

Three trends in the mining industry driven by rolling blackouts

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South Africa is a vibrant and diverse country rich in natural resources, holding the world's largest reported reserves of gold, platinum group metals, chrome and manganese ore - and the second-largest reserves of zirconium, vanadium and titanium.



Source: [Pexels](#)

It's no surprise then that these resources have long played a key role in contributing to South Africa's growth and development with mining also deeply ingrained in the country's history.

Today, the local mining industry is the world's fifth largest mining sector in terms of gross domestic product (GDP), contributing around R494bn, or 7.5%, to the country's GDP.

However, the country's current loadshedding crisis, which has been part of South Africa's grid since 2007, has placed significant pressure on the local mining industry, threatening its ability to continue to contribute to the fiscus, the labour market, and the broader economy.

We know that energy is a key driver of industry, but this is particularly true for industries like mining which is both energy and labour-intensive. As South Africa's power supply capabilities continue to worsen and become even more unpredictable,

and if the industry is unable to adapt to this worsening energy climate, the damage to the country's mining sector will compound until it can no longer sustain itself."

South Africa has continuously experienced a greater intensity and rate of loadshedding with every year that passes. In 2021, the country experienced 48 days' worth of power rationing, and this rose exponentially to more than 200 days in 2022. This resulted in the year-on-year decrease of mining output by 9% recorded by Statistics South Africa's latest mining production and sales report in November 2022, which marked the tenth consecutive month of decline in mining production.



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Loadshedding app ESP has already recorded 81 days' worth of scheduled power outages this year and we're only in the first quarter. Meanwhile, the South African Reserve Bank has predicted that there will be around 250 days of rolling blackouts in 2023 - and with an estimated \$51m lost every day due to loadshedding, this translates to a historic economic loss of \$12.7bn.

While this might paint a relatively bleak picture for the country's mining industry going forward, the sector is determined to become resilient and sustainable and mining companies are adjusting to the challenge of loadshedding.

Reducing energy demand

Mining companies in South Africa have acknowledged that becoming more energy efficient will be key to the mining industry overcoming the energy challenges in the country. Not only will energy efficiency ensure less expenditure in mining operations - due to rising electricity costs driven by the energy crisis - but energy-management strategies are helping mining companies to improve their return on investment and optimise energy-consuming components of mining operations.

Shifting to renewable energy

Insufficient and unreliable energy supply has spurred the industry's move towards building its own self-generation capacity. This is helping mining companies to ensure seamless power uptime that helps to maintain and grow productivity output and increase energy reliability at plants.

According to the Minerals Council South Africa, the mining industry currently has a pipeline of 73 self-generation projects from 24 mining companies to generate 5.1 gigawatts (GW) of electricity, valued at more than R65bn.



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Most of these projects involve the generation of power through renewable sources like solar power such as the first-of-its-kind, and largest in Africa (to date), private power purchasing agreement which will see two solar photovoltaic projects constructed which will supply electricity through wheeling arrangements with Eskom to five mining facilities across the Western Cape and KwaZulu-Natal.

This is largely being driven by government's support to facilitate self-generation through policy decisions such as the increase to the electricity-generation threshold for private energy producers to 100 megawatts (MW), which is expected to contribute to the mining sector's generation of

2,294MW of power by 2025, more than the capacity of Eskom's Arnot plant.

“While there is significant competition between mining companies to see who will be first to meet their own energy demand through their own supply, these projects are a clear indication that South Africa's mining industry is ready to take control of its energy future.

Using technology to remove unpredictability

The industry has recognised the need to evolve the way in which it operates, not only in direct response to the current loadshedding crisis but in order to withstand widespread disruption in the form of the Fourth Industrial Revolution as well as environmental challenges such as the Covid-19 pandemic and other geopolitical risks.

The best way to do so is through digital transformation that enables new ways of generating revenue. Through the use of emerging and advanced technologies, South Africa's mining sector is opening up new possibilities and creating new solutions that ensure the industry's continued resilience, adaptability, and the responsible mining of resources while contributing value to local talent and growing the economy in a more sustainability-driven world.

Technologies like cloud computing, AI and more are helping mines to harness their data to drive actionable insights that improve on performance, create better maintenance and repair strategies to reduce downtime and increase efficiencies. All of which are helping to eliminate unpredictable performance issues that could lead to significant financial losses and wastage.

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