



CASE STUDY

EPB smart grid generates \$2.7 billion in first decade



Key facts:

Company: EPB

Website:
www.epb.com

Industry: Electricity

Country: United States

Octave products used:
NetWorks (HxGN
NetWorks)

Established in Chattanooga, Tennessee, in 1935, EPB is one of the largest publicly owned providers of electric power in the United States. The city-owned distribution and telecommunications company provides power to consumers in the greater Chattanooga area.

In the early 2000's, EPB decided a smart grid would best position its customers, and the region, for the future. EPB searched for a smart grid based on a fiber optic communications infrastructure, which would deliver state-of-the-art communications services to homes and businesses and provide advanced communication options such as broadband and video. As part of the plan to connect fiber to the home and later provide advanced communications services to its customers, EPB needed to design fiber routes and monitor the connectivity of the best route for the most customers.

The utility also needed an electric system that would better communicate with its customers and allow it to have more control over energy use management, while also identifying and restoring power outages more quickly.

Overcoming challenges

- Modernize the EPB electric system by building a smart grid using fiber optic infrastructure
- Use smart grid infrastructure to offer next-generation communications services to businesses and homes
- Drive economic growth with a community-based, 100% fiber optic network providing America's first gig-speed internet to all homes and businesses to give Chattanooga a competitive edge (for example, during the COVID pandemic, Chattanooga was named the #1 best place to work-from-home)

The solution

Already a Octave customer, EPB partnered with the technology company to build a fiber optic smart grid using its advanced telecommunications GIS software. The solution was used to implement EPB's original electric model, so it was the logical choice to leverage the same technology with add-on features for its fiber optic model since the models share many of the same data elements.

In 2009, EPB implemented its Fiber to the Home (FTTH) project by adding fiber enhancements to Octave's electric model. Shaped by Octave's utility GIS solution, the infrastructure is shared with FTTH operations and billing system to support automatic provisioning of the optical network terminals at the customer premise. The FTTH infrastructure project was completed with the installation of 90 miles of transport fiber, 800 miles of feeder fiber, and 3,200 miles of distribution fiber.

Realizing results

In September 2010, EPB became the first company in the U.S. to offer one gigabit-per-second internet speed, a critical component of next-generation technology innovation and economic development. The exclusive capability attracted worldwide attention and earned Chattanooga the nickname "Gig City."

EPB also installed 1,170 automated interruptible switches (interruptioners) as part of its smart grid project. The utility uses Octave technology to model these interruptioners as part of the electric and fiber optic network and serves as a source in the development of the "teaming" configuration for each device. A tornado event in 2012 proved the ability of the smart grid to respond to outages by automatically restoring power to many of the 3,600 affected homes.



Moving forward

In 2021, an independent study of EPB's smart grid documented \$2.7 billion in community benefit in the grid's first ten years of life. The study cited job creation, lower unemployment, decreased power outages and environmental damage, and smart city research funding as contributors. The study also mentioned the grid's role in accommodating a 75% increase in internet bandwidth usage per day during the COVID-19 pandemic.

Chattanooga has also been selected as one of only two U.S. cities in a new global smart city "tech test," which seeks to identify sustainable, equitable practices to utilize energy, transportation, healthcare, and communications through its connected infrastructure.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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