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Transformative Disruption

Indaba to focus on how Agentic AI could transform and disrupt mining

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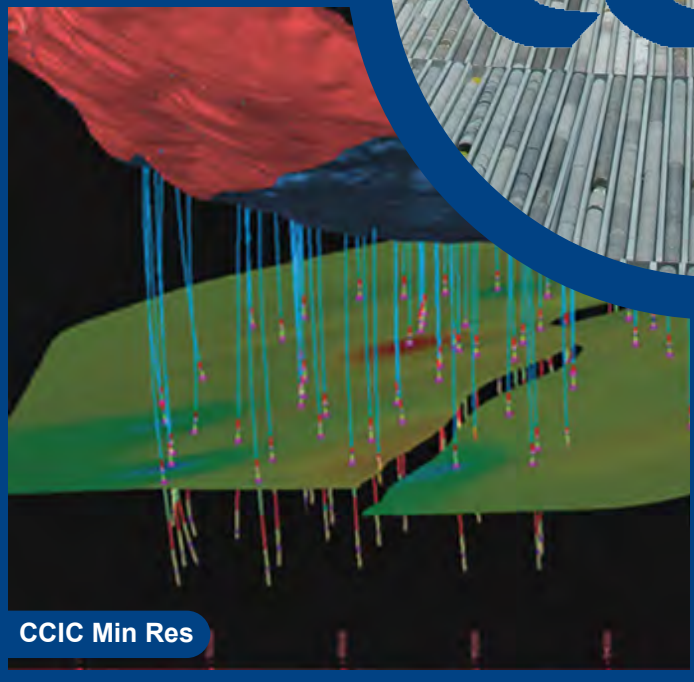
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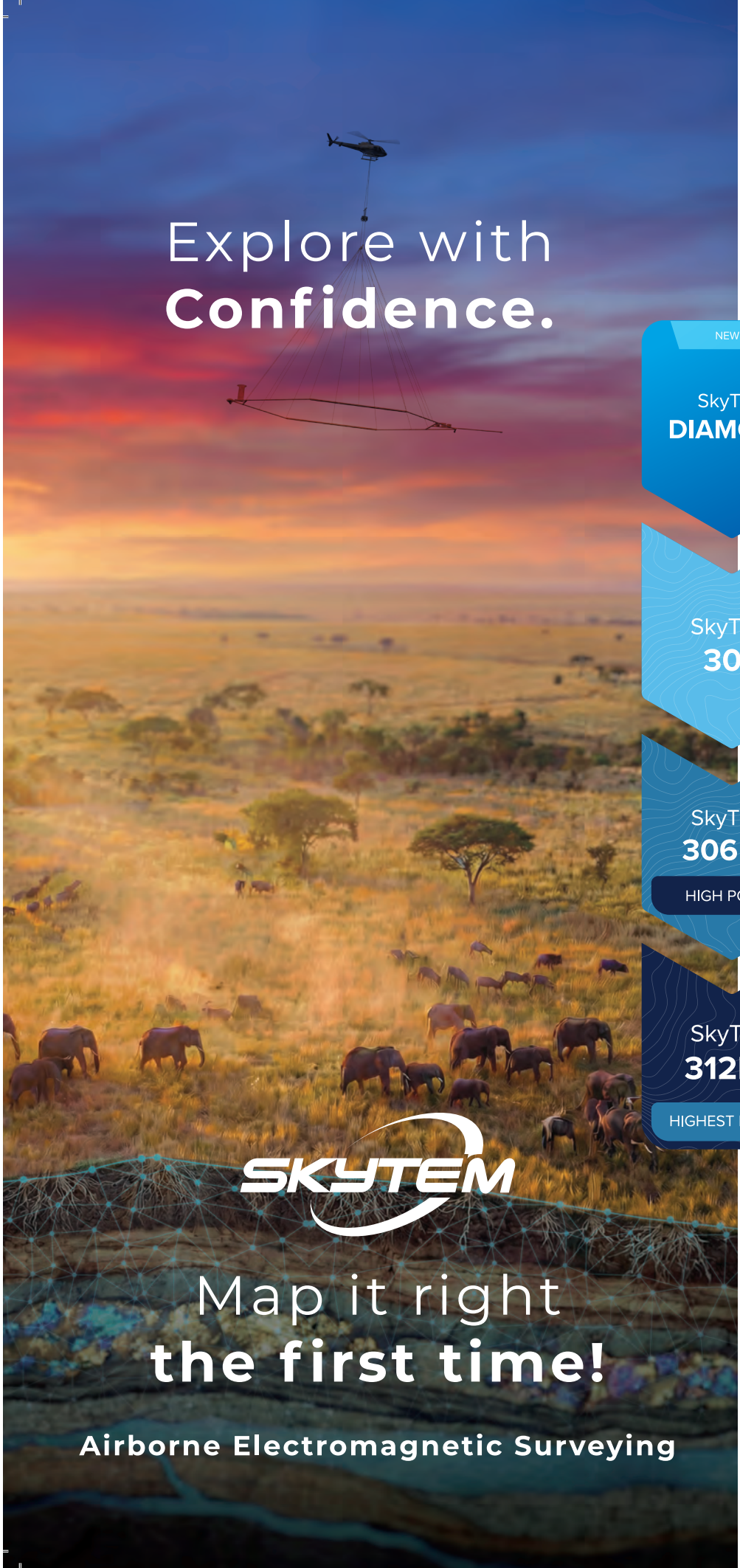
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PUSH PAUSE

