Calix

10½ Truths About Broadband Projects for Electric Cooperatives

How Electric Cooperatives Can Unlock the Next Broadband Frontier

TABLE OF CONTENTS

BUILDING ON A LEGACY OF CONNECTING COMMUNITIES

85 years ago, electric cooperatives brought electricity to their rural communities. No one else was able to play such a pivotal role in bringing vital services to their regions. Now they are delivering another essential service to their membership: broadband. To date, more than 250 electric co-ops are deploying or planning to deliver broadband services. Unprecedented levels of federal and state funding totaling billions of dollars are helping electric co-ops transform their communities and bridge the digital divide.

Becoming a broadband service provider (BSP) is a natural evolution of cooperative values. The success of electric co-ops in bringing electricity to rural America makes them well-suited to deliver broadband services to their members. Access to broadband can boost local economies, improve quality of life, and help members take advantage of new opportunities in the digital age.

However, starting a new broadband business is a big undertaking. The right knowledge, support, and partnerships are critical to setting you on the path to success. This eBook will help you understand the nature of broadband projects and how they can deliver value to your communities for generations to come.

MORE THAN 250
electric co-ops are deploying broadband services

BILLIONS
in funding are available to bridge
THE DIGITAL DIVIDE

THE TRUTHS—AND NOTHING BUT THE TRUTHS—ABOUT BROADBAND

Connecting a community with broadband may seem like a straightforward goal, but it can be complex to accomplish. There is a lot to consider—from assessing your community's needs and funding your broadband build to choosing future-proof technology, meeting regulations, and marketing your services. It's important to have the facts at your fingertips so that you can weigh your options and make strategic decisions that will leave a legacy for your community.

Let's explore 10½ truths about broadband projects that will help to demystify the challenges of broadband deployment.

BROADBAND IS A NECESSITY— NOT A LUXURY

The reality of modern life makes high-speed internet an essential service. Broadband infrastructure opens critical doors to education, employment, healthcare, commerce, and socialization. It can no longer be considered a luxury. Without it, communities will fail to thrive.

This is particularly true in rural areas, which often lack the same amenities and opportunities as their urban counterparts. Reliable broadband can help communities overcome economic, education, health, and social disparities. Often, it is a lifeline to essential services such as telemedicine and remote learning. It is also key to enabling full participation in the digital economy.

ECONOMIC DEVELOPMENT
Small businesses can expand their customer base beyond the local area, and farmers can access online markets to sell their products. Broadband also attracts new businesses and industries to rural areas and is the foundation of today's work-from-anywhere culture, creating new jobs and stimulating economic growth.

EDUCATION
Students can access online learning materials and other educational resources that may only be available to students in urban areas. They can also take courses from remote locations, which can level the educational playing field between rural and urban areas. Additionally, no children are stuck at the McDonald's off the highway—the only place before where they might access a reliable Wi-Fi network. By bringing robust connectivity to homes and schools, students can complete their homework wherever they need to.

TELEMEDICINE
Telemedicine makes it possible for rural residents to take advantage of world-class healthcare services typically available only in major metropolitan areas. Patients can get access to medical specialists who may not be available locally, and it can reduce the need for long-distance travel to receive care. For some patients, at-home monitoring lets them recover and heal in the comfort of their own home. Without broadband to make this a reality, many patients would be otherwise stuck with an expensive hospital stay.

SOCIAL AND CIVIC ENGAGEMENT
Residents may be isolated from one another in rural areas. High-speed internet empowers them to connect with friends and family, participate in online communities, access online government services, and engage with local and national politics.

PUBLIC SAFETY
First responders can communicate more quickly and effectively in emergency situations over a broadband network. It can also provide access to remote monitoring and surveillance systems.

TRUTH #2

YOUR SERVING AREA ISN'T TOO <u>SMALL</u>

You might think your serving area is too small, but size doesn't matter when your membership lacks broadband to access even the most basic online services. On the other hand, you may think you don't have enough density in your large serving area. It's important for electric co-ops to confirm how many members they have per mile before discounting the viability of their broadband project. Either way—everybody benefits from broadband—and the future of your community depends on it.

United Fiber is a great example. A decade ago, the subsidiary of United Electric Cooperative entered the fiber broadband business as a vehicle for change in its communities. Despite having a very large area with low subscriber density—approximately two members per mile—there was a huge need for broadband services.

