RE Magazine Special Insert

# GO/NO-GO

## IS RETAIL BROADBAND RIGHT FOR YOUR CO-OP?

A comprehensive look at key considerations when deciding on a high-speed internet project



Inside

Business Models Dark Fiber Middle Mile Federal Money VolP and more

## The FCC is investing more than \$20 BILLION in rural broadband

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## **OUR PROCESS IS PROVEN**

In 2018, the FCC awarded **more than \$186 million** in broadband funding to a consortium of electric cooperatives to build out gigabit- capable networks. It was the **largest and most successful** bidding consortium in FCC history- one assembled, designed and led by Conexon.

Contact us to find out how much funding will be available in your service territory.

### **Cooperative Funding Success Story**

East Central Oklahoma Electric Cooperative (ECOEC) was one of the members of the Rural Electric Cooperative Consortium, which bid in last year's Connect America Fund II auction. Conexon prepared a full business plan for ECOEC, projected that the co-op's fiber business would break even in its eighth year, and calculated the potential impact of the CAF II auction. The board elected to make a decision on the fiber project after the auction. Conexon qualified ECOEC to bid, designed the bidding strategy, and placed all the bids in the auction, which secured over \$22 million for ECOEC. That funding improved the co-op's fiber project breakeven point from the eighth year to the first year, and the board voted to move forward to build fiber-to-the-home to 100% of its members. The project is on schedule, under budget and will be profitable in its first year of operations.

"Conexon knows how the auction works, which meant we didn't have to learn all of the aspects. All the legal and advisory services were part of the process with Conexon. It was nice not having to worry about the mechanics of the auction, Jonathan Chambers and the team knew how it works, so there was no learning curve. Had we done it by ourselves, I'm not sure we could have gotten our paperwork ready and participated, given our late start.

As a result of having a feasibility study both pre-auction and post-auction, it was made clear to us that the win will allow us to cash flow in one year. We will not be subsidizing on the electric side."

Tim Smith, General Manager CAF II Award: \$22.2 M





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FCC Chairman Ajit Pai visits East Central Electric in Okmulgee, OK

### WELCOME TO THE RE MAGAZINE SPECIAL BROADBAND INSERT

Electric cooperative broadband is an ever-present topic lately. Not only are co-ops building it or studying it; over the past few years, government agencies, politicians, community leaders, and the media have increasingly recognized the potential of co-op-provided broadband to bridge the digital divide.

It's a testament to the strong community focus and problem-solving that have defined co-ops since the beginning.

But is retail broadband right for your cooperative?

It's a question that any co-op leaders with unserved or underserved members are likely pondering.

In this special broadband insert, our focus is presenting the key considerations for making a go/no-go decision on broadband. Each article and graphic is aimed at helping you strategically assess the many issues at play. Links and referrals will guide you to more in-depth information online.

As my colleague Brian O'Hara says in our lead article, "The [broadband] equation is far from straightforward." I hope you find this content both informative and useful.

Senior Vice President-Communications NRECA

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**Federal Money.** All A list of federal programs offering loan and grant money for rural broadband.



# GO Making the right decision on broadband for your co-op By Cathy Cash

**NO-GO** 

Less than 25 miles separate them, but two small rural electric cooperatives in Southeast Virginia are a world apart when it comes to internet access and all the opportunities it brings.

Electric cooperatives across the country have taken up the cause of rural broadband, finding ways to provide high-speed, reliable access to their communities when no other provider would. Dozens have already begun build-outs. Hundreds more are considering it.

But for all the value co-op broadband brings, making the "go/no-go" call can be complicated. Essential factors like calculating total cost, state laws and regulations, financing options, geography, available technology, member interest, pricing, and actual take rate can quickly muddy what might at first seem like a simple business decision.

"The equation is far from straightforward," says Brian O'Hara, NRECA's senior director of regulatory issues for telecom and broadband. "A co-op has to meticulously look at all the factors individually and in relation to their own unique situation."

What follows are the stories of two Virginia co-ops that took divergent paths on providing retail internet access.

#### PRINCE GEORGE ELECTRIC COOPERATIVE: 'THEY ASKED FOR THIS'

It began with a goal and a partnership. And a lot of money.

Prince George Electric Cooperative (PGEC) wanted to deliver broadband internet access through fiberoptic cable to every member in its Southeast Virginia service territory.

Leaders in Prince George County believed in the co-op's vision and, in 2017, provided \$1 million for a pilot program to connect 500 members by 2021.

PGEC got the job done two years ahead of schedule.

More government partnerships emerged with more grant money, and the co-op solidified its decision to step into broadband. Now its subsidiary, RURALBAND, is well on its way to delivering the highest internet speed available to its rural members.

"We are building a fiber network like we did electricity 80 years ago: Start in a core location and build out to central points to serve everybody," says Casey Logan, president and CEO of the 12,000-meter co-op based in Waverly, Virginia.

"As more members came on, we

were able to take electricity farther and farther out to rural areas to have everybody served in 1950s. With broadband, we're going to do it in four to five years versus 20."

Logan, the co-op's chief engineer during the pilot, recalls how PGEC helped spotlight the need for rural broadband at a 2018 gathering of 200 state legislators, members of the governor's cabinet, and state agency officials.

In the Prince George Central Wellness Center—an early recipient of the co-op's broadband service— PGEC livestreamed Ted Raspillar, president of John Tyler Community College, 20 miles away, as he spoke on the importance of broadband to rural America.

Raspillar talked about "the opportunity to bring education to rural America, to bring certification training to firehouses and in public buildings, and how that would allow students to acquire degrees much closer to home," Logan says. "That seemed to spur a lot of energy on how electric cooperatives could meet the needs of our communities, where no other solution has been provided."

After the meeting, more funding followed, and PGEC prepared to expand fiber-to-the-home service across its electric service territory.

Sussex County and the Virginia Tobacco Region Revitalization Commission gave RURALBAND a \$1.2-million grant in 2018 to connect 500 homes. This year, Surry County offered \$1 million over two years to hook up 500 homes by 2020.

PGEC also won \$15.4 million from the Connect America Fund II (CAF), a Federal Communications Commission (FCC) program that incentivizes broadband providers to serve specific rural areas. The 2018 CAF auction was the first time the FCC opened the fund to electric co-ops, and 32 co-ops won 35 bids, securing more than \$250 million over 10 years.

"We were one of the fortunate winners in Virginia as far as the

CAF auction goes," Logan says. "We are very excited about this project and look forward to serving the community and our members."

The co-op's foray into broadband began with a fiber-optic backbone network for communications among its substations. RURALBAND leases unused bandwidth, or dark fiber, from this loop and connects it to a "middle mile" built by a state and private consortium that links to the internet through a data center in Ashland, Virginia.

RURALBAND plans to deliver broadband to all PGEC members even though the co-op averages between four and eight meters per mile.

"It's the electric co-ops being put in a situation to create opportunities for rural America, just like the Rural Electrification Act" of 1936, Logan says. "Eighty percent of our members have no high-speed option available to them. Our members need this. They asked for this. Our response as the electric co-op in their community is to give it to them."

#### COMMUNITY ELECTRIC CO-OP: OVERWHELMING COSTS

F or Community Electric Cooperative (CEC), the decision to forego providing broadband came down to dollars and cents.

The estimated cost of deploying high-speed internet access to unserved members was too high to justify CEC's investment, says Jonathan Thompson, chief operations officer at the 11,000-meter co-op, tucked in bustling Tidewater, Virginia.

"We operate in a somewhat conservative mindset when it comes to utilizing members' money," Thompson says. "When we plugged the [operations and maintenance] costs in, it was too much to recover considering the volume. That ultimately set us on the track of not doing it." The co-op serves the suburbs of the state's largest urban centers: Virginia Beach, Norfolk, and Hampton Roads to its east and Richmond, the state capital, to its north. Many sprawling new neighborhoods there get their broadband from national, for-profit providers. Only the most rural or remote members lack an internet connection.

But when Isle of Wight County inquired if the co-op could bring broadband to its unserved residents, CEC put pencil to paper and began a feasibility study.

The co-op had been eyeing the progress of other electric cooperatives deploying broadband. It considered a hybrid model that would run fiber across its overhead electric system, build fiber to the curb and then shoot wireless "last mile" connections for residential areas in its service territory.

The price tag for Isle of Wight broadband came in at \$11.2 million, and a "rough extrapolation" for CEC's entire service territory reached \$35 million to \$40 million, Thompson says.

"We would have had to build out five to 10 miles to get to the first customer," he says. "That was going to cost quite a bit."

And those costs skyrocketed when factoring the region's low density.

