



Customer Highlight



GHANA GRID COMPANY LTD. (GRIDCO)

Building Grid Resilience in Ghana With Synchrophasor Technology

Around the world, local utilities and SEL Engineering Services (ES) teams work together to deploy advanced solutions for electric power systems. From planning and implementation to maintenance and lifetime product support, SEL offers comprehensive services and local insights to help utilities achieve their goals. Learn how SEL and GRIDCo enhanced transmission system measurement and monitoring in the West African region.

Challenge

As the sole operator of the national transmission system in Ghana, GRIDCo was seeking an advanced solution to measure and monitor the status of electrical power across a large geographical area. GRIDCo is a member of the West African Power Pool (WAPP) and must ensure power system stability and prevent cascading trips on lines connected to neighboring Côte d'Ivoire, Burkina Faso, and Togo. GRIDCo wanted to enhance power system visibility, take timely corrective actions, and effectively deliver power from wholesale suppliers to bulk customers.

Solution

GRIDCo worked with SEL ES South Africa to turn its existing SEL-400 series relays into phasor measurement units (PMUs) installed at 330 kV, 225 kV, and 161 kV voltage levels at nine different substations. The PMUs provide valuable, real-time insights on voltage, current, and phase angles across the network. As part of this wide-area monitoring system solution, GRIDCo monitors its system from a central location using SEL-5703 Synchrowave® Monitoring software. The setup includes the SEL-3355 computing platform, SEL-5073 SYNCHROWAVE Phasor Data Concentrator (PDC) Software, and SEL-2407® Satellite-Synchronized Clocks. SEL ES engineered the PMUs, supported the system configuration, verified synchrophasor values, ensured synchronization of the clocks, and provided technical training for the GRIDCo team.

Results

As a regional leader in grid modernization, GRIDCo now uses synchrophasor technology to gain deeper insights into grid disturbances and enhance event analysis and reporting. The team is also exploring synchrophasor technology as a basis for special protection and control schemes. In addition, the installation serves as an educational resource for agencies like WAPP, utilities, and academics in the region to learn about advanced monitoring solutions and cutting-edge technologies for real-time grid control.

“We are excited to adopt SEL synchrophasor technology and utilize existing relay assets as PMUs to monitor transmission networks and gain insights for working towards grid resilience.”

—GRIDCo Operations Team

About SEL

SEL was founded in 1982 with the invention of the digital protective relay. Today, SEL is a 100 percent employee-owned company that specializes in creating digital products and solutions that monitor, protect, control, automate, and secure power systems and other critical infrastructure around the world. SEL is headquartered in Pullman, Washington, and serves customers in more than 170 countries.

World-Class Manufacturing

At SEL, we design and manufacture our electronic devices, including circuit boards, in factories we own and operate in the United States. Additionally, we assemble custom panels in our factories in the United States, Mexico, Colombia, and Brazil. Our robust manufacturing infrastructure prioritizes vertical integration, streamlined processes, and supply chain risk management to ensure the quality, reliability, and availability of our products.

Cybersecurity Philosophy

SEL believes the safety of your system and availability of devices come first, which is why we have prioritized cybersecurity since our founding. Our earliest devices featured two levels of password-protected access, and today, we secure our operations and products with layered defenses. We practice our cybersecurity philosophy throughout our business, from product development and manufacturing to our engineering and cyber services departments.

Proven Reliability

For more than forty years, electric utilities, heavy industries, and critical infrastructure around the world have trusted SEL solutions to keep their essential systems and processes running. These solutions are built on the capabilities of our rugged devices, which endure temperature ranges as wide as -40° to $+85^{\circ}\text{C}$ (-40° to $+185^{\circ}\text{F}$) and meet or exceed industry standards for resistance to humidity, corrosion, shock, electric stress, electromagnetic interference, and other harsh operating conditions.

Industry-Leading Warranty

SEL devices are designed for a robust working life. We back our products with a worldwide, ten-year warranty. If a product fails under warranty, we'll repair or replace it at no cost.

Local Support, Global Expertise

Technical support is available at no cost for the entire service life of every SEL product. With application engineers located around the world, we provide expert support no matter where you are.

Contact Us

Whether it's finding the right devices to protect, automate, or optimize your systems or designing a custom turnkey solution, we will work with you to find the best way to achieve your objectives.