

Ellevio keeps the lights on with a transformational solution on IBM Maximo



Making maintenance a strategic priority

Ellevio, one of Sweden's largest electricity infrastructure owners, manages more than 500 primary and grid substations across its 80,000-kilometer network. As many substations are set up in rural areas, maintaining the equipment in these substations can be challenging and costly—especially given a shrinking pool of skilled engineers.

“The electricity grid is an absolutely critical piece of infrastructure,” says Mattias Airman, Process and IT Support Manager for Operations at Ellevio. “Minimizing the chance of power outages through optimized maintenance is vitally important.”

To reduce the risk of outages and maximize efficiency, Ellevio uses monitoring devices in its substations to provide alerts—for example, when rainwater needs to be pumped out of containment facilities (transformer bunds).

As part of its ongoing efforts to move from scheduled and reactive maintenance to condition-based and predictive maintenance, Ellevio wanted to improve the sophistication and effectiveness of its remote monitoring capabilities.

Airiman comments, “The better we can monitor our assets, the earlier we can identify the need for maintenance. That should translate into fewer visits by engineers, lower costs, longer asset life, and reduced personnel and environmental risk.”

By analyzing more information throughout the life cycle of assets, Ellevio also expects to identify opportunities for preventive maintenance before corrective maintenance becomes necessary. Preventive maintenance not only costs less but also reduces the risk of disruption.

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Mattias Airiman
Process and IT Support Manager for Operations
Ellevio

Deploying intelligent analytics

Having used Gomero technology for 20 years to automate a manual maintenance process within hundreds of substation transformer bunds, Ellevio was keen to extend the solution to additional substation assets. Its goals were to gain real-time intelligence on the health of assets and to use sensor data to drive seamless automation of work orders.

“Automated notifications from our substations alert us when there is an issue to resolve, reducing the need for inspection visits,” says Airiman. “When Gomero proposed a new approach that would bring both existing and new types of data directly into our Maximo asset management environment, we were very interested.”

As an IBM Business Partner and specialist in data analytics for the energy sector, Gomero has worked closely with IBM to integrate its cloud sensor and analytics platform with IBM® Maximo® asset management solutions.

Gomero’s proposal was to feed analyzed sensor data directly into Ellevio’s existing Maximo environment and introduce both new data and automation. Ellevio is also working with another partner to upgrade to the latest Maximo Application Suite. In a multiyear project, Gomero is deploying secure, wireless networks in Ellevio’s substations to connect with nearby measuring instruments and sensors, enabling the capture of data from all types of asset classes and original equipment manufacturer (OEM) variants. This data is collated and enriched on Gomero’s cloud platform and then fed into Maximo, enabling Ellevio to make more informed maintenance decisions and optimize workflows.

“We continue to work with Gomero because they’re open to new ideas and new integrations,” says Airiman. “We see them more as a partner than a supplier: as domain experts, they understand our industry and also how we can get the most value out of our investment in Maximo.”

Evolving toward condition-based maintenance

Data-driven decisions

The Gomero solution offers better access to real-time information and historical analysis of the health of critical equipment, all presented on a “single pane of glass” with an accurate substation-level view and specific asset drill-down and interrogation capability. These features will allow Ellevio to build a more detailed understanding of maintenance requirements and priorities.

“Bringing Gomero sensor data into Maximo will give us a more sophisticated view of the health of our assets,” says Airiman. “Rather than just getting an alert when something is failing, we’ll be able to make data-driven maintenance plans. In particular, we’ll be able to apply preemptive maintenance, avoiding the higher cost and risk of waiting until a fault develops.”

Seamless workflows

Integrating sensor data into Maximo will also enable work-order integration. Today, Ellevio’s external maintenance vendors receive alerts from Gomero and are responsible for managing the corresponding maintenance on a general work order. In the future, sensor data will flow into the relevant asset in Maximo and trigger automated work orders directly from Ellevio.

“With sensor-to-work-order workflows, we’ll have better visibility into maintenance activities and be able to prioritize work,” says Airiman. “We won’t need to log into another system or copy information—everything will be in the work order, which can also cover aspects such as inventory and staff allocation.”

Prioritizing health and safety

Even with the best precautions in place, traveling to remote locations and working with high-voltage electrical systems can be hazardous. Using intelligent analysis in Maximo to reduce the need for site visits will therefore help Ellevio keep maintenance engineers safe. And with fewer site visits to manage, Ellevio and its partners will face less pressure around sourcing engineering talent.

“With a better understanding of when site visits are really necessary, we can reduce our engineers’ workload,” comments Airiman. “Equally, by gathering all relevant asset data together with things such as operating manuals in Maximo, we can provide a full picture of each asset, which helps ensure correct maintenance.”

Extending to new domains

Ellevio and Gomero are now introducing capabilities to monitor circuit breakers and gas-insulated switchgear for the early detection of micro leakages of sulfur hexafluoride (SF6), a gas used in SF6 assets to suppress electrical arcs. The SF6 in these assets can leak out over time, potentially causing significant environmental damage as a greenhouse gas.

The new solution measures gas leakage at micro levels, analyzes it using AI in the Gomero cloud and feeds the information into pre-built Maximo templates, providing near-real-time data to Ellevio. Compared with the existing warning system, which provides only basic alerts at set thresholds, the solution will present timely opportunities to schedule maintenance interventions rather than reacting to critical alerts that require significant remediation.

“By increasing the digital instrumentation in our substations, we will gain better control over our assets, reducing the cost of remediation and the risk of disruption,” says Airiman. “In the case of the SF6 gas, we will also reduce our environmental impact.”

About Ellevio

With close to 1 million customers, Ellevio ([link resides outside of ibm.com](#)) is one of Sweden’s largest energy companies. It

provides electricity network services to private and business customers, new connections for wind and solar power parks, and solutions for electric vehicle charging. With 800 direct employees and a further 3,000 people employed through its network investment projects, Ellevio achieved net sales of SEK 8,231 million (USD 750 million) in 2023.

About Gomero

Gomero (link resides outside of ibm.com) is a strategic partner for the digital transformation of maintenance work in the energy sector. Based in Gothenburg, they are market leaders in Sweden and established among several of the energy industry's leading players in Europe and Australia. These include Ellevio, Vattenfall, Western Power, Fingrid and Deutsche Bahn. Through innovative solutions for predictive maintenance the company help customers achieve long-term sustainable growth, enabling a sustainable energy system.

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