

Supporting industry-leading fiber-optic innovation

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Chattanooga, Tennessee, was the first city in the United States to offer 1 gigabit-per-second fiber internet service to its residents and businesses in 2010, earning it the nickname “Gig City.”

EPB, the city’s municipal power company, provides electricity and fiber-to-the-home (FTTH) service to its entire 600-square-mile service area with more than 180,000 customers. A longtime Hexagon customer, EPB began deploying a communitywide fiber optic network in 2008. In 2010, EPB became the first provider in the U.S. to offer Gig-speed internet services. By 2012, the utility had

deployed one of the most advanced smart grid power distribution systems in America, and in 2022 began offering the nation’s first 25 Gig service, available anywhere in its service area.

EPB utilizes its fiber optic network as the communications backbone for more than 200,000 smart switches, sensors and other devices. As a result, the Chattanooga area’s power distribution system is the most advanced and highly automated smart grid in the nation. This led the U.S. Department of Energy to name EPB a living laboratory for pioneering smart grid technologies.





EPB continues to upgrade its core network so it can continue to provide the best fiber service possible to customers, based on a foundation of Hexagon technologies.

A solid foundation

Network reliability is a priority for any utility and fiber provider, and so is ensuring customer satisfaction through reduced outage times. During the pandemic and with the expansion of work-from-home jobs, EPB has strived for FTTH speed and reliability.

“In 2021, independent research documented \$2.7 billion in community benefit during the 10 years after we built out the first Gig-speed communitywide fiber optic network. We used it to establish the nation’s most advanced smart grid power distribution system as well. So not only are we providing communication to our customers with internet, video and data streaming platforms, but we also have the ability to monitor and maintain our smart grid on our electric system,” said EPB Manager – Fiber Design Wes Hughes. “One of the cool parts about that is we’ve seen a 55% annual decrease in outage minutes for our customers, which has saved as much as \$55 million per year by avoiding lost productivity and other negative impacts that typically you would see on an electric system. That’s also given us the ability to decrease environmental damage.”

EPB relies on HxGN NetWorks, Hexagon’s flexible and integration-ready geospatial asset management solution. EPB’s systems are built on HxGN NetWorks Core, the platform on which all HxGN NetWorks products are based, and HxGN NetWorks Comms, an advanced telecommunications GIS.

With HxGN NetWorks, EPB was also able to finish its 1 Gig fiber expansion project in two years, eight years ahead of the projected 10-year timeline.

“HxGN NetWorks provided a platform for us to quickly define the fiber network,” said EPB Business Systems Engineer Jason Sauls. “Having the electric system already modeled within NetWorks Core gave our designers the ability to see poles, to see structures, to see paths that were already established for the fiber.”

Quality of life

“Our mission is about enhancing the quality of life for the folks who live within our footprint,” said EPB Vice President of New Products Katie Espeseth. “We think we can do that by providing energy, communication and other related services reliably and efficiently at the best value possible.”

According to a study conducted by The University of Tennessee in Chattanooga, the Greater Chattanooga area has seen a \$2.7 billion impact from EPB’s fiber service, including nearly 10,000 jobs and a 55% annual reduction in outages since the implementation of its smart grid.

EPB attributes Chattanooga’s burgeoning economic development activities to this impact, with many high-tech industries moving to the area because of the fiber optic network. It said more than 40% of the jobs added during the study period resulting from those industries.

A direct benefit customers realized during the COVID-19 pandemic when many people had to transition to attending working from home was the reliability of EPB’s fiber network. EPB saw a usage increase of 40% over its previous highs. Its FTTH network also helped bridge the digital divide with the creation of HCS EdConnect, a program that provides high-speed internet to students in need at no cost and reaches 28,000 Hamilton County residents.

Future-proofing

Because of the architectural structure of EPB's network, it can set up connections for different speeds using the same terminals. When the company got its first 25 Gig customer, a local convention center, it didn't have to expand its current fiber structure; the future-proof nature of fiber meant only the electronics on the network needed to be updated.

While an average household may not require 25 Gig service today, entities such as data centers and regional hospitals do, and EPB believes more uses will be discovered.

"People have found creative ways to be productive with Gig services. We have customers who found ways to be productive with 10 Gig services, and we expect they'll be able to find ways to use 25 Gig services," said Espeseth. "It's not a giant leap to think people are going to find

ways to use this type of bandwidth. Our job is to build infrastructure, and that's exactly what this network upgrade did for our community. It provides infrastructure for companies and for our residents to find new and innovative ways to use the bandwidth."

EPB has no plans to stop there. It is currently implementing a five-year, \$70 million project to upgrade its core network capacity to 100 Gig service to keep Chattanooga on the cutting edge, and Hexagon will help it get there.

"Hexagon is the foundation of our networks. The connectivity that's provided within those models in the NetWorks product is what's transitioned to the other systems, whether it's the outage management system, demand management or the provisioning systems for the fiber customers," said Sauls. "Everything really begins with the Hexagon products."



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Hexagon is the global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications. Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Safety, Infrastructure & Geospatial division improves the resilience and sustainability of the world's critical services and infrastructure. Our solutions turn complex data about people, places and assets into meaningful information and capabilities for better, faster decision-making in public safety, utilities, defense, transportation and government.