Empowering the citizens of Chattanooga

How a Tennessee utility company got connected

NOKIA

Early in the 20th century, Chattanooga's heavy industry was booming and its economy riding high — but at a cost.

At the southern tip of America's Appalachian mountain range lies Chattanooga, the "Gig City," which has a population of approximately half a million people. It's easily accessed by a well-connected railway, riverway and interstate system, making it one of Tennessee's biggest and most bustling urban areas.

By the late 1960s, the city's air was thick with pollution, which gave Chattanooga a reputation as the "dirtiest city in America." The de-industrialization of the area soon followed, negatively impacting the once-booming economy of the region. Something had to change.

Roll forward to the present day and Chattanooga has transformed. It's now one of the greenest cities in the USA, powering itself with solar and hydroelectric energy and offering green transportation options such as bicycle and electric car share services.

At the center of this transformation is Chattanooga's visionary, publicly owned power utility, EPB. The organization looked at how it could deliver more for the people in its community. By installing a fiber optic smart grid infrastructure coupled with smart meters for every customer, EPB led the way in IoT and helped to deliver an even more resilient electric supply across its 600-square mile service area.

In transforming power reliability for Chattanooga, EPB also transformed its own business. From 1939 to 2008, EPB was an electricity distributor. Today, leveraging the fiber in its robust network, EPB offers internet, television and telephone services to the community. Through the EPB network, the people and businesses of Chattanooga have access to some of the fastest internet connections in the world.

"We wanted to use a fiber network to do all of our electric system communications."

David Wade, President and CEO of EPB

How Nokia helped EPB deliver new services

EPB of Chattanooga wanted to improve the resilience of its power grid, helping residents and businesses receive the most stable power supply possible. The company also wanted to lower maintenance costs, creating a smart grid that was both intelligent and self-healing, – so if a component were to fail, electricity would still find its way to customers.

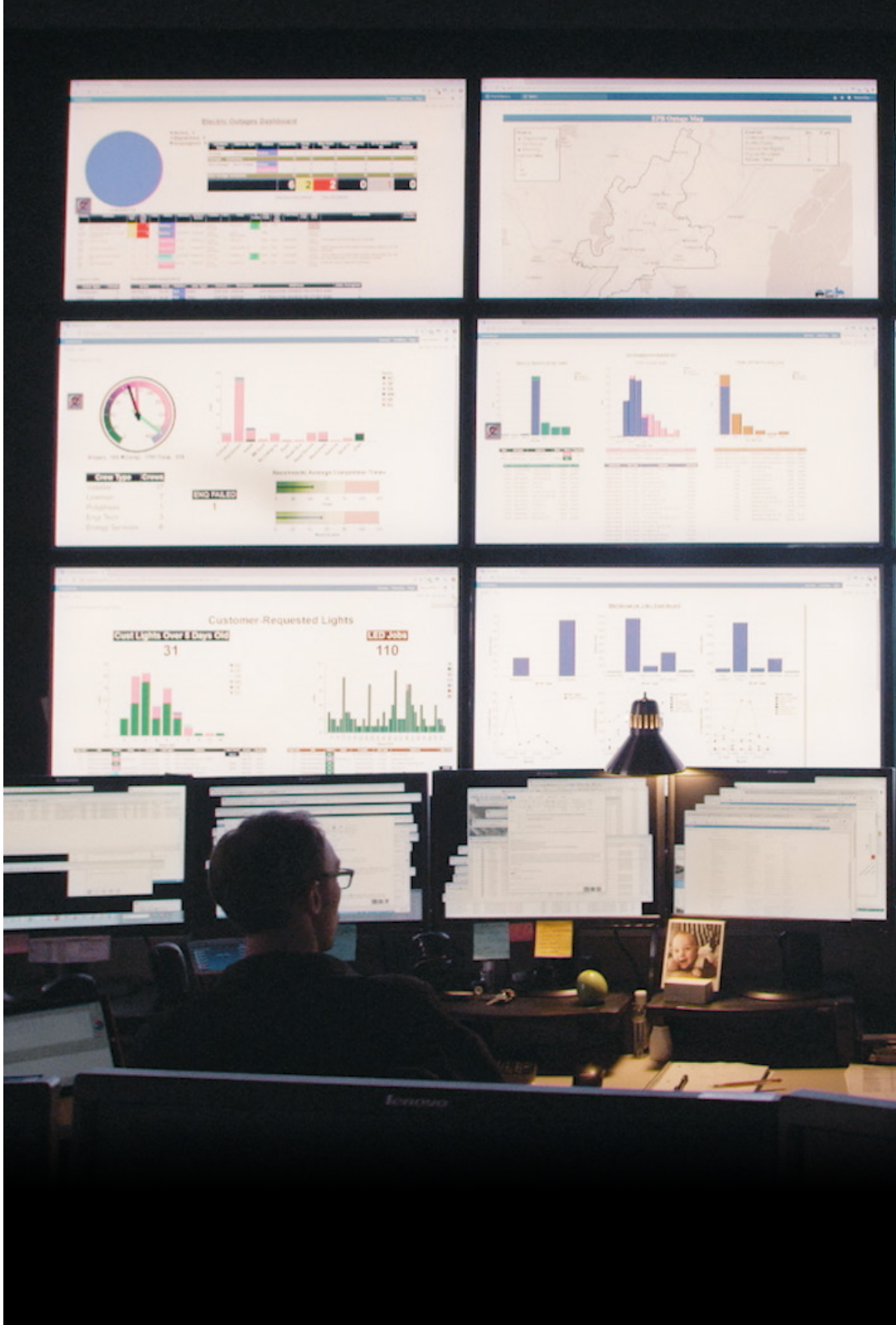
Avoiding rate rises for customers

To make this happen, EPB deployed a fiber network alongside its local power distribution points, from homes and street-level hubs to district substations and power plants. Nokia, in collaboration with Alcatel-Lucent, supplied the expertise and digital infrastructure that controls the fiber network, giving Chattanooga an ultra-efficient smart grid.

Today, EPB can use its new data flows to find meter issues, pinpoint outages, plan crew assignments for best results, and more accurately determine when to replace electrical distribution equipment — all while ensuring that new equipment has the capacity to handle present and future needs. Together, these advantages have helped EPB avoid rate increases for consumers and businesses, bucking the energy industry trend.

The gigabit bonus

The fiber network has also delivered another very important benefit. With the new wide area fiber network installed, EPB could also offer a second utility service: a fast fiber internet connection to every home. And when we say fast, we mean **really** fast.



Today, EPB is more than a power utility, it's a communications company. The fiber network has given every home, school and business access to gigabit connection speeds. That's 40 times faster than the average US broadband speed – fast enough to download a 14GB movie in less than two minutes.

EPB's broadband division has gone from zero percent market share to nearly 60 percent in just ten years, while the superfast connection speeds have helped the city cultivate a rapidly growing entrepreneurial ecosystem and served as a catalyst for creating as many as 5,200 jobs during the first five years.

Today, the city's fast and widely available connections are helping Chattanooga learn, connect and do business. The city is just beginning to explore the possibilities.

Chattanooga now has much cleaner air and a thriving economy. It's also one of America's most connected cities. The city has rightly earned a new nickname: Gig City.

"Nokia supplies the core electronics that make the fiber work."

David Wade, President and CEO of EPB

Challenges

- Improve ability to adjust to changing demand
- Create a more resilient and reliable electricity infrastructure
- Give customers more control and visibility of their energy usage

Solution

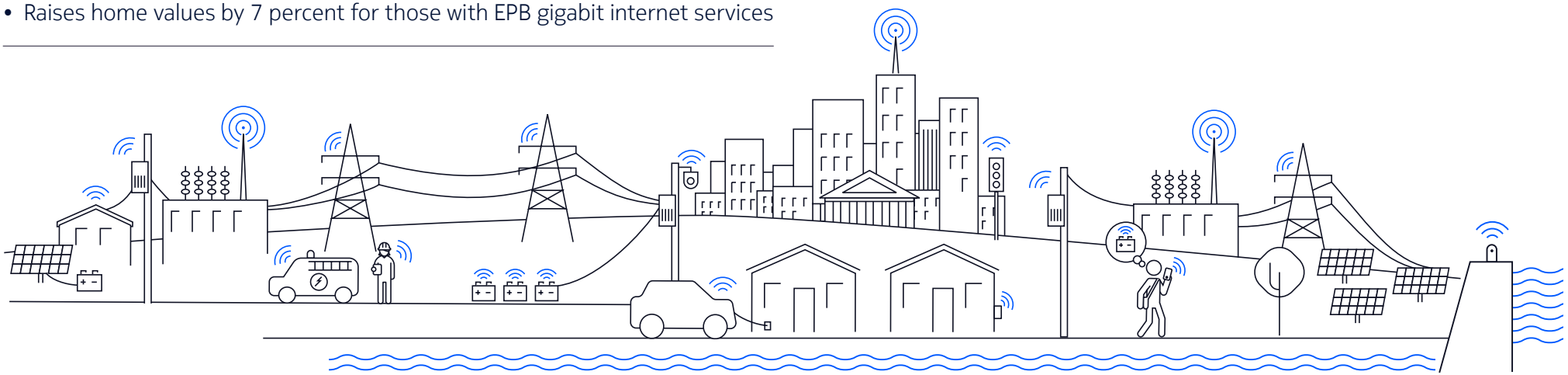
- Nokia fiber-to-the-home (FTTH) network solutions to manage its energy smart grid
- Nokia fixed access passive optical networking (PON)
- FTTH and PON to support residential smart grid solutions and operational transport of mission critical data

Benefits

- Helps EPB customers better manage their energy use
- Greatly improves EPB's load management
- Attracts businesses with fast internet: between 2,800 and 5,200 jobs created during the first five years*
- Increases city revenues: Internet services generated an additional $860 million in earnings for Chattanooga during the first five years*
- Raises home values by 7 percent for those with EPB gigabit internet services

"Nokia really did get it. They're looking at the future."

David Wade, President and CEO of EPB



*http://ftpcontent2.worldnow.com/wrcb/pdf/091515EPBFiberStudy.pdf

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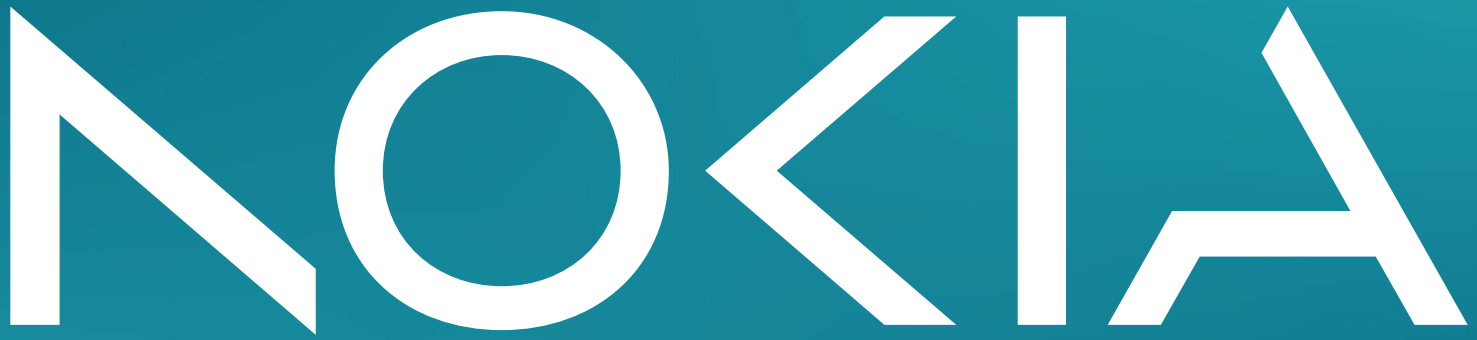

At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering the future where networks meet cloud to realize the full potential of digital in every industry.

Through networks that sense, think and act, we work with our customers and partners to create the digital services and applications of the future.