After dark all cats are leopards



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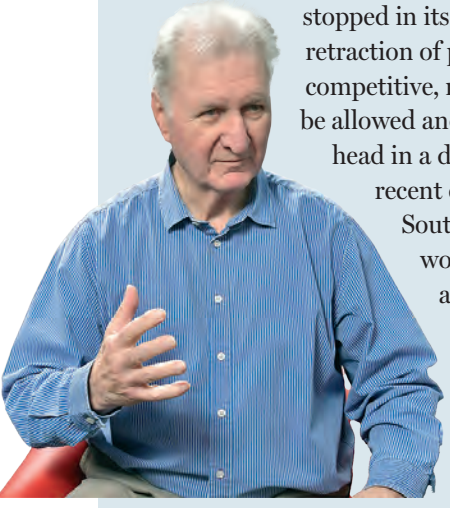
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FIRST WORD

The restoration of a lower electricity price pathway is an absolute must

Eskom belongs to the people and it must not be allowed to exclude itself from having to compete fairly. The national electricity utility's errant past has wrecked our economy and any last-minute zigzagging away from the restoration of a lower electricity price future must be stopped in its tracks. Come what may, the retraction of publicised measures to ensure competitive, reliable electricity must not be allowed and those suddenly wanting to head in a direction that we all know from recent experience will perpetuate South Africa's electricity price woes must be named, shamed and removed from office.



Martin Creamer | Publishing Editor

Scan to listen to Martin Creamer on SAfm



COOL RECEPTION: US President **Donald Trump** has been unable to keep his story straight as to why America should be allowed to acquire Greenland. Is it for security reasons? Is it for the vast territory's untapped critical minerals? Is he acting on a grievance related to not being awarded the 2025 Peace Prize? Or is he seeking to distract from political pressures at home? Whatever the real reason, Trump's aggressive posture has received a reception from key allies that is cooler than a winter's day on the Arctic island.

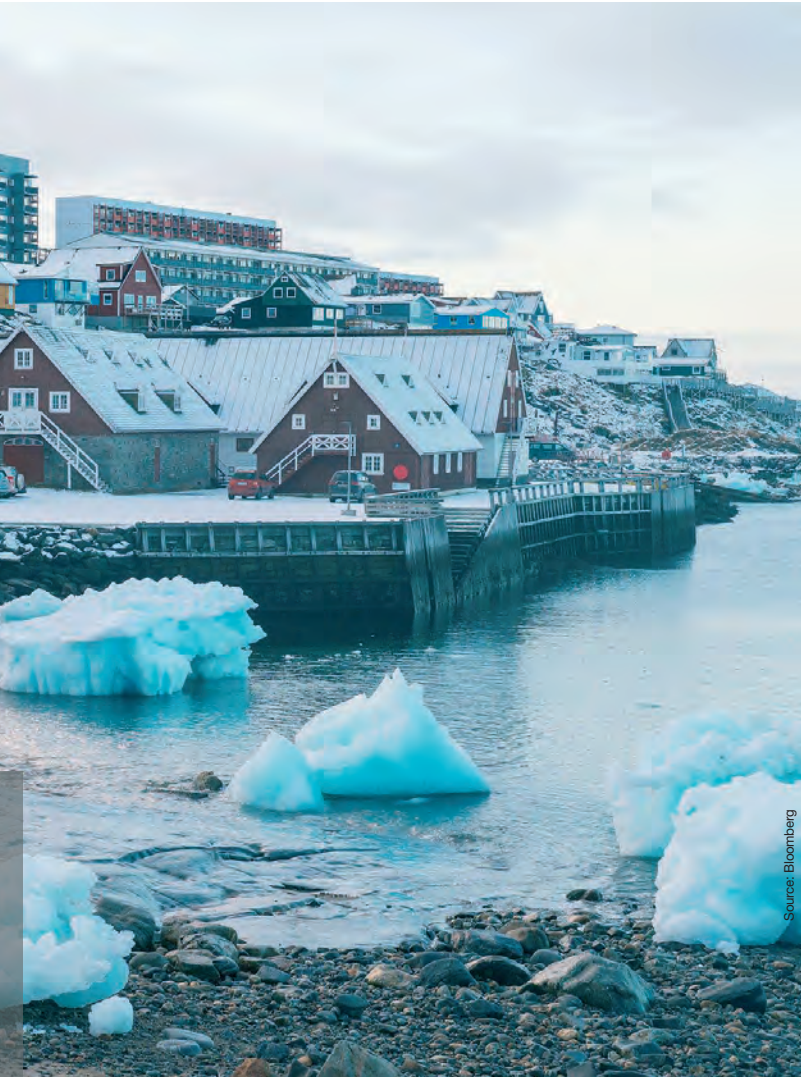


BRATTISH: Active moves by President **Donald Trump** to exclude South Africa from the G20 gathering in Miami might not rank at the top of recent outrageous actions by the US leader, including his vulgar gesture to an auto worker who heckled him during a plant visit. However, viewed alongside his brattish letter to Norway's Prime Minister **Jonas Gahr Støre**, blaming Norway for his failure to receive the 2025 Nobel Peace Prize, it is suggestive of yet more brutishness to come, especially if such bullying continues to be tolerated.

While those in power seek to tear the global community apart, it is more important than ever that we remain united in our fight to secure a safe and liveable future for our children

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AN



Source: Bloomberg

PUSH PAUSE

Why was it that George Washington never told a lie, papa? Because nobody asked him when the economic depression would end.

FACTSINFIGURES

1.4

The percentage to which the International Monetary Fund forecasts South Africa's GDP growth will increase this year, and to 1.5% in 2027.

7

The percentage by which global trade grew in 2025, exceeding $35-trillion for the first time, according to UN Trade and Development in a global trade update published on January 15.

BANK INDEPENDENCE

Central defensive midfield

IN HIS PRIME, it was typical for fans of those teams in which French international footballer **N'Golo Kanté** played, including Chelsea, to quip that "70% of the Earth is covered by water, the rest by N'Golo Kanté". Many opposing fans were often forced to agree grudgingly.

Kanté epitomised the type of footballer who could sniff out danger and react pre-emptively to make crucial interceptions or close spaces that could otherwise become pockets of threat.

