



CORNING

NOKIA

Chattanooga, Tennessee

Offering 10 Gig community broadband as a utility

The Challenge

In the mid-1930s when nine out of 10 rural homes were without electric service, factories and businesses preferred to locate in cities where electric power was easily acquired. The unavailability of electricity in rural areas limited their economies much like areas without broadband are limited in today's increasingly connected world.

In both instances, EPB of Chattanooga realized the business and community opportunities in offering life-changing utility services at the local level – first when it was founded in 1935 as an independent board of the city of Chattanooga, Tennessee to offer electric service and more recently when it built a fiber optic network and delivered high-speed broadband access to the people and businesses that choose Chattanooga for their home.

The community broadband project started with a challenge in the late 1990s when then Mayor Jon Kinsey met with then EPB President and CEO Harold DePriest and asked that EPB do its part to make Chattanooga the best mid-sized city in America. At first, DePriest thought EPB was already doing everything it could by providing reliable, low-cost power services, but then he started thinking about the possibility of deploying a truly cutting-edge smart grid.

Ultimately, EPB envisioned Chattanooga's smart grid as a next-generation electric system that would use smart devices across the network to communicate with each other and human operators to reduce the duration of power outages, improve response time, and allow customers greater control of their electric power usage.



EPB's smart grid delivers real-time data for storm management.

The Solution

Deploying an advanced, highly automated, self-healing smart grid required nearly instantaneous, reliable communications, i.e., a 100 percent fiber optic network. A fiber-based network can do so much more than enabling a smart grid, though, so EPB recognized and seized the opportunities for its community by launching EPB Fiber Optics to offer high-speed internet, TV, and phone service to businesses and residential customers on a subscription basis –with the emphasis on “high-speed.”

At a time when the rest of the country's residential broadband services could potentially reach up to 50 Mbps, but more realistically averaged 10-25 Mbps or less, EPB planned to use its network to offer a connected experience that was hundreds of times faster than anywhere else in the United States. To bring this vision to life, EPB chose to collaborate closely with an ecosystem of experienced, solutions-based vendors for a reliable, state-of-the-art network.

Nokia came through for EPB, powering the network with active components capable of delivering 10G/s speeds. To cover EPB's 600 square-mile service area, Corning provided



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fiber optic cabling and innovative preconnectorized solutions that enabled faster installation times and reduced costs as compared to the traditional installation method involving labor-intensive fusion splicing of optical fibers.

In 2010, within two years of the EPB board of directors approving the business plan to develop the smart grid and fiber optic network, the company completed construction of its community-wide, fiber-based network and became the first connectivity provider in the United States to offer 1 Gig (1,000 Mbps) internet speeds accessible to everyone in EPB's service area along with television and telecommunications services.

EPB continued developing its smart grid, installing smart meters at every premise and deploying 1,200 automated, smart switches and other advanced power management equipment throughout the system. This work was completed in April of 2012. Although the network and grid continually evolve to accommodate community growth, the initial build-out, which was expected to take 10 years, was accomplished in less than four years.

The Impact

Today, EPB distributes electricity over its advanced smart grid power management system to nearly 180,000 homes and businesses in an area that includes greater Chattanooga, as well as parts of surrounding counties and areas of North Georgia. Every home and business also has access to EPB's



Shown here is the command center for EPB's advanced smart grid power management system.



Co.Lab's GigTank program attracts startups to build next-gen businesses and applications over Chattanooga's advanced internet grid.

lightning-fast 10 Gig/10,000 Mbps services over its all-fiber communications backbone, and the community is buying into the connected experiences that EPB enables; as of March 2019, more than 100,000 homes and businesses subscribe to one or more of the triple-play services offered by EPB Fiber Optics. About 58 percent of the marketable homes and businesses in EPB's service area subscribe to one or more fiber optic services, an impressive take rate especially in an area where well-established, national service providers also compete.

A University of Tennessee at Chattanooga study has revealed that EPB's network investments brought at least 2,800 new jobs and at least \$865.3 million in economic and social benefits during the first five years of deployment.

As a result of the additional margin from selling internet and other new services, EPB paid off the debt it took on to launch its fiber optics services years ahead of schedule, and margin from customers who enthusiastically subscribe to those services more than covers EPB's total debt service for the electric system including the smart grid deployment and all other electric infrastructure.

"In pioneering the integration of a community-wide fiber optic network with advanced smart grid infrastructure, EPB created an incredibly successful business model that yields tremendous economic and social benefits for the people and businesses we serve," said Katie Espeseth, EPB Vice President of New Products. "EPB stands ready to work with other utilities and providers as they deploy these rapidly spreading network and infrastructure technologies so they can maintain their competitiveness as the energy and communications industries continue to converge."

Back to that original challenge for EPB to do its part to improve Chattanooga's standing as a mid-sized city – the

success is measurable: A University of Tennessee at Chattanooga study has revealed that EPB's network investments brought at least 2,800 new jobs and at least \$865.3 million in economic and social benefits during the first five years of deployment. Property owners in downtown Chattanooga even include high-speed internet in monthly rents and have doubled their residents.

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Katie Espeseth, EPB Vice President of New Products

“In 2019, we know that the internet isn't a luxury, it's a necessity for every resident and family for paying bills, doing homework, and applying for jobs.”

Andy Berke, Mayor of Chattanooga

“Chattanooga's world-class network has proven to be a valuable asset for entrepreneurs launching ventures in 3D printing, AR/VR applications, eSports, and cybersecurity,” said Marcus Shaw, CEO of Co.Lab. “Our partnership with EPB provides a unique platform and network of mentors for startups developing smart city and IoT applications.”

Ever-aware that bandwidth demands are evolving – and confident in its network's ability to stay ahead of consumer expectations – EPB Fiber Optics tripled its baseline speed for residential subscribers on February 1, 2019, upgrading subscribers from its 100 Mbps starting speed to 300 Mbps at no charge.

The network has spurred economic growth and served as a catalyst for innovation, drawing the attention of bandwidth-hungry people and businesses. Chattanooga-based Co.Lab, a nonprofit committed to supporting aspiring entrepreneurs, offers the year-round program GigTank as a way of attracting startups to build next-generation businesses and applications over Chattanooga's advanced internet grid.

For more information about Chattanooga's 10 Gig network, contact Katie Espeseth, espesethkg@epb.net.

To schedule a free project analysis and cost estimation for your community, connect with Corning at corning.com/community-broadband.

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