GE
Grid Solutions

Customer Success Story

Harnessing the Power of GE's Multilin G500 to Modernize Substations

The Customer

Our customer, a municipal power utility, serves more than 170,000 people, with 1,800 miles of transmission and distribution lines, 30 substations, and a peak demand of 260 MW.

With modernization and efficiency being key priorities, they recently modernized their network with a state-of-the-art energy management system, advanced integrated communications and metering infrastructures, and an outage management system. The utility then moved on to upgrading their substation automation systems and remote terminal units.

The Situation

The utility had several substations that utilized GE D20ME remote terminal units (RTUs). Originally, most of the operational data was obtained via traditional hard IO peripheral boards, but the utility progressively took advantage of data available in microprocessor-based relays and meters by having the RTU read that data via digital interfaces. While this solution was working, there was growing concern with the age of the RTUs. While the devices were in good working order, the utility began to investigate a proactive RTU upgrade plan. At the same time, they wanted to further harness a more network-based communication structure and implement critical infrastructure protection (CIP) via the RTU upgrade.

Seamless Upgrade Solution

The team understood that the task of replacing all D20ME RTUs in their substations would mean high costs in the time, material, and labor required to install new devices, modify drawings, and commission the site, not to mention the downtime associated with such a project. To balance this expense, they looked for a solution that optimized and reused as much of the existing IO and wiring as possible.

One possible solution was the D20MX, which most directly replaces an existing D20ME, utilizing the existing IO. The D20MX also provides the security features needed for CIP compliance and can be swapped out and operational in under two hours.

However, for further substation modernization, the utility wanted to harness functions like a logic platform for autonomous automation, remote HMI access and control, and automatic file retrieval and reporting. Such advanced functionality is only available in the Multifunction Controller Platform G500. While the G500 maintains classic RTU functionality, it is also able to communicate with and utilize all existing D20 IO modules, making installation and commissioning easy and efficient.

Positive Outcomes

By successfully replacing existing D20ME RTUs with the G500 gateway, the utility fortified their substations through advanced automation and security features. Some of their wins included:

- **Minimized cost and downtime** associated with the upgrade, as the IO module configurations were automatically imported from the D20ME directly into the G500 units. In less than two hours, the D20ME RTUs were configured and replaced with new G500s, helping engineers quickly perform standard point tests and commissioning efforts seamlessly.
- **Harnessed advanced security** inside their substation. The advanced security features allow controlled access to the G500 to permit remote configuration changes and backup SCADA functionality.
- **Will achieve full redundancy,** as the next step for the utility is to install redundant G500s in critical substations. With a few configuration settings, full redundancy will be achieved in a matter of minutes.

> GE demonstrated an in-depth knowledge of the application and use of RTUs. That knowledge, together with their advanced G500 gateway and its simple configuration tool, enabled us to easily upgrade our existing RTUs with a powerful gateway that will allow us to implement advanced functionality in the future.
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> **SCADA Technician Leader**

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