In a society such as South Africa, where crime and corruption pose an ongoing threat to safety, service delivery, financial sustainability and, ultimately, democracy, media organisations with investigative capability and capacity have often been called upon to play that 'every-blade-of-grass' defensive midfielder role.

The media has been joined in this responsibility by a handful of other institutions, including the courts and, on the macroeconomic playing field, by the South African Reserve Bank (SARB).

Throughout the destructive years of State capture, the SARB was able to safeguard its independence, sometimes against the odds.

That's not to argue that every decision it has made has been the correct one and should not be questioned; all bank decisions should most definitely be debated, scrutinised and even criticised.

Nevertheless, few would be able to credibly prove that its processes and decisions were based on any consideration other than its own analysis of the best information available at the time and what was in the interest of meeting its mandate and, by extension, the interests of South Africa.

As a result, the bank has been able to cultivate something that is a rare commodity among South African public institutions: credibility.

Such credibility is not automatic, and central bankers don't always command it. What is clear, however, is that building it requires not only independence from political motives, but also the perception of such.

International Montray Fund economic counsellor and director of the research department **Pierre-Olivier Gourinchas** recently unpacked the economic value of the credibility derived from the independence that central banks have promoted over the past 40 years.

The upshot is that central banks are now largely trusted to deliver price stability, because there is an expectation that there will be no interference with their ability to deploy the tools at their disposal to achieve that goal. If that expectation is eroded, there will be a "de-anchoring of inflation expectations", leading to higher inflation expectations and, in turn, higher inflation, currency volatility, macroeconomic instability, and lower growth.

The SARB has been fortunate to operate on a playing field where governments around the world have recognised the value of bank independence even when their actions were not immediately supportive of the governing party's economic agenda.

That model is now under genuine threat after the US launched a criminal investigation into Federal Reserve chairperson **Jerome Powell**. If the administration prevails, the independence of other banks could come under similar pressure, and many countries could lose a key central defensive midfielder.

Terence Creamer | Editor



ELECTRICITY

Unbundling Worries

Solar body concerned that revised Eskom unbundling plan could stymie crucial grid investment

TERENCE CREAMER | CREAMER MEDIA EDITOR

The South African Photovoltaic Industry Association (SAPVIA) has added its voice to those expressing concern about the potential negative consequences arising from the revised unbundling plan for Eskom, which was announced in December.

Under the revised structure, the National Transmission Company South Africa (NTCSA) will remain a subsidiary of Eskom Holdings and will continue to own the transmission assets, while a separate Transmission System Operator (TSO) will be set up outside Eskom to handle system and market operation, but without owning the underlying infrastructure.

The Electricity Regulation Amendment Act, which came into force in 2025, set a five-year timeframe for the creation of an independent TSO, and SAPVIA was among those anticipating that the new fully independent transmission entity would own the grid assets, raise capital on its own balance sheet, and operate free from Eskom's institutional incentives.

CEO Dr **Rethabile Melamu** believes the revised structure creates practical problems, including the fact that a TSO without assets will be unable to raise capital at competitive rates to finance the 14 500 km of new transmission lines and other supporting infrastructure that South Africa requires.

In addition, the entity will remain dependent on an Eskom subsidiary for network access, perpetuating concerns about non-discriminatory treatment of Eskom Generation when compared with independent power producers.

She also highlights that the structure keeps critical grid infrastructure on Eskom's distressed balance sheet rather than creating a standalone, investment-grade transmission entity.

"The Department of Electricity and Energy and Eskom need to clarify how this structure will attract the private and development finance investment that transmission expansion requires," Melamu tells *Engineering News & Mining Weekly*.

"Transparent governance, operational independence from Eskom Generation, and credible timelines for full separation will be essential to maintaining investor confidence. As currently articulated, the revised plan falls short of what the sector needs," she argues.

Similar concerns have been raised by other commentators, including Professor **Anton Eberhard**, of the Power Futures Lab at the University of Cape Town's Graduate School of Business, who warns that failing to ensure that the transmission grid is "fully liberated" from Eskom could compromise future investment and increase the risk of loadshedding from 2030.

For SAPVIA, resolution of the unbundling issue is particularly important, given that it views access to grid infrastructure, both at a transmission and a distribution level, as the most pressing issue facing South Africa's electricity supply sector in 2026.

While there are indications that PV installations could slow globally this year for the first time since its emergence as a significant technology about two decades ago, the association is optimistic about continued growth in South African installations.



GRID CONSTRAINTS
South African solar panels shine, but grid bottlenecks threaten to dim the country's renewable-energy growth

Melamu highlights continued interest from renewables investors, noting that the 2025 South African Renewable Energy Grid Survey identified 117 GW of renewable-energy projects at advanced stages of development; capacity that already exceeds the 71.7 GW envisioned in the Integrated Resource Plan of 2025 over its entire 16-year horizon.

"The appetite for investment is clearly not the constraint; the grid is," she avers.

On the transmission side, SAPVIA welcomes the progress being made on the Independent Transmission Programme, but it also notes that Phase 1 addresses only a fraction, or 1 164 km, of the new lines required this decade, and will also not be operational until 2028 at the earliest.

"In the interim, projects in high-resource areas (particularly the Cape regions) compete for limited connection capacity."

At the distribution level, meanwhile, inconsistent municipal implementation of wheeling frameworks and small-scale embedded generation rules are frustrating private investment.

"The National Energy Regulator of South Africa's Grid Capacity Allocation Rules, which came into effect in November 2025, provide a clearer regulatory framework, but their value depends entirely on consistent implementation by network service providers.

"SAPVIA will be watching closely to ensure the rules are applied fairly and transparently."

Likewise, it will be monitoring developments relating to the South African Electricity Wholesale Market, the launch of which is still scheduled for April 2026, as well as developments in relation to the trading licences awarded to several market participants.

Melamu stressed, however, that a wholesale market cannot function effectively if generation cannot physically connect.