Its goal at the time was to bring advanced broadband services to more than 4,200 residences and 58 anchor institutions. United Fiber has well surpassed this milestone. Today, it aims to reach more than <u>40,000</u> residential and business subscribers over the next 18 months.

TRUTH #3

FIBER IS THE FUTURE

Fiber is the core infrastructure that enables wireless technology. The term "broadband" describes the transmission of data over a high-speed internet connection, but it comes in many flavors: fiber-to-the-home (FTTH), DSL, coaxial cable, and wireless.
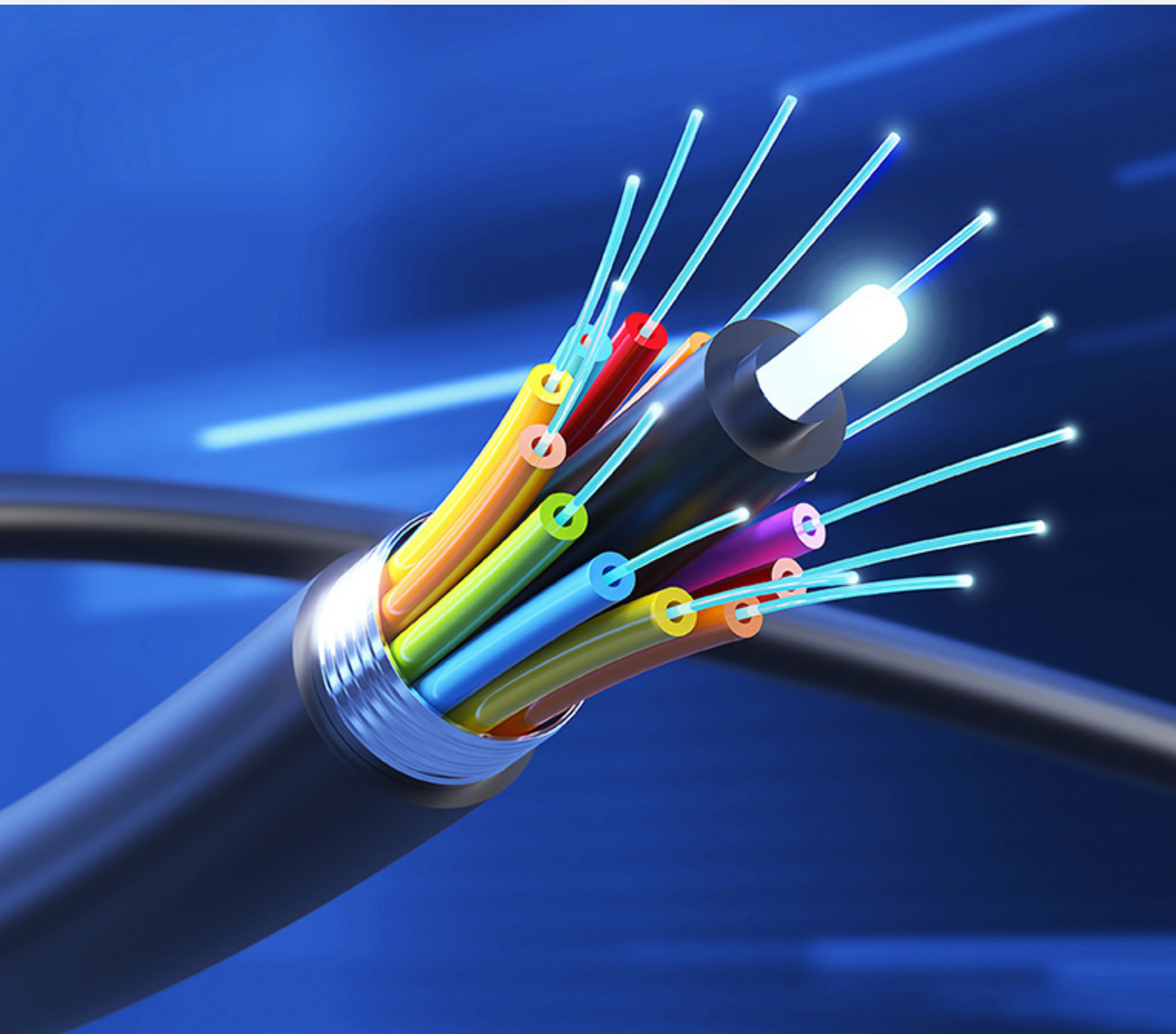
Here are the reasons why fiber is the top choice for electric co-ops entering the broadband business.

