

MINING DEVELOPMENTS

MAGAZINE

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Placing Safety At The Centre Of AECI Mining

Mining by nature can be considered a risky business and has always presented safety challenges to those participating in the industry. Yet, in modern times, mining safety has significantly improved thanks to progressive regulations, technological developments and increased commitment from stakeholders across the mining value chain.



Following the introduction of the Mine Health and Safety Act in 1996, the South African mining industry has made noteworthy progress in improving the overall safety, health and environmental standards associated with the sector. This improvement coupled with continued commitment of stakeholders has led to a reduction in mining-related injuries and fatalities. AECI Mining's CEO Mark Kathan notes that safety is a "team sport", and while solid legislation provides the foundation for improved safety, business has an important role to play in not only ensuring compliance, but also prioritising safety within each organisation of the mining value chain.

"Safety is at the top of our priority list. To AECI, that means making sure our business operates sustainably without harm to our people, the environment and communities in which we operate. This relentless focus on safety at all of AECI Mining's operations has been entrenched into our culture and DNA," he says.

A culture of safety

Putting safety at the centre of the business has delivered pleasing results culminating in our best ever Total Recordable Incident Rate (TRIR) of 0.1 in 2022.

TRIR is a safety measurement that acknowledges a company's commitment to occupational health and safety protocols, and is based on the number of reportable safety incidents recorded against the number of hours worked by employees and contractors.

Kathan explains that this safety performance is a direct result of AECI Mining's Zero Harm safety initiative.





The successful implementation of the SHEQ framework depends on each of us applying its principles daily,” he says. “In fact, in 2021 we solidified Zero Harm and sustainability as one of three strategic platforms in our growth strategy. Our vision is to deliver sustainable solutions for a better world, through innovation and excellence founded on good chemistry.”

AECI Mining is working towards what it calls “Better Mining”. Kathan explains this as “making mining safer and more circular” and says it starts with leadership, before cascading through every aspect of the business.

“To implement a successful occupational safety initiative, especially when operating in more than 24 countries with a staff complement of 3 800 employees, you most definitely need the support from executive leadership with safety as part of their DNA,” he says.

“At AECI Mining, I am fortunate to be a part of a leadership team that understands, supports and prioritises our goal of Zero Harm. This continued commitment to Zero Harm is critical to ensuring that the importance of safety protocol messaging throughout the company is heard. It plays a significant role to the continued provision of a safe working space for all of our people, whether they are on-site, in our operating plants or at the office.”

Better mining and sustainability go beyond safety to encompass issues such as environmental, social responsibility and governance compliance (ESG). In terms of AECI’s ESG strategy, a key commitment has been made to achieve net zero emissions by 2050, through the adoption of a sustainability framework guided by six priority United Nations Sustainable Development Goals and 23 ESG indicators.

“We will also be evaluating potential investments with industry partners in green ammonia, which speaks to our business aligning every operational decision and action with our ESG aspirations, in pursuit of Zero Harm to people and the planet.”Kathan explains that

using digitisation to its advantage, AECI Mining has also made great strides towards implementing a system to track scope 3 emissions for raw material used at its plant, as well as goods sold to customers – one of the first industries to do so.



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Cabinet targets 1 000 MW of demand-side savings as winter approaches



Minister in The Presidency Khumbudzo Ntshavheni

Cabinet reports that a target has been set to save about 1 000 MW, or the equivalent of one stage of loadshedding, through demand side management (DSM) measures, but has provided no details as to what initiatives will be introduced and at what cost.

Presenting the outcomes of Cabinet's meeting, Minister in The Presidency Khumbudzo Ntshavheni described lowering electricity usage, especially during the evening peak from 17:00 to 21:00, as representing a "win-win" solution. She argued that DSM initiatives could reduce pressure on the power grid and save households and firms money "without affecting business

productivity or quality of life".