"Grid remains the decisive factor in translating investment appetite into installed capacity."



CRITICAL MINERALS

Critical Compass

Future Minerals Forum launches pioneer Future Minerals Barometer

TASNEEM BULBULIA | CREAMER MEDIA SENIOR DEPUTY EDITOR ONLINE

The Future Minerals Forum (FMF) has launched the inaugural Future Minerals Barometer, a pioneering tool designed to measure and track the progress of critical mineral value-chain developments across supplier countries.

Developed in partnership with McKinsey & Company and other sector experts, S&P Global Market Intelligence, Global AI and GlobeScan, the barometer integrates stakeholder sentiment, data, market intelligence and project-level evidence into a single authoritative platform to guide global decision-making.

A yearly global minerals conference, FMF took place in Riyadh, Saudi Arabia.

Saudi Arabia Industry and Mineral Resources Vice Minister **Khalid Al-Mudaifer** highlighted the significance of the barometer.

"It represents a landmark document for the minerals industry: a tool which highlights key trends and stakeholder sentiment, tracks progress on mineral supply and makes recommendations for action to ensure the sustainable development of critical minerals value chains."

The barometer is supported by the Future Minerals Framework, developed since 2023 by the FMF with input from over 130 experts from more than 42 countries, including governments, multilateral organisations, nongovernmental organisations and minerals companies.

The framework identifies key enablers to unlock the potential of end-to-end mineral value chains, namely policy and regulations, financing, infrastructure, sustainability, talent, technology and geology.

The framework outlines a blueprint for creating resilient and responsible mineral value chains spanning exploration and mining through logistics, processing and advanced manufacturing.

The barometer offers a snapshot of how capital, risk and confidence are shaping global critical minerals markets.

Data reveals where investment is concentrating, where it is retreating and the widening gap between mineral endowment and capital allocation.

Against this baseline, the barometer will track shifts in risk perception, investment flows and progress towards more resilient mineral value chains.

Industry participants have underscored the importance of sustainable mineral supply.



DUNCAN WANBLAD
The industry will need to develop around 60 new mines in the next decade alone

"Global demand for copper is projected to grow by 75% to 56-million tonnes a year by 2050.

"To meet this demand and offset declines from aging mines, the industry will need to bring around 60 new mines like Quellaveco online in the next decade alone," global miner Anglo American CEO **Duncan Wanblad** says.

McKinsey & Company partner **Jeffrey Lorch** highlights the practical use of the research. "By integrating market data, stakeholder sentiment, and value-chain benchmarks, the FMF barometer provides companies with a strategic roadmap to navigate volatility and unlock long-term growth."

"The Super Region has a massive opportunity, but it faces challenges. The enablers identified in the barometer set out how to address those challenges, while taking into account their nuances and complexity," GlobeScan CEO **Chris Coulter** avers.

The FMF classifies the "Super Region" as Africa, West Asia and Central Asia.

Global AI chairperson Dr **Hamid Rashid** touches on the barometer's baseline assessment of progress with the enablers. "The varied progress on the enablers across these corridor economies presents an opportunity for them to learn from each other, strengthen collaboration, strengthen the effectiveness of the enablers and co-develop their mining sector to develop resilient critical minerals supply chains in the Super Region."



AFRICA'S MINERAL ENDOWMENT

Joined-Up Mining

Call for Africa to turn fragmented mineral belts into coherent regional value chains

MARTIN CREAMER | CREAMER MEDIA PUBLISHING EDITOR

Africa does not have the luxury of treating regional cooperation and regional beneficiation as afterthoughts. If the continent continues to negotiate in small, fragmented units, the result will be a patchwork of export restrictions and incentive schemes that strain investor confidence without building the connective tissue of shared infrastructure and industrial capacity.

If, instead, leaders use projects such as the Lobito Corridor as prototypes for how to align geology, logistics, and industrial policy at a regional scale, the continent can begin to shape global value chains rather than simply feeding into them.

This way forward for the continent is advocated for by Absa CIB coverage head for resources and energy **Shirley Webber** and Absa CIB managing executive for public sector and growth capital solutions **Stephen Seaka**, who highlight that regional corridors are needed to bridge Africa's dispersed minerals endowment and report on a trial run on the Lobito Corridor reducing a usual six-week journey to eight days.

"It shows how a corridor can become the organising unit of industrial strategy, because the infrastructure that moves ore and the systems that govern its movement naturally operate beyond national borders.

"It also forces a more fundamental question onto the table: If the next generation of global industry is going to draw on Africa's critical minerals, what scale of planning can genuinely support that opportunity? In practice, the geology is regional, but industrial policy is still national. Lobito exposes that mismatch and demonstrates how coordinated corridors can begin to bridge it," Webber and Seaka point out.

They outline regional cooperation as including tariff alignment, customs procedures, rail and port concessions, environmental and social standards, power-pool governance, dispute-resolution mechanisms and the regulatory treatment of long-term public-private partnerships.

They add that regional beneficiation, by contrast, is about where along the value chain different activities are positioned and how those activities are sequenced. Ore can be crushed, concentrated, smelted, refined, turned into precursors, assembled into components and eventually integrated into finished products.

Some of these steps require substantial power and water; some are knowledge-intensive; some are highly trade-exposed and shaped by logistics costs, with it seldom making sense to duplicate each step in every country that hosts a deposit.

"It's more efficient to map which segments of a copper-cobalt-manganese-lithium chain should sit in which locations along a corridor, then design fiscal regimes, power investments, and skills programmes accordingly.

Interestingly, they observe that the continental policy landscape is beginning to move in this direction, which they see as being exemplified by the African Union's Green Minerals Strategy, in that it positions critical minerals as a regional industrialisation opportunity and promotes integrated value chains and corridor-based infrastructure planning.

Regional economic communities, such as the Southern African Development Community, the Common Market for Eastern and Southern Africa and the Economic Community of Central African States, are held up as examples of sub-continental platforms that could support this kind of coordination.



