

SUCCESS STORY

Central Hudson

Utility builds communications foundation to deploy multiple utility applications, scale for future needs



- Project location: 2,600+ square miles in New York's Mid-Hudson River Valley
- Applications: Distribution automation (DA) and distribution management system (DMS)
- Project scope: 300,000 electric and 79,000 natural gas customers, 900 DA devices territory-wide

Background

Central Hudson Gas & Electric Corporation (Central Hudson) is a regional electric and natural gas distribution company based in New York's Mid-Hudson River Valley. It is engaged in the purchase, transmission, distribution, and sale of electricity and natural gas and related services to approximately 300,000 electric customers and 79,000 natural gas customers covering residential, commercial, and industrial customers.

Central Hudson is focused on enabling a stronger, smarter and greener grid through increased automation and digitalization. The utility developed strategies to increase the efficiency and reliability of its mission critical infrastructure, as well as enable a more reliable power supply for its customers. To achieve these goals, Central Hudson needed a modern, standards-based, real-time wireless communications network for 900 distribution automation (DA) devices across a demanding terrain and climate with the following abilities:

- Achieve 10 Mbps at gateways and 250 kbps at end points
- Latency of sub-50 milliseconds
- Leased line replacement for smaller substations without fiber
- Centralized monitoring of pressure at gas regulator stations
- Consolidation of field area networks (FANs) to improve manageability and reduce operational expenses

Customer needs

Central Hudson desired a rugged wireless network that could fully cover its large service territory while supporting multiple applications. Meeting or exceeding reliability targets and mitigating outages was a priority for the utility, as was securing voltage stability in the face of increasing implementation of distributed generation, EVs, and battery storage. The main drivers were cost savings from Volt/VAR optimization to reduce energy losses and improve efficiency as well as deferral of transmission capital investments. Reliability improvements from fault location, isolation, and supply restoration (FLISR) will also be realized.

Solution

To meet their goals, Central Hudson is deploying a multi-application network using the ABB TropOS platform to initially support DA and DMS. The utility designed its network to provide communications back to a new DMS from more than 900 new and existing DA devices, including electronic reclosers, switched capacitors, voltage regulators, and sensors. Central Hudson chose the ABB Wireless 2.4 and 5 GHz network due to its security, high bandwidth, low latency, and competitive pricing. Additionally, the scalability of the network allows the utility to add applications in the future, such as: mobility, automated metering infrastructure (AMI), substation security, and automation. Management is also able to leverage ABB's services in-house to assist them with network design, rollout, and the installation process. The combination of ABB's products, services, and support was a key factor in Central Hudson's decision.

Results

The new wireless communications solution is enhancing power quality, system safety, and efficiency. The network is facilitating the monitoring and management of voltage levels for distribution and substation equipment. Connected devices can now send information automatically for analytics, enabling proactive maintenance, thus reducing costs. The ABB wireless communications network is providing real-time data to the DMS, enabling it to become the centralized decision-maker based on current system conditions, rather than anticipating peak loads and predicting conditions. Moreover, extending the field area network to smaller substations without fiber provided a cost effective replacement for leased lines and enabled communications with remote terminal units (RTUs), access relays, and other substation devices. In addition, the utility's gas operations will utilize the network to connect gas regulator stations to enable remote monitoring of pressure. Central Hudson is also capitalizing on ABB's products and software maintenance over a 10-year period in order to eliminate operational expenses related to the network.

The project is revitalizing Central Hudson's distribution grid, improving the utility's ability to meet demand for uninterrupted power delivery. It leverages a range of sophisticated technologies which necessitate reliable communications for operation and enables centralized monitoring and control of distribution area devices for the first time.

Systems and services - phase I

Central Hudson chose the ABB Wireless highly reliable, broadband mesh Field Area Network with high capacity, low latency and ability to support multiple **utility applications** including:

- TropOS 6420 outdoor mesh routers
- TropOS 1410 mesh edge nodes
- SuprOS communication network management system
- Design, installation, customer service and maintenance of TropOS network
- ABB professional services



Looking forward

Central Hudson is in the process of building a private wireless mesh and high-speed backhaul network system combining a point-to-point (PTP) solution and the ABB Wireless TropOS 6420 outdoor mesh routers because they offer a wide spectrum system that will significantly reduce interference issues.

Click [here](#) to learn more about ABB Wireless network solutions.