is contributing WISER capability to a larger system that will detect cyber attacks on the grid much quicker than any other software out there right now. We are working with the U.S. Department of Energy, NRECA and some software companies to develop a system called "REACT." We are designing it especially for rural electric cooperatives. Without the correct tool, a data breach in the grid could go undetected for weeks or months. REACT will give co-ops the chance to seal the breach rapidly.

Can you describe what it has been like to commute between Telispire offices in Texas and Hawaii?
The biggest challenge for me is to better prioritize everything I do, because it is effectively two jobs. When I go to Hawaii to be with the team out there, I don't even change my time zone. I stay on Central time and get up at 2 or 3 a.m. Hawaii time, which is regular hours in Texas. I must stay effective delegating so that I get everything accomplished.

Are there things you learn there that you can apply to your work with NRTC members and other telco customers?
What I've learned in Hawaii at a retail operation is to better understand what our members deal with in terms of their competition. It is brutally competitive out there. You view the competition from a new perspective. The colors through the prism are different. I've gone back and forth, using skill sets that I've learned in both places. You have to create a differentiated product. I've reaffirmed that belief.

What are some of the things Telispire does to help members compete as a mobile voice and data provider?
Telispire provides members all the tools necessary to manage and grow their wireless subscriber business with minimal risk—robust promotions to lower acquisition costs, free financing for devices, access to all of the state-of-the-art devices, on-going training, marketing support and "five-star" customer service support.

When you are working with members, are there any favorite experiences you can describe?
Historically, Telispire has worked with members to beta test ideas and concepts. I always find it rewarding when we're able to test an idea and the success of that idea turns out to be something we can roll out to other members. I can name close relationships with several members where we've done that.

Solar Generation Gains in Economics and Popularity

Rural interest in solar facilities grew in 2016 as NRTC partner SoCore Energy gained national recognition for various construction projects. Brad Seibert, NRTC's vice president, Business Development, has worked closely with SoCore on solar construction over the past two years.

Brad Seibert
VP, Business Development
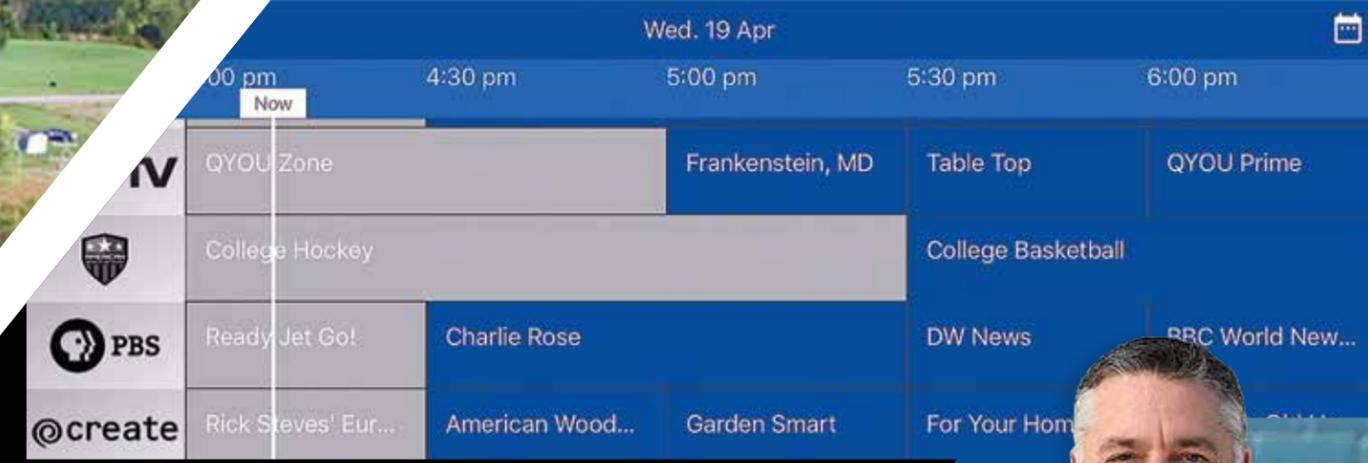
Navigating the Complicated Future of Video

NRTC since its founding has been in the video business. Chris Beatson, chief technology officer at NeoNova, is charged with helping our members navigate an industry that is changing dramatically by developing strategies that keep rural providers competitive in the marketplace.

Chris Beatson
CTO, NeoNova

What is the status of solar technology and of rural cooperatives' interest in it?

I think there has been a fundamental shift in the interest in solar for two reasons. Firstly, the price continues to fall, and secondly, we're now seeing the ability to combine solar with energy storage. When I first started thinking about this, doing my own calculations of whether this made sense for NRTC, I thought solar would start to get interesting at a build cost of $2 a watt and energy storage… batteries…would be interesting for members at $500 a kilowatt hour. Now we are routinely submitting proposals with SoCore with prices for solar as low as $1 a watt and, on the battery side, prices are starting to fall below $500 a kilowatt hour.

Other than the rapidly improving economics, what else draws co-ops to solar?

I think a great driver is cooperatives hearing from their members that they want solar and will go out and do it with or without the co-op. I think there also has been a general acceptance that diversifying the generation technologies is probably better over the long term, and our cooperatives need to be their members' trusted energy advisors.

Do you have a favorite or exceptional experience working with members on solar?

Dairyland Power Cooperative of Wisconsin [launched in early 2016] has been a fantastic project. Dairyland is getting their multi-mega-watt sites distributed through their member service areas; [Distribution co-op] members are getting solar energy at volume prices that they wouldn't be able to achieve on their own, and consumers are able to get solar through their co-ops. It's providing tremendous value to multiple segments. I believe it will be the model for other similar projects.

Could you describe NeoNova's current video solutions?

We have developed ViewLocal, which allows telcos to put local channels on their network through various devices, including Roku, iOS, Android phones, computers and so forth. It's a way for them to offer a compelling video product without having to go out and install a traditional set-top box in the customer's home. We also have a partnership with Sling TV, where our members can participate in a referral program that allows their customers to choose the bundles that they want.

Why are NeoNova clients and NRTC members interested in these managed-broadband video strategies?

Primarily it's market driven. Customers want options. They're getting fed up with paying for 75 to 100 channels, of which maybe they actually watch 10. ViewLocal and Sling are ways to placate those folks that want to save money. But these offerings are also another way to reach other customers that may be outside of a member's primary video service area.

What do you think is the future of the video industry?

Gradually, it's starting to turn into the idea of paying for only what you want. Selecting only the channels that you want. I do think, however, that broadcast TV is going to stay around for a while—that's what people want to watch, and that puts our members in a unique position to offer those channels to locals. Other virtual MVPDs would have difficulty acquiring the retransmission agreements. There are 210 DMAs around the country, and our guys are already there and have done those agreements—in parallel or complementing Sling TV. That's where they're headed—getting out of traditional television with expensive middleware, headends, complicated lineups, installations—toward a more a la carte future.

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 telecommunications 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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