SHIRLEY WEBBER
a corridor can become the organising unit of industrial strategy

"In practice, turning these frameworks into functioning corridors requires a different discipline from governments. It means treating a corridor as a single planning unit for power, water, data connectivity and skills, even while it traverses several jurisdictions.

"It means aligning fiscal terms enough to prevent destructive competition for smelters and refineries, while allowing differentiated incentives where countries have distinct industrial strengths.

"It also demands joint approaches to environmental and social governance, so that high standards become a feature of the corridor rather than a source of regulatory arbitrage.

"These elements form the operational foundation on which regional value-chain design can take shape. The private sector sits at the centre of whether this works. Mining companies and their supply chains will not commit to multi-decade smelting or refining investments unless they see predictable corridor-wide frameworks on transport, power pricing, fiscal regimes and environmental standards.

"Battery and EV manufacturers will only treat African corridors as strategic production nodes if they can access sufficient scale, consistent quality and credible delivery timelines. Regional banks and DFIs will structure project finance and corporate facilities more confidently when risk is shared across a corridor with pooled revenue streams rather than tied to the fiscal position of a single sovereign," Webber and Seaka state in an article to *Engineering News & Mining Weekly*.

Africa Needs Action

"Africa needs action," is a point that has been emphasised by Investing in African Mining Indaba executive advisory board chairperson **Frans Baleni**, ahead of the Indaba, which takes place in Cape Town from February 9 to 12. As Africa's biggest mining platform, the Indaba is going all out to build momentum towards the realisation of a timely new Africa partnership era.

At the same Indaba media conference, UN Economic Commission for Africa economic affairs officer Dr **Marit Kitaw** drew attention to "putting our voices together" and "having an African agency", at the upcoming Indaba, which is Africa's biggest mining platform.

The journalists present also heard from Kitaw that "critical minerals have now become a currency. We talk about cobalt in the Democratic Republic of Congo, manganese in South Africa, graphite in Mozambique, platinum and gold in South Africa, and I can go on, so we have the endowments, but to have economies of scale and bargaining, you need to have regional integration".

AN

AUTOMOTIVE

Sun Powered

CHARGE proves viable charging of electric trucks using offgrid solar

MARLENY ARNOLDI | CREAMER MEDIA SENIOR DEPUTY EDITOR ONLINE

Zero Carbon Charge (CHARGE) has successfully charged for the first time in South Africa an electric truck using fully offgrid solar-powered public charging at its Wolmaransstad site.

This marks a historic milestone for South Africa's transport and energy transition and signals that electric freight, powered entirely by renewable energy and independent of the national grid, is no longer a future concept but a present-day reality.

The milestone coincides with one year of operations at CHARGE Wolmaransstad, where provincial government leaders, investors, and strategic partners gathered on January 15 to witness what is widely regarded as a breakthrough moment for green mobility and logistics in South Africa.

"The demonstration proves that long-haul electric trucks can operate reliably on clean energy generated on site, removing one of the biggest perceived barriers to freight electrification," says CHARGE co-founder and chairperson **Joubert Roux**.

For him, the achievement is a milestone for both the company and the country as it marks the start of the future of green mobility.

"Electric trucks are going to become a reality sooner than passenger electric vehicles (EVs), because the economics, the routes, and the operational logic all align. This is where the transition truly accelerates," Roux states.

Having worked with commercial vehicle manufacturer SANY on the endeavour, CHARGE's demonstration proves that electric freight corridors powered by renewable energy are viable, scalable and investable.



GRID FREE
An electric truck charges using fully offgrid, solar-powered energy

SANY South Africa sales and marketing director **Avinash Singh** comments that after working with CHARGE for more than a year, it is indeed a special moment to show that SANY trucks are charging for the first time at a CHARGE station fully powered by solar and battery energy.

With CHARGE actively developing a national network of solar-powered EV charging stations across South Africa's major highways, the focus is now shifting to freight corridors.

The next dedicated electric truck-charging sites are set to launch along the N3 corridor this year, positioning South Africa's busiest logistics route at the forefront of the energy transition.

Free State Economic Development, Tourism and Environmental Affairs MEC **Moses Makume** welcomes the rollout, especially with the Free State being among the first provinces with infrastructure along the N3 capable of charging electric trucks.

"The Free State is proud to be part of mitigating climate change while actively driving the future economy and sustainable logistics," Makume says.

In turn, Development Bank of Southern Africa product innovation head **Spiwe Sibanda** adds that the demonstration reinforces the bank's confidence in CHARGE's projects and business model. The bank will continue to support initiatives that deliver real impact for the economy, the environment and long-term energy resilience.

Consultancy Accenture automotive and e-mobility principal director **Greg Cress** says the work of CHARGE to install offgrid solar-powered charging stations epitomises what the country needs for an EV market to develop.

"As South Africa faces mounting pressure to decarbonise transport, secure energy supply, and modernise logistics, CHARGE's offgrid model offers a practical pathway forward – one that aligns private capital, public policy, and climate objectives to build infrastructure that works now and at scale," Cress concludes.

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PLATINUM GROUP METALS

Hydrogen Momentum

Significant new platinum-linked green hydrogen advances sweeping across UAE and US

MARTIN CREAMER | CREAMER MEDIA PUBLISHING EDITOR

Speaking at the Abu Dhabi Sustainability Week recently, South African President **Cyril Ramaphosa** positioned green hydrogen at the centre of Africa's big energy opportunity – and then in the US, speakers at the Washington-based Fuel Cell & Hydrogen Energy Association webinar heralded expanded tax-benefit business structures through America's' Master Limited Partnerships as the harbingers of new sought-after US hydrogen expansion.

In discussion with UAE President Sheikh **Mohamed bin Zayed Al Nahyan** at the sustainability event, Ramaphosa emphasised the extent to which Africa's superior sunshine, strong wind corridors, powerful river systems, and critical minerals place the continent in a distinctive position to lead the world in green hydrogen production.

