

cnReach™ Fully Connects a Natural Gas Field in Western United States



A fully connected natural gas field. The cnReach wireless network works in dense foliage.



Interconnected devices monitor the status of the site, and cnReach EP radios transmit data.

The Challenge

A NATURAL GAS COMPANY IN COLORADO needed to improve the efficiency and safety of collecting data from a natural gas field in a remote and mountainous area inhabited by potentially dangerous wildlife. To reduce operating costs by minimizing human intervention at their sites, they began searching for a new wireless Supervisory Control and Data Acquisition (SCADA) solution. Previously, they had used a broadband link, but the product did not work in non-line-of-sight (NLOS) conditions. Tree density made the system unusable to connect the main office to field locations.

Each remote site had different types of pump sensors, pressure sensors, temperature sensors and level sensors that were measured periodically. The Colorado-based natural gas company primarily needed three things:

1. To migrate from a serial-based network to a TCP-/IP-based network which would enable remote engagement
2. A custom-designed network to meet their specific coverage requirements
3. The ability to connect 200 covered sites in NLOS conditions and allow for expansion to over 1,400 locations across their network

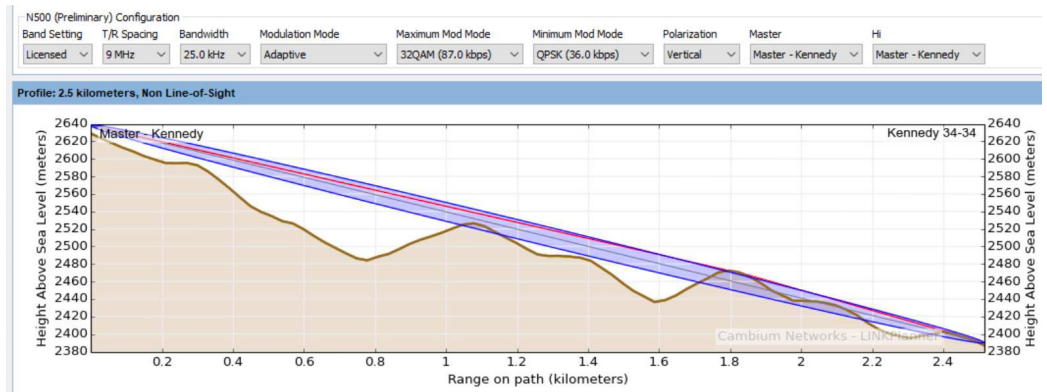
The Solution

SINCE 2018, THE COMPANY HAS BEEN USING CAMBIUM NETWORKS' CNREACH™ 900 MHZ licensed wireless narrowband IIoT solutions to transfer the instrumentation data through either serial or IP connectivity. In the field-wide deployment, there are 200 cnReach units spread over hundreds of square miles that are used to monitor hundreds of valves, gauges and other types of equipment. Remote sites are powered by solar panels, and each site interconnects a mixture of devices. A Cambium Networks engineer worked with the customer to optimize system configuration in order to create a fully connected field network.

Why Oil and Gas Companies Choose Cambium Networks

- Cambium Networks offers customers and end users ongoing, expert support to ensure optimal network uptime and smooth user experiences.
- Cambium Networks offers a wireless fabric of wireless connectivity solutions that enables the industrial operator to select the right technology for the task at hand.

Using LINKPlanner and cnMaestro™, it was possible to design, provision and manage the entire network with ease. LINKPlanner enabled them to design their network and model the exact throughput and performance at each specific location. The network was designed to also leverage data transmission synchronization to help optimize network performance and reduce self-interference. The network is managed by the cnMaestro platform, a cloud-based or on-premises wireless network management system that centrally manages provisioning, monitoring and maintenance of the entire end-to-end network.



LINKPlanner models network performance under NLOS conditions.

Best Practices

When designing a network with a large number of sites with consistent sets of equipment, NAT and port forwarding can be used to make the IP addressing at each site consistent. This dramatically reduces the documentation requirements and ultimately, less time is spent designing and later troubleshooting the network.

The Results

THE 200 CNREACH RADIOS CONTINUE TO OPERATE RELIABLY, delivering ongoing return on the investment. Through both hot and cold conditions, the solution meets the customer's goals for improved communications. Connected devices run on their own with minimal intervention from the company's technicians, saving time and putting their workers' safety first.

