

Written Testimony of Christopher Allendorf

V.P. of External Relations and General Counsel

Jo-Carroll Energy, Inc. (NFP)

Before the Subcommittee on Agriculture, Energy, and Trade

Improving Broadband Deployment: Solutions for Rural America

### **Electric Cooperatives and Rural Broadband**

Thank you for the opportunity to address this committee regarding efforts to increase access to high-speed broadband internet in rural America. As a natural gas, broadband, and electric cooperative serving thousands of rural accounts across four counties in Northwest Illinois, Jo-Carroll Energy is part of a broader electric cooperative industry that serves approximately 42 million consumer-owners (members) who own approximately 42% of electric distribution lines that cover 56% percent of our nation. Considering that most of those members and lines are in rural America, these numbers are critical to identifying and understanding how electric cooperatives serve as an established, sensible partner in developing programs and rules that will increase rural access to broadband internet. In our rural areas, we serve an average of four consumer-owners per mile of line, which is higher than many cooperatives, but significantly less than the thirty or more consumers per mile average for investor-owned and municipal utilities in urban areas. Low customer density is an important statistic to keep in mind when considering how best to help facilitate deployment of large-scale broadband access in rural America.

Jo-Carroll Energy was founded in 1939 as a result of the Rural Electrification Act of 1936 (REA) by a small group of farmers who saw the immense business benefits of electricity, though none of the existing utilities found it economically viable to serve them. This small group of farmers pooled their resources, with critical funding provided under the REA, to construct the necessary infrastructure and energized their first lines in 1940. With electricity provided by their local

cooperative, these rural Americans were able to enjoy the same comforts as their urban peers. There is a parallel situation happening right now with broadband deployment.

Utility cooperatives like Jo-Carroll Energy are private, not-for-profit businesses owned and governed by their consumers. Two principles under which utility co-ops operate are democratic governance and operation at cost. Specifically, every consumer-owner can vote to select local board members who then set rates and oversee the co-op. Revenue received by the co-op that is in excess of the amount it takes to provide services must be returned to consumer-owners as capital credits. Under this structure, utility co-ops provide economic benefits to their local communities, rather than distant stockholders, by ensuring profits stay in the hands of the local consumers, not stockholders.

### **Why is Jo-Carroll Energy in the Wireless Broadband Business?**

Locally-owned cooperatives, as a result of their governing principles, are more attuned to the needs and requirements of those they serve. It has become apparent that the need for access to high speed broadband service is no less important for the success and survival of rural areas today than electricity was more than 75 years ago. Can you imagine large swathes of the inhabited U.S. without electricity today? We have to ask ourselves the same question now about rural areas without broadband access.

Recognizing this reality, Jo-Carroll Energy's board of directors decided to begin offering wireless broadband service to our members in 2009, based on feedback the individual directors received from their constituents that they either had no access to internet or were limited to dial-up connections. This lack of internet service was impeding everything from expansion of small, local businesses, to students not being able to perform necessary coursework at home.

At that time, there were two local, for-profit, wireless internet service providers (WISP) within our service area, a major telco, and a regional cable company providing service. Their services were limited to larger rural towns and villages. None had a business motivation to serve our more rural areas, unless a person/business could afford to make it feasible for them by shouldering significant costs of construction themselves, which is the opposite of how utility cooperatives have operated for 80 years. We have since acquired one of those WISPs, which otherwise would have ceased operating, so that numerous rural residents would continue to have access to fixed-wireless broadband. Others continue to operate for-profit broadband businesses in areas with more concentrated populations.

At that time, our traditional utility operations already required fixed-wireless broadband for our offices and our SCADA (supervisory control and data acquisition) network. We believed then that the cooperative would be able to leverage our existing utility infrastructure to provide wireless internet to individuals and businesses.