In the UAE, the headlines were 'Ramaphosa touts green hydrogen as cornerstone of Africa's energy, growth future' and 'Africa is where green hydrogen can be utilised to a highly significant extent'.

Meanwhile, the World Platinum Investment Council reports that China has completed the world's largest hydrogen refuelling station in Hami, Xinjiang, as part of its drive to decarbonise heavy transport.

The facility, in trial operation, can dispense up to 10 t of hydrogen daily, twice the capacity of Europe's largest site, and refuel around 300 vehicles a day.

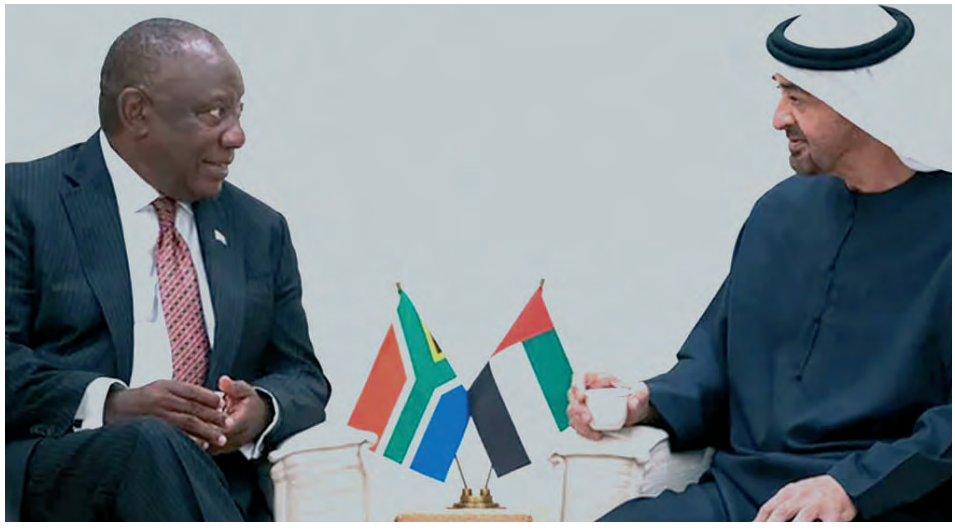
The Xuanli station integrates hydrogen production and refuelling on a single 19 500 m² site, featuring eight high-capacity islands capable of serving eight fuel-cell trucks simultaneously.

Core equipment, including advanced compressors and control systems, was developed by Beijing Haidleyson Technology to ensure safety and efficiency in extreme temperatures.

The project reflects China's preference for large-scale, vertically integrated hydrogen hubs, contrasting with Europe's smaller distributed stations.

Hydrogen is seen as critical for cutting emissions in freight and other hard-to-abate sectors, and the station is expected to accelerate the adoption of fuel-cell vehicles while supporting national carbon neutrality goals.

Analysts see the development as underscoring China's ambition to lead in hydrogen infrastructure, positioning the technology as a practical pillar of its energy transition rather than a distant target.



SUSTAINABLE ENERGY TALKS
President Cyril Ramaphosa (left) with UAE President Sheikh Mohamed bin Zayed Al Nahyan at Abu Dhabi Sustainability Week, where green hydrogen was positioned as a central pillar of Africa's future energy and growth opportunity

Then, recently in the US, on a solar site in the State of Florida, the New York Stock Exchange-listed Duke Energy demonstrated the production, storage and use of green hydrogen, which followed the Nasdaq-listed hydrogen fuel cell company, Plug Power, signing a letter of intent to install a 5 MW platinum-based proton exchange membrane (PEM) electrolyser at Sunrhyse, Hy2gen's hydrogen production project in Signes, France. Plug Power will support the transport and distribution of hydrogen produced at Sunrhyse and continue expanding its turnkey hydrogen forklift solutions for logistics bases across the region.

Interestingly, Plug Power last year installed the same megawattage PEM electrolyser for Cleanergy Solutions of Namibia to support hydrogen-powered trucks, small ships and vehicles converted on site for dual-fuel operation using hydrogen and conventional fuels.

In California, Toyota Motor North America has announced a strategic investment in First Element Fuel, which is the largest retail hydrogen fuelling infrastructure provider in the large American state. First Element Fuel has 92 retail fuelling positions across 38 locations. Toyota and First Element Fuel aim to strengthen infrastructure for fuel cell electric vehicle (FCEV) drivers and bolster the hydrogen fuelling network for current and future generations of FCEVs.

Still in the US, fuel cell power systems company PowerCell has signed an agreement with an American data centre provider to supply two PowerCell fuel cell power systems for field validation in a data-centre application. The systems will be part of six- to 12-month lease arrangements.

In India, a hydrogen-powered train is undergoing final trials to transport tourists between Jiind and Sonipat. Powered by platinum-based fuel cells, the hydrogen-powered train will travel at a speed of up to 150 km/h.

"Hydrogen will play a crucial role in India's energy transition," Indian Renewable Energy Minister **Pralhad Joshi** forecast after driving a hydrogen fuel cell Toyota Mirai car through central New Delhi as part of a public demonstration of Indian government commitment to green hydrogen transport.

In Germany, a traditional railway line north of Berlin is pioneering a new zero-emission passenger train, powered by Ballard hydrogen fuel cells. A new hydrogen facility will be built by Enertrag in Wensickendorf to enable regional production of green hydrogen from wind and solar energy. The on-site facility has the capacity to produce up to 380 t/y of green hydrogen, with 230 t of that

reserved for supplying the Heidekrautbahn railway line between Barnim and Berlin.

In Austria, energy company OMV has secured funding from federal development bank Austria Wirtschafts to support a 140 MW green hydrogen electrolyser plant at Bruck an der Leitha as part of a project designed to produce up to 23 000 t/y of green hydrogen using renewable energy from wind, solar and hydropower.

