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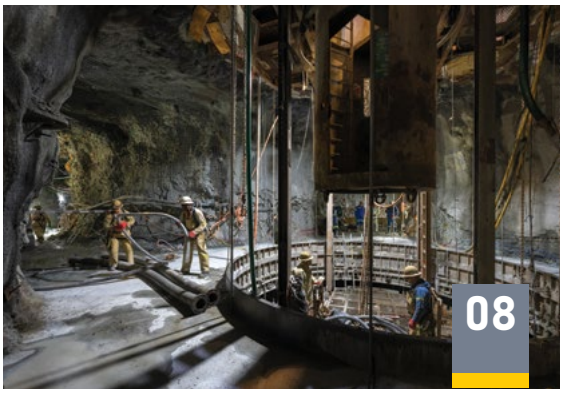

ON THE COVER

Shaft sinking is undergoing a fundamental shift driven by several factors. This has translated into increased demand for UMS Group's specialised services. **Pg 8.**

COMMENT

SA seeks new avenues of trade

Nelendhre Moodley.

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US President Donald Trump's trade tariffs are wreaking havoc across the globe. South Africa has been hit with a 30% tariff - this affects the agriculture (citrus, wine, nuts), automotive manufacturing, metals, and agro processing segments. America is South Africa's third biggest trading partner after China and the EU, accounting for 7.5% of South Africa's global exports.

The good news is that 35% of SA exports are exempt from the tariffs - copper, pharmaceuticals, semiconductors, lumber products, certain critical minerals, stainless steel scrap and energy products.

According to the Department of Trade, Industry and Competition (the dtic), significant progress has been made in opening vast new markets like China and Thailand (securing vital protocols for products like citrus and others); with inroads into high-growth markets across Asia and the Middle East, including the UAE, Qatar, Saudi Arabia and several Trade and Investment Packages inked with a number of countries, including Japan. "While the current measures present challenges, they also present opportunities to build and accelerate the implementation of the AfCFTA and to develop new partnerships in markets that have remained untapped, including ASEAN and Türkiye, the DTIC said in a statement.

> "Global turmoil, has seen gold miners and investors smiling all the way to the bank. In July, the gold price traded above $3 300/oz with pundits predicting gold to trade closer to $3 400/oz by year end.

Global turmoil, meanwhile, has seen gold miners and investors smiling all the way to the bank. In July, the gold price traded above $3 300/oz with pundits predicting gold to trade closer to $3 400/oz by year end.

According to the World Gold Councils Gold Demand Trends Q2 2025 report, strong investor interest is driving gold demand higher with a 3% increase year-on-year. Total gold supply increased to 1 249 t, with mine production up marginally to a new second quarter record.

On the topic of gold, Akobo Minerals is on the hunt for new gold ounces. Having achieved first gold from its Ethiopian Segele mine in October, last year, the Scandinavian-based gold producer is now firmly focused on unlocking further gold ounces from higher-priority targets close to its flagship asset, CEO Jørgen Evjen Akobo Minerals tells *Modern Mining* (pg 14).

Good news is that PGMs are finally on the receiving end of some much-needed love, having long been in the doldrums. The developing structural deficit in the PGM market and subsequent improved prices see PGM developer, Southern Palladium, bullish about the future. Southern Palladium expects to break ground on its flagship Bengwenyama Project in 2027, at a time when PGM prices are anticipated to be at their most favourable, says MD, Johan Odendaal (pg 18).

Critical and strategic minerals are also in the spotlight with key nations, including the US, vying to secure off-take agreements and supplies of critical minerals, which are essential for various technologies like batteries, electric vehicles, and renewable energy systems. This robust demand is welcome news for critical minerals miner, Andrada Mining, which sits in the sweet spot as a producer of tin, tantalum and lithium (pg 16).

However, the natural diamond industry has been on the back foot as the world favours lab-grown diamonds. In a bid to safeguard the future of natural diamonds, industry stakeholders recently met to forge a path to profitability. The Minister of Mineral and Petroleum Resources, Gwede Mantashe, urged a united front to revive the natural diamond industry and proposed the creation of a dedicated marketing fund, offering to champion the global promotion of SA diamonds, on condition that industry players commit a portion of their revenue to the cause.

The challenge, says Errol Smart, Vice Chairman of the South African Diamond Producers Organisation (SADPO) is that diamond producers will have to contribute 1% of their revenue to marketing. "We believe in the imperative of adopting a marketing strategy and agree that it must be done, however, as diamond mines are currently loss making there is no income to contribute to the cause." (check out the upcoming edition for the story). ■

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Seasoned explosives leader Van den Berg joins BME

Blasting and metallurgy solutions company BME has appointed Meagan van den Berg as its Managing Director for Africa, a role that will support blasting operations across Africa (excluding South Africa) as well as the global metallurgy operations. BME, a member of the Omnia Group, has developed a strong footprint in Africa since its inception in South Africa in 1984 – while also expanding internationally by establishing operations in North America, Indonesia and Australia. According to BME Managing Director Ralf Hennecke, the new position will reinforce BME's strategic growth in Africa (north of SA) and internationally, leveraging the company's innovation and supply chain security to further enable global scalability. Van Den Berg has 16 years of experience in the mining and explosives industry in Southern Africa, starting her career working as a mining engineer and explosives engineer. ■

BME appointed Meagan van den Berg as its MD for Africa.

Aurum Resources completes a $35.6 m strategic placement

ASX-listed Aurum has announced the successful completion of its A$35.6 million private placement of 100 million shares at $A0.356 (35.6c) per share. This follows shareholder approval of all resolutions at a General Meeting held on July 8, 2025. The placement comprised $A23.89 million in cash and the issue of around 2.9 million fully paid common shares in TSX-listed Montage Gold.

The proceeds from the placement will be deployed to accelerate Aurum's growth initiatives, including:

- Accelerating resource definition drilling at the 1.6 moz Boundiali Gold Project and exploration drilling at its newly acquired 0.87 moz Napié gold project, both in north Côte d'Ivoire.
- Expanding the self-owned and operated diamond drilling fleet from eight rigs to ten rigs.
- Completing two JORC resource updates for the 1.6 moz Boundiali gold project in CY2025.
- Completing one resource update for the 0.87 moz Napié gold project in CY2025.
- Conducting PFS and DFS for the Boundiali Gold Project, with the PFS expected by year-end 2025 and DFS by H2 2026.
- Progressing mining exploitation licence applications and approvals. ■

Aurum is accelerating resource definition drilling at the Boundiali Gold Project.

Sibanye-Stillwater to acquire US metals recycler Metallix

Sibanye-Stillwater to acquire Metallix Refining for $82 m.

Diversified miner, Sibanye-Stillwater, has entered into a purchase agreement to acquire Metallix Refining for $82m. Metallix produces recycled precious metals, including gold, silver and platinum group metals (PGMs), primarily from industrial waste streams. It operates two processing and recycling operations in Greenville, North Carolina. Metallix has a global customer base, which it services from the United Kingdom and South Korea, in addition to its customers in the United States.

For the 12 months ended 31 December 2024, Metallix processed roughly 4.2mlbs of precious metals bearing waste materials and produced around 21koz of gold, 874 koz of silver, 48 koz of palladium, 48 koz of platinum, 4 koz of rhodium, 3 koz of iridium and 263 klb of copper.

Metallix complements Sibanye-Stillwater's US recycling operations in Montana and Pennsylvania, adding processing capacity, proprietary technology and extensive knowledge and experience. The acquisition enhances the group's global recycling reach and internal logistics capabilities, increasing its ability to source materials from multiple regions, facilitating the delivery of end-to-end solutions to customers.

Resolute announces initial mineral resource at Bantaco Project, Senegal

Resolute Mining delivers MRE for Bantaco South and West Prospects.

African focused gold miner, Resolute Mining, has announced an initial Mineral Resource Estimate (MRE) for Bantaco South and West Prospects at its Bantaco Project which is situated 20km east of the company's Mako Gold Mine in Senegal.

The Bantaco Project is one of the potential satellite deposits, along with Tomboronkoto, that Resolute is focusing on to extend the life of the Mako Mine. These projects will deliver operational resilience, economic benefits, and social value, while also maintaining the company position for future success in Senegal and the broader West African region.

The current combined mineral resource estimates of Tomboronkoto and Bantaco contain over 600 koz of gold, with possibilities of expansion based on ongoing exploration results. Together these projects likely have the potential to provide another five to 10 years of mining activities in Senegal. ■

Kibali continues to deliver growth

Gold miner, Barrick Mining has announced that drilling results from the ARK-KCD corridor continues to strengthen confidence in its scale and continuity, demonstrating the potential to host significant additional orebodies and further extend the life of mine at Kibali, Africa's biggest and greenest gold mine.

Speaking at a media briefing in Kinshasa, Barrick CEO, Mark Bristow, said the work on the ARK-KCD system is revealing a coherent geological structure — with mineralisation expanding laterally and down plunge — that could significantly grow Kibali's reserve base within the existing footprint.

"Kibali was built with a long-term view and has consistently delivered across production, partnerships and reserve growth. We've replaced every ounce we've mined and more since Kibali poured its first gold in 2013, and the ARK-KCD corridor shows that there's still much more to come," he said.

Kibali continues to contribute meaningfully to the Congolese economy with in-country investment now surpassing $6.3 billion, including $3.1 billion in payments to local contractors and partners. The mine remains the single biggest economic contributor to the northeastern DRC, spanning the Haut-Uele and Ituri provinces.

Barrick seeks to extend the life of mine at Kibali.

"Kibali is more than a mine. It's a partnership that anchors the regional economy. It's Congolese-led, Congolese-supplied and built to last. We're proud of the model we've created here — one that delivers shared value every step of the way," Bristow said.■

Royal HaskoningDHV South Africa becomes Atana

A group of mostly South African engineering professionals who bought a controlling margin of the South African arm of Netherlands-based engineering consultancy Royal HaskoningDHV have rebranded it as Atana, effective from 1 July 2025.

The group – management and employees of the company – now owns 74% of what was Royal HaskoningDHV South Africa, with the Dutch business retaining 26% ownership. The South African operation of Haskoning became an independent company, owned by employees and local management, on 29 February 2024.

This means that Atana is an independent, majority African-owned firm whose autonomy is a significant competitive advantage across the African continent, allowing it to be more responsive to local market demands, says Atana CEO Anke Mastenbroek.

Atana is a level 1 broad-based black economic empowerment (B-BBEE) company, a status that gives it a competitive advantage in local and national tenders and partnerships.

"Our rebrand as Atana highlights our strong focus on the pan-African market while building on 103 years of experience," says Mastenbroek. ■

Orezone to raise A$75 million as part of ASX listing

TSX-listed West African gold producer Orezone Gold Corporation has lodged a prospectus with the Australian Securities and Investments Commission (ASIC) for an initial public offering to raise proceeds of A$75 million, as part of the company's application for admission to the official list of the ASX.

Under the Prospectus, the company is offering 65,789,474 CHESS Depository Interests (CDIs) over fully paid common shares in the capital of the company shares at an offer price of A$1.14 per CDI to raise gross proceeds of A$75.0 million. Each CDI represents a beneficial interest in one share. Patrick Downey, CEO stated, "We look forward to the ASX listing which will raise the company's profile by broadening its shareholder base and increase trading liquidity for all shareholders. The listing also represents an exciting opportunity for investors to participate in the company's growth strategy as we execute on our staged hard rock expansion at the Bomboré Mine which will significantly increase our annual gold production. First gold from the stage 1 hard rock plant is scheduled for Q4-2025 and production in 2026 from the combined oxide and stage 1 hard rock operations is forecasted to be 170 000 to 185 000 ounces. The stage 2 expansion is forecasted to increase the overall gold production profile at the Bomboré Mine to 220 000 to 250 000 ounces per annum. Subject to funding, ongoing studies and final Board approval, the stage 2 hard rock expansion will commence in H2-2025, with commissioning expected in Q4-2026." ■

Mining sector refines young talent – **its most valuable resource**

The mining industry is reimagining itself, empowering the youth as a precious asset for the future. Across the sector, stakeholders have committed to attracting young people and unlocking their full potential.

As a critical economic sector committed to inclusive growth, the mining industry is evolving rapidly, building partnerships across the economy – and across society – to unlock value and opportunities for all role players. Clear evidence of this is the growing cohort of young people in the industry.

This year's flagship mining-sector event, Investing in African Mining Indaba 2025, saw a strong youth presence, with an entire day of the event dedicated to a Young Leaders Programme. The programme featured a keynote speech by South African Deputy Minister of Minerals and Petroleum Resources Phumzile Mgcina, as well as panel discussions and networking sessions for current and prospective young mining professionals.

Well-attended panel discussions saw young Africans sharing their vision for the industry, and how to unlock the continent's full youth potential. A group of more than 10 PhD students in mining-related fields were also integrated into the programme, bringing more youth perspectives to the event.

'Speak our language'

A recurring theme has been that to empower young people in the sector, mining must speak the language of young Africans, on issues they can relate to. In many cases, that is about inclusivity and sustainability.

"Young professionals are looking for purpose-driven careers that offer impact, growth, innovation and inclusivity," says recent mining graduate Nomvula Mahlangu, currently completing her internship at Sibanye Stillwater's Gold Division.

Mahlangu, 26, believes the mining sector can bring more young people into the industry by continuing to create flexible learning pathways, mentorship structures, and platforms for innovation and leadership.

The broader industry has shown growing enthusiasm to create such platforms. The R400-million Junior Mining Exploration Fund, for instance, established by the Industrial Development Corporation, the Department of Mineral and Petroleum Resources and The Council for Geoscience, gives junior mining businesses access to significant funding.

In terms of the culture of the industry, Mahlangu says there has been some progress in attracting young people into the business and hearing their voices.

"I've been fortunate to access platforms like AfriMine and the Mining Indaba Influencer initiative, where my voice has been heard, valued, and supported. However, in traditional spaces, young professionals still have to prove themselves before being taken seriously," she says. "The sector is learning to trust fresh perspectives, but we must continue building inclusive environments that actively invite young professionals and listen to them."

An industry vision

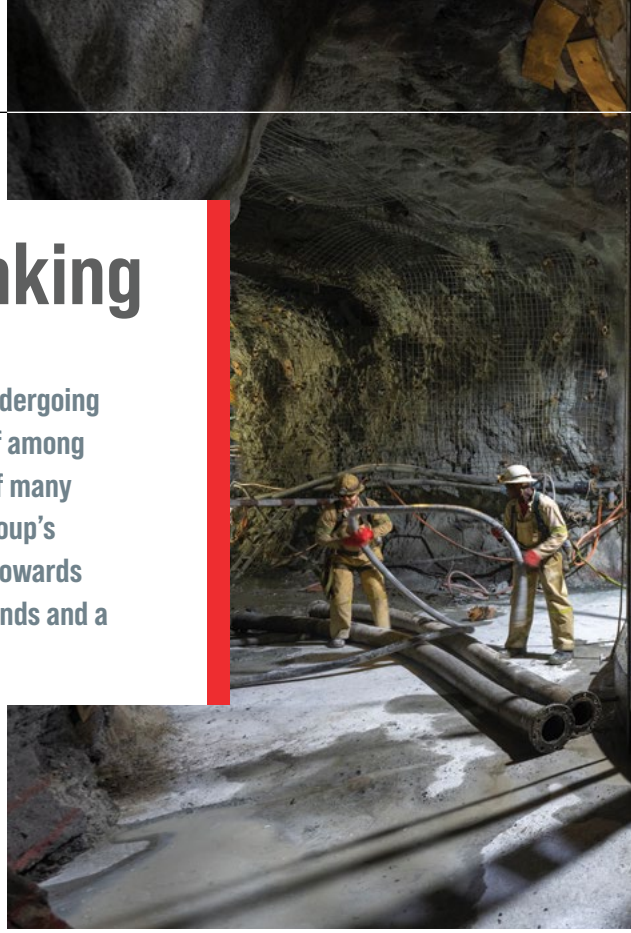
Mahlangu is optimistic about the industry and its moves to integrate young people into its strategic structures. The two young mining professionals are part of the Mining Indaba 2026 Influencer Campaign — an initiative to amplify authentic voices shaping the future of mining in Africa.

The campaign aims to showcase stories of innovation, sustainability and impact across the mining value chain, in line with the Mining Indaba 2026 theme: "Stronger Together: Progress Through Partnerships."

"The next generation of mining professionals aren't just the future of mining, they are the game-changers who are driving its evolution," explains Mining Indaba's content and communities director, Laura Nicholson. "Mining Indaba offers the youth platforms to empower emerging talent to learn, experiment, and articulate a bold vision for the industry. In challenging periods, new perspectives are a powerful investment in a future built on ingenuity, resilience and ambition." ■

Emerging trends in shaft sinking

Like many other aspects of the mining value chain, shaft sinking is undergoing a fundamental, multidimensional shift driven by several factors. Chief among them is the dynamic transition from surface to underground mining of many commodities, which has translated into increased demand for UMS Group's specialised services. Other key trends include the fundamental shift towards accelerated projects, convergence of technology, sustainability demands and a greater focus on health and safety.



In recent years, one of the major trends in the mining sector has been the transition from surface to underground mining, mainly due to factors such as declining ore grades of remaining near surface deposits, deeper ore deposits and increased demand for critical minerals. On the back of this trend, United Mining Services (UMS) Group, a globally renowned single-source provider of underground mining and mineral processing project services, is experiencing increased demand for its shaft sinking services, confirms the company's chief operating officer (COO) Robert Hull.

"This trend has directly translated into increased demand for our specialised services," says Hull. "In fact, we are currently executing two major underground mining construction projects that are pertinently related to this transition – converting open-pit operations into more efficient underground mines. Additionally, we are doing early-stage due diligence and feasibility studies with mining companies globally that are navigating this exact challenge. The renewable energy transition has particularly accelerated demand as companies seek to access deeper, higher-grade deposits essential for critical minerals."

Commenting on the project footprint, Hull says UMS currently operates across four continents with a diverse portfolio spanning the complete project lifecycle. Its active projects encompass due diligence studies, feasibility assessments, owner's team services, EPCM delivery and direct construction execution across both underground mining and metallurgical processing facilities. Its secured project pipeline extends well beyond 2028, with multiple near-term contracted projects awaiting commencement and a large global prospect pipeline.

Major projects

Tjaart Prinsloo, project & engineering manager at UMS, who is presently overseeing one of the two major shaft sinking projects that UMS is currently executing, says mines are transitioning from opencast to underground operations mainly because surface deposits are depleting, requiring access to deeper, more valuable ore bodies.

"This is exactly the case at one of the leading diamond mines in Botswana, where we are undertaking a major project to sink two shafts, each approximately 750 m deep. This significant undertaking is part of the client's brownfield expansion programme which will transition the mine from open-pit to underground operations and enhance production of high-quality diamonds," says Prinsloo.

Jannie Nel, project & engineering manager at UMS, says as open-pit mines reach their economic end of life, mine owners often consider the viability of transitioning to underground mining to access vast deposits of high-grade material hundreds of metres further below their current operations.

"A case in point is a project we are undertaking at a major copper mine in Brazil, where the open-pit operations had become uneconomical to mine. Having been operational for over 40 years, the open-pit had become too deep, translating into increased haulage costs. The client sought out our specialised shaft-sinking skills to extend the mine's longevity and unlock additional value by transitioning from shallow underground and opencast mining to deeper underground mining," explains Nel. UMS was initially appointed to undertake the engineering and procurement for a new 1 500-m deep shaft and is now completing the construction and physical sinking works.

> "As a leader in underground access development and comprehensive mining project delivery, UMS leverages decades of specialised expertise across multiple transition projects."

Accelerated projects

Apart from the growing transition from opencast to underground operations, Hull notes that the industry is experiencing a fundamental shift towards accelerated project delivery. Clients, he adds, no longer have the luxury of extended multi-year study phases before execution.

"Market pressures, capital constraints and competitive dynamics are driving demand for experience-based solutions that enable concurrent engineering and informed construction approaches. This trend is fundamentally about optimising return on investment through faster time-to-production while maintaining technical excellence," says Hull.

UMS Group is experiencing increased demand for its shaft sinking services.

UMS currently operates across four continents with a diverse portfolio spanning the complete project lifecycle.

UMS 1Worx is being applied to the conceptualisation, design, construction and operational management of mining projects and mining operations.

According to Nel, accelerated projects in shaft sinking are driven by the need for increased capital efficiency as mines seek to achieve faster access to ore bodies and production, and to meet pressures driven by the need for quicker output. The cost of delay to production is massive.

"One of the main drivers is the surging demand for critical minerals for the clean energy transition and the advent of electric vehicles. Meeting the world's climate goals by 2050 will require a significant increase in minerals such as rare earths, lithium, cobalt, copper and nickel, amongst others, which are essential for these low-carbon technologies," says Nel.

As a leader in underground access development and comprehensive mining project delivery, UMS leverages decades of specialised expertise across multiple transition projects. The company's competitive advantage lies in its integrated approach – combining seasoned professionals with deep institutional knowledge alongside unified engineering and construction teams.

"This integration enables concurrent engineering and construction methodologies, significantly reducing project timelines while maintaining operational continuity. Our proven track record demonstrates our ability to deliver accelerated project schedules without compromising quality or budget parameters," says Hull.

Safety and technology

The industry no longer accepts that people are harmed. Comprehensive safety management is paramount to protect workers from inherent risks such as working at heights, falling objects, cave-ins and hazardous environments. Key safety measures, says Nel, include advanced mechanisation to reduce human exposure to hazards.

"Shaft sinking has become more mechanised and removing people completely from the shaft bottom is the driving factor for almost all innovations. In Brazil we have adopted the use of sidewall drill rigs that eliminate manual rockdrill handling to maximise operational safety by removing workers from hazardous areas during risky operations, such as lashing and mucking," says Nel.

The convergence of technology is yet another trend driven by the need to increase both safety and productivity in shaft sinking operations. At the centre of UMS Group's technological leap forward is the cutting-edge Industrial Internet of Things (IIOT) and Augmented Reality (AR) technology, UMS 1Worx, being applied to the conceptualisation, design, construction and operational management of mining projects and mining operations.

The UMS 1Worx technology collects and analyses data that is generated automatically from sensors on plant and equipment or, in some cases, entered manually. This information can be displayed in a variety of formats, including dashboards that provide a visualisation of operational performance and status by area or by the entire mine. Immediate notifications and early warning of critical events can be sent to devices such as laptops or mobile phones anywhere in the world.

Responding to trends

Commenting on how the company is responding to these emerging industry trends, Hull says UMS Group is proactively addressing this industry evolution through its comprehensive approach that encompasses uncompromising safety standards, engineering excellence and strategic innovation.

Its response, says Hull, includes advanced mechanisation, strategic equipment refurbishment programmes, sustainability integration and global project adaptability. At its core, the company delivers strategic project management across all project phases and lifecycles, ensuring optimal outcomes regardless of geographic or technical complexity.

"At UMS Group, we fundamentally believe that people deliver projects. Our team comprises industry-leading professionals who have guided projects from initial conception through final commissioning and beyond. This depth of experience, combined with our commitment to excellence, positions us as the partner of choice for clients navigating the complex transition to underground mining operations," concludes Hull. ■

Shanghai Platinum Week panel discussion on the PGM financial markets in a new global landscape.

Key takeaways from Shanghai Platinum Week

Craig Miller, CEO Valterra Platinum, presenting at Shanghai Platinum Week.

Agit Singh, Executive Head of Processing Operations Valterra Platinum, presenting at Shanghai Platinum Week.

"The importance of China to global platinum group metal (PGM) demand is attracting much attention, and the 2025 Shanghai Platinum Week was especially timely, given recent developments in the platinum market," Trevor Raymond, Chief Executive Officer, the World Platinum Investment Council (WPIC).

Shanghai Platinum Week (SPW) is a premier annual event dedicated to the platinum group metals (PGM) industry. Co-organised by WPIC, China Gold Association Platinum Committee and Valterra Platinum, SPW serves as a vital platform for industry leaders, experts and stakeholders to discuss trends, innovations and future directions.

Craig Miller, Chief Executive Officer at leading PGM-producer Valterra Platinum, delivered his first conference speech in Asia since Valterra Platinum (formerly Anglo American Platinum) was demerged from Anglo American plc on 31 May 2025.

Miller commented: "Attending Shanghai Platinum Week has highlighted its value for connecting with the PGM market in China, which remains an important focus for Valterra Platinum, reflected in our decision to make Shanghai the location of one of our three international marketing offices. Shaping demand for PGMs through market development remains an integral part of our strategy. Our work as a founding member of the International Hydrogen Fuel Cell Association in China is ongoing and we continue to support the work of the World Platinum Investment Council and Platinum Guild International both here in China and across other regions."

Key SPW 2025 takeaways from WPIC:

1. The direct impact of tariffs on forecast platinum demand in 2025 is estimated to total only 112 koz, or 1.4% of total demand. The indirect risks through slower GDP growth over the next few years could be more significant in terms of lower automotive and industrial demand, but currently this is being more than eclipsed by the strength in demand for platinum investment and jewellery products as a result of the high gold price, with platinum market deficits entrenched and expected to continue through 2029. The current tariff uncertainty is expected to persist, especially as the market awaits the findings of the US's Section 232 Critical Minerals Report.

2. The strength in demand for physical platinum investment products and platinum jewellery, driven in part by a response to the high gold price, was a much-discussed topic. Sustained

demand momentum could add substantially to annual investment demand over five years. Several refineries in China have attained accreditation from the London Platinum and Palladium Market, or LPPM good delivery status, with several more applications in progress. China platinum jewellery demand has been led so far by wholesalers commissioning fabrication and making stock available for sale to smaller wholesalers and retailers. The range of platinum jewellery available reflects gold jewellery designs that have sold well in recent years. Sustained retail sales of this newly available platinum jewellery could drive a significant increase in annual demand in 2026 and beyond.

3. China VII/7 emissions standards will be authorised in 2026 and introduced soon after. The inclusion of cold start and real-world driving tests are expected to initially result in upside to PGM loadings per vehicle.

4. Globally, polyvinyl chloride (PVC) manufacturers need to phase out the use of mercury-based catalysts by 2030. A transition to a platinum-based catalyst is the most likely alternative option, which could provide a significant boost to platinum demand.

5. The Orange Group gave an outlook for the hydrogen sector. Installed electrolysis capacity is forecast to reach 100GW globally by 2030, with platinum-based proton exchange membrane (PEM) electrolysers having a 40% market share and with platinum being included in alkaline electrolysers to improve their efficiency.

Reflections on Shanghai Platinum Week by Trevor Raymond, CEO, WPIC: "This year we were delighted to welcome more overseas interest than ever before, noting the emphasis on China-Africa dialogue and the involvement of four key PGM producers from South Africa, including Valterra Platinum, Implats, Northam and Tharisa. Further, Shanghai Platinum Week is a draw for the global financial community, with strong attendance by fund managers and financial professionals from the US, UK, Japan, Singapore and South Africa who gained invaluable insights from the China Association of Automotive Engineers and during site visits to an automaker as well as refiners, bar fabricators, jewellery manufacturers and wholesalers in Shenzhen.

"Platinum demand in China is continuing to expand, as the growth in physical platinum investment we are currently witnessing demonstrates. China has become the number one growth market for platinum bar and coin investment, accounting for 64% of global platinum bar and coin demand in 2024, up from 11% in 2019, as market development initiatives continue to bear fruit. Moreover, that this growth has been strongly supported so far in 2025 by a resurgence of platinum jewellery manufacturing in China, in the wake of the extremely high gold price, has been a major talking point at this year's event.

"Platinum investment is a natural mechanism for attracting metal into any geography, providing a pool of liquidity to supply future demand. For a strategically important metal, like platinum, which is an essential ingredient for the hydrogen economy and global decarbonisation, this is likely to prove particularly important for major end users, such as China, that do not have meaningful domestic sources of supply beyond recycling. We eagerly anticipate continuing these important conversations and sharing further progress at Shanghai Platinum Week 2026." ■

Better Gold 1kg 9995 platinum bar on display at Shanghai Platinum Week.

Various sizes of Yue Heng Feng platinum investment bars on display at Shanghai Platinum Week.

Bravo Mining displayed drill core from its Luanga PGM deposit at Shanghai Platinum Week.

Vanadium outlook improves as battery demand gains ground

While most of the world's vanadium is used to strengthen steel for construction, automotive, aviation, pipeline, and tooling applications, its future demand potential also lies in grid-scale energy storage. As battery deployment accelerates to meet global decarbonisation goals, vanadium demand is set to grow, driven by its role in long-duration energy storage, particularly in vanadium flow batteries.

Terry Perles, President of TTP Squared and a noted vanadium industry expert.

Between 2022 and 2024, the vanadium market faced an oversupply as slowing global steel demand led to rising inventories. More recently, the market has begun to tighten, driven by reduced steel slag recovery in China and the loss of output from a South African producer – factors leading to the drawdown in excess stock.

Terry Perles, President of TTP Squared and a noted vanadium industry expert commented "With a potential supply shortfall by 2029, the vanadium market has an opportunity to grow by unlocking existing and new sources of production to meet surging demand, driven mainly by growth in battery energy storage."

Vanadium Flow Batteries Driving New Growth

Vanitec, the not-for-profit global member organisation whose objective it is to promote the use of vanadium-bearing materials, says the fastest-growing application for vanadium is in grid-scale energy storage, specifically vanadium flow batteries (VFBs). These systems use vanadium-based electrolytes to store electricity safely and efficiently, making them ideal for supporting renewable power.

Once a niche battery energy storage solution, VFBs are emerging as a major energy storage contender and resultant vanadium demand driver.

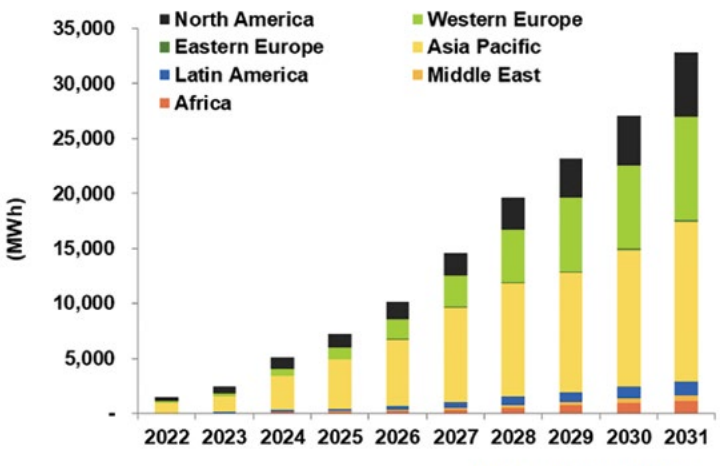
"Since 2022, vanadium in energy storage applications has been the second largest and fastest growing consumer of vanadium, and has remained there since, driven primarily by Chinese VFB installations," says John Hilbert, CEO of Vanitec.

Flagship installations such as China's 400 MWh Dalian system and the 1GWh Xinjiang project completed by Rongke Power in 2025 (largest in the world to date) illustrate the scale of momentum building in this space. Although vanadium flow battery deployments outside China are not as robust, the technology is on the cusp of significant scale-up.

According to an independent analysis published in 2022 by market intelligence and advisory firm, Guidehouse Insights, global annual deployments of VFBs are expected to reach approximately 32.8 GWh per annum by 2031.

"Based on the VFB deployment projections by Guidehouse Insights, an estimated 155,000 metric tonnes a year of new vanadium will be needed to meet this level of VFB deployment by 2030. This equates to more than double current annual demand," says Terry Perles, who also chairs the Vanitec Market Development Committee.

Annual Installed VRFB Utility-Scale and Commercial and Industrial Battery Deployment Energy Capacity by Region, All Application Segments, World Mar 2022-2031

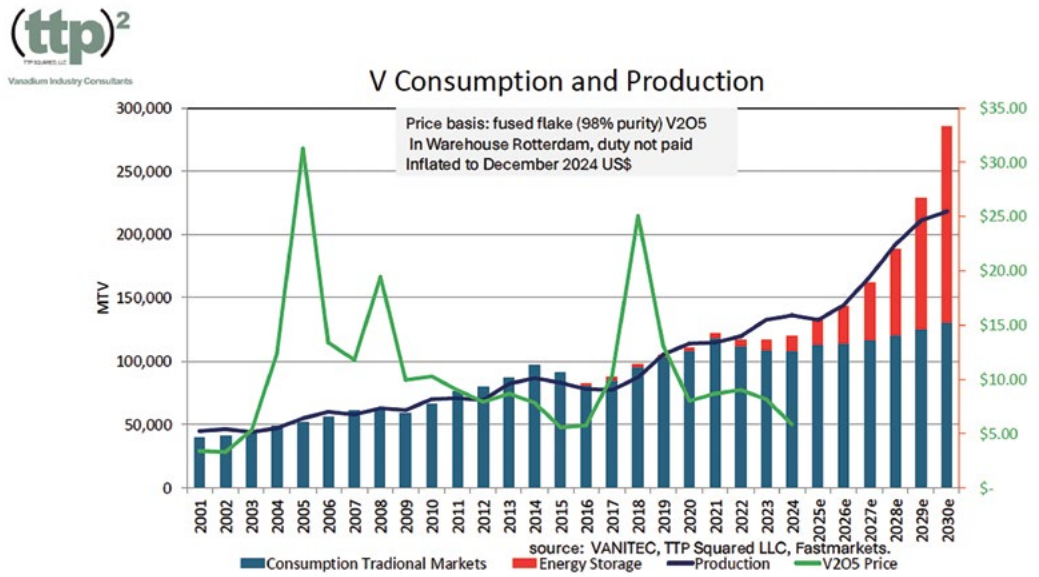


(Source: Guidehouse Insights)

Supply Side Response

The vanadium supply chain is geographically dispersed, which provides scope for creating resilient supply chains to meet both the needs of traditional vanadium applications in steel, chemicals and aerospace alloys, as well as emerging clean energy

Vanadium is used in many industries and applications, including machining and bearings.



technology applications such as VFBs, vanadium-based anode and cathode materials for lithium-ion batteries, and vanadium alloys for fusion reactors.

"With sufficient vanadium resources and known reserves to meet the significant long-term vanadium demand growth, there are also new sources of vanadium that can be unlocked. These new sources could account for as much as 70 000 metric tonnes of additional production, over and above the about 120 000 metric tonnes of vanadium that was produced globally in 2024," says Perles.

These sources include both primary mine production, secondary vanadium recovered from oil residues in the petroleum industry and co-production of vanadium in steel slag as a by-product during steel production. Although new vanadium deposits are being developed, these primary mines take time to mature and reach production.

"In the short term, growth in supply is expected to be supported mainly by the restart of idled primary sources of production, potential new vanadium mines in Australia and Kazakhstan as well as increased production of vanadium from secondary sources in China, Saudi Arabia and Kazakhstan, says Perles.

As vanadium demand gains fresh momentum – driven by the push for lighter, stronger materials and the rapid rise of vanadium flow batteries and other emerging applications – strategic resource planning will be essential to align supply with both traditional and future needs, ensuring long term availability. ■

Vanadium uses

Vanadium is used in many industries and applications, from automobiles, power generation, and hand tools, to ships, industrial tools and aeroplanes.

Akobo Minerals commissioned its state-of-the-art processing plant without any major technical issues.

Akobo seeks new gold ounces

By Nelendhre Moodley

Having achieved first gold from its Ethiopian Segele mine in October last year, Scandinavian-based gold producer, Akobo Minerals, is now firmly focused on unlocking further gold ounces from higher-priority targets closer to its flagship asset, CEO Akobo Minerals, Jørgen Evjen, tells *Modern Mining*.

The company is building a development pipeline anchored by the Segele mine. Already, several near-mine targets have been identified, with Akobo noting the potential for additional underground or open-pit operations. Akobo's cash cow, Segele mine, will fund its exploration programmes and new gold resources.

"While the Segele mine remains an attractive high-grade deposit with bonanza grades offering robust economics at a modest scale, the focus has now shifted to exploration. With the mine now well-established, our attention is to unlock the broader value potential in the license area through systematic exploration of both near-mine and regional targets. This is where we believe the long-term upside lies," says Evjen.

The company has submitted a new 1200 km^2 license application for the Gilo area and believes there is geological continuity running through its license area from north to south.

Although Joru, an early-stage project located in the southern part of our license, remains promising in the broader geological context, Akobo's current focus is on more advanced and higher-priority targets closer to the Segele mine.

"That said, we believe that Joru fits into a possible north-south mineralised corridor across our license, and we plan to explore this further as part of our medium- to long-term pipeline. We are also exploring the potential for local expansion beyond our current portfolio. With stronger local representation on the board and a more supportive investment climate, we are open to evaluating additional projects—particularly in gold and copper. Additionally, we are working with the government on a formal artisanal and small-scale mining (ASM) aggregator model. This initiative, if implemented properly, could contribute to sector formalisation, improved recovery, and community benefit."

Latest developments at Segele mine

Akobo Minerals Segele mine is Ethiopia's first new gold mine since 1994. Located in south-western Ethiopia, the Segele mine is famous for its high-grade gold deposit – in fact, one of the highest-grade gold deposits globally, consisting of an overall average of 22.7 g/t. The average grade of gold from global gold mines ranges from 1 to 10 grams of gold per tonne of ore (g/t), which pegs the Segele mine as a highly lucrative operation.

"We began gold production at Segele in October last year, officially inaugurated by the Prime Minister of Ethiopia. Since then, we have transitioned into steady-state operations. So far, we have produced around 45 kg of gold. While volumes are still modest at this early stage, we are mining within the high-grade ore body and consistently seeing grades in the range of 30–40 grams per ton, which confirms the robustness of the resource model," adds Evjen. The high-grade nature of the ore makes Segele a low-cost, high-margin operation.

Discussing the production status of the Segele mine, Evjen says that Akobo Minerals commissioned its state-of-the-art processing plant without any major technical issues, with

Segele mine is famous for its high-grade gold deposit, averaging 22.7 g/t.

Akobo has the potential for additional underground or open-pit operations.

Akobo Minerals Segele mine is Ethiopia's first new gold mine since 1994.

production ramp-up executed safely.

"We are currently ramping up to 400–500 tonnes of ore per month via existing underground winzes. To increase throughput, we are planning to install a vertical shaft before the end of the year. This will enable expansion of capacity to around 3 000 tonnes per month, which could result in monthly production exceeding 50 kg of gold. We are currently smelting gold into small doré bars that are being sold to the National Bank of Ethiopia. With volumes increasing, we are also preparing for future export."

According to Evjen, Akobo's collaboration with management and business consulting firm Sutton Global has been key to achieving operational stability, with the company "starting to generate positive cash flow".

"Another significant step has been the successful restructuring of our gold loan with Monetary Metals, an important and supportive partner. We also strengthened our local governance through the appointment of Wondwossen Zeleke to our board. His background in the Ethiopian resource industry and governance enhances our local positioning and our ability to effectively navigate the operating and political environment."

Gold's bull run

Gold's prolonged bull run from $1 429/oz in November 2022 has seen the price more than double since then with the precious metal trading at $3 200/oz in early July 2025.

The strong gold price has contributed positively to Akobo's operating margins and, on the back of the miner's extremely low operational costs, has had a direct impact on profitability.

"High prices make economic modelling of future ventures more favourable; however, we remain cautious. We are fully aware of gold price volatility and make decisions based on sustainable fundamentals rather than short-term highs."

A first mover advantage in Ethiopia

Mining is Ethiopia's fastest growing economic sector – the country has a diversified portfolio of minerals and metals, particularly in gold, gemstones, and industrial minerals. The country is actively encouraging foreign investment in unlocking precious ounces. According to Evjen, Akobo remains encouraged by the broader financial and economic reforms in Ethiopia.

"The investment climate is improving steadily, and the mining sector is receiving more structured attention from the Ethiopian authorities. Compared to what we see in other African jurisdictions today, Ethiopia stands out as a promising and stable environment for responsible mining investment. We believe the country is positioning itself as a future mining hub in East Africa, and we are proud to be part of that journey."

Despite the investment friendly mining sector, however, the lack of a mature mining service industry in Ethiopia remains the biggest challenge.

"Access to experienced contractors, service providers, and parts can delay operational efficiency. However, the broader mining environment in Ethiopia is evolving. With companies like Allied Gold progressing the Kurmuk project and renewed momentum at the Tulu Kapi project, we expect the ecosystem to improve soon and benefit all operators," concludes Evjen. ■

Andrada in the critical minerals sweet spot

By Nelendhre Moodley

The race to secure critical minerals is hotting up, with the US actively courting new partners and making significant investment moves. This competition is reshaping geopolitical dynamics and sparking new investment and exploration activities worldwide. Africa, a rich source of critical minerals, holds several trump cards as a producer of key commodities in the critical minerals' portfolio. This healthy demand is good news for critical minerals miner, Andrada Mining, which is making bold moves.

Truck collecting ore from the pit at Uis Tin Mine.

Andrada currently produces tin and tantalum from its operations in Namibia and has produced lithium bulk samples from its pilot plant for potential off-takers. The company owns two mining licences namely Uis (ML34) and Lithium Ridge (ML133) as well as an exploration licence, Brandberg West (EPL5445). Andrada's flagship asset, Uis mine, is a brownfield asset with a polymetallic orebody.

The need for critical minerals is underpinned by the global shift towards clean energy technologies and the increasing electrification of various sectors. Apart from Andrada's recently inked partnership with SQM on a US$40 million investment to develop Lithium Ridge, the company has announced a strategic investment alliance with Talent10.

Talent10, a strategic long-term investor in the mining industry, has invested £4.5 million (c US$6 million) through an equity subscription for an 8% stake in the company, Andrada Mining's CEO, Anthony Viljoen, tells Modern Mining.

The £4.5 million will be used to support the completion of key outstanding capital projects at Andrada's flagship asset - Uis Tin Mine in Namibia. In parallel with the investment by Talent10, the company launched shares for new and existing investors, offering them an opportunity to participate in its expansion initiatives.

Andrada's capital investment projects include: the installation of ore sorters and infrastructure upgrades at the existing Uis processing plant, and the commissioning of a second processing (jig) plant as it targets additional production. Some £2.6 million is allocated for the ore sorters and around £1.8 million is earmarked for accelerating the commissioning of the jig plant.

Andrada's growth strategy

Andrada is targeting multiple revenue streams including tin, tantalum, lithium, tungsten and copper. The miner's fully permitted assets, endowed with base, critical and precious metals, are in the Erongo region, in northwest Namibia - a region renowned for its diverse mineral deposits, including nuclear fuels.

Andrada's Uis mine, formerly the world's largest hard-rock open cast tin mine, has been redeveloped as a producer of tin, tantalum, and pilot scale lithium. The mine has significant potential for expansion and remains key in Andrada's growth strategy.

According to Viljoen, the company's flagship asset has a polymetallic resource, which means that the orebody is fortuitously composed of several minerals that provide multiple revenue streams. "The polymetallic nature and extensive orebody offer economies of scale with the minerals being mined and available in abundance."

Apart from having its eye firmly set on becoming a significant producer of critical minerals in the country, the AIM-listed entity has acquired a large portion of licences along the Erongo region and is looking to unlock opportunities at district level.

"Namibia's Damara Belt has a rich mining history. We see the region in which we operate as having the potential to become a significant mining district for critical minerals. Our Namibian mining assets offer high-quality critical metals that are invaluable in battery and new technology production. Several license areas which Andrada operates consist of historical mines we have brought back into production or are in the process of bringing back into production. Together, these efforts pave the way for Andrada to become a pre-eminent critical mineral's producer in the world economy."

Jig plant crushing unit at Uis mine.

Lithium Ridge site visit Andrada (Left) & SQM (Right) CEOs in May 2025.

Latest project developments

Andrada is building a new processing facility at its Uis mine to accommodate its strategy of doubling tin production from 1 000 tons annually to 2 000 tpa within the medium term. Construction of the new jig plant is well underway, with the company on track to commence production in the second half of 2025.

"Our expansion initiatives at our flagship Uis tin operations are primarily aimed at expanding throughput. In line with this focus, we recently secured additional high-grade tin supply from the Goantagab ore body, located near the Uis mine. This offers a potential source of high-margin feedstock, which is expected to materially enhance throughput at Uis," Viljoen adds.

Apart from its aspirations of doubling its tin production, Andrada is keen to integrate lithium production into its existing portfolio and plans to "open up satellite operations that will increase feedstock for the processing facility"

"Our growth strategy also includes reaching production at Lithium Ridge as well as advancing exploration drilling at Brandberg West."

Critical minerals outlook

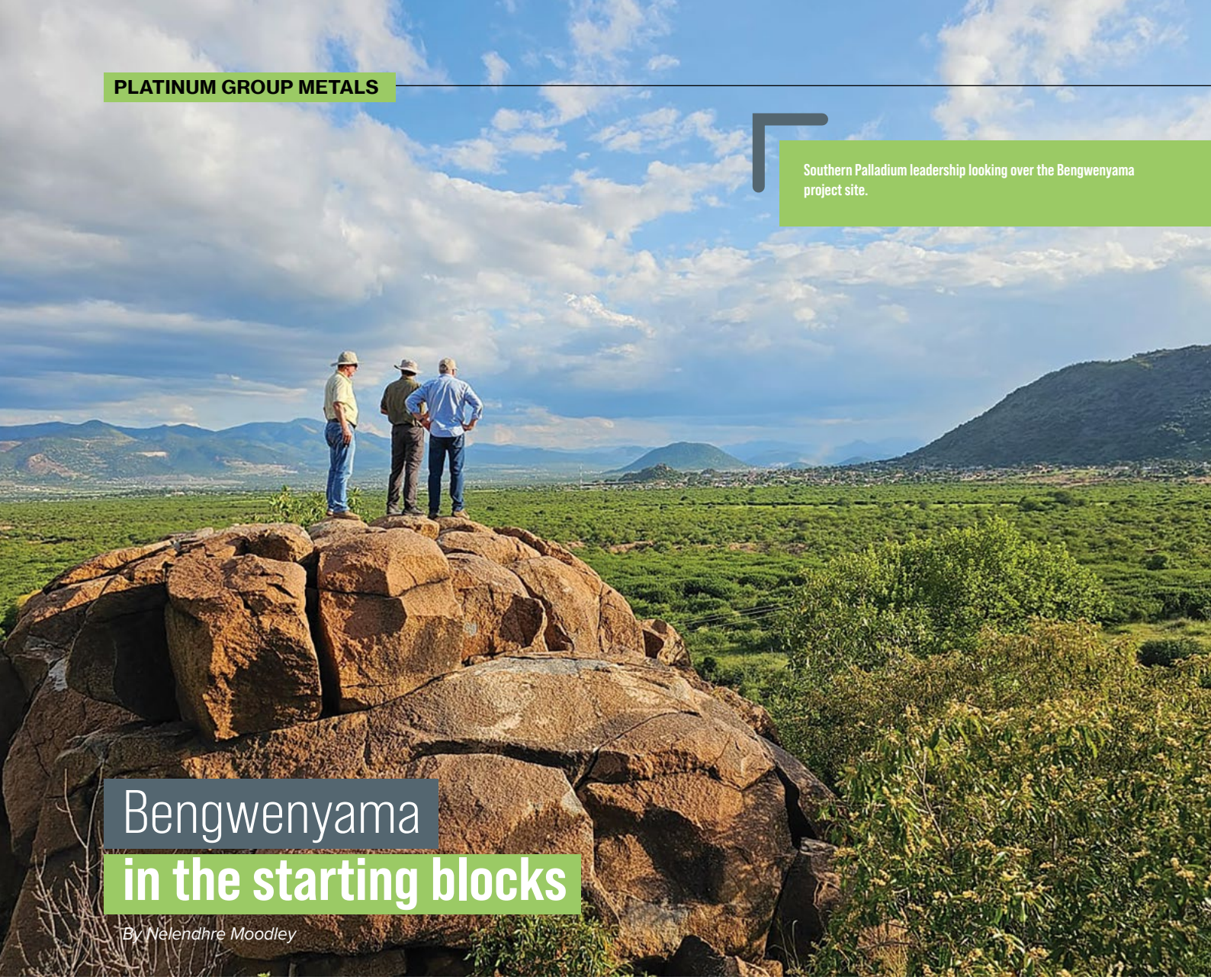
Critical minerals are essential for modern technologies, national security, and the transition to a green economy. Cobalt, lithium, nickel, copper and rare earth elements are crucial for industries including electric vehicle (EV) production, renewable energy, and advanced electronics. In addition, geopolitical tensions have heightened demand for critical minerals used in defence applications such as missiles, aircraft, and advanced weaponry. "Further to this, there has been limited exploration and development of critical minerals projects over past three decades, which translates to a lag in the project pipeline for key critical minerals."

According to Viljoen, with critical minerals experiencing a resurgence in demand, more miners are entering the fray with existing producers focused on ramping up production.

Barring lithium, the critical minerals in Andrada's basket continue to experience an upsurge in demand, including copper, used in electrification; tungsten, which is used in the manufacture of armaments for the defence industry and tantalum, which is used in electronics, chemical equipment, and high-temperature alloys.

Discussing demand supply fundamentals for tin, Viljoen says that after gold, tin has been one of the better performing minerals, outperforming most of the base-metals.

"The value of tin lies in it being a raw material used in the manufacture of semiconductors and micro-chips. As demand for newer technologies and artificial intelligence gathers pace, the need for critical minerals used in the production of associated circuit boards is set to flourish. Moreover, the replacement rate of historical resources is not keeping up with the rate of depletion. Soon there will be a pinch point of supply constraints and burgeoning demand. Naturally, this will lead to a boom in prices, and, in fact, we are already noting this across several different critical elements. We believe we have all the right elements within our company to take advantage of this impending boom in critical minerals prices," concludes Viljoen. ■



Southern Palladium leadership looking over the Bengwenyama project site.

Bengwenyama in the starting blocks

By Nelendhre Moodley

Johan Odendaal, Managing Director of Southern Palladium.

The developing structural deficit in the PGM market and subsequent improved prices see platinum group metals developer, ASX/JSE-listed Southern Palladium, bullish about the future, citing stronger demand for PGMs going forward.

Southern Palladium expects to break ground on its flagship Bengwenyama Project, located on the Eastern Limb of the Bushveld Complex in South Africa, in 2027, at a time when platinum group metals prices are expected to be at their most favourable, Managing Director, Johan Odendaal tells Modern Mining.

The company recently completed an Optimised Prefeasibility Study (OPFS) for its 70%-owned Bengwenyama Project. The PGM project remains highly attractive with an estimated 6.29 million ounces at a grade of 6.17g/t in reserve.

According to Odendaal, the primary aim of the Optimised Prefeasibility Study was to reduce the initial capital requirement.

"While the full-scale design outlined in the original PFS remains technically and economically compelling, the substantial upfront capital required could pose a funding challenge. We have subsequently evaluated several options and believe that a staged development approach provides a pragmatic and value-driven path forward," he explains.

Southern Palladium's Optimised Prefeasibility Study now offers a staged development approach for Bengwenyama, with reduced peak funding requirements of $279 million compared to the original PFS.

"This approach improves our ability to further de-risk key geological, technical and operational assumptions. Stage 1 of the project, designed to deliver over 200 koz per year of PGMs in concentrate, will provide valuable insights into ground conditions and metallurgical performance, supporting more informed mine planning and optimised design for subsequent stages. It also allows us to align project development with infrastructure roll-out and community readiness, ensuring a more sustainable and inclusive growth trajectory," explains Odendaal.

Stage 2 of the project will deliver production of over 400 koz per year for an aggregate mine life of over 20 years from year four onwards. Cash costs for both options lie within the lowest cost quartile for the global PGM industry. Stage 1 cash costs are estimated at $875/oz reducing to $750/oz for Stage 2.

Unpacking project development

The original PFS outlined a mining strategy for the UG2 reef using only underground mining techniques, with a focus on efficiently exploiting the shallow eastern portion of the orebody.

This approach emphasised the rapid commencement of full-capacity production of 2.4 mtpa through two declines — the North Decline and the South Decline. The Optimised Prefeasibility Study (OPFS), however, considers a Stage 1 option where production begins at 1.2 mtpa from the South Decline only, increasing to 2.4 mtpa in Stage 2 with the introduction of the North Decline.

Stage 1 updates exclude infrastructure related to the North decline, such as box cuts, conveyors, ventilation, and dewatering systems, with associated reductions in power, water, and compressed air needs.

Furthermore, the TSF has been downsized and staged, with only the first two stages required and the dewatering plant resized accordingly. The company is also exploring off-site processing for Stage 1, which will eliminate the requirement for building a Stage 1 plant, deferring tailings storage and significantly reducing water and power demand. It will also reduce, considerably, the Stage 1 funding requirement.

According to Odendaal, the South Decline provides faster access to the orebody, allowing earlier extraction and an optimised development timeline. This supports a faster production ramp-up and better use of infrastructure and resources.

Stage 2, which includes the North Decline and a processing plant, will see the reinstatement and expansion of mining, processing, and support infrastructure, including roads, power and water supply, TSF expansion, slurry systems, and a tailings dewatering plant, all scaled to support full production.

Mining begins with the pre-development of blocks using off-reef twin haulages, drives, and centre gulleys (raises), enabling the advancement of infrastructure.

“The revised PFS comes in at drastically reduced costs and Stage 1 development of the South Decline, allowing for quick and easy access to the reef at 50 metres. We have a modular plant option of 100 000 tons per month and the option to accelerate our production and reduce our costs. Once Stage 1 is complete, the plan is to establish the North Decline and build up to 200 000 tons per month.”

Timeline to production

“Developing Bengwenyama has been a dream for many years. We started this project in 2006, and it has taken more than two decades to advance it to this stage. Now, for the first time, we can see a mine emerging. The optimised PFS was for me the last hurdle to project development. From a technical point of view, we have proven that this is a fantastic project.”

Southern Palladium will break ground on the Bengwenyama Project in 2027 with the project anticipated to take two to two-and-a-half years to construct.

Following the completion of the optimised PFS, the company has been working on the DFS, targeting completion by mid-2026. Coupled with this, Southern Palladium is engaged in further metallurgical assays, geotechnical work and infill resource drilling in the area of access.

Apart from shallow drilling to attain core samples of the reef, other outstanding elements include final detailed assays and due technical studies related to the hanging roof.

“It is important to note that the hanging roof is solid and

Bengwenyama is situated in an area with good logistical infrastructure, including a tared road, a water pipeline project and two power substations.

The Bengwenyama project will follow a phased development approach to mitigate risk and enhance understanding of the geology and technical parameters.

The Bengwenyama project benefits from established logistical infrastructure.

Situated within the Bengwenyama community in Limpopo, the project site forms part of a broader vision for inclusive development.

circumvents the challenges associated with roof caving-ins," says Odendaal.

The tendering process for key items, including long lead items and detailed talks with local power producer, Eskom, regarding the establishment of a substation, will be initiated later this year.

Once complete, the Bengwenyama Project will initially employ some 3700 people which will increase to just over 7 000 in stage 2.

Project funding

Project funding will likely be a combination of debt and equity, with the revised capex now easier to finance.

Earlier this year, the company raised A$8 million within three days, largely through the backing of a substantial shareholder, Robert Keith, who invested a significant portion of the A$8 million.

"Bengwenyama is a fantastic project, and I have little doubt that we will be able to raise the requisite funding from various investors. We were able to raise A$8 million easily and, having revisited the capex for the project, we are now confident we will be able to raise the capital to get the project into the construction phase."

According to Odendaal, the company used the 2024 PFS, PGM basket price of $1557/oz to calculate the optimised PFS returns - the current PGM basket price of $1662/oz is more favourable."

Stage 2 of the project will be funded from cash-flow from the sale of product from Stage 1, thereby potentially eliminating the need to return to the market for further capital raising.

PGM outlook

According to Odendaal, the positive PGM market fundamentals have fed through to higher prices. Towards the end of June 2025, platinum reached a 10-year high of just over $1420/oz, after a prolonged decade period of being range-bound between $900-1100/oz.

Structural deficits in platinum, including a >900 koz deficit in 2025, caused by declining new mine supply (down 6% to 5,4 moz) and limited scrap recovery growth (3% up to 1,6 moz) while also seeing strong growth in jewellery demand, especially in China, along with stable auto-catalyst and industrial demand and growing investment demand, has resulted in rapidly dwindling above ground stocks of platinum.

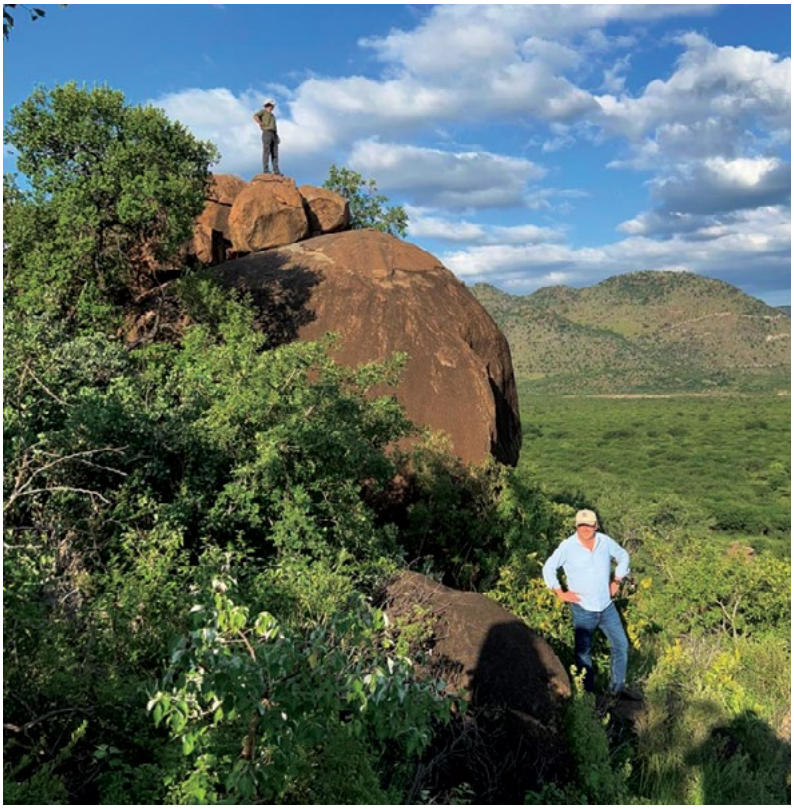
Jewellery demand now exceeds 2,1 moz, autocats 3.1 moz, industrial applications 2.1 moz and investment demand 600 koz. Platinum is expected to remain in structural deficit for the next five years. The rapid growth of demand for platinum jewellery in China in the first half of 2025, has been a very positive development.

In 2025, palladium new mine supply is also expected to decline to 6.4 moz, but growth

in recycling to 3 moz means a slight uptick in palladium supply to 9,4 moz. Demand for palladium declined marginally to just under 10 moz, resulting in a 531 koz deficit in 2025, the fourth consecutive year of deficits. Palladium demand in autocats at 8.3 moz and industrial applications at 1.4 moz, provided continued stable demand. The slowdown in global BEV sales to single digit levels, combined with consumer preferences supporting growth in demand for hybrid vehicles, has resulted in continued support for PGMs in autocats.

The deficit between supply and demand and the drawdown and elimination of above-ground stocks for rhodium has also been positive for the price. The hydrogen economy opportunity for PGMs continues to expand, especially in heavy duty transport applications (trucking, shipping, locomotives) and will comprise a material portion of the PGM market in 5-years' time.

"The Bengwenyama Project aligns with the growing demand for PGMs in the green economy and offers opportunities for both local and broader economic development. Importantly, it holds the potential to create thousands of jobs and generate significant economic benefits for the region," concludes Odendaal. ■



The Bengwenyama Project lies within South Africa's prolific Eastern Limb of the Bushveld Complex – home to world-class PGM deposits.

Cementation Africa: **driving project success through integrated mine engineering**

As a global leader in shaft sinking and mine infrastructure development, Cementation Africa offers integrated mine engineering capabilities that align seamlessly with its broader services - delivering clients optimised design and execution solutions.

The picture shows a pre-sink stage in a concrete lined shaft with services erected.

According to John Goulding, Study Manager in Cementation Africa's Mine Engineering department, this capability enables the company to engage with clients from the earliest stages of a project - ranging from concept development and trade-off studies to feasibility assessments, detailed design, and support during fabrication and execution.

"Our depth of multidisciplinary experience enables us to work closely with clients in an iterative process to explore and develop the most effective engineering solutions for their needs," says Goulding. "Early involvement in projects, combined with execution oversight, ensures our designs are refined and implementation is more efficient."

With its team of professional engineers providing both support and advisory services, Cementation Africa places strong emphasis on the integrity of its engineering input, while fostering close collaboration with all project stakeholders. "We have a professional duty to guide clients toward the most appropriate solution," says Goulding. "At the same time, design is inherently iterative, so our approach focuses on engaging all relevant stakeholders throughout the approval process."

This flexibility allows Cementation Africa to adapt its deliverables and processes to suit each client's specific needs. Some clients may simply require a completed set of drawings to a given specification, while others prefer to be actively involved at every stage of the design process to better manage project outcomes.

An important advantage of Cementation Africa's mine engineering team being embedded within a larger construction environment is the ability to see their designs implemented in the field - bridging the gap between design and execution. This close link enables real-time feedback on what works well and where improvements are needed. Lessons learned and enhancements made on one project can then be applied across all sites, driving continuous improvement and raising the standard for future work.

Louis du Plessis, Project Engineer in Mine Engineering at Cementation Africa, notes that delayed engagement can lead to scope changes that disrupt and slow down project progress. To prevent this, it is essential for engineers and designers across disciplines to collaborate closely

The Ivanplats Shaft 2 box cut before the construction start of the concrete permanent headgear.

The box cut at Matla Mine is captured here, forming the critical entry point for developing new underground access to coal reserves.

- avoiding siloed work and promoting inclusivity and transparency throughout the process.

"By working as an integrated team our structural, civil, electrical and mechanical engineers contribute not only to answering the questions of 'what', 'when' and 'why', but also to addressing the practical 'how'," says Du Plessis. "This positions our Mine Engineering department to offer comprehensive support including installation and commissioning services."

Du Plessis highlights that this foundation of knowledge and expertise has been built over decades, with Cementation Africa serving as a training ground for many of the industry's critical skills. The company has also contributed to the broader mining sector by sharing its insights and best practices at both local and international conferences. Underpinning this commitment is its core value system - Care, Ownership, Integrity, Innovation, Partnership and Resilience - which continues to guide its approach to collaboration and professional excellence.

"Ownership of our project outcomes and results is a key aspect of our values," explains Goulding. "We can provide a holistic view of a client's proposed solution to ensure that it achieves its objectives, rather than just designing in compartments."

Project requirements can differ significantly from one client to another, notes Goulding. On a major project that extended over a decade, the Mine Engineering department produced more than 3,000 drawings - each reviewed and approved by the client's engineers both on-site and at head office. Yet the same level of quality and attention to detail is applied to smaller-scale projects such as the design of a two-tonne skip for a Zimbabwean mine producing only a few hundred tonnes of ore daily. Thanks to the department's close-knit structure, the team remains agile and responsive - able to fast track unforeseen project elements to prevent costly delays.

"Working with 3D intelligent software, our design engineers create digital twins and 3D models that are made available online via QR codes," he continues. "These can be viewed from site or wherever fabrication is taking place – assisting with the interpretation of engineering drawings."

He notes that critical risk management – based on fatal risk protocols – is integrated into the drawings themselves, highlighting key risks to look out for during fabrication and construction.

Du Plessis highlights how the building of institutional memory is a pillar of the company's strong relationships with clients – built from project to project. Cementation Africa's experienced multi-disciplinary teams often stay together from one phase of a project to the next, giving the client added peace of mind about the team's familiarity with project details and challenges.

Over 90% of the Mine Engineering department, for instance, has been with Cementation Africa for more than 10 years, while three-quarters of the division have more than 15 years

The pre-sink gantry arrangement at Venetia Mine with a blast cover and kibble tipping arrangement.

of experience in the company. This has allowed clients to gain significant added value from the engineering team through innovative design and problem solving.

"On one of our large platinum projects in South Africa, we worked with our client to fast track a new shaft project from concept study to detailed design in less than two years," he says. "This included overcoming various engineering challenges while providing procurement support to help integrate the detailed design with the site execution."

With every project presenting its own environment and requirements, it is vital that aspects such as geological and operational conditions are well understood before the scope of work is finalised.

"We engage actively with the client to establish an accurate scope of work and to develop a functional requirement before we start our design work," says Goulding. "This helps to streamline the process, avoid re-work and pave the way to completing projects on time and on budget."

Another important asset that enhances Cementation Africa's capability is its network of global connections from sister companies in Canada and the USA, to suppliers around the world who can contribute specialised input, technology and equipment.

"This leverages our ability to adopt and apply the latest technology for the specific task at hand," he says, "ensuring that we can meet the highest standards of safety, energy efficiency and productivity." ■

Born from the merger of Murray & Roberts RUC and The Cementation Company (Africa), Murray & Roberts Cementation spent the past 21 years establishing itself as one of Africa's most respected underground mining contractors. With more than 50 years of experience and a strong foundation in technical excellence, innovation and a deep commitment to safety and value delivery, the company has played a vital role in many of the continent's most challenging and high-profile underground mining projects.

The company's 21st anniversary marks both a symbolic and strategic turning point. Effective 1 July, the company began operating under the new name Cementation Africa, following its acquisition by a consortium of investors led by Differential Capital. This transition ushered in enhanced operational flexibility and autonomy, paving the way for accelerated growth and the pursuit of new opportunities across Africa and further afield.

While the name has changed, it remains business as usual for clients and employees. The company's leadership, core teams and unwavering commitment to safety, performance and client success remain unchanged. Cementation Africa will continue building on its strong legacy as a proudly independent high-performance underground mining contractor, says Japie du Plessis, Managing Director of Cementation Africa.

FLS manufactures NexGen media, trommel and screen panels with expert precision to ensure consistent quality and high performance.

FLS expands Delmas facility to support NexGen polyurethane innovation

FLS has significantly upgraded its Delmas polyurethane manufacturing facility to serve as a global hub for its high performance NexGen screen media, supporting growing demand across Africa, the Middle East and Europe. The investment enhances production capacity, energy efficiency and local skills development, while positioning FLS to deliver tailored durable screening solutions that align with its customers' sustainability and performance goals.

Warren Walker, Head of Global Manufacturing – Polyurethane Operations at FLS.

Brad Shepherd, Director Service Line – Screen and Feeder Consumables at FLS.

Brad Shepherd, Director Service Line - Screen and Feeder Consumables at FLS, says the investment at Delmas aligns with the company's global strategy to standardise and optimise production processes.

"This is a milestone for us," says Shepherd. "We are integrating cutting edge technology and modern manufacturing methodologies across all our polyurethane plants, and Delmas is leading the way. The upgrade enables us to respond more quickly and reliably to customer needs across Africa, the Middle East and Europe."

The centrepiece of the upgrade is the introduction of purpose-built infrastructure to produce NexGen screen media - a polyurethane material developed by FLS to deliver extended wear life, reduced maintenance and improved operational efficiency. In on-site trials, screen panels made from NexGen have demonstrated up to three times the wear life of conventional rubber and polyurethane products, making it a gamechanger for industries that rely on high performance screening solutions.

Warren Walker, Head of Global Manufacturing - Polyurethane Operations at FLS, explains that Delmas is the first of the company's five global polyurethane plants to complete this transition. "We have installed new, latest generation polyurethane machines, precision tooling and dedicated preheating ovens for inserts," he says. "This allows us to significantly increase our output while ensuring consistent quality."

The facility now includes two trommel screen media stations and three screen media stations, each tailored to produce NexGen products. One of the standout technologies introduced is a programmable auto-calibrating polyurethane machine capable of adjusting material hardness to suit specific applications.

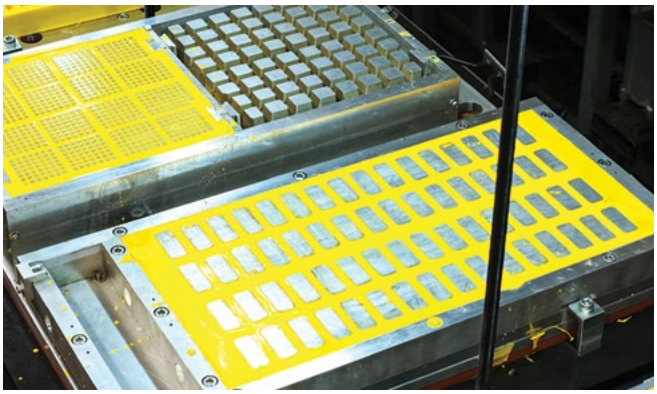
"The flexibility to produce varying hardness levels is critical," Walker notes. "It means we can tailor our screen media precisely to the customer's

application, ensuring optimum performance and longevity."

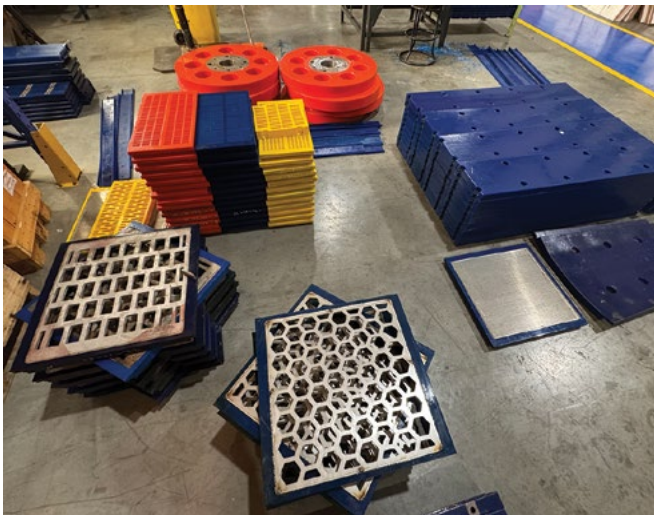
To complement this, a high-capacity polyurethane machine capable of pouring up to 42 kg per minute is in operation at the facility. This system is particularly suited to applications requiring large volume pours, such as flotation spare parts and vertical mill components.

The Delmas facility already benefited from a significant upgrade in 2019, when a state-of-the-art six-axis machining centre was introduced for tooling precision, along with robotic welding systems for manufacturing screen media panel inserts and a CNC controlled spiral welding machine to produce wedge

FLS manufactures NexGen media, trommel and screen panels with expert precision to ensure consistent quality and high performance.



NexGen polyurethane screen media from FLS is durable, reliable and engineered to deliver efficient high performance screening even in the toughest operating conditions.



Precision-crafted polyurethane products are manufactured at FLS's Delmas operations, ensuring consistent quality and performance across a wide range of screening applications.

wire products. The latest round of investments builds on this foundation and brings the facility to the forefront of global polyurethane production capability.

Energy efficiency was a key consideration in the new layout and equipment design. "We have incorporated smart energy saving features like individual temperature control on each casting table station," Walker says. "This avoids the need to heat large surface areas unnecessarily and contributes to our carbon reduction goals."

Further supporting these goals is the installation of 300 kW of solar generation capacity at the Delmas site, completed in 2024. Plans are already in place to expand this by another 500 kW in 2026, along with the integration of a battery energy storage system (BESS), enabling greater energy independence and resilience.

FLS's offering from Delmas extends beyond screen media manufacturing. The facility is equipped to handle the complete fabrication of vibrating screens, from raw material processing and in-house machining to assembly and factory acceptance testing. This vertical integration allows the company to deliver customised solutions with tighter control over quality and lead times.

Shepherd emphasises that FLS operates both as an original equipment manufacturer (OEM) and a screen media specialist, supplying screen panels for all types and brands of vibrating screens, feeders and trommel screens.

"We don't just supply products," he says. "We work closely with our customers through our network of on-the-ground specialists to assess site conditions and select the best screening media for their specific needs."

He notes that many older processing plants are treating materials that differ from their original design specifications. In these cases, screen efficiency can often only be improved by optimising the screen media. "This is where NexGen makes a real difference," Shepherd says. "Combined with the correct aperture design, it allows customers to get more life and better performance from their screens."

Unlike injection-moulded polyurethane, which can compromise the structural integrity of screen panels, FLS's proprietary process retains superior mechanical properties, resulting in a tougher more durable product. "We have never used injection moulding because it reduces the quality of the end product," Shepherd explains. "Our process delivers a product that stands up to the toughest operating conditions and offers lasting value."

Walker adds that the expansion at Delmas not only supports FLS's global operations but also contributes meaningfully to the South African economy. "Our commitment to local manufacturing is evident in the scale of our investment and the jobs we have created," he says. "We have expanded our workforce, prioritised local recruitment and significantly grown our apprenticeship programme."

A strong focus has also been placed on developing female artisans. In 2024, six women from the local community were recruited into a three-year trade apprenticeship programme, receiving training in welding, fitting and boilermaking.

"Our investment during a period of economic uncertainty underlines FLS's long term commitment to South Africa and to our customers in the broader EMEA region," says Walker. "We are not just building products – we are building skills, opportunities and partnerships that will power sustainable growth for years to come." ■

Athos Crushing & Screening launches fully electric mobile crushers and screens

Following an extensive testing regime, Athos Crushing & Screening is officially launching a fully electric range of mobile crushers and screens called Powertrack, built by SRHeavy (SRH). Dubbed the Powertrack, the range initially comprises a mobile jaw crusher, a mobile cone crusher, a mobile triple-deck screen and a mobile scalping screen.

Versatile and reliable, the Powertrack PT PRO J-11E is ideal for producing aggregates and for the crushing of both natural and recycled materials.

Athos Crushing & Screening, sister company to Pilot Crushtec International, was established some five years ago with the mandate to provide mobile and static crushing and screening solutions, focusing on entry-level and mid-tier segments of the market. The overarching intent, explains Sales and Marketing Director Francois Marais, was to create a true "home of crushing and screening" with Pilot Crushtec concentrating on the premium end of the market.

In line with this strategy, Athos is debuting the e-Power Powertrack range in southern Africa. At a launch event held at the company's Jet Park premises in July, the company introduced the Powertrack PT Pro J-11E jaw crusher, the Powertrack PT Pro C-20E cone crusher, the Powertrack PT Pro ST-08E mobile triple-deck screen and the Powertrack PT Pro SP-08E scalping screen to local customers. Target markets, says Marais, include contractors, quarries and certain mining applications, particularly sites where there is access to grid power or renewable energy sources.

"Ideal for aggregates, mining and recycling, the Powertrack PT Pro J-11E is equipped with an SJC108 jaw crusher with a 1 060 x 700 mm feed opening," explains Marais. "The machine can handle a top size up to 600 mm and typically runs with a closed side setting of about 70 mm. It has the capacity to process between 150 and 500 tonnes per hour (tph), application dependent."

The Powertrack PT Pro C-20E, which features the SCH2000 cone crusher, is ideal for secondary and tertiary crushing. The machine has the capacity to produce between 150 and 250 tph, depending on application.

The Powertrack PT Pro ST-08E mobile triple-deck screen comes with a 5,4 m x 1 ,5 m screen box and a large 8,4 m^2 screening area. With its four product conveyors, it can be deployed in 250 tph production capacity requirements.

The Powertrack PT Pro SP-08E scalping screen, which comes with a 4,8 m x 1,5 m screen box, is ideal for pre-screening of feed with excessive fines such as topsoil, recycled waste and gravel, amongst others. The machine is designed to process capacities up to 500 tph.

"A major factor behind the decision to go the fully electric route is that these machines come in at an extremely competitive

The Powertrack PT PRO ST-08E mobile screening unit features a wide selection of screening media options to control final product granularity and ensure efficient material separation.

User-friendly and intuitive, the Powertrack control panels are designed to simplify operation and streamline maintenance activities on site.

price point," says Marais. "Manufactured in China, inarguably the global leader in electromobility, the economies of scale for electric components such as electric drives provides for a notable cost advantage, making the e-Power Powertrack range an attractive crushing and screening solution for the local market, especially for cost sensitive, entry-level operations."

Another remarkable advantage of fully electric crushing and screening solutions is the lower cost of operation. These machines are primarily intended to be plugged into grid electricity. Electric drive systems are cost effective and more efficient than their conventional diesel hydraulic counterparts.

"In the absence of an electric plug-in, end-users can power the machine/s with a genset which, unlike in a dual-power setup, is completely separate from the mobile machine. This is a completely new concept in the local mobile crushing and screening market. One of the major benefits of keeping the generator away from where crushing takes place, is the elimination/reduction of dust ingression into the engine, which tends to be a major challenge for machines that come with an on-board genset," concludes Marais. ■

SOOSAN
Hydraulic Rock Drill

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SOOSAN
Creative Breakthrough

JMH Equipment supplies hydraulic crawler drill rigs to Waterkloof Mine in Rustenburg

JMH Equipment, a supplier of quality hydraulic crawler drill rigs to the Southern African market, recently supplied two hydraulic crawler drill rigs – the SOOSAN JD-1400E and the JD-1400E II – for use at a chrome operation in Northwest Province.

Versatile and reliable, the Powertrack PT PRO J-11E is ideal for producing aggregates and for the crushing of both natural and recycled materials.

The SOOSAN csm hydraulic crawler drill is a drilling machine used in the blasting process at quarries, mining and construction sites. Operated by diesel engine, the highly efficient rock drill is equipped with a compressor, dust collector and low noise levels.

The SOOSAN csm hydraulic crawler drills are easy to maintain, robust and cost effective. With the mechanical layout and an absence of computers, these drills ensure minimum downtime for drilling operations.

The JD 1400E hydraulic crawler drill is renowned for its durability and high performance. It is ideal for arduous environments.

The JD-1400E-II series, which began production in 2019, is in keeping with the tradition of the JD-1400E series, utilising a simple design and industry proven components.

Unlike rock drills that are too advanced and complicated to be maintained and serviced, the JD-1400E series is mechanical in nature and ideal for remote environments.

Features:

- Engine make, model and Horsepower (JD-1400E Cummins 6CTAA8.3, 260HP – JD-1400E II Cummins QSL9, 320HP)
- Main pumps: Kawasaki K3V Pumps
- Choice between JET12 (Soosan drifter) and YH135 (Yamamoto Japanese drifter)
- JD-1400E – 400CFM compressor and JD-1400E II – 500CFM compressor
- Has no computers
- Drills are mainly mechanical
- Auto rod changer
- JMH focuses on customer service and spare parts availability.

JMH Equipment has been supplying quality hydraulic crawler drill rigs to the Southern Africa market since 2007.

"With customer satisfaction being our number one priority, we focus on supplying top quality equipment at highly competitive prices. After sales service is of utmost importance and we pride ourselves on providing the best after sales service. With a fully equipped workshop, Parts store and Field Service units we service and assist customers with their drilling needs. We also repair and supply parts for any make and model of Drifter and Top-Hammer drill rigs. With our hydraulic test bench facility, the customer can have peace of mind as we test each drifter after repairs and before delivery to the customer," says JMH Managing Director, Maurits Holtzhausen. ■

Weir charts the journey to smart mining with next intelligent solutions

The road to optimised mining is being charted at the level of both equipment performance and process optimisation; Weir is walking that journey with customers with the help of its NEXT Intelligent Solutions.

Marina Eskola, Director of Digital Solutions Management at Weir, explains the impact that artificial intelligence (AI) and digital twin modelling is having on productivity, efficiency and sustainability. Detailed knowledge of their equipment's operation and performance over many decades has allowed Weir to build predictive models based on their extensive and reliable data.

"Our in-depth understanding of how our equipment works – under a wide range of conditions – is harnessed by NEXT Intelligent Solutions to guide predictive maintenance of equipment for longer service life and better performance," says Eskola. "Beyond that, we also leverage this digital technology further to optimise the broader metallurgical process."

Weir's in-depth understanding of how equipment works is harnessed by NEXT Intelligent Solutions to guide predictive maintenance.

In terms of predictive maintenance, Weir uses different AI tools such as machine learning algorithms to predict the remaining useful lifetime of equipment, as well as the probability of mechanical failure.

"What positions us very well to do this is our engineering knowledge, allowing us to detect, predict and prevent failure modes using our extensive databases – and we know how to build this data into the algorithms," she says.

Another vital element of the digital journey is to adapt these models to the customer's circumstances, where Weir collaborates in helping mines move from traditional to predictive maintenance strategies. She notes that Weir recognises the importance of change management and this is part of the journey with customers.

"We also use digital twin modelling to collect data from equipment and other sources to simulate – in the virtual environment – the operation of the physical equipment," she explains. "Our detailed technical knowledge and historical data allows us to predict the outcomes of machine performance, so that we can apply the necessary adjustments back onto the physical equipment."

In this way, she says, the simulations can guide the continuous optimisation and efficiency of equipment.

AI is also invaluable in process optimisation, says Mauricio Vega, Head of Process Optimisation Technology at Weir. Based on the company's depth of metallurgical expertise, it is able to create a digital model of the process circuits in which its equipment is being used.

"We can use AI to find the right operating points in the process, taking into account the constraints, such as energy efficiency or remaining life of equipment," explains Vega. "This allows us to generate and evaluate multiple scenarios as quickly as possible, allowing relevant and accurate recommendations to be given to the customer."

Eskola highlights that Weir takes a collaborative approach to customer partnerships, so the application of this technology is tailored to how the customer chooses to take their journey to smarter mining. Weir has designed NEXT Intelligent Solutions with this strategy in mind, providing three packages that allows a progressive approach to implementation.

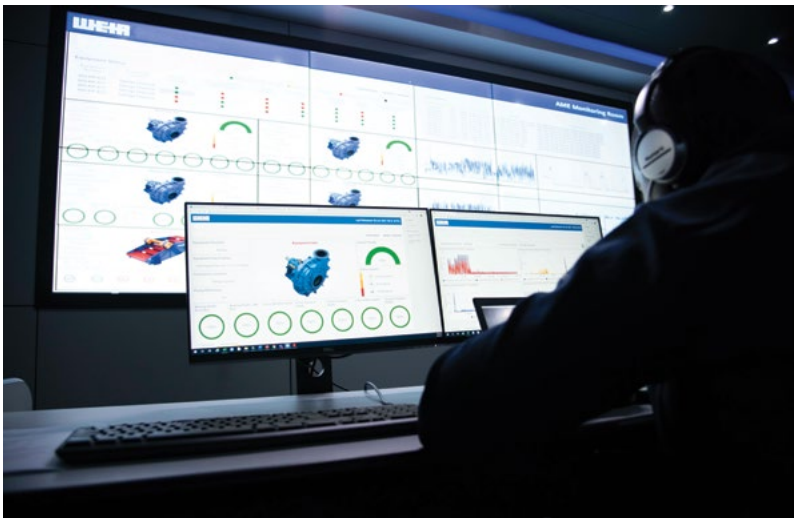
"These packages –Insight, Uptime and Production – align with the journey that customers can take in partnership with Weir to leverage real-time data in making informed decisions, applying cutting-edge sensing technologies and boosting

Mauricio Vega, Head of Process Optimisation Technology at Weir.

Marina Eskola, Director of Digital Solutions Management at Weir.

Weir has detailed knowledge of how their equipment operates and performs over decades, allowing them to build predictive models.

Weir's detailed technical knowledge and historical data can be applied to necessary adjustments on physical equipment.



Weir uses different AI tools to predict the useful lifetime of equipment and the probability of mechanical failure.

operational efficiency," she explains.

Each package focuses on a key phase of the digital journey, allowing the customer to steadily gain more value from this intelligent technology as they progress through different stages of implementation.

"Our Insight package is the foundation, giving customers access to critical information about the performance and condition of their equipment in real time," she says. "We apply our in-depth technical understanding of all our equipment, including data on trends and parameters, and then apply key performance indicators and algorithms to assist customers in their decision-making."

An important differentiator between NEXT and other condition monitoring systems is that it goes beyond simply alerting the user to any potential issue with equipment. The system can also recommend a course of action for the customer to follow, to address the issue being flagged.

In the Uptime package, predictive capabilities are added, so that the customer can forecast the remaining useful lifetime of critical components in the equipment. This can lead to extended life, as the components are only being replaced when their actual condition warrants it – rather than being changed on a time schedule. In the past, time-based replacement was the only safe way of conducting maintenance when there was no visibility of the components wear.

"The longer component life translates into lower total cost of ownership for the equipment, without making any compromise in mitigating the risk of downtime," she says. Eskola points to another solution in the Uptime package – which is automated adjustment. This feature allows certain parameters on Weir equipment to be adjusted quickly and without the manual intervention of any operators.

"Using the example of a slurry pump, NEXT Intelligent Solutions offer optimal throatbush adjustment for both axial and rotational repositioning using hydraulic or electro-mechanic solution," she says. "This has the important benefit of reducing wear on critical components while improving hydraulic efficiency and reducing recirculation. The intervention extends the life of critical components while also improving safety on-site, as no personnel need to be in proximity of the pump to conduct this adjustment manually."

Vega describes the third package in NEXT Intelligent Solutions: Production. The focus of this package is to empower customers to maximise their process efficiency with AI-powered optimisation.

"Within this package is an intelligent assistant, being rolled out by Weir this year," says Vega. "By making use of the data gathered through the Insights and Uptime packages, the Production package can give constructive recommendations to metallurgists, process engineers and operators."

He notes that mining operations will have their own specific targets and imperatives, so this package helps to guide decisions to achieve those goals, such as a production target or a desired product size for the classification circuit. ■

Ventilation and cooling systems are high energy consumers.

BBE: Wynand Marx, CEO at BBE Group.

Innovations in primary mine ventilation systems: optimising efficiency and safety

The adoption of new mining methods and technological advancements has traditionally been sluggish, often finding itself battling against entrenched practices. However, recent years have witnessed a remarkable surge in innovation in areas such as rock breaking, ore transport, energy efficiency, and mineral processing. Notably, cutting-edge technologies in monitoring, control, and ventilation-on-demand have reshaped the landscape, bringing about improvements in safety, efficiency, and cost-effectiveness.

By Wynand Marx, CEO at BBE Group

Despite these strides, there remains ample room for optimisation of primary mine ventilation systems. Progress does not always hinge on groundbreaking technology though; sometimes, a fresh perspective coupled with experience can drive significant improvements, and one such groundbreaking advancement has been the introduction of ventilation districts as an optimised alternative to traditional ventilation systems for drill-and-blast operations.

As the name suggests a ventilation district refers to a specific area or zone within a mine with dedicated, isolated, ventilation zone to ensure the circulation of fresh air and the removal of potentially harmful gases, dust, and fumes generated during mining operations. Segmenting the ventilation system into several areas allows the mine to operate the mining zones independently. Effective ventilation is essential, not only for the health and safety of miners but also for the efficient operation of equipment and machinery underground. Improper ventilation can lead to a variety of hazards, including exposure to harmful gases, heat stress, dust-related lung diseases, and the risk of fires or explosions.

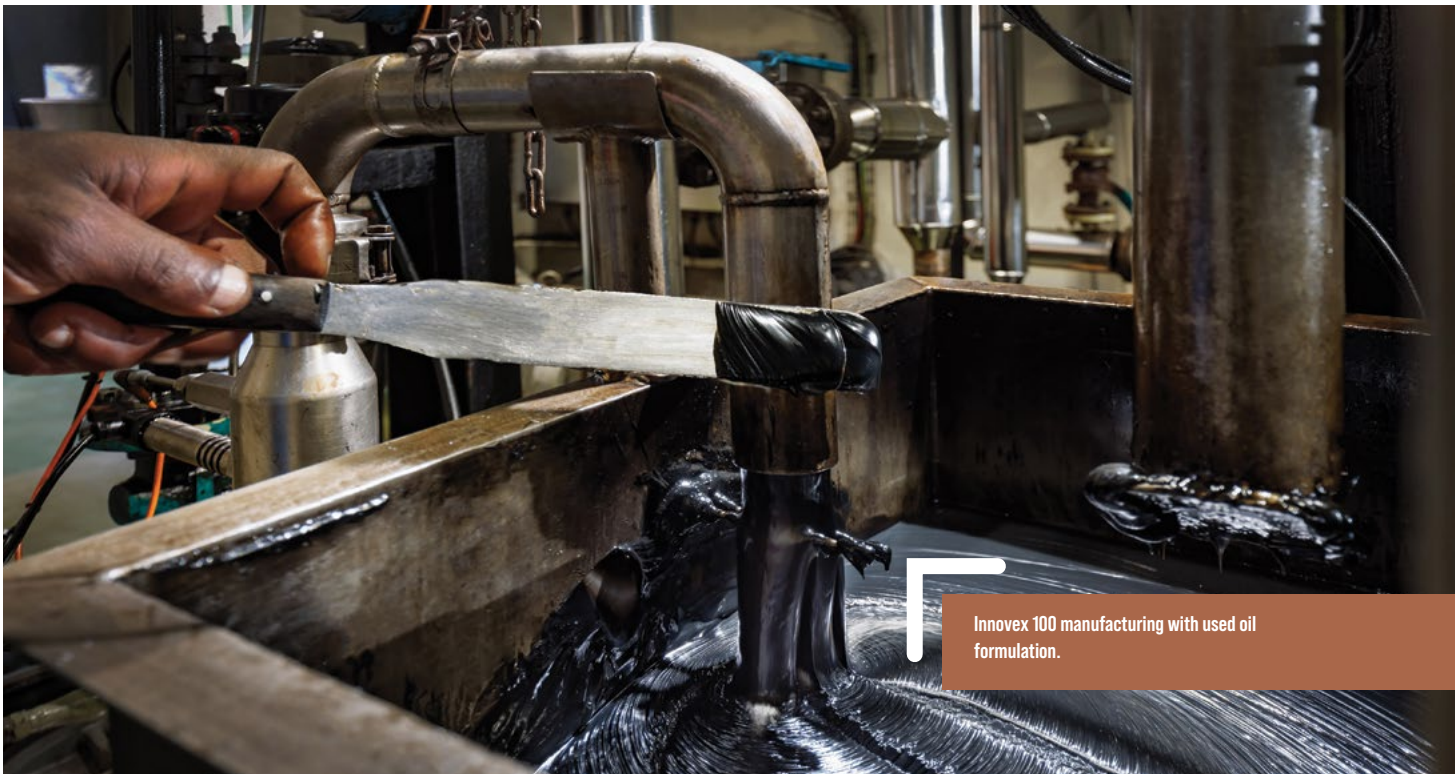
Dividing a mines ventilation system into districts is of interest as pollutants or emergencies affecting one area of the mine will remain localised and will not endanger all underground mine personnel. Equally, and of particular interest to stakeholders, dividing the mine into separate zones allows the mine to have a flexible blasting plan to further enable unconstrained mining. Ventilation districts therefore play a critical role in ensuring the overall safety and productivity of mining operations while simultaneously allowing operations to safely drive production targets.

However, this new approach is not without its challenges. Mining is complex with many moving parts that have the potential to constrain mining operations. Dividing a mine into ventilation districts is therefore only one, albeit important, improvement towards optimising mining operations. From a ventilation perspective, cumbersome return airway requirements and the potential for ventilation leakage are issues that must be overcome. Factors such as air quantity requirements, re-entry periods, and air contamination also bear consideration. Sectioning districts provides the ability to more easily balance the airflows, meet the design criteria, minimise exposure to harmful contaminants and optimise capital and operating costs.

In support of this proposed strategy, recent studies have shown that with careful design and implementation, ventilation districts are able to provide clear benefits over traditional ventilation systems. Therefore, with a careful mix of a “little old” and a “little new”, the industry can continue to enhance safety, efficiency, and sustainability in primary mine ventilation systems. ■

Blasting innovation **helps mines meet ESG imperatives**

Omnia Holdings company BME's focus on sustainability is helping mines to reduce their greenhouse gas (GHG) emissions, as well as improve water stewardship and waste management.



Innovex 100 manufacturing with used oil formulation.

Dr Ramesh Dhoorgapersadh, General Manager for Operational Excellence and Safety, Health, Environment, Risk and Quality (SHERQ) at BME, said that sustainability was no longer just about mitigating impacts of mining operations on the environment.

"Investors and shareholders are increasingly also assessing the performance of mining companies on their ability to meet environmental and social governance principles and holding them accountable," he said at a recent customer webinar on sustainable mining.

The company's dual-salt emulsions are one example of how BME is helping mines to better manage waste, water and GHGs. This is by reducing the release of harmful nitric oxide and nitrogen dioxide emissions into the atmosphere and preventing the leaching of nitrates into surface and groundwater.

Dr Rakhi Pathak, Global Manager for Strategic Partnerships at BME, said that, by carefully balancing oxidiser and fuel, the company's dual salt emulsions do not generate harmful gases upon detonation.

"They also contain significantly lower nitrate levels," she said. "Manufactured at , relatively lower operating temperatures, we use less energy in our processes, in turn, effectively reducing energy consumption."

For more than 40 years, BME's dual salt emulsions have

BME's wide variety of formulations using virgin oil and used oil technology.

ensured optimal blast fragmentation. Outstanding performance delivery and dependability contribute to efficient energy use on mines where blasting constitutes a substantial component of total energy consumption.

"The durability of our dual salt emulsions makes them resistant to transport stress and degradation due to repumping," she added. "They also have an extended shelf life."

Dr Pathak said that by helping customers to address the challenge of dynamic water, BME's Innovex 300D was also contributing to more sustainable mining practices.

She explained that water seeping into blast holes due to fractured geology was a major problem on many surface mines as it resulted in emulsion run-off and incomplete detonations or misfires.

"Our Innovex 300D provides enhanced resistance to dynamic water," she said, adding that its adjustable rheology enabled operators to adapt emulsion rheology and flow characteristics for the most friable and fractured mining conditions. This adaptation is made possible by the company's innovative mobile manufacturing units and automation technology.

In a more recent development, BME has partnered with Hypex Bio Explosives Technology to extend the application of hydrogen peroxide emulsion (HPE), which has the potential to significantly reduce post-detonation GHGs by up to 90%.

"As an oxidiser, hydrogen peroxide does not produce pollutants such as ammonia and nitrate by-products upon detonation," she said.

She said that these benefits were again corroborated by rigorous product testing on a tunnelling project in Norway. A total of 26 blasts were undertaken using about 30t of HPE with the same drilling and charging parameters.

"There was a notable reduction in nitrogen levels in water and the presence of ammonia was almost negligible," reported Dr Pathak. "HPE's performance was similar to conventional nitrate-based emulsions and even outperformed them in some instances."

Producing base HPE is also less energy intensive than the processes involved in manufacturing ammonium nitrate-based emulsions, reducing the carbon footprint of the mining value chain.

A lab technician measures viscosity of the emulsion for quality control.

BME's commitment to sustainability, including cradle-to-grave principles, is further demonstrated by its continued use of used fuel oil as a key ingredient in its bulk emulsions since 1980.

"We are currently consuming approximately 30-million litres of used oil every year to supply demand for our quality bulk emulsions," she said. "It is collected by a large network of approved suppliers and processed to the required standard for use as a raw material in emulsion production."

Dr Dhoorgapersadh concluded by noting that sustainability would remain an integral component of BME's business. This is in line with Omnia's purpose of 'innovating to enhance life, together creating a greener future'.

"This focus spans sustainable manufacturing systems and the development of blasting solutions that deliver exceptional performance while also meeting mines' sustainability objectives," he said. "Safety remains our highest priority, and we continue to drive a strong, proactive safety culture across the business."

For the third consecutive year, BME achieved a recordable case rate (RCR) of 0.00 – a milestone made possible by its collective commitment to its Safety for Life programme.

"This achievement reflects the way we have embedded safety into everything we do," he said. "Notwithstanding this performance, we remain relentlessly focused on driving our safety culture." ■

AECI showcases **revolutionary technology at IBES Annual Conference 2025**

AECI Mining Explosives, a global leader in blasting solutions, showcased the results of its revolutionary low ammonium nitrate (AN) emulsion technology and sustainable blasting innovations at Indonesia's largest coal mining operation during the IBES Annual Conference 2025. This milestone forms part of AECI's long-standing partnership with PT Kaltim Prima Coal (KPC), where the company has significantly enhanced blasting safety, efficiency, and environmental sustainability.

Radja Nove Putra (left), AECI Indonesia Technical Manager - Engineering, presented Low AN Emulsion at IBES 2025.

With over a decade of collaboration, KPC has served as a collaborative partner and proving ground for some of AECI's most significant breakthroughs in emulsion explosives. Central to these innovations is the development of a low-AN emulsion formulation, which reduces the ammonium nitrate content in the explosive matrix from over 70% to between 66% and 68%. This advancement not only helps mitigate exposure to global AN price volatility but also significantly lowers the environmental footprint associated with explosive use. By decreasing the volume of AN required, the formulation reduces greenhouse gas emissions linked to its production and minimises nitrate leaching risks, all while maintaining uncompromised blast performance.

Duncan Etwell, Vice President of Asia-Pacific at AECI, commented: "Optimising our formulations to lower AN content is part of our commitment to helping mines reduce costs without sacrificing safety or performance. This project at KPC demonstrates our ability to deliver tailored solutions based on customer needs and operating environments."

Field trials at KPC confirmed that the reduced-AN emulsion delivered comparable fragmentation, digging times, and overall blast results to conventional formulations. Critically, the formulation enables more precise control of explosive energy output, aligning the energy release with specific blasting objectives. This targeted energy delivery not only optimises rock breakage efficiency but also reduces unnecessary energy input, supporting more sustainable blasting practices through improved resource utilisation and lower environmental impact. Achieving this required precise rebalancing of the water phase and sensitiser mix, enabled by AECI's advanced polymeric emulsifier technology, to maintain both emulsion stability and energy output.