✓ **Fiber provides faster speeds and higher bandwidth than the alternatives.** This makes it an ideal choice for high-speed internet, data centers, and applications that require fast and consistent connectivity.

✓ **Fiber optic cables are less susceptible to signal interference than traditional copper wire or coaxial cable.** This makes them a more reliable and robust option for high-speed data transmission.

✓ **FTTH is a future-proof technology.** This makes it possible for BSPs to offer higher bandwidth and capacity and greater signal quality over long distances as technology evolves. It also supports skyrocketing work-from-home trends and economic development.

✓ **Fiber extends the lifespan of your investment.** This makes it possible to upgrade fiber optic networks easily. By simply changing the equipment at each end of the fiber optic cable, BSPs can support even higher data transfer rates and capacity.

✓ **Fiber offers increased flexibility.** This makes it possible to transmit both data and voice signals simultaneously, enabling seamless communication between different devices and networks. As a result, fiber optic networks are an ideal choice for applications that require high-speed data transfer and real-time voice communication, such as video conferencing, online gaming, and voice-over IP (VoIP) calling.

An all-fiber network or a fiber-wireless network are the only viable options for new builds in rural areas. To determine whether wireless should be a component of your network, consider the topology and density of the areas you serve as well as the connectivity requirements for the applications you want to support. It is typical to deploy fiber wherever possible and then augment with wireless technology in high-cost access areas.

YOUR CO-OP IS THE BEST OPTION TO GIVE YOUR COMMUNITIES THE BROADBAND THEY DESERVE

Co-ops exist to serve members and their communities. As a not-for-profit entity, your top priority is people, not profits. That's what makes co-ops so well-suited to enter the broadband business—even if there are other BSPs in the area. Other providers are motivated by profit, which means they may not be servicing the entire community. It's also important to remember that legacy BSPs may not have the modern technology required to deliver world-class broadband services.

On the other hand, co-ops are motivated by the best interests of their membership and can ensure that everyone has equitable access to broadband. There are a couple of paths you can take to achieve this goal. In some cases, the best option may be to partner with existing BSPs to improve service for your membership.

In other cases, it may make more sense to enter the market as a net new BSP, just like OzarksGo. A subsidiary of Ozarks Electric Cooperative, OzarksGo launched in 2016 to bring broadband to its members in Northwest Arkansas and Northeast Oklahoma. As a small BSP, OzarksGo has surpassed its larger competitors by preparing to offer speeds of up to 40 Gbps in the future and delivering a superior subscriber experience to both residents and businesses.

How? By deploying leading-edge broadband technology that takes advantage of the latest fiber standards, as well as offering discounts for internet, television, and phone bundles.

OzarksGo Fast Facts

SERVICE AREA

7,000 miles Of electric line and 77,000 meters

PHASE 1

2,200
Subscribers connected

PHASE 2

6,300
Subscribers connected

TODAY

8,500 Subscribers committed in areas open for sign-up

RESULTS

300
Jobs Added

$13M
Added to the local economy

TRUTH #5

YOU CAN AFFORD A BROADBAND PROJECT

There's no doubt about it: deploying broadband infrastructure is expensive. This is especially true in the rural areas where electric co-ops typically operate. At first glance, the cost may be too high for some co-ops to bear. However, it is important to consider the costs of not investing in broadband—to the local economy and to the overall well-being of your members.

Thankfully, there are many strategies that can help offset the costs of a broadband project, such as using existing infrastructure and leveraging emerging technologies such as TV white spaces and 5G. A cost-effective broadband deployment requires a strategic approach that accounts for the serving area as well as the technology and resources available to the BSP. Unprecedented funding levels have also created a once-in-a-generation opportunity to bring much-needed broadband services to your community.

Here are some strategies for a cost-effective broadband deployment:

» **Use existing infrastructure:** Utility poles and existing fiber-optic cables can reduce the need—and costs associated with—new infrastructure.

» **Adopt efficient technologies:** Wireless technologies, such as fixed wireless, can be less expensive to deploy than fiber-optic cables.

» **Optimize network design:** A network design that minimizes the number of access points or using smaller cells in wireless networks can reduce the cost of equipment and deployment.

» **Engage in public-private partnerships:** Local governments can provide funding, grants, or other incentives to private companies to build out broadband infrastructure in underserved areas.

» **Conduct thorough planning:** A feasibility study, a terrain and topology analysis of your serving area, and determining the right technology to deploy are key steps in the planning process. To deliver FTTH, you can use a simple formula based on housing density to estimate the cost of building an outside plant in a rural, aerial deployment.

» **Create demand across your community:** Engagement and education are key to creating a demand for services that can help attract additional customers, reduce the cost per member, and increase revenue for the broadband provider.

» **Segment your build:** Oklahoma-based co-op OEC Fiber avoided paying interest on loans by securing funds for its broadband deployment in stages. As one phase of the project was completed, it secured funding for the next stage.

» **Build outside of your serving area:** Expanding into other areas—even if they're already being served—can help drive critical revenue that can be reinvested into your broadband project.

How the Government Is Paving the Way for Broadband Equity

The government is stepping up its efforts to bring broadband to rural America. It plays a key role in expanding broadband access to unserved and underserved communities. Here are some of the ways the government can help bridge this digital divide:

FUNDING

This can include grants, loans, or subsidies for BSPs to build out broadband networks in rural areas where the cost of deployment is high. For example:

- The Broadband Equity, Access and Deployment (BEAD) program has earmarked $42.45 billion for last-mile broadband to be distributed at the state level. BEAD recipients must also participate in the Federal Communications Commission's (FCC) Affordable Connectivity Program (ACP) to make broadband more accessible to even more citizens.

- The Coronavirus Aid, Relief, Economic Security (CARES) and American Rescue Plan (ARPA) Acts are investing over $20 billion in state broadband funding programs.

- The Rural Digital Opportunity Fund (RDOF) is a $20 billion program from the FCC designed to finance the construction of high-speed broadband networks in America's unserved rural communities. RDOF will bridge the digital divide by bringing life-changing broadband connectivity to nearly six million rural homes and businesses across the country.

Learn more about these and other funding opportunities.

REGULATION

This can include setting minimum service standards and enforcing them, ensuring fair competition among service providers, and prohibiting anti-competitive behavior to ensure that rural communities are not left behind.

PARTNERSHIPS

These can include public-private partnerships, where the government provides funding or other incentives to service providers to deploy broadband in underserved areas. Service providers, community organizations, and other stakeholders can also help bring broadband to rural areas.

MAPPING

This can include the creation of accurate broadband availability maps, which can help identify which areas are underserved or unserved and target resources to those areas more effectively.

EDUCATION AND TRAINING

This can include training for rural residents on how to access online educational and employment resources or how to use telemedicine services to ensure they are reaping the benefits of broadband.

RESEARCH AND DEVELOPMENT

This can include investments in wireless technologies, satellite internet, and other emerging technologies that can provide broadband access in areas where traditional infrastructure is not cost-effective.

BROADBAND DEPLOYMENT IS A LONG-TERM INVESTMENT

Despite having the strategies for a cost-effective broadband deployment in hand, many electric co-ops still wonder—will it be worth it? The answer is a resounding "yes."

It's true, providing broadband services can be risky. Broadband is a competitive market, and electric co-ops may be concerned about the potential for losses or low returns on investment. Balancing these risks with the needs of your members is precisely the mindset that will set you up for success. After all, if your community doesn't have the services it needs, members will leave. Everyone wins when a community invests in broadband.

Deploying infrastructure is just the first step in providing internet access to communities. There is also ongoing maintenance, upgrades, and customer service to help ensure that people have reliable and fast internet connections. Here are other factors to consider while planning your long-term broadband investment.

4 Factors To Consider While Planning Your Broadband Project

PERSONNEL RESOURCES

Build your team. Think about how many people you'll need not only to deploy, but also to maintain the network, market your services, and provide member support.

TRUCK ROLLS

Truck rolls can add up. Consider how you'll manage sending techs into the field—or if there are other ways to troubleshoot. (Hint: Take a closer look at cloud-based solutions.)

HARDWARE

What hardware do you need? Look beyond upfront costs for hardware that comes with ongoing support, has security built-in, and can scale with your business.

SUPPORT EXPENSES

The network and your members will need ongoing maintenance, upgrades, and support. This support is partially covered under headcount, but it can also be delivered via platforms and customer success teams.