When commissioned at the end of 2027, the facility will rank among Europe's top five green hydrogen plants.

In Japan, a contract has been signed with Kawasaki to build a 40 000 m^3 liquefied hydrogen vessel at Sakaide. Project operator Japan Suiso Energy plans to perform trials under ocean-going conditions by 2030.

In Norway, Gen2 Energy has received confirmation of a total capacity reservation of up to 195 MW for a green hydrogen project at Nesbruket in Vefsn municipality. Work has begun on the project, which will be built in phases. Last year, the company signed a pact with Hamburg energy company MB Energy for liquid green hydrogen supply.

The first phase of the project targets up to 30 t of liquefied green hydrogen a day, and over time production will be scaled up to the full capacity of 195 MW.

In Colombia, a nationwide government call has been made for proposals aimed at piloting low-emission hydrogen technologies across transport, industry and power. Colombia's Atlantic and Pacific ports – especially Cartagena and Buenaventura – are to become hydrogen export gateways. Platinum-catalysed PEM systems have been mentioned by Hydrogen Fuel News as possibly featuring in the call for proposals.

In Egypt, a 100 MW green hydrogen project in partial operation has begun exports to Europe and the US as the country steps up efforts to position itself as a hub for clean fuels.

In South Africa in December, the many international business and policy leaders attending the year-end G20 and B20 Summits were chauffeured around Johannesburg in platinum-catalysed hydrogen fuel cell electric Toyota Mirais, which were refuelled by South Africa's Air Products, with a full tank of hydrogen produced by South Africa's Sasol providing sufficient energy for 500 km to 600 km journeys.

Also in South Africa, energy startup Hyena is setting out to reduce Africa's reliance on diesel generators through its Power Pod earmarked for off-grid locations or those that have an unreliable energy supply. The system generates electricity from liquefied petroleum gas (LPG) without combustion by converting the LPG into hydrogen, which is then used in a fuel cell.

Last month Hyundai Motor Group signed a memorandum of understanding (MoU) to co-develop a maritime fuel cell system with HD Korea Shipbuilding & Offshore Engineering and Pusan National University. In terms of the MoU, the consortium will develop and demonstrate a maritime fuel cell system for liquefied hydrogen carriers. Hyundai Motor Company plans to develop a fuel cell system optimized for marine applications based on its existing fuel cell technology.

HD Korea Shipbuilding & Offshore Engineering will carry out the integrated design of a hybrid electric propulsion system consisting of a hydrogen dual fuel engine and Hyundai's maritime hydrogen fuel cell. Pusan National University will evaluate and demonstrate the system.

Funding Opportunities

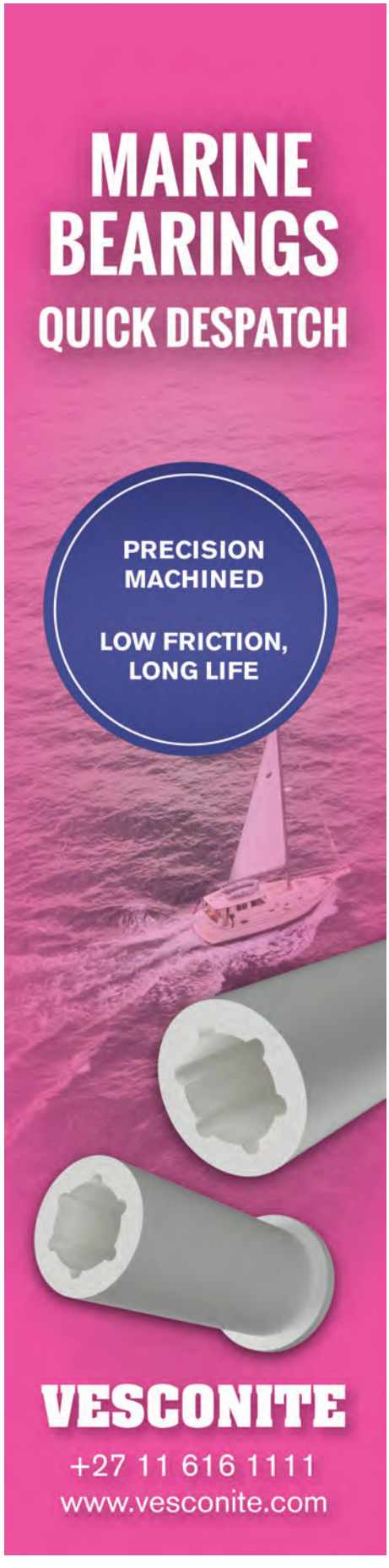
Overall, new funding opportunities are being lined up, with a competitive auction model emerging as the leading method of allocating production subsidies for clean hydrogen.

The goal is to secure fixed revenue streams for developers to firm up their projects' bankability and get them to a final investment decision at the lowest possible cost to the public purse. In France, the government has unveiled new rules for its 1 GW of national clean hydrogen subsidy auctions.

It is important to point out that platinum is crucial for hydrogen fuel cell mobility as well as the PEM electrolysers that generate the hydrogen. Platinum's catalytic properties allow it to convert hydrogen into green electricity with water as the only by-product, offering zero-emission power for vehicles and industry.

[Green hydrogen] is at the centre of a new global energy opportunity

President Cyril Ramaphosa



AIR TRAVEL

Passenger Surge

Cape Town International recorded 11.1m two-way passengers in 2025

SCHALK BURGER | CREAMER MEDIA SENIOR DEPUTY EDITOR

Cape Town International Airport saw a record-breaking 11.1-million two-way domestic and international passengers during 2025, and also surpassed its December 2024 international passenger record.

Almost 364 000 two-way international passengers were recorded in December 2025, representing a growth rate of 10% year-on-year, out of a total of 1.12-million two-way passengers during the month – an 8% year-on-year increase.