Another innovation from AECI's Indonesia operations is the integration of used oil into emulsion manufacturing. By replacing a portion of virgin fuel with waste oil, KPC has been able to reduce its environmental footprint while contributing to a circular economy. This initiative, now incorporated into AECI's global Eco range of emulsion products, safely utilises recycled hydrocarbons without compromising explosive performance.

"Mining operations around the world are under increasing pressure to manage waste responsibly and reduce emissions," said Etwell. "Our Eco emulsion technology enables customers to transform waste into value. By safely incorporating used oil into our formulations, we help mines lower costs, reduce waste disposal issues, and achieve their sustainability targets."

AECI's innovative, technically collaborative approach positions the company at the forefront of sustainable blasting solutions for the global mining sector. The successful trials at KPC underscore AECI's broader strategy of delivering responsible mining technologies worldwide, blending technical excellence with environmental stewardship. ■

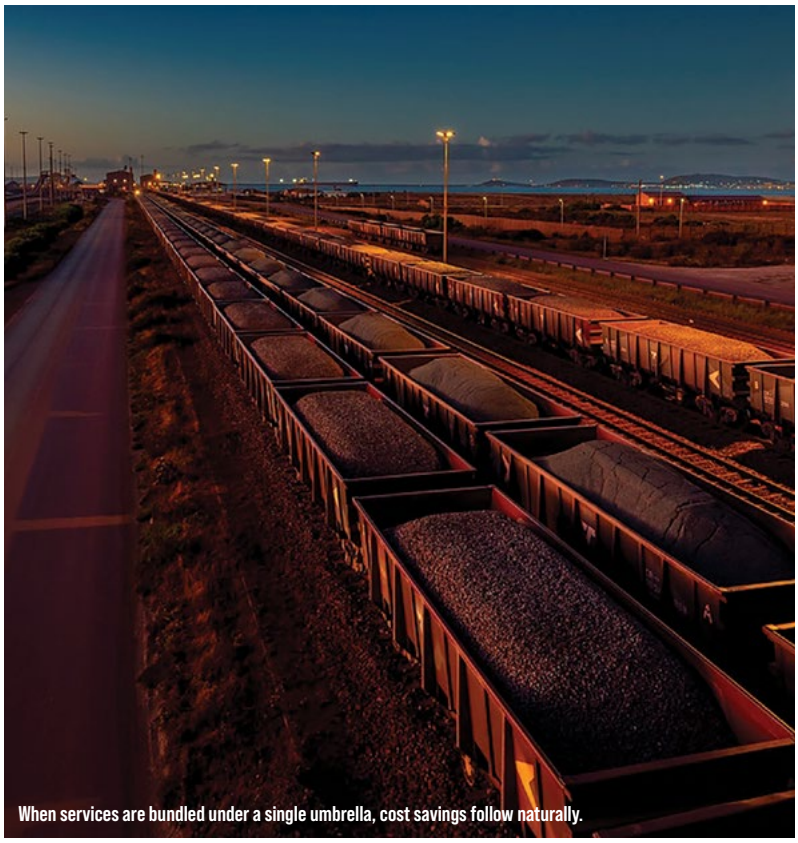
More output, less overhead - why the mining sector should rethink its service strategy

By Mamiki Matlawa, ACTOM Group Business Development Executive

Mamiki Matlawa, ACTOM Group Business Development Executive.

Costs are under constant scrutiny and mining companies are under pressure to streamline operations without sacrificing output.

With the threat of a global downturn, costs are under constant scrutiny and mining companies are under pressure to streamline operations without sacrificing output. Despite this, many organisations still depend on a fragmented network of service providers, each with its own contracts, processes, and communication protocols to meet their equipment, staffing, and maintenance needs. While working with multiple service providers might seem like a good way to access flexibility and specialist expertise, it often leads to duplicated efforts, increased costs, ineffective communication, and frustrating delays. A more practical approach is to use an integrated service provider. This simplifies operations by reducing friction, cutting costs, and improving service quality and uptime through one central point of management.



When services are bundled under a single umbrella, cost savings follow naturally.

The hidden costs of managing multiple providers

When services are split between different vendors, mining operations face an uphill battle to keep everyone on the same page. Meetings are repeated, data is siloed, and communication becomes a constant back-and-forth between

As mining operations evolve, the need for seamless service delivery and tighter cost control will only become more pronounced.

various teams. The result is an unnecessarily bloated administrative burden, where every vendor must be managed, vetted for compliance, and evaluated for performance.

Response times are slower when emergencies such as critical equipment failure arise, as responsibility is dispersed across multiple parties and projects stall while teams wait for updates, clarification, or coordination. Something as simple as repairs could involve several service provider touchpoints and redundant site visits, dragging out timelines and driving up costs.

The power of integration lies in simplification

An integrated service provider brings together essential functions such as equipment supply, maintenance, safety audits, and staffing under one contract with a unified management structure. This streamlined setup delivers immediate benefits, and in high-pressure situations like unexpected equipment failures, the value of having a single, reliable point of contact becomes especially clear. Instead of scrambling to coordinate between multiple service providers, companies can rely on a cohesive team that already understands their infrastructure, protocols, and priorities. This can significantly reduce the time to resolution and mitigate operational risks.

An integrated approach also reduces the administrative burden as fewer contracts, invoices, and points of contact mean less paperwork and more time for strategic tasks. Such an approach also results in enhanced quality control, as instead of managing multiple suppliers with varying standards, companies can work with one provider to ensure consistency across the board. More importantly, it gives the service provider the visibility to spot opportunities for synergy and efficiency that might be missed when services are split across different vendors. For example, maintenance schedules can be aligned with staffing and equipment supply, minimising downtime, and maximising output.

Cost savings and quick wins

When services are bundled under a single umbrella, cost savings follow naturally. This is because where service volumes are consolidated, mining companies can increase their bargaining power. Instead of negotiating separately with each provider, a mining company can unlock value through economies of scale with reduced rates, rebates, or more favourable contractual terms.

With fewer vendors to manage, they can also reduce the number of audits, training sessions, onboarding processes, and compliance checks required, which cuts down on both time and expense. The hours once spent coordinating multiple supplier relationships can instead be redirected toward core business tasks. Quality management also becomes more streamlined, with the ability to audit one provider's systems across multiple services, rather than assessing each supplier individually.

Supporting safety, uptime, and lifecycle management

An integrated approach also makes it easier to tailor services to strategic goals. Whether that's improving safety, increasing equipment uptime, or supporting sustainability targets, there is greater alignment and clearer accountability across teams when one provider is responsible for multiple facets of the operation. Regular safety audits and quality assessments can be centralised to ensure consistency and reduce audit fatigue.

The most compelling advantage of service integration lies in lifecycle value. When one provider manages an asset from cradle to grave, covering procurement to maintenance and repair, they're better positioned to optimise its performance over time. Additionally, there's no need to re-onboard new vendors at every stage or renegotiate terms with each new requirement, as everything is managed through one trusted partner with a big-picture view of the mine's operation.

In this way, the total cost of ownership can be reduced, which helps mining companies plan and manage their assets more efficiently, minimising unplanned downtime and extending the useful life of critical infrastructure.

A strategic investment in future performance

As mining operations evolve, the need for seamless service delivery and tighter cost control will only become more pronounced. Integration provides a scalable solution that helps companies meet today's operational demands, while positioning them to meet future challenges with agility and confidence.

Through the simplification of their service provider portfolio, mining companies can move faster, respond better, and produce more, with less friction. Choosing the right partner is key, however, and factors like local availability, strong logistics, technical capabilities, and a proven track record must all factor into the decision. The goal is to build a strategic relationship that supports everything from emergency response to long-term efficiency and performance improvements.

In such a competitive, high-stakes industry like mining, reducing complexity can create a powerful advantage. Integration becomes more than operational convenience, it is a deliberate, forward-thinking strategy to cut costs, improve uptime, and future-proof mining operations. ■

Cat® Fleet Bucket Program to equip customer buckets with Cat tools

A new or rebuilt bucket, whether a Cat bucket or other brand, can now be equipped with Cat GET, available in multiple designs to meet the needs of specific applications, allowing customers and local bucket manufacturers to standardise on a single GET supplier.

When a bucket is rebuilt or replaced, customers will continue to benefit from the same Cat GET that comes pre-fitted on Cat buckets purchased with a new Cat machine, even if the replacement bucket is not from Caterpillar. Further, the GET is backed by a Cat limited warranty and receives unparalleled parts availability through the global Cat dealer network. “The program is available to meet a wide range of machine bucket needs, including those for compact, wheeled and backhoe loaders, excavators, hydraulic mining shovels and rope shovels. Caterpillar and the Cat dealer work with hundreds of local bucket manufacturers globally to offer GET options to fit their customised bucket designs. This enables customers with mixed fleets to standardise on Cat GET to help increase wear life, decrease downtime and even increase productivity,” explains Atif Hassan Fleet Bucket Program Manager Caterpillar.

Cat GET comes pre-fitted on Cat buckets purchased with a new Cat machine.

With Cat machines working worldwide, Caterpillar offers a GET option for virtually any application. With flexible offerings to fit the local bucket manufacturer designs, customers can choose from thousands of Cat GET products that include adapters, tips, cutting edges and side protectors to fit their work tool needs. ■

Epiroc strengthens productivity with new Minetruck MT22

Epiroc is accelerating the transformation towards more productive and sustainable mining operations with the introduction of the new Minetruck MT22. The new 22-tonne underground truck is designed for mining operations with small drift sizes, delivering increased effectiveness, reduced exhaust emissions, lower fuel consumption, and extended service intervals.

“We are proud to introduce the Minetruck MT22, which succeeds Epiroc’s smallest underground truck, the Minetruck MT2200. While retaining the same exterior design, it introduces several key upgrades, most notably the Stage V engine option and European Conformity certification,” says Prerna Devkar, Global Product Manager Minetruck Small Segment.

Epiroc introduces the new Minetruck MT22.

Stage V is the European Union’s latest stage of engine emission legislation designed to reduce pollution from off-highway machines.

Equipped with the Cummins QSL9 Stage V engine that is designed for high power and torque, the Minetruck MT22 features an advanced after-treatment system that significantly reduces harmful emissions such as particulate matter and nitrogen oxides. This improves underground air quality without compromising performance, making it ideal for demanding duty cycles.

Beyond the engine upgrade, the Minetruck MT22 incorporates several improvements over its predecessor, such as an integrated load weighing system and an optional 3-point seatbelt—both aimed at boosting productivity and enhancing safety in mining operations. ■

SEW-EURODRIVE'S TrueDNA: a turnkey drive solution

The introduction of SEW-EURODRIVE's TrueDNA package responds directly to challenges faced by industry when mixing components from multiple suppliers in a drive solution. Performance inconsistencies, compatibility issues and support gaps have often compromised efficiency and reliability.

TrueDNA from SEW-EURODRIVE, a global leader in automation and drive technology, is a fully integrated turnkey drive solution designed for maximum flexibility, performance and efficiency. Engineered to cover a wide range of power, torque and speed characteristics, it can be easily adapted to drive various equipment across multiple heavy industries.

"A major advantage of the TrueDNA package is the significant reduction in lead times," says Jonathan McKey, National Sales and Marketing Manager at SEW-EURODRIVE. "Because the majority of components are stocked items, customers can typically expect delivery within six to eight weeks from date of order - a notable improvement compared to traditional sourcing processes." ■

TrueDNA from SEW-EURODRIVE is a fully integrated turnkey drive solution.

Becker Mining unveils advanced Missing Person Locator system

Becker Mining South Africa has enhanced its state-of-the-art Missing Person Locator system, a powerful module integrated into the company's comprehensive SmartFlow™ digital mine visualisation and management platform, designed to enhance emergency preparedness and personnel safety in mining operations worldwide.

The Missing Person Locator module represents a major leap forward in real-time tracking technology, enabling rapid location and response to underground emergencies. With capabilities extending from surface to underground environments, the system empowers mining operations with precision tracking, historical traceability, and automated evacuation protocols. Our priority is safety, and this technology provides both peace of mind and actionable intelligence during critical situations. By combining cutting-edge wireless technologies with a user-friendly interface, we ensure that every second counts when it matters most. One of the standout aspects of the solution is its integration with Becker's Leaky Feeder Technology, allowing LTE, Bluetooth, RF Tagging, and remote diagnostics to operate seamlessly in underground workings. Becker Mining Systems has deployed this innovation globally across operations in South Africa, Chile, Australia, and North America, setting a new standard for underground safety technology. ■

Pressure tested, precision guaranteed: **VEGA delivers superior accuracy**

Measurement technology is essential throughout the mining process, from ore extraction to storage and processing. Accurate measurements enable mining operations to quantify reserves, monitor extraction rates and optimise processes like blasting and separation, ultimately lead to better resource utilisation and reduced waste. Sensors help track essential variables such as flow, pressure, particle size and temperature, supporting real-time adjustments for efficiency and safety.

The harsh mining environment demands precise monitoring to ensure worker safety and prevent incidents such as dust explosions or stockpile collapses. Measurement also plays a key role in environmental compliance by monitoring water usage and chemical levels.

Cost-effectiveness is a key consideration in the mining industry, and robust measurement solutions like VEGA's allow operations to minimise downtime and extend equipment life, directly enhancing profitability. With advances in smart sensors and data analytics, mines can further optimise efficiency, safety and sustainability.

VEGA sensors and instruments are seamlessly integrated into continuous monitoring and control systems across mining and beneficiation processes. Their reliability, precision, and durability help maintain a steady production flow, avoid costly disruptions, and reduce operational and environmental risks, making them a compelling choice for modern mining operations.

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THE INANDA CLUB, FORREST ROAD, INANDA, JOHANNESBURG

The 2025 Joburg Indaba, now in its 13th year, will take place on 8 & 9 October 2025 at the Inanda Club, Sandton, with the **Gala Dinner** taking place on the evening of **7 October.**

Critical and constructive conversations are one of the stand-out features of the Joburg Indaba and we remain committed to serving the industry with robust discussions that get to the crux of the key issues. We once again bring together an outstanding panel of speakers, including CEOs and senior representatives from all major mining houses, local and international investors, government, parastatals, experts from legal and advisory firms and representatives from communities and organised labour.

Follow us on our website for the latest speakers and programme developments
www.joburgindaba.com

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