"The aim is that collectively we must save electricity by switching off non-essential appliances, using gas to cook, installing energy efficient light bulbs, and switching off appliances like geysers when not in use," Ntshavheni said, noting that such efforts had proven effective in the run-up to the 2010 FIFA World Cup.

"The target is to save about 1 000 MW of power, which is equivalent to one stage of loadshedding."

Cabinet called on business, industry and residential customers to join the DSM campaign being pursued by Eskom with the support of the National Energy Crisis Committee (NECOM).

The DSM initiative was one of several plans outlined by NECTOM and Eskom to reduce the intensity of loadshedding ahead of the high-demand winter months, but the utility had not yet formally released its winter outlook.

Most of the DSM programmes that had been mooted were unlikely to be able to be implemented immediately, however, and there was thus growing concern that Stage 6 loadshedding, the highest stage to be officially implemented to date by Eskom, could well be breached in the coming months.

On the supply-side there were also few immediate options to provide relief, besides

using the open-cycle gas turbines more intensively and Electricity Minister Dr Kgosientsho Ramokgopa had already indicated that the utility had a R30-billion diesel budget for 2023/24.

At a recent National Demand Management Indaba some short-term savings options were raised, including by the Energy Intensive Users Group, which proposed increasing financial incentives for demand response and even suggested that government reconsider power buybacks during winter as a way to avoid higher levels of loadshedding.

It is understood that such a buyback scheme, which would see large electricity consumers remunerated for agreeing to cut demand, has been canvassed with both Eskom and Ramokgopa but that no agreement had yet been reached regarding its implementation.

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Huawei Launches Smart PV Solutions For All Scenarios Of African Residential Market

Xia said, “The three residential solutions will help users cope with daily challenges such as load-shedding, which are prevalent across the region. Meanwhile, the residential market faces some challenges such as user experiences, mixing manufacturers, quality, service, efficiency and aesthetics.”

Xia noted that “Huawei is focusing on “4T” Technologies (Watt/Heat/Battery/Bit), this will drive the residential PV scenarios with high quality products that are not only aesthetically pleasing but products that offer high quality system level solutions that integrate

digitalisation and intelligence into the PV industry.”

Over its 25 years of operating in Sub Saharan Africa, Huawei has built a deep understanding of the region's energy and technology requirements. "We supply smart photovoltaic (PV) solutions for all scenarios in the African residential market, committed to bringing clean energy to every home."

Nick Lusson, VP of Huawei Smart PV Sub-Saharan Africa Region, gave an overview of the features and advantages of the three residential solutions at the launch.

Nick Lusson, VP of Huawei Smart PV Sub-Saharan Africa Region

Power-M is a high-quality power supply system for multi-scenario applications, flexible for use in apartments, houses or large villas. "Huawei has demonstrated its aesthetic design skills as always, by bringing to consumers a sleek design energy system with the ultimate aesthetics. Thanks to the all-in-one and modular design, the inverter and battery are perfectly integrated, consumers can flexibly choose the number of battery modules to expand the capacity from 5kWh to maxim 45kWh whenever they want. The Power-M supports seamless switchover between multiple energy inputs, such as solar, grid, and generator. In order to provide a better home usage experience, Power-M has a fan-less construction with sleep-grade noise, the operation sound level is less than 29dbm. The unique plug and play design makes for an easy and quick installation in around two hours," he said.

generation by improving efficiency by 5-30%.

“To ensure the safety of installers and roof usage, the module-level shutdown function provides a safer roof voltage. The intelligent battery storage, ESS, can provide 10% more usable energy with the built-in optimiser in each battery module,” Lusson explained. The LUNA AI system can accurately predict photovoltaic power generation and household electricity consumption under different climate scenarios based on big data learnings of weather and electricity consumption habits. Using the FusionSolar APP, consumers can remotely monitor and manage LUNA anywhere anytime.

“What’s more, Huawei brings high-end solutions to large villa owners. Thanks to the one-stop solution and premium service, the end users can enjoy an ultimate user experience for a fully integrated luxury power generation villa,” Lusson explained.