This sets a new record for Cape Town and the Western Cape's festive season, says air-route development promotion initiative Cape Town Air Access, which forms part of Western Cape tourism, trade and investment promotion agency Wesgro.

Further, of the total 11.1-million, 3.3-million two-way international passengers passed through the airport's international terminal in 2025, which is a 7% increase compared with 2024. Similarly, the number of domestic two-way passengers also increased by 7%, reaching 7.8-million two-way domestic passengers, Cape Town Air Access says, quoting from statistics released by State-owned management agency Airports Company South Africa. Further, air cargo volumes continue to show year-on-year growth, with an increase of 42% for the first ten months of 2025, which highlights its role in the logistics sector in the province.

This year, improved connectivity and ongoing route expansions will enable further tourism growth, and Cape Town Air Access recently welcomed LATAM Airlines' announcement of a new direct service between São Paulo and Cape Town, says Wesgro CEO **Wrenelle Stander**.

In July, LATAM will introduce three flights per week to Cape Town, marking the first South American carrier operating direct flights to the Mother City and further strengthening the Western Cape's international connectivity.

Additionally, in December 2025, Air Tanzania launched a triangular route between Dar es Salaam, Victoria Falls and Cape Town, and then back to Dar Es Salaam, which has opened a new gateway for travellers to East Africa, she says.

Emirates, Qatar Airways and Ethiopian Airlines will also increase frequencies of flights to Cape Town International Airport this year, she adds.

Similarly, airlines United, Delta, Condor, KLM, Norse Atlantic, Air France, TAAG, Qatar Airways and Proflight Zambia also increased the frequency of their flights during the summer tourism season.

"The Western Cape aims to double tourism by 2035, as part of the Growth for Jobs Strategy. These figures demonstrate that we are on the road to achieving this," she says.

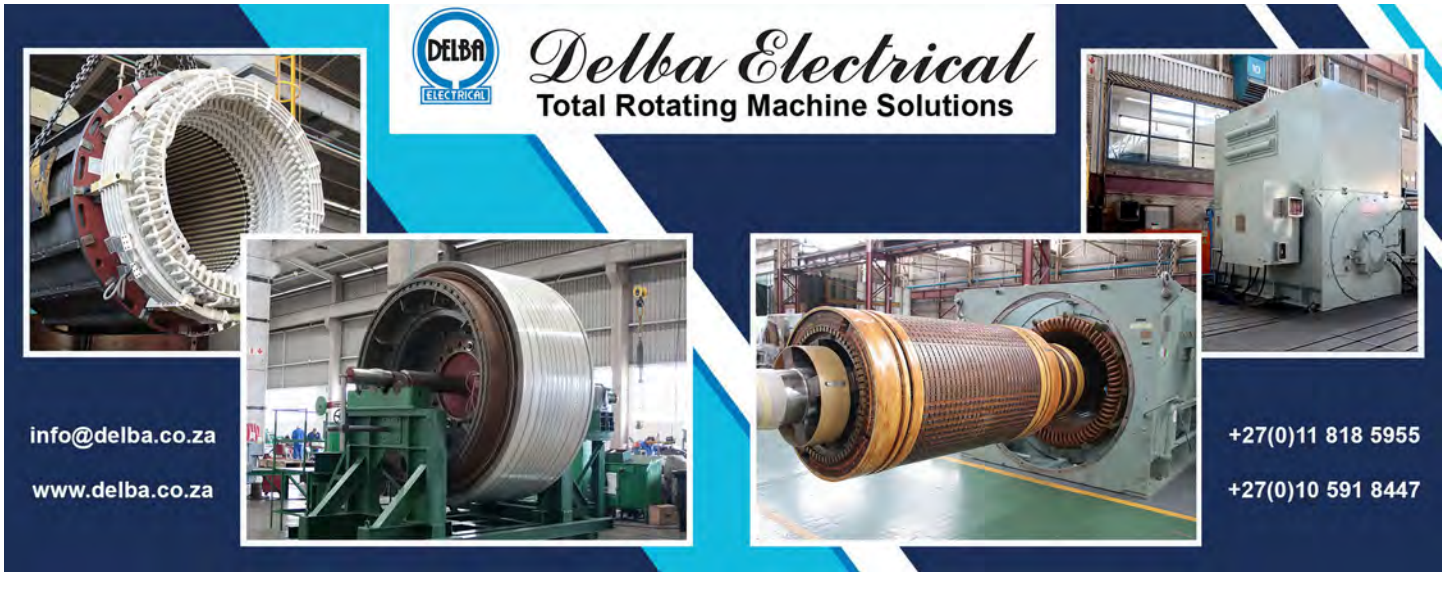
"When you grow tourism, you stimulate growth, strengthen competitiveness and create jobs in communities across the province. We look forward to welcoming tourists from across South Africa and the world, with love from the locals, and showcasing the diversity of experiences on offer in our beautiful province."

"The Western Cape is focused on the Growth for Jobs Strategy, and that tourism growth continues in our province is encouraging. When tourism grows, jobs increase and more opportunities are created for people in towns across the province," says Western Cape Agriculture, Economic Development and Tourism provincial minister Dr **Ivan Meyer**.

"The aviation economy is a powerful driver of our tourism value proposition and a key catalyst for economic growth and jobs. When passengers fly to Cape Town, they spend in our hotels, restaurants and businesses, directly supporting employment across the city, says Cape Town Economic Growth MMC Alderman **James Vos**.

With tourism already employing nearly 7% of Cape Town's workforce, the focus now is to grow this beyond 10%, he adds.

> The Western Cape aims to double tourism by 2035 as part of the Growth for Jobs Strategy
>
> **Wrenelle Stander**



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TECHNOLOGY & MINING

Transformative Disruption

Indaba to focus on how Agentic AI could transform and disrupt mining

NADINE JAMES | CREAMER MEDIA DEPUTY EDITOR FEATURