Cambium Networks™

LEVERAGE A WIRELESS BROADBAND INFRASTRUCTURE TO

Open New Revenue Streams

ELECTRIC UTILITIES HAVE EXISTING POWER SERVICE CUSTOMERS WHO ALSO NEED BROADBAND CONNECTIVITY for education, business, and rural connectivity. Utilities with a wireless broadband communications infrastructure for AMI backhaul, distribution, and substation communications have an opportunity to leverage their wireless network to provide revenue generating data communications services to their existing customers. Wireless broadband is a proven low-cost business model that provides reliable service with minimal operational and maintenance expense and delivers a consistent revenue stream and profit. The key is to approach the opportunity with a full understanding of all aspects of the business model and implement the solution in specific areas where it makes the best sense for customers and the utility.

The Broadband Opportunity

Where broadband connectivity is brought in to connect a community, there is a positive boost in education, healthcare, public safety, and business connectivity. Residential access provides entertainment, but it also tremendously extends the reach of the home to connect for education projects and connects local small businesses to a world of customers.

Where electric utilities have deployed wireless broadband for remote office connectivity, smart meter aggregation backhaul, or substation and distribution SCADA data, there is an opportunity to connect their electric service customers with wireless broadband. The wireless IP infrastructure that is installed to connect the electric utility communications across the service area can be leveraged to connect business and residential customers within that same service area footprint. A properly designed wireless broadband access network with the right equipment can be installed to provide broadband service to customers who have no viable broadband options, and it can provide additional revenue to the electric utility.

Of course, the core business of an electric utility is to provide consistently reliable power at fair prices to customers in the service area. Broadband and power are key to economic development issues, and providing broadband to your customers can enable them to grow economically. Offering the additional IP broadband services to existing power customers is a way to provide them a service they need while leveraging the network and the customer care administrative services. At the end of the day, any broadband service offering must not tap time, money, or focus from the core business of the electric utility.

Maintaining the core focus of the electric utility is vital to developing a successful business case and implementation plan.

Advantages:

- **Limited Competition** – Select customers in areas where they do not or will not have a viable broadband service offering. While almost all urban and suburban locations have connectivity solutions via cable or fiber, communications service providers have not extended their reach to cover customers in rural or remote locations.

- **Leverage Existing Network** – Where the electric utility has made the capital investment in building a ring infrastructure, wireless backhaul, and distribution access network, additional modules can transport reliable IP connectivity to connect selected customers.

- **Build Based on Demand** – Unlike a communications service company, an electric utility can choose their broadband customers, and build only the connectivity that they know will be purchased by the end business or residential customer. Should service be terminated, the wireless broadband equipment can be relocated and reused. This minimizes the OPEX and CAPEX to only locations where revenue is guaranteed and reduces the risk of the project as a whole.

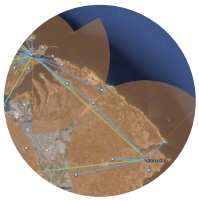
- **Integrate into Billing System** – Electric utilities can leverage their existing back office systems and call center and network operations to deliver broadband services to their customers in addition to power.

Legitimate Concerns:

- **Additional Installation and Maintenance Costs** – While there are additional expenses, there are also additional revenue sources when delivering broadband services.
- **Additional Administrative Costs** – Customer information would need to be added to the billing system and customer database.

Keys To Success

Knowledge is power. Electric utilities need to fully understand all of the facts up front and let the data drive the decision on the what, when, and where of deployment of the IP wireless broadband service.



- **Network Design** – Cambium Networks provides a highly detailed, free LINKPlanner software tool that will provide the details on the wireless backhaul and wireless distribution access network. Using exact GPS positioning coordinates, LINKPlanner will tailor the system performance to meet the throughput needs of the customer and the exact terrain where the network will be located. With this information, the electric utility will know that the project will be successful before spending the first dollar or dispatching the first truck to the field.

- **Select the Right Customers** – The key is to target customers in the existing service area. The ideal customers are those who are already in the utility's database as sound customers who are in a location in the service area where no other communications service provider is currently providing or planning to provide broadband access. These can be either business or residential customers, and priority should be given to locations where these customers are clustered together. By prioritizing customers, the electric utility can choose to deploy IP communications services only to locations where the business case is positive.

- **Select the Right Technology** – Ideally, the utility will want to maximize network performance while minimizing costs. While low CAPEX on equipment can be attractive, it is important to select equipment that will perform reliably over the long haul. Equipment should be easy to install and minimize dispatches for maintenance. Low-cost equipment that frequently breaks down will decrease customer satisfaction and escalate OPEX costs of troubleshooting. Utilities need to choose the solution that makes the best business sense and minimizes Total Cost of Ownership (TCO) while maximizing customer satisfaction.

- **Pilot in One Location and Prove the Solution** – Utilities can selectively deploy wireless IP broadband services without covering the entire service area. Well-defined pilot programs will provide details that validate the customers' needs, the performance of the technology, and the CAPEX and OPEX models of the business case. The business model can then be modified based on facts from the pilot project.

Proven Technology

Cambium Networks has more than five million wireless broadband modules deployed in networks around the world. These connectivity solutions consistently provide reliable data, voice, and streaming video connectivity to millions of end users in harsh and changing environments around the globe.

- **Wireless Backhaul Infrastructure** – Cambium Networks wireless backhaul solutions operate in either the licensed or unlicensed frequencies and provide high-capacity connections over ranges in excess of 155 miles (250 km). With industry award-winning throughput and spectral efficiency, network operators transport the most data in the least amount of RF spectrum.

- **Wireless Distribution Access Networks** – Cambium Networks access solutions provide wide-area coverage in either the licensed or unlicensed frequencies to connect business and residential locations. Networks can be configured to cover a 200 square mile area from a single tower location. Proven in thousands of networks, these solutions deliver high customer satisfaction and low Total Cost of Ownership.

Putting It All Together

Providing cost-effective, reliable energy is the primary business of an electric utility. Offering additional services such as IP broadband makes sense only if there is a solid business case that does not distract attention from the core business. By leveraging the existing customer base and the existing communications infrastructure, the electric utility can provide a valued service to the community while implementing a business case that makes sense.

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