CEC determined that 18 percent of the county's population was without internet access. It then applied the national average take rate for broadband of 29 percent.

"We had 900 people we felt confident would pay for the service," Thompson says.

Even if the co-op picked up more subscribers along the way, the take rate would remain below 2,000, he says. At that level, subscribers would have to pay \$250 per month for "the bare bones cost of service" and getting the equipment up and running.

"From a business standpoint, the return on that was going to be very thin," he says. "At \$250, there is no way the take rate would be 29%. It would be a lot lower."

The wireless equipment the co-op was considering would have met the FCC's minimum requirements for broadband—25 megabits per second (Mbps) to download data and 3 Mbps to upload. But running 100 percent fiber would have been prohibitive.

"We don't have a clean connection in our service territory to connect our substations" with fiber, Thompson says. "The cost to get through our connection points would be very expensive."

Further, Thompson explains, CEC's "chopped-up" service territory would complicate a broadband build-out and add costs for negotiating access to customers of an investor-owned utility and a municipality in the area.

"We would have to cut joint-use agreements [with the other utilities] and pay joint-use costs to go across their territories and get to their customers who fell into the unserved areas," he says.

The co-op's research also found that building a fiber network from its facilities to members' homes would consume about 10 percent of CEC's capital costs.

The co-op's board was "in total agreement that we couldn't risk that volume of money with such a high retail rate number and for such a low rate of return," Thompson says.

For now, CEC is keeping an open mind for delivering rural broadband. If prices fall on technology and equipment to get the job done at less cost, the co-op would reconsider taking on the task, Thompson says.

In addition, CEC would "happily partner with anyone willing to own the risk," such as neighboring co-ops or incumbent providers.

"We are shutting the door for now, but if anything changes with the calculations, we definitely will be interested in exploring it again," he says. "But until we see a drastic change, we are done."

# ELECTRIC CO-OP BROADBAND BUSINESS MODELS

## By Cathy Cash

Electric cooperatives entering the retail broadband space have experimented with business model options, which vary according to state law and local circumstances:

#### Wholly owned, for-profit subsidiary

- Electric co-op owns the fiber assets and network and leases them to a subsidiary, or a subsidiary owns the fiber and leases access to the parent co-op to support electric operations.
- Subsidiary operates the fiber network and delivers communication services to members.
- Subsidiary collects payment from broadband service subscribers.
- Net profits from broadband service are allocated to electric co-op members as capital credits.
- Subsidiary has its own manager, engineers, and other staff, including customer service professionals. Some staff may be shared with the parent company, requiring the proportional allocation of cost.
- Depending on state law, firewalls may be required to prevent anti-competitive activities.

#### Not-for-profit subsidiary

- Co-op owns the broadband network, assets, and other infrastructure or the fiber is owned by the subsidiary, which leases access back to the co-op to support electric operations.
- Staff hired to deliver broadband services are employees of the electric cooperative.
- Subsidiary generally begins operations with a focus on serving customers within the co-op's service territory.

#### **Operating division of the cooperative**

- Co-op owns the broadband network, assets, and other infrastructure.
- Some co-op employees' duties span both electric and broadband businesses.
- Electric and broadband divisions generally require separate accounting records.
- Marketing the broadband business to co-op

members may be simplified, given the established relationship between co-op and members.

• Broadband take rate may be higher based on members' established relationship with the co-op.

# Acquire or partner with an existing internet service provider (ISP)

- Electric co-op acquires a local ISP. Partnerships take several forms, including entering a managed services agreement, fiber/asset swap, one entity handling customer service, or creation of a new entity as a joint venture.
- May quickly expand broadband build.
- ISP brings internet network assets, expertise, and services, such as fiber, circuits, data center colocation, VoIP, design, and implementation.
- May reduce risk of co-op entering broadband business.
- May facilitate gaining non-member broadband subscribers.

# **Certified competitive local exchange carrier (CLEC)**

- Electric co-op spins off a CLEC that will deliver broadband to its territory and beyond.
- The CLEC may be regulated by the state and Federal Communications Commission (FCC).
- The CLEC may be designated as an eligible telecommunications carrier and qualify to seek financial support from the FCC and certain universal service funds.

Some state laws prohibit cross-subsidization between entities or lines of business. For all business models, cross-subsidization should be avoided. NRECA recommends that co-ops work with their attorneys and tax professionals to determine the business model that works best for their systems.