BROADBAND WILL BENEFIT YOUR ELECTRIC BUSINESS

Electric co-ops can actually subsidize their electric business by entering the broadband market. United Fiber is a case in point, in just 10 years, the subsidiary of United Electric Cooperative in Missouri has experienced a surge in demand for broadband services. It drove an 11 percent increase in subscriber signups in less than a month, fueling its growth into new communities. Differentiating with technology and data is helping United Fiber subsidize its electric business.

HOW TO SUPPORT YOUR ELECTRIC BUSINESS

Depending on your goals, there are several ways you can leverage your broadband investment to financially support your electric business. Here are a few examples:

» **Remote monitoring:** Broadband can help electric co-ops to remotely monitor and control the electric grid, which can help reduce maintenance costs and minimize outages.

» **Smart grid technologies:** Broadband can support the deployment of smart grid technologies, which can help utilities better manage energy demand, reduce energy waste, and increase energy efficiency.

» **Economic development:** Broadband can promote economic development by attracting new businesses and industries to the region. This can create jobs and grow the population, while increasing the demand for generation and building the meter count.

» **Improved operational efficiency:** With broadband, electric co-ops can deploy advanced metering infrastructure, enabling them to monitor power usage and identify any issues in real time. This can help co-ops reduce downtime and quickly address any faults in the system.

» **Increased reliability:** Broadband can help co-ops create a more reliable and robust grid by allowing them to integrate renewable energy sources like solar and wind into the system. Broadband can also help co-ops improve system resiliency, reducing the risk of power outages and other disruptions.

» **Enhanced customer experience:** With broadband, electric co-ops can offer customers a more seamless and interactive experience. For example, customers can monitor their energy usage in real-time, pay bills online, and receive alerts about power outages or other issues.

THERE'S LESS RED TAPE THAN EVER BEFORE

The broadband market is subject to many rules and regulations, such as obtaining permits and licenses from local and state governments. These hurdles can be time-consuming and expensive to overcome, discouraging electric co-ops from providing broadband services.

Thankfully, federal and state governments are making it easier than ever for electric co-ops to enter the broadband market. Each state now has a state broadband office specifically designated to help new BSPs bring services to unserved and underserved areas—with a lean towards community-focused operations.

