Fiber Network Powers Hydro Ottawa's Smart Grid

Hydro Ottawa

Canada

A smart grid helps electric utilities better understand their distribution systems to ensure networks are running as efficiently as possible. It means more information and automation, faster restoration, and happier customers. To move toward a smarter grid, Hydro Ottawa, the third-largest municipally owned electric utility in Ontario, Canada, unveiled its Grid Transformation Action Plan, a smart grid roadmap.

A key part of this plan was the need for more robust high-speed communications infrastructure to support data transmission among smart grid systems and equipment. For Hydro Ottawa, that meant improving and expanding its fiber network. The utility's plan included upgrading existing fiber for high-speed use, building out new fiber, and adding a wireless network for remote switches and sensors. Hydro Ottawa needed a reliable system to help manage this process.

"We're putting a significant amount of fiber into the system, and we need to be able to keep track of it," said Louis Voisine, manager of grid technology at Hydro Ottawa. "If we bury that fiber, we need to know where it is from a safety perspective. We also want to know how much of it is out there because we have to produce financial and other reports."

Adding Fiber Capabilities

Hydro Ottawa selected a fiber network management solution from Hexagon's Safety & Infrastructure division to maintain a definitive source of reliable, location-based information describing the network and its connectivity. A long-time Hexagon customer, Hydro Ottawa already used the company's other advanced utility GIS solutions to model and manage its electric network and decided to add the fiber module to support its communications initiative.

"All of our infrastructure is already in Hexagon's technology," Voisine said. "For us, it really was as simple as drawing another feature into the system. It only took us half a day's training to get up to speed on the new module."

With support from Hexagon, Hydro Ottawa now has the tools to manage its fiber network effectively. The solution's feature-rich interface helps Hydro Ottawa plan, connect, and deploy fiber, supporting full tracing capabilities, fault analysis, and path redundancy. It can assess, manage, and track the status of projects, equipment, and connections and coordinate with other systems to model the full engineering life cycle.

Tracking Connections

"For us, keeping track of the fiber geographically is important, but what we like about Hexagon's system is all the behind-the-scenes information: the splices, equipment, connections, and circuits," Voisine said. "It helps Hydro Ottawa keep track of which fibers are being used, what they're being used for, and which circuit they belong to on the network."

"That sort of information is absolutely critical. It's about transparency – knowing exactly what we've got and exactly how we're using it."

> **For us, keeping track of the fiber geographically is important, but what we like about Hexagon's system is all the behind-the-scenes information: the splices, equipment, connections, and circuits."**
>
> Louis Voisine
> Manager of Grid Technology
> Hydro Ottawa

The system benefits front-end computer-aided design operators, who are more concerned with geographic cable and how it interacts with the electric infrastructure, as well as communications technicians who oversee connections. After seeing an affiliate company struggle with maintaining this information on spreadsheets, Hydro Ottawa managed its system within Hexagon's solution from the start.

"It's a 100% connected physical cable that's being drawn, so it has completely eliminated the use of spreadsheets and keeping track of all those connections separately," Voisine said.

Moving Forward

Hydro Ottawa's old communications network featured speeds of 9,600 bits per second. The new fiber network can carry 1 gigabyte per second, positioning the utility for future growth as distribution system demand continues to increase.

"All of the power flow used to be in one direction," Voisine said. "It used to come from the top down. Now it's top down, customer to customer, and customer to utility. That makes operating the distribution system a lot more complicated. That's why good data and timely data are very important."

Voisine said the Hexagon system can help other telecommunications companies or electric utilities facing similar challenges.

"We're certainly big supporters of Hexagon's utilities solution," he said. "It's an excellent product."