For more information on electric co-ops in broadband, see NRECA Broadband: Co-op Case Studies at cooperative.com/programs-services/bts/Pages/Broadband-Co-op-Case-Studies.aspx.

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# Broadband Decision Milestones

Many elements go into a co-op's decision on whether to provide broadband to its members. Below are examples of significant due diligence milestones.



## 1. Initial research -

- Senior leadership launches research on technology options, potential community partners, business model, etc.
- Discuss findings.
- Senior leadership and board make a decision to move to the next step or halt the process based on the findings.



#### 2. Survey members and other stakeholders on whether they want broadband access

• Hold public discussions with members and community leaders on the topic at annual meetings and other venues.



# 3. Legislative and regulatory assessment

- What do state laws and regulations say about co-ops providing broadband? Do co-ops have the authority? Is a separate entity required?
- If state law needs to be changed to allow co-ops to pursue broadband, when could that occur?
- Do easements need to be updated, renegotiated, or overhauled to allow the hanging of fiber or allow the use of excess capacity for broadband purposes?
- Do any co-op governance issues stand in the way or need to be addressed? A co-op might have to change its articles or bylaws to conform with state laws.



# 4. Feasibility study that will inform the board's decision by providing information in key areas

- Project cost.
- Schedule to complete total build or each phase.
- What is the expected number of initial subscribers? What is the critical mass needed to cover the cost of providing broadband?
- Are there other broadband service providers in the area? If so, what are they offering in terms of speed, technology, and pricing?
- Which federal or state grants or loans are available for broadband?

## 5. Determine the appropriate business model

- The co-op should decide how it will build its broadband business from various models, as permitted by state law. Some options are:
  - Spinoff subsidiary to build the network.
  - LLC.
  - Partnership arrangement with a telco, another electric co-op, or other business partner.
  - All within the co-op.
  - Co-op deploys fiber and leases to subsidiary to do fiber-to-the-home or wireless.



# 6. Board of directors vote on whether the co-op should pursue broadband

- After initial approval, more decisions are necessary:
  - Conduct another feasibility study on the business model, structure, and cost updates.
  - Determine network design.
  - Select vendors for voice and video.
  - Select contractors for hanging line and building the network.
  - Hire additional staff for a subsidiary or in-house broadband business.
- The board might need to consider other issues after ground is broken:
  - Phases of construction, allocation of funds for fiber and equipment.
  - Decisions to ensure the co-op is not overleveraged with broadband.
  - Network design changes or updates to the build-out plan based on the first phase of deployment.



hen Sho-Me Power Electric Cooperative began building an ambitious fiber-optic backbone in the early days of the internet, becoming a "middle-miler" wasn't necessarily part of the plan.

But once the Marshfield, Missouri-based G&T finished connecting its 150 substations and nine member co-ops in 1996, the co-op's leadership began seeing an interesting trend: A high-speed communications network provides enormous value to a rural area.

"People have to be connected outside their service area for internet or phone service," says Mark Keeling, Sho-Me Power's chief technology officer. "That's where the middle-mile guy comes into play."

A middle-mile provider is a critical part of the internet equation, linking internet service providers that serve homes and businesses with the hubs that allow access to the web. In rural regions, middle-mile connections between end users and a data hub can cover hundreds of miles.

More and more, G&Ts with fiber backbones are making those connections.

In 1997, Sho-Me Power launched Sho-Me Technologies, a for-profit subsidiary to build and operate its fiber assets. Today, the company manages 8,000 miles of line that connects co-ops as well as telecom companies, hospitals, banks, courthouses, schools, and large industrial clients that pay leasing fees to access the co-op's network and reach data hubs in St. Louis and Kansas City.

Wabash Valley Power Alliance (WVPA), the Indianapolisbased G&T, took a different middle-mile tack.

When it decided to improve communications with its member distribution co-ops in 2016, it contracted with Intelligent Fiber Network (IFN), an established middlemile provider. IFN built a private network for the G&T and its member co-ops in Indiana, Illinois, and Missouri.

In April, WVPA became a part owner of IFN, a move that will decrease costs for the G&T and its members as the company monetizes the co-ops' available fiber. Of the 23 co-ops WVPA serves, half have an internal fiber communications system and half of those are developing fiber-to-the-home.