There are also organizations actively advocating for the reduction of red tape from fiber broadband deployments, such as the Fiber Broadband Association (FBA). Its mission is to support the building and deployment of all-fiber networks by any and every provider. That includes electric co-ops that choose to build their own networks— after all, they know the needs of their communities better than anyone. As a result, the FBA is playing a key role in helping to lower barriers to public and private broadband deployment.
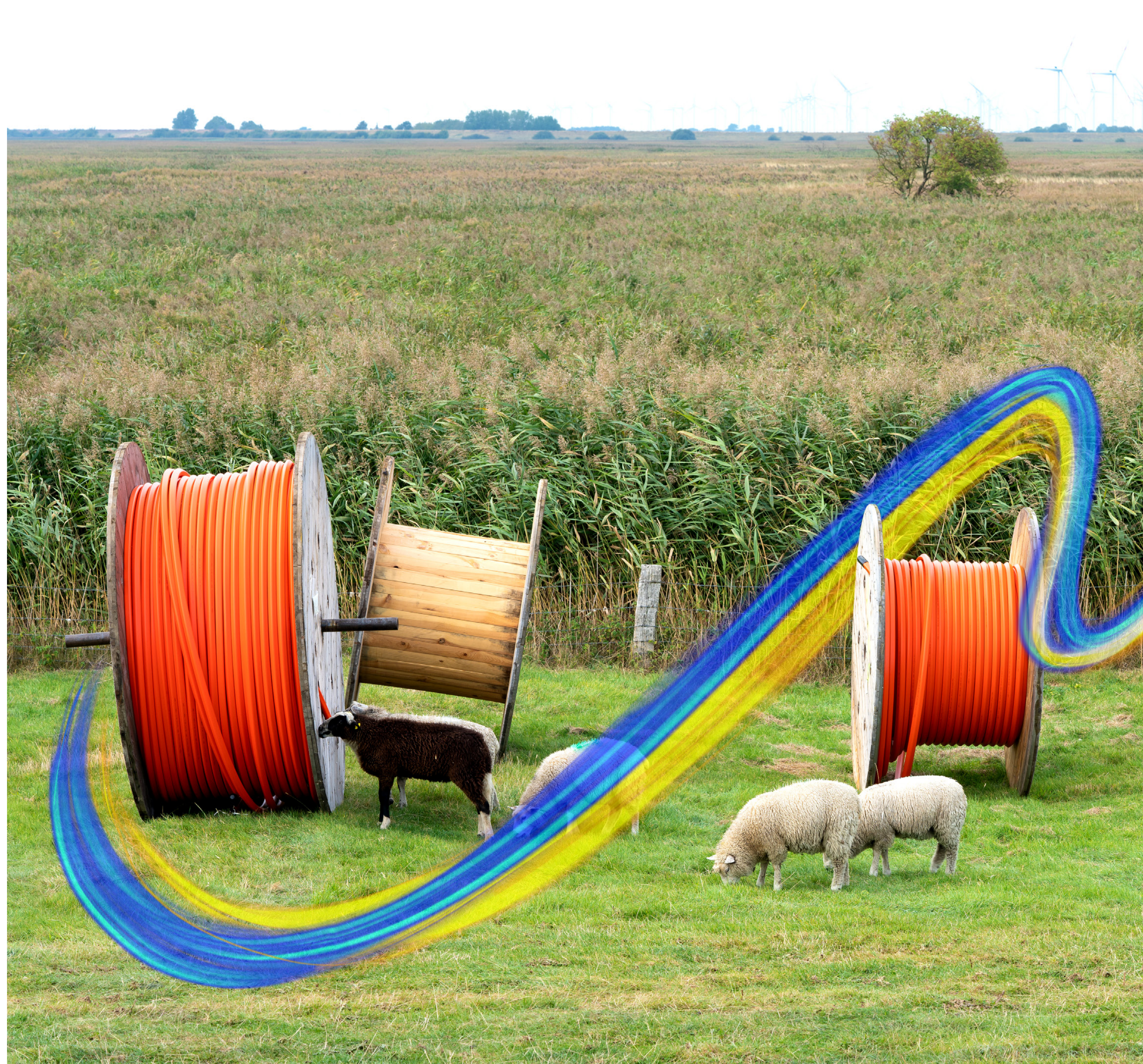
TRUTH #9

YOU HAVE MORE EXPERIENCE THAN YOU THINK

Building and maintaining a broadband network is a complex task. So is building and maintaining an electric infrastructure—which electric co-ops have been doing for nearly a century. You have more experience than you think!

Here are some of the existing skills you and your staff can draw on to run your broadband business:

✓ **Problem solving:** Identifying a problem and its root cause and implementing a solution can empower staff and help deliver exceptional services to your members.

✓ **Project management:** Managing projects from start to finish will help you meet your timelines, see projects through to completion, and stay on budget.

✓ **Adaptability:** Pivoting to deal with unexpected challenges or new strategies is common to every business, regardless of the industry.

✓ **Teamwork:** Contributing to achieve a common goal—whether it's delivering electricity or broadband—is a strength you can leverage as you roll out new services.

✓ **Communication:** Sharing your ideas and information clearly and concisely will help keep your members up to date on your timeline and services.

✓ **Relationship building:** Maintaining good relationships with members and partners is key to building a strong and viable business.

DID YOU KNOW?

Many electric co-ops are running their electric utility system over a fiber optic backbone. They can leverage their investment in middle mile fiber assets to deliver last-mile broadband to their members.

TRUTH #10

MARKETING CAN BRING BIG BENEFITS DURING DEPLOYMENT

Marketing plays a critical role in the successful deployment of broadband services by helping BSPs to raise awareness, build brand recognition, and attract customers. This contributes to the ongoing growth of your broadband business. For example, Oklahoma-based electric co-op OEC Fiber uses data and insights to target specific demographics within its subscriber base to inform their marketing campaigns. Getting the right message to the right audience has been key to its growth: six years after entering the broadband market, OEC Fiber now serves 34,000 fiber broadband customers.

THE BENEFITS OF MARKETING YOUR BROADBAND DEPLOYMENT

Here are some ways that marketing can help service providers in their deployment:

✓ **Build awareness:** Marketing can help service providers build awareness of their services and educate potential customers about the benefits of high-speed internet. This can be particularly important in areas where broadband access is limited or where customers are not familiar with the latest technologies.