Huawei and its local partners concluded the launch with a with Huawei smart photovoltaic (PV) solutions for all scenarios of the African residential market, together committing to bring green energy into every home and creating a better life experience for the people of Africa.

LUNA is an intelligent power system integrating smart power generation, smart power storage and smart power consumption. With the Huawei smart module controller, the homeowner can maximise the roof installation capacity, resulting in between 10-30% more panels installed. The smart module controller can also significantly increase solar power



At the press conference announcing the launch, Xia Hesheng, President of Huawei Digital Power Sub-Saharan Africa Region, said that Huawei was releasing three residential solutions: Power-M, LUNA, and the high-end luxury solution.

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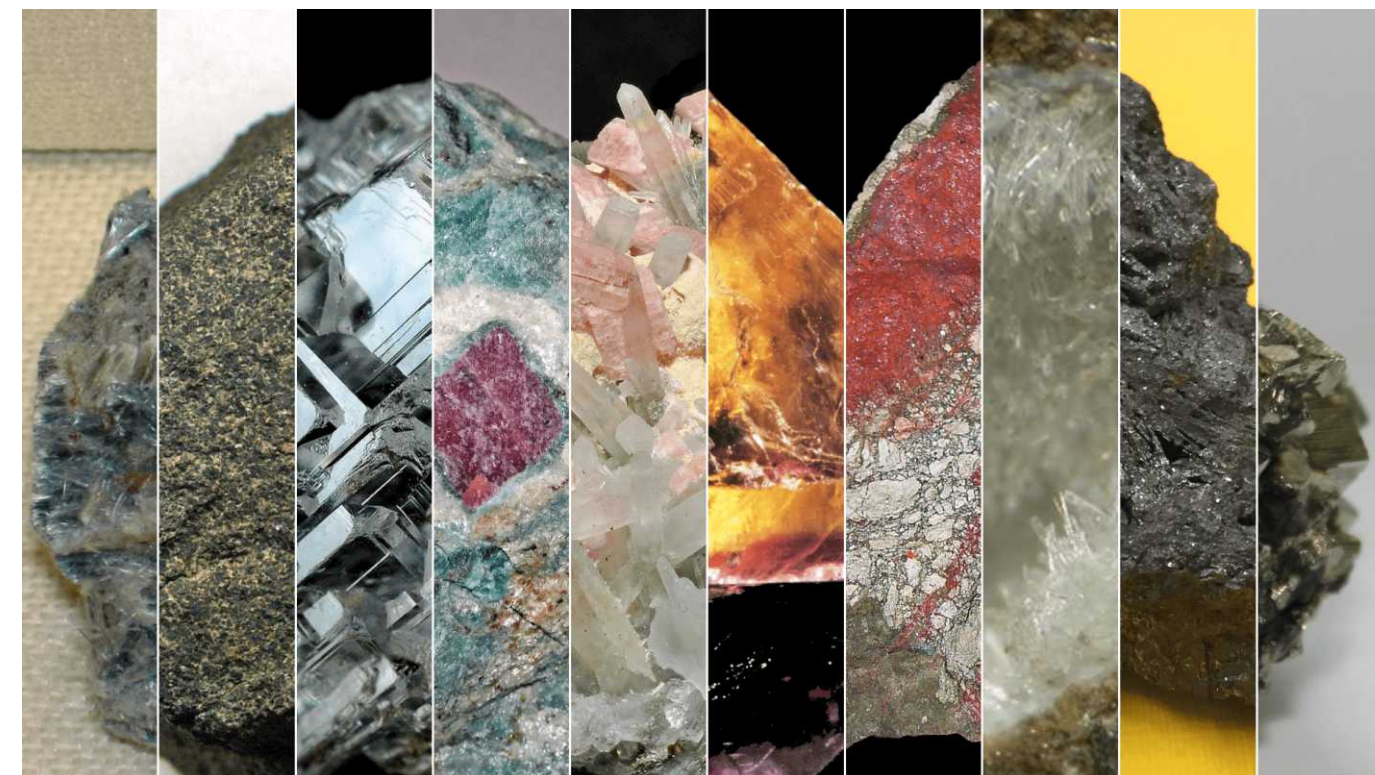


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Metals and minerals prices to fall, World Bank report shows



The metals and minerals price index rose 10% in the first quarter of this year, compared with the final quarter of 2022, the World Bank's latest 'Commodity Markets Outlook' report shows.

