VOLT | VISION®
A VV VENTURES LTD COMPANY

ENERGY STRATEGY: DIGITAL TWIN MODELLING & REAL-TIME MONITORING

Caledonia Mining Corporation Plc

Region: Zimbabwe | Sites: 1

Key Benefits: Digital Twin Modelling, Automated Site and Group Reporting, Power Quality Analytics and Integrated Data Transparency

Project Overview

VoltVision installed its digitalisation solution across five substations in under 21 days — without any additional CAPEX or operational shutdowns. The installation spans analogue meters from multiple OEMs without any additional CAPEX. that covers diesel gensets, grid connection, and solar PV systems, as well as distribution substations covering the processing plant.

The ViViD Platform provides comprehensive, site-wide visibility — enabling both on-site and remote teams to track performance, support corrective actions, and improve efficiency:

- Single source of truth electrical footprint.;
- Power quality analytics;
- Network-wide energy and power visibility
- 24/7 automated reporting;
- Design and implement Energy Management Strategy.

This digital layer helps teams identify faults, optimise processes, lower costs, and plan CAPEX using high-resolution data.

11%
Power Consumption Reduction

23 Hrs/Week
Staff Time Savings

"Implementing VoltVision's solution has been transformative for our operations team. The reporting capabilities have freed up significant time for our key personnel, allowing them to focus on more strategic initiatives rather than manual data collection and analysis. Although we're still in the early stages of implementation, we're already seeing promising signs of cost savings across our operations. What impressed us most was how seamlessly the system integrated into our existing infrastructure - the installation process was remarkably straightforward. I would recommend VoltVision to any organisation looking to optimise their operations while achieving meaningful cost reductions."

– COO, Caledonia

Key Features Delivered

VoltVision's rapid deployment at Caledonia replaced fragmented manual reporting with a unified, real-time energy intelligence system. The platform enables site-wide performance tracking, power quality diagnostics, and energy strategy through digital twin modelling.

Power Quality Analytics

The site's electrical networks are continuously monitored for voltage, frequency, and power factor variations. This provides the electrical team with real-time alerts, early warnings, and on-demand fault diagnostics, reducing response time and improving network stability. Off-site teams can remotely assess electrical performance across diesel, solar, and grid-connected sources.

Automated Reporting

VoltVision delivers customised dashboards with 24/7 access to key metrics, including emissions tracking, energy usage, billing verification, and KPI benchmarking. Monthly executive reports and performance summaries are automatically generated, saving engineering time and standardising reporting across departments.

Digital Twin Modelling

Using digital twin modelling of the site's electrical network and processing plant data, VoltVision helps Caledonia identify inefficiencies and shape a more efficient, data-driven energy strategy. This approach also supports the business case for major electrical CAPEX planning and long-term energy management decisions.

Integrated Data Visibility

The system integrates time-stamped data from multiple meter types, including diesel gensets, grid connection, and solar PV, streaming it into Caledonia's central platforms via secure APIs. This provides a full-site view of energy performance, with planned expansion to underground operations already underway.

The VoltVision solution initial savings, include:

Main savings still being established as project is new.

OPEX Savings & Benefits	
11%	Identified power consumption reductions in production processing including through milling, compressors and pumping
23 hours/week saved	Automated Reporting replaces manual processes across the group , freeing critical electrical engineering time
$250K+/yr	Reduced IT costs from migrating to a cloud-based solution, replacing expensive in-house systems.

Book a Demo

Visit www.voltvision.live or contact us to explore how VoltVision can transform your operations.