✓ **Generate interest:** Marketing can generate interest in a new broadband service by highlighting its unique features and benefits. For example, a service provider may emphasize its high-speed internet, low latency, and reliable connection to attract customers who prioritize speed and reliability.

✓ **Create a brand identity:** Marketing can help service providers create a strong brand identity that differentiates them from competitors. This can be achieved through branding campaigns that emphasize the service provider's values, mission, and vision.

✓ **Provide updates:** Marketing can update customers and potential customers on the progress of the deployment. This can help build trust and confidence in service providers and keep customers informed about when the service will be available in their area.

✓ **Offer promotions:** Marketing can help service providers attract customers by offering promotions such as discounts or free installation. These promotions can be used to incentivize customers to sign up for the service early, which can help the provider to build momentum and scale quickly.

✓ **Gather feedback:** Marketing can be used to gather feedback from customers about their experience with the service. Service providers can use this feedback to improve the service, address customer concerns, and build a loyal customer base.

TRUTH #10 ½

SPEED MATTERS

This is only half true! Speed alone is not a long-term strategy. To succeed, you need to pair speed with operational efficiency and innovative experiences. Operational efficiency delivers reliability and consistency for subscribers. It also gives your broadband businesses the margins to compete and the cash flow to invest— all while delivering a return to members.

You can build on this strong foundation for operational efficiency by delivering innovative experiences through managed services. These exciting services can help you differentiate your brand from BSPs relying on speed to attract and retain subscribers. Offerings such as parental controls, home network security, social media monitoring tools, and connected camera home security provide new opportunities to bring more value to your communities.

HOW TO COMPETE—AND WIN—AGAINST LARGER BSPS

Unlike power—which is either on or off—delivering broadband services is more complex. There are many variables that can shape your members' experiences. But bigger doesn't always mean better. Here are some strategies that smaller BSPs can use to compete against larger providers and drive success in broadband.

PERSONALIZE THE HOME EXPERIENCE
Valuable managed services such as home network security, device protection, and social media monitoring give subscribers control of their connected home experience. A customized mobile app can further elevate and empower members to understand and manage their networks—and even self-serve.

FOCUS ON CUSTOMER SERVICE
One of the ways you can do this is by equipping support agents to resolve trouble calls quickly, often without the need to escalate or send technicians out to the home. With end-to-end visibility into the member experience, frontline support staff can even proactively identify and resolve issues, contributing to higher member satisfaction. This level of local, personalized support can foster strong customer loyalty toward your brand.

COLLABORATE WITH OTHER PROVIDERS
An option is to team up with a streaming service to offer a combined package that includes high-speed internet and streaming content. Bundled services that offer something your competitors don't offer can help you stand out in your market.

OFFER COMPETITIVE PRICING
This can help you to attract price-sensitive customers. You can also offer incentives such as discounts for customers who sign up for long-term contracts.

EMPHASIZE QUALITY AND RELIABILITY
You can do this by investing in high-quality broadband infrastructure that aligns to industry standards, and committing to—and meeting—service level agreements. This will help you to foster loyalty among your subscribers.

LEVERAGE EMERGING TECHNOLOGIES
Consider augmenting your fiber deployment with 5G and fixed wireless to provide high-speed internet access in areas not suitable for fiber. Using the cloud for BSP operations and field support can also help field staff access information proactively about the quality of a subscriber's Wi-Fi network. This helps them deliver a seamless experience at the point of install and beyond.

CONCLUSION

Today, there are more than 900 electric co-ops serving 42 million people across the country. From rural electrification to broadband connectivity, electric co-ops continue to play a key role in bridging critical infrastructure gaps to ensure the success and longevity of their communities. Economic, educational, social, and personal well-being are all tied to broadband equity.

The opportunity—and the need—to provide broadband has never been greater as funding and awareness increase and barriers to entry decrease. By investing in broadband services today, you can leave a legacy for your communities and inspire the next generation to continue your work.

Whether you're just thinking about a broadband investment or planning to take the first step in your broadband deployment in 2023, Calix can help. We have extensive experience working with electric co-ops to bring their broadband vision to life. In fact, 86 percent of all electric co-ops offering broadband in America partner with Calix. In partnership with electric co-ops, we are helping to deliver advanced fiber services to their communities so that their members can thrive.

To learn more about how Calix is partnering with electric co-ops to bring broadband to their communities, book a consultation today.

BOOK A CONSULTATION