What we found over the course of the next six years, however, was that fixed-wireless broadband systems are a rapidly aging technology that struggles to keep up with the ever-increasing speed and bandwidth demands of users. Additionally, the rural nature of our business created geographical challenges to large-scale deployment of fixed-wireless internet. Our service area has several types of topography, from the tallest point in Illinois, through dense forests, to innumerable valleys and river basins. Fixed-wireless proved to be more difficult to deploy due to our terrain and we ended up constructing costly towers in order to somewhat compensate. The resulting service that we could provide was a lifeline to remote users who likely never would have received service from a for-profit company, but it is far from ideal.

Over the course of time, as our utility operation demands changed, we converted our utility communications, including our offices and links between substations and meters, over to a fiber-

based loop. Fixed wireless broadband for our utility operations faced the same geographical challenges as our consumer-owners were experiencing and it could not continue to provide the increasing reliability and capacity needs for our own utility operations. Eventually, we nearly eliminated our internal use of the fixed-wireless component, except as a redundancy. Since then, we have seen the benefits of fiber broadband firsthand in our utility operations.

We continue to serve roughly 1600 wireless broadband accounts, but the technology is increasingly expensive to construct and maintain, with most of the equipment having a 5-year useful life. Fiber infrastructure, on the other hand, has an exponentially longer useful life and few bandwidth constraints. It is also cheaper to construct because we can better utilize our existing overhead and underground utility infrastructure rather than having to construct towers. The cooperative business model allows us to provide utility service to the most remote areas in our service territory, but it also means that costs must be shared equally among consumer-owners and broadband is no different for us. Cooperatives' electric utility business took nearly two decades to develop incrementally in order to eventually provide service to everyone. Rural America, especially our businesses, cannot afford to wait that long, at a competitive disadvantage, for broadband to develop in the same fashion.

### **Why Do We Believe That Fiber is the Solution for our Territory and Rural America?**

After seeing for ourselves internally how much of an advantage fiber provided, we saw fiber as a technology that could provide reliable, fast broadband to rural America and one that would allow us to better utilize existing overhead and underground conduit infrastructure, free from the geographical constraints of fixed-wireless technology. Several companies, including some with government fund grants, had laid "middle-mile" fiber throughout our area, but it is still up to other companies to establish "last-mile" infrastructure for end-users.

As a result, while increased middle-mile infrastructure meant that fiber became a technology option for us to provide retail broadband service, it would still require significant capital to bring fiber to our rural users. In addition to local businesses, one area that stood out to us as demonstrating the urgent need for last-mile fiber construction was rural schools and students. Several of our rural schools were able to connect to the middle-mile fiber network, allowing them to provide the benefits of fiber broadband at school. However, the students were left with whatever internet service they had at home to research, complete, and submit their assignments, which often requires broadband internet. Very rural students were left at a competitive disadvantage because of a lack of access to reliable broadband compared to their peers who lived in towns and villages with more internet options.

Fixed-wireless broadband had not proven to be a feasible solution for connecting our rural consumer-owners and in 2015, Jo-Carroll Energy began planning a fiber pilot project in one of the rural towns we serve, Galena, Illinois. The feedback we heard from our consumer-owners, along with the countless articles and research we read, all demonstrated that reliable broadband was a necessity for quality of life and economic development in rural areas. It is difficult for rural businesses to remain competitive without high-speed broadband. The global economy requires rural areas to have the same access to reliable broadband as their urban peers in order to remain viable.

We felt that Galena was the perfect testing ground for our first fiber deployment. Galena, a town of 3500 near the Mississippi River, has very diverse population and business demographics. It is the second most visited tourist spot in Illinois after Chicago. Tourism has created a large retail and service industry in Galena and the surrounding area. Outside of tourism industry needs, Galena represents the needs of any other small, rural towns. Galena businesses told us they needed reliable broadband service to ensure they could process credit cards in a timely fashion, take online reservations, provide high-speed wireless to customers, and much more.

We believed a fiber system could meet the needs of Galena businesses and we saw Galena as the perfect starting point for a fiber system that could meet the same needs eventually throughout our service area.

Jo-Carroll Energy's Galena fiber pilot project was completed in 2016. We utilized a mixture of existing overhead and underground infrastructure to place the fiber bundles. We estimate that there are approximately 460 possible accounts within the footprint of the project. I have attached testimonials from several of our fiber-connected businesses that demonstrate how crucial fiber broadband has been to their success. Our take rate among businesses is over 60%. Many of these users previously had cable or fixed-wireless broadband. The success of businesses using our fiber internet service in the pilot project area has convinced Jo-Carroll Energy that fiber internet provides the most stable, reliable platform for rural internet and that it is a critical component for economic development.

Residential demand has not been as high as we anticipated and cost is a factor. Though we are working on bringing costs down, our fiber packages are currently more expensive than options offered by other providers, but these other services are subject to latency, reliability, and usage allowance restrictions. We hope that as our fiber-connected businesses continue to tout the benefits of fiber, more residential users will take note.

A major factor leading to our higher costs is the lack of access to capital in sufficient amounts to cover the high expense of initial construction and deployment. As a cooperative, we operate at cost and our access to capital is limited by what we ask consumer-owners to contribute through rates. As our density figures show, we have a smaller group of consumers over which we can spread costs. Therefore, more government grant funding to reduce the upfront capital investment would help create the financial incentive for local cooperatives to expand high-speed internet access beyond what we are able to undertake on our own.

Another contributing factor to our fiber pilot project also came about because for-profit entities were abandoning broadband in our service area. The major telco providing broadband within our project area is not connecting new users and existing users are constrained by limited infrastructure and slower speeds; much like traditional phone lines, its broadband system has been left to wither on its own.

Regardless of whether broadband service is provided by a for-profit telco or cable company, their offerings are only available to residents who live in towns and villages, where higher customer density provides profit incentives; profits play a large role in determining what areas are served. Additionally, we are offering a superior product with fiber. The existing service options are subject to bandwidth restrictions and high latency during peak demand times which are more acute in rural areas because of weak signals due to topography. All of this frustrated local businesses.

Jo-Carroll Energy has seen firsthand that fiber integrates relatively seamlessly with existing overhead and underground utility infrastructure, making permitting easier to obtain, which is otherwise a concern for any company. We have found that fiber is also much more scalable at a lower cost than fixed-wireless. As bandwidth demand increases and new users are connected, only relatively minor investments in fiber infrastructure are needed to meet both challenges, which we have not found to be the case with fixed wireless.

Utility cooperatives are uniquely positioned to partner with the government to provide this service because of the existing infrastructure we have in place to serve rural America. Together with a governance model that is favorable for rural internet users because there is no profit motivation and consumer-owners have a direct say in the service being provided. Utility cooperatives will remain serving these areas, long after other companies have reduced the

quality of their service or abandoned areas altogether and fiber is the robust, scalable technology we need to provide it.

### **How Can Government help Provide Reliable Broadband Service to Rural America?**

We applaud Chairman Pai and the Federal Communications Commission for creating the Broadband Deployment Advisory Committee (BDAC) to take look at the barriers to providing broadband access to rural areas of our country. We were especially pleased that Jim Matheson, CEO of our national trade association, NRECA, was appointed to serve on the committee and bring the voice of non-traditional providers, like electric cooperatives to the table for these important discussions. Mr. Matheson will undoubtedly make sure that the voice of our consumer-owners in rural America is heard in conversations about expanding broadband access. The BDAC is expected to make recommendations later this year on how to spur greater deployment of broadband service.

Congress has worked with previous Administrations to provide funding for broadband projects through the Federal Communications Commission, the Rural Utilities Service at USDA, and the National Telecommunications and Information Administration at the Department of Commerce. These programs have had both success stories and challenges in pursuit of bridging the digital divide for rural America. I hope we can use the knowledge gained from those programs to make sound investments in the future.

As Congress and the Administration discuss plans for reauthorization of the Farm Bill and an Infrastructure funding package in the coming months, increasing deployment of broadband service in rural America through grants and direct construction contributions must be one of



the top priorities in those packages. As you consider proposals to spur broadband deployment, we believe that all potential providers, including electric cooperatives, should be eligible to participate in an open and inclusive process that allows providers the ability to compete for funding opportunities. In addition, we urge policymakers to consider the scope of capital needed to make the upfront capital investment to extend broadband service to rural America and allocate the monetary resources needed to meet this expansive challenge. We hope that our experience with what has and hasn't worked for deploying broadband in rural areas will also provide insight for these discussions.

### **Looking to the Future for Rural America**

Bringing electricity to rural America 80 years ago was a task of epic-proportion. The federal government created a strong, lasting partnership with rural utility cooperatives to accomplish that goal. That partnership provided the same high quality of life to all Americans, regardless of economics and location. The investments made over 80 years in utility infrastructure shines as an example of what can be done when you are willing to think outside the box to meet a goal. Today, the challenge to bring robust broadband service to rural America is as difficult as it was to bring electricity, but Jo-Carroll Energy has seen that it is no less important for the continued success and well-being of rural America. It is our sincere hope that Congress and this Administration will continue to reinforce their partnership with rural utility cooperatives to bring electricity to rural America and build upon that partnership in the 21<sup>st</sup> century with continued support for the no-less audacious goal of providing rural Americans with high-speed broadband service

Thank you for taking the time to allow me to share our experiences.

## **Testimonials from Galena Businesses with Jo-Carroll Energy's Fiber Product**

- Note: Jo-Carroll Energy's broadband internet service is marketed as Sand Prairie Wireless to differentiate it from our other utility services. It is a fully integrated business unit.

### **Paul, Owner of a Galena business**

We were really excited when we heard that fiber was coming to downtown Galena. Our business specializes in selling things for people...in our case here, I have eight listing stations. To sell on e-bay you have to upload pictures, create descriptions, and research items. All of that is done on the cloud – or the internet. All of our business is cloud based, so when we had the opportunity to go to a fiber system that offered the speeds that the fiber does, we could not wait.

We went from doing 5x2 to 50x7. The bottom line is that was a huge increase in speed. What that means for us is an increase in productivity. Fiber means we can work faster and we can list more; that means my business can grow, I can employ more people, I can sell more things, and I can help more people find value in the things they have.

If you use the internet from a business standpoint, you need the speed of fiber. It is the way of the future; it is why this install in downtown Galena makes Galena a more viable place to do business. Having a consistently high internet connection is crucial. You need that high-speed connection and you need it to be consistent.

Fiber optic in downtown Galena gives business owners the opportunity to grow their business utilizing the power of the internet. With that consistent speed, you can grow your business to a whole different level outside of just Main Street.

The investment in downtown Galena for the fiber network is incredible from the standpoint of the business community. Very few communities of our size have that kind of a connection. They're working with much slower speeds and connections that are not consistent. To have that investment in downtown Galena just brings us to another level. Galena is already a great place to visit; Galena is a great place to come shop, to eat, and just enjoy the beautiful Main Street that we have. Now as business owners, we can go beyond that by utilizing the power of fiber internet. The investment made in the infrastructure makes it easy for any business on Main Street to do business internationally with the speed of light. It is just phenomenal.

### **Cory, General Manager of a Galena restaurant.**

Chose to go with Sand Prairie Fiber for the fast internet speeds. It is one of the first companies to offer speeds that are beneficial for our restaurant. The fast internet speeds allow our wait staff to give our guests the best service possible by using tablets to enter orders and also to accept credit card payments. With the fast speeds we are receiving credit card transactions are instant and online reservations are made and confirmed in real time. I would highly recommend it. The speeds are blazing fast. The installation process went seamlessly.

### **Dan, President of a Galena Business**

My company uses the Sand Prairie Fiber service for our daily connectivity to our third-party data center and has six people on the connection throughout the day. We are very happy with the speed and stability of the connection. High-speed broadband service was very badly needed here in Galena for the entire business community and we are very happy Jo-Carroll Energy and Sand Prairie have committed to providing this valuable service.