It says this reflected optimism for a strong recovery in China and improved global growth prospects at the start of the year.

All metal prices, particularly iron-ore and tin prices, were higher for the quarter.

However, this optimism waned, and most prices receded from their January highs by the end of the quarter.



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Only iron-ore prices remained firm, owing to strong demand from China's steel sector.

A short-lived price spike in January was fuelled by expectations that the end of China's zero Covid-19 policy would push demand higher, as China accounts for about half of the global consumption of base metals.

However, prices declined in March, largely because of weakening global demand, the report points out.

The precious metals index increased by 9% in the first quarter of the year, driven by a weakening dollar, safe haven buying following banking stress in the US and Europe, and strong industrial demand for platinum and silver.

Coal prices fell in the first quarter of the year as additional production was about three times the level of additional consumption.

The supply gap triggered by the European ban on coal imports from Russia was filled by Colombia, Indonesia, South Africa and Kazakhstan.

Global coal consumption reached an all-time high in 2022.

In terms of production, in 2022, production is estimated to have risen globally in response to higher prices.

However, in South Africa, output declined owing to labour unrest and railway disruptions.

Critical mineral prices have been volatile over the past two years, reflecting thin and segmented markets, the report indicates.

Lithium prices declined by nearly 35% in the first quarter of the year from the previous quarter partly owing to the global economic slowdown and the termination of a decade-long electric vehicles subsidy initiative in China.

The World Bank's precious metals index increased by 9% in the first quarter of the year, driven by a weakening dollar, increased geopolitical tensions and inflationary pressures, as well as strong industrial demand for silver and platinum.



Potential decisions by central banks to hold more gold is a key upside risk for gold prices, while supply constraints may lead to higher silver and platinum prices, the report says.

OUTLOOK

Coal prices are forecast to fall 42% this year and 23% in 2024.

The anticipated increase in demand from China is likely to be offset by weaker demand elsewhere, as utilities switch back to natural gas, the report states.

Exports from major producers (particularly Australia and Indonesia) are anticipated to rise.

Metals and minerals prices, which briefly

increased in January, are expected to fall by 8% this year relative to last year and by a further 3% in 2024.

Global demand in manufacturing is expected to remain weak, and China's recovery is expected to be heavily services-oriented.

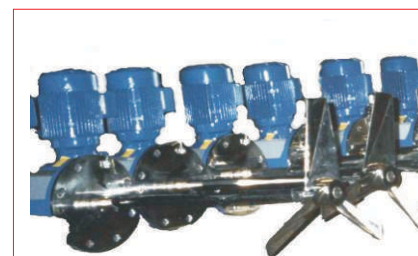
Strong supply growth is projected over the forecast horizon, supported by a recovery from production outages and new mines coming on stream for key metals (copper, nickel and zinc).

Precious metals prices are expected to increase by 6% in 2023 as safe-haven demand rises amid elevated uncertainty with respect to future growth prospects, ongoing concerns about inflation, and financial stress in the first quarter.

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HK Mining Solutions: Level-2 B-BBEEE Solutions Provider



In 2022, HYDAC Technology's German owners, along with HYDAC South Africa, decided to adopt transformational change in South Africa by looking for a Black Economic Empowerment partner. The company that was formed, HK Mining Solutions, is 51% owned by Moodley and this business will be ring-fenced for the mining industry.

In their search for a partner, HYDAC Technology's German owners were looking for an individual that could add value at every level in their partnership and are confident that Moodley fits this mould perfectly with his experience.

HK Mining Solutions is equipped to be able to offer countrywide services to South Africa's mining industry. "In terms of an overseas OEM being in a minority partnership with a local BEE entity, I think HK Mining is unique in the hydraulics industry," says Moodley, adding that the company will initially be registered as an EME (Exempted Micro Enterprise), with views to rapidly growing into a QSE (Qualifying Small Enterprise). He believes that with a partner of HYDAC's global stature and presence in countries that are strong in mining, HK Mining

Solutions will be able to add value and improve reliability of mining operations to the local mining industry, leveraging their local and international team expertise.

He adds that one of the barriers for B-BBEE companies is finance, however with the strength of a partner like HYDAC, HK Mining will bring comfort to mining houses in terms of project execution due to financial backing.

Uven Moodley has been part of the Engineering industry for 30 years. He started his career in a clerical position, then through a bursary, he became a diploma-qualified Mechanical Engineer. He has since held positions at engineering, management, director and shareholder levels in several successful companies.

In 2018 he became part of the newly formed management team of HYDAC Technology "I feel I have circled back to engineering, where my passion lies, which aligns with HYDAC's core business: turnkey mobile and industrial hydraulics, along with lubrication and filtration solutions as well as diesel and process filtration. And now with HK Mining Solutions we are

looking to extend our scope and range to mining specific customers,” says Moodley.

He adds that he will be ably supported by general manager, Eddie Jacobs, who has been involved in the hydraulic industry for over 20 years. “Eddie has vast hydraulic knowledge and experience. He is an industry expert in mining, having built a career developing and implementing new turnkey hydraulic systems and refurbishing and upgrading existing ones.”

HK Mining Solutions also has shared services,

including engineering design offices, assembly, and refurbishment workshops. In addition, we have the support of HYDAC global, based in Germany.

As part of HK Mining’s growth strategy they will be looking at expanding their footprint into mining areas by either direct presence or partnering with local complementary engineering companies whilst leveraging off HYDAC Technologies’ shared services amongst other engineering and workshops,” concludes Moodley.



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Mining Elites in Africa 2023: Showcase – METC Engineering

If you are an investor marketing and raising funds for your new project in Africa, an existing mining house expanding in new territories, or simply completing feasibility studies to see if your new mining venture on the continent will be the next pot of gold at the end of the rainbow, do yourself a favour and make sure you can tick off at least four of the six following requirements with METC Engineering. Otherwise, you may be in for a hiding second to none!

Tax advice from METC Engineering

There are many taxes to consider when foreign and local companies work in Africa. Be forewarned they may change from month to month and vary from country to country. For work completed in a specific province or region of a country, a local municipality, or community, regional tax may be payable to that authority at the end of the fiscal year, i.e. payable in arrears. This is sometimes not even stated in a country's tax laws. "It's better to ask than to leave it to fate," states Dr Steve Cathey, Director at METC Engineering.



Mining site



Should you follow the route of opening up a local entity, ensuring compliance to localisation laws – better known as BBBEE (Broad-Based Black Economic Empowerment) in South Africa – know that there are withholding tax deductions between local businesses and these will be automatically deducted by the client on all invoices.

If you have opted to remain non-registered within the foreign country and you planning to develop a mine, professional services will attract between 15-25% withholding taxes depending on the jurisdiction. If this is not enough, import duties can vary, based on what equipment and materials are manufactured within the country. These typically range between 5% and 45%. Mining companies sometimes enjoy exemption from duties for the operations or projects and this needs to be applied for.

Contractors

It's METC's experience that construction contractors are keen to bid competitively for work in Africa but price in different ways. There is frequently a misunderstanding of Time Related and Fixed Preliminary-and-General (P&Gs) and that should be correctly allocated to your costing structure. This needs extensive discussion during tender and adjudication

phases to ensure the best solution is achieved.