"It's all about the opportunity," says Gregory E. Wagoner, WVPA executive vice president. "As a G&T, we are not going to get into the broadband business; we're not going to take fiber to the home. As a G&T, we hang fiber on facilities. IFN can help maximize that facility for us and our distribution co-ops. We found a real benefit from middle-mile."



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#### Dark fiber.

It's an ominous-sounding concept with a potential bright side.

When utilities build a fiber backbone to enable high-speed communications on their system, there is often excess capacity in the network. These unused, or "unlit," fibers may offer a valuable business opportunity to the network owner.

> "In certain parts of the country, particularly rural areas, companies that need access to a high-speed connection would much rather pay to lease space on your

network than build their own infrastructure," says Russell Tucker, NRECA's chief economist. "Leasing dark fiber is a way to possibly defray costs for a fiber-tothe-home buildout."

Such arrangements can be made with communications companies looking to extend their networks or build in redundancies or with small companies and universities who want to create a private fiber network.

Fiber backbone owners can command upwards of

\$200 per mile per strand, according to industry experts. Leasing agreements generally have a flat rate and a 20-year term.

Blue Ridge Energy has been in the dark fiber business since 2001, when AT&T Wireless (then Cingular) paid to have the co-op build fiber to a cellular system in its mountainous North Carolina territory.

"Being in the mountains, it's a very difficult area to build in, very expensive," says Brad Shields, COO of the co-op's RidgeLink business. "We have the expertise to build because we have been here so long."

In 2009, the Lenoir-based co-op launched RidgeLink LLC, a for-profit entity to meet increasing dark fiber requests from large telecom carriers. Today it owns roughly 450 miles of fiber-optic line-totaling about 110,000 strand-miles-through northwest North Carolina and northeast Tennessee, inside and outside of the co-op's service territory.

"Big carriers have eastern routes that roll along the coast," Shields says. "We help those companies connect western routes away from hurricanes and storms."

> Dark fiber for lease/ future use

Net income from RidgeLink flows back to the co-op as non-operating income. "Our members are not paying for this subsidiary to exist," Shields says. În remote

Fiber used by co-op

## **VoIP: WHAT TO CONSIDER**

#### **By Cathy Cash**

Electric cooperatives that pursue funding from the Federal Communications Commission (FCC) to build retail high-speed internet access are required to also provide telephone service for their territory through the broadband network-known as Voice over Internet Protocol, or VoIP.

Experts caution that entering the voice service business requires a great deal of planning and analysis. There are regulations to consider as well as equipment and systems interoperability and operating procedures to accommodate.

But if done right, it can be a profitable venture, says Terie Hannay, senior vice president of planning and integration at NRTC, the National Rural Telecommunications Cooperative.

"It can be a high-margin product that does not require

significant capital to launch," Hannay says. "But it does require regulatory and operational support."

Here are some key steps for electric co-ops to consider in planning for VoIP:

- 1. Conduct an analysis on federal and state regulations
- Although federal telecommunication regulations may be constant, state regulations may vary and change.
- Be clear on state oversight requirements, such as 911 call routing, universal service fund fees, and customer service standards.
- Learn what filings with federal and state agencies are required.

#### 2. Determine a business model

- Partnership with a neighboring telephone cooperative or company.
- Pay to brand (or white-label) a third party's VoIP

## Leveraging unused broadband capacity By Cathy Cash

Northeast Iowa, Allamakee-Clayton Electric Cooperative has formed a successful dark fiber partnership with a local telephone company.

The co-op is leasing 9 miles of fiber from Hawkeye Telephone Co. to serve remote broadband subscribers and build redundancy into its network. In turn, the phone company leases nearly 22 miles of unused capacity on the co-op's system to provide an additional path for low-cost bandwidth and add redundancy to its own network.

"Both of us defer construction and duplication of services," says Dan Stelpflug, director of operations, engineering and technology at the Postville-based co-op. "We work together to utilize each other's assets to eliminate capital costs."

Anza Electric Cooperative in California says it will finish its fiber-to-the-home project next year and sees its unused backbone capacity as a business opportunity.

"We still have additional strands of fiber from strategic points that could be utilized," says Kevin Short, general manager of the small co-op based in Anza.

The co-op built about 40 miles of dark fiber into its original communications network. Short says potential lessees include cellular services, an internet service provider, and a large industrial park.

"If someone is looking for a shortcut from one population center to another, that's what we are offering," he says. "We are always going to have substations and field equipment connected along with the members and their internet subscriptions. The dark fiber multiplies the value stream."

### FEDERAL BROADBAND MONEY

#### **FEDERAL COMMUNICATIONS COMMISSION** Rural Digital Opportunity Fund—part of the federal Universal Service Fund

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#### How to apply:

FCC is seeking comments on rules governing the program. The reverse auction is expected in 2020.

#### U.S. DEPARTMENT OF AGRICULTURE: RECONNECT

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#### How to apply:

Visit usda.gov/reconnect. USDA is evaluating applications for the first funding wave. The 2020 funding application period has not been set.

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#### How to apply:

Visit rd.usda.gov/files/fact-sheet/RD-FactSheet-RUS-CommunityConnect.pdf. The deadline for 2020 has not been set.

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#### 3. Negotiate the terms and contract

- Fully understand your costs and the division of responsibility when partnering or white-labeling a service. Be clear on who is responsible and at what cost for connectivity to the rate center, which is the local calling area mapped by the telephone company or the incumbent local exchange carrier.
- Consider that 90% of customers want to keep their current phone number and ensure that is part of the agreement in launching VoIP.

#### 4. Implementation

- Draft business processes and procedures to serve VoIP customers.
- Determine services, pricing, packages/bundles, installation and maintenance rules, and operations for

workflow and documentation.

- Work in state and local taxes and required regulatory fees for service such as 911, federal Universal Service Fund fees, etc.
- Develop marketing plans for services.
- Have a plan to advertise and provide Lifeline, reduced phone and internet for qualifying customers, as required by FCC.

#### 5. Testing, training, launch

- Test business and operational support systems.
- Prepare launch support for integration of business and operation systems.
- Train all employees on telecom, VoIP, services, billing, and new workflow.

*For more information on VoIP, contact Terie Hannay at NRTC, 386-218-5366 or thannay@nrtc.coop.* 

# BROADBAND GLOSSARY

#### bandwidth

the maximum data transfer rate of a network or internet connection that determines how much data can flow through your broadband connection. Often referred to as "the width of the information pipe."

#### broadband

high-speed internet access measured in megabits per second for downloading and uploading information. The federal benchmark for broadband is at least 25 Mbps download and 3 Mbps upload. State law may also benchmark broadband.

#### broadband backbone

a high-bandwidth, low-latency data connection composed of fiber-optics and/or wireless technology that connects to critical utility infrastructure forming a communications network.

#### **Connect America Fund II Reverse Auction (CAF II)**

the Federal Communications Commission's reverse auction of money to help make the business case for deployment of broadband or high-speed internet to unserved rural census blocks. FCC opened CAF II in 2018 to electric cooperatives for the first time.

#### dark fiber

strands of glass fiber within a fiber-optic cable that are not "lit" or equipped to transmit data. Dark fiber unused by a co-op can be leased to internet providers, telecom carriers, or other companies seeking fiber for communications. State law and the language of the underlying easement should be reviewed prior to leasing unused fiber.

#### data center

a facility for housing computers, telecommunications, information, and storage systems with links to the internet.

#### fiber backhaul system

intermediate communications links between a broadband backbone and a remote site or network.

#### fiber-optics or fiber-optic cable

high-performance, high-speed communications network cable encasing strands of glass about the width of a human hair that transmit data long-distance through pulses of light.

#### FTTH or FTTP

fiber-to-the-home; fiber-to-the-premises.

#### internet

the global network of interconnected computers that provide users communications, data and information in a standardized format.

#### last-mile

final broadband connection that provides highspeed internet service from an internet provider to the end-user's home or business.

#### latency

amount of time to deliver data between the internet and a device – laptop, smart phone, or computer.

#### middle-mile

midway broadband connection between a data hub or center and an internet service provider's network.

#### **Rural Digital Opportunities Fund (RDOF)**

the latest version of the FCC's CAF. Rules are pending for the auction, expected to occur in 2020.

#### take-rate

the percentage of broadband internet service subscribers for a certain broadband route or network.

#### VoIP

Voice over Internet Protocol – means by which internet service providers offer voice telephone service through fiber-optics. We are a licensed utility contractor serving coast to coast, specializing in the safe construction of large rural fiber optic networks. We use highly-qualified electrical workers to install ADSS in the energized space. We are...

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types of capital-intensive investments without a strong partner like CoBank. They've been with us from day one and it's enabled us to make critical improvements to the co-op and for the communities and members we serve."

- TODD TOWNSEND

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