# Mining Indaba 2023 places the spotlight on energy management in mining

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The theme of ‘Climate-Smart Mining’ for Investing in [African Mining Indaba (Mining Indaba) 2023](https://miningindaba.com/Home) from 6 to 9 February 2023 reflects the trend of the world turning to renewable energy to deliver on the promise of a carbon-neutral future. To limit the impacts of global climate change, we need to shift away from fossil fuels and look to renewable sources such as solar, wind and hydropower that capture naturally occurring energy and convert it into electricity. This electricity, in turn, will become the backbone of our entire energy system, powering all elements of modern society from transportation to heating and cooling to a myriad of industrial processes.

In South Africa, mines are grappling with energy security due to unreliable utility generation. Hence the industry is progressing with plans to replace conventional generation with renewable sources under their control that may also be remote and require wheeling through the grid. This is where the expertise of [Hitachi Energy](https://www.hitachienergy.com) in managing electrical energy comes to the fore with effective energy management solutions for the mining industry.

A major opportunity for mines in this new ‘smart energy’ era is to migrate to an integrated electricity mix. As most mines are in isolated locations, on-site energy management is critical to maintain power and productivity. The initial direction to transition away from fossil fuels is a hybrid scenario whereby mines rely less on diesel and more on renewable sources for power generation. From a hybrid model, mines can then become self-sufficient by transitioning to grid-connected microgrids for their power generation.

At that point, energy management becomes even more critical as grid-provided power is less of an option. Enabling energy management and optimisation for enhanced reliability and resiliency can be achieved in several ways, but mine operators that create their own grids are much better positioned to reap the benefits of system flexibility that affords the greatest potential to reduce CO2 emissions.

The problems associated with long-distance transmission and integration of renewables in off-grid locations see mining companies scramble to assimilate technologies that ensure power reliability and efficiency. To successfully transition, mines need a solution designed for both grid-connected and off-grid applications, ensuring reliable power, seamless renewable integration and grid stability while reducing operating costs and complying with grid codes and standards.

It should also be noted that larger mining operations that rely on a mix of energy sources – including diesel, batteries and renewable energy – need a modern network management or SCADA system that enables them to harmonise and integrate increasing data flows to manage and optimise operations.

Mining companies face a broad range of challenges. Maintaining productivity in the face of declining grades, remote and technically challenging ore bodies, heightened sensitivity to environmental and CO2 emission impact as well as unprecedented cost volatility and regulatory oversight requires more sophistication in the energy solutions and systems used to keep operations powered up and running smoothly.

Hitachi Energy offers a single family of innovative products and solutions providing benefits at every point of the mining value chain:

**MicroSCADA X**

Provides complete functionality for real-time monitoring and control of primary and secondary equipment in transmission and distribution substations. Processes can be controlled, field crews managed and customers provided with outstanding service with a single system.

This SCADA offering is designed for substation automation and power network management applications. It scales from a compact single computer communication gateway for monitoring applications in substations to hierarchical and redundant network control systems, managing tens to several hundreds of thousands of data points.

**Grid Edge Solutions**

Whether it is achieving energy autonomy, unlocking new economic opportunities or effectively managing renewables and Distributed Energy Resources (DER), we are your source for energy innovation and transition.

**e-mesh™**

Part of our growing digital innovation ecosystem, Hitachi Energy’s e-mesh™ portfolio of solutions combines advanced analytics, energy management software and hardware systems with battery energy storage.

**Grid-eXpand™**

It is a range of modular and prefabricated grid connection solutions make it faster, simpler and more efficient to expand power grid capacity and accelerate the transition to a more sustainable energy system.

The Grid-eXpand™ solutions are engineered, assembled and factory-tested by Hitachi Energy before delivery, ready for speedy and easy energisation on-site while reducing site-based construction risks. The solutions can be tailored to meet specific needs and grid code requirements. They are scalable to allow easy upgrade or expansion and are replicable to enable fleet harmonisation and reduce installed base complexity.

Site installation is up to 40% faster, the footprint up to 60% smaller and civil work up to 70% lower in costs than for conventionally built grid connections, which require extensive construction work and equipment assembly on-site.

**Containerised Substations**

Containerised mobile substations are sheltered and therefore ideal for applications in challenging environmental conditions, including areas with high pollution, high humidity, extreme temperatures or sandstorms.

**Mobile Substations**

Mobile substations are complete plug-and-play solutions comprising trailer- or skid-mounted modules for fast and easy transportation and energisation. They are a vital rapid-response solution for major grid disruptions, back-up supply, grid expansion and other needs.

**Grid-eMotion****®**

The Grid-eMotion® charging infrastructure facilitates the transition from fossil-fueled to emission-free fleet of electric buses and commercial vehicles. Grid-eMotion**®** Flash is a pioneering solution for sustainable e-mobility, enabling the haul trucks’ batteries to be rapidly and safely recharged in just a few minutes. It is equipped with configurable smart charging digital platforms that can be embedded with larger fleet and energy management systems.

**Surge Arrestors**

Surge arrestors are an essential component to increase the reliability of an electricity network as they serve as primary protection against atmospheric and switching overvoltages. Hitachi Energy has more than 75 years’ experience in designing and manufacturing surge arrestors. It offers a complete range of products for low, medium and high voltage applications, comprising solutions for AC and DC systems up to 1 100kV.

Together with its customers and partners, Hitachi Energy is committed to accelerating the energy transition towards a carbon-neutral energy system. We have placed sustainability at the heart of our purpose. Clean energy generation, network infrastructure and electrification of end-use sectors are crucial to decarbonisation strategies.

Hitachi Energy is the expert in providing the latest solutions for managing the energy transition in key economic sectors such as the mining industry.

**About Hitachi Energy**

Hitachi Energy is a global technology leader that is advancing a sustainable energy future for all. We serve customers in the utility, industry and infrastructure sectors with innovative solutions and services across the value chain. Together with customers and partners, we pioneer technologies and enable the digital transformation required to accelerate the energy transition towards a carbon-neutral future. We are advancing the world’s energy system to become more sustainable, flexible and secure whilst balancing social, environmental and economic value. Hitachi Energy has a proven track record and unparalleled installed base in more than 140 countries. Headquartered in Switzerland, we employ around 38,000 people in 90 countries and generate business volumes of approximately $10 billion USD.    
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**About Hitachi Ltd.**

Hitachi drives Social Innovation Business, creating a sustainable society with data and technology. We will solve customers' and society's challenges with Lumada solutions leveraging IT, OT (Operational Technology) and products, under the business structure of Digital Systems & Services, Green Energy & Mobility, Connective Industries and Automotive Systems. Driven by green, digital, and innovation, we aim for growth through collaboration with our customers. The company’s consolidated revenues for fiscal year 2021 (ended March 31, 2022) totaled 10,264.6 billion yen ($84,136 million USD), with 853 consolidated subsidiaries and approximately 370,000 employees worldwide. For more information on Hitachi, please visit the company's website at [https://www.hitachi.com](https://www.hitachi.com/).

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