Localisation

More and more African countries insist on, and the law requires, a local partner ownership (20% to 51%) in all businesses that are completing work in the mining industry. Prior government approval may also be required on contracts placed in the mining industry. The authorities are not afraid to reject companies carrying too much foreign ownership or insufficient local participation.

Transport

Make sure you have completed a logistics study. METC Engineering has learnt that importing goods through certain African ports should be avoided due to long shipping queues entering the harbour and bureaucracy to get goods offloaded, not forgetting unforeseen customs' "express" clearance costs. While road transport from more reliable ports on the continent is slightly more expensive, it is significantly quicker than congested and corrupt ports.

Earth sciences engineering

Environmental requirements have thankfully been tightened and getting design and construction permits can be tedious and will

often require a design rubber stamp from a local design engineer. When applying for permits to build dams, tailings storage facilities, dry stacking, bleed-off waste stream containment facilities and the like, Approved Professional Person (APP) sign-off must be given by the local authorities.

Thus, the push to utilise local institutions to oversee and sign off certain design requirements may be required and this will have an impact on cost and time. If foreign companies are doing the design, a local APP must be assigned to handle the application process and all communication with the relevant authorities.

Cost of developing infrastructure

The last item on this list is the cost of infrastructure. "Realise the cost of developing infrastructure in remote sites and its challenges and know that it will cost more than you realise" says Nick Tatalias, MD of METC Engineering. "Give thought to items such as not only services and infrastructure, but the indirect public impact it may have."

Based in Sandton, South Africa, METC

Engineering specialises in the design and building of metallurgical process plants. Combined, the company's team has worked on more than 75 such sites across the African continent.

"METC Engineering designs and builds metallurgical processing plants for mines in an open and flexible environment," says Cathey. "It is our alliances and contracting strategy that sets us apart from other EPCM houses.

"With all the challenges as mentioned above, Africa provides the opportunity to thrive. The appetite for higher risk projects within Africa are being pursued as these mines have grades sometimes ten times that of mines in the more established first world countries.

"With slow economic growth elsewhere in the world, the opportunities in Africa are bringing investors into the continent. This presents a myriad of opportunities, not only in mining but also benefiting concentrate to final product, as we ultimately produce our own batteries, solar panels and cars," Cathey concludes.

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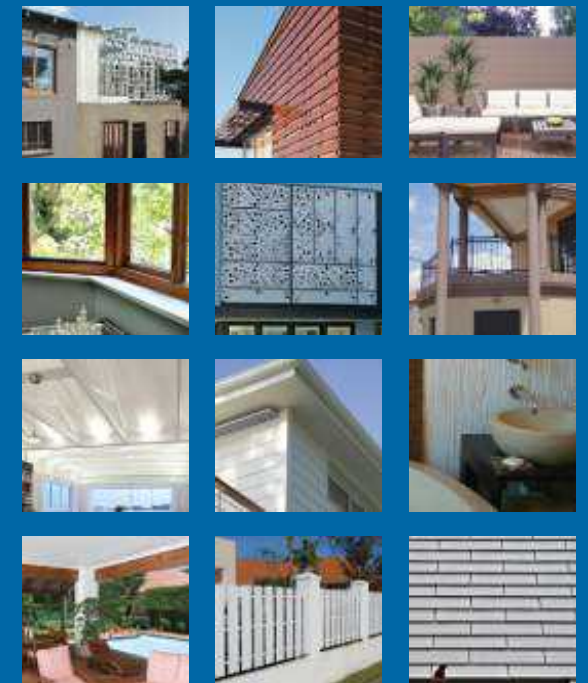
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Topcon's new GLS-2000 is equipped with ultra high speed scanning that provides time saving benefits without compromising accuracy. With a scan range of over 350 meters, a full-dome $360^{\circ} \times 270^{\circ}$ field-of-view, and a simple one-touch operation, the GLS-2000 is a rugged and versatile tool that enables you to capture accurate 3D data in all your challenging work environments, across all your applications. The GLS-2000 is an industry-leading scanner that no serious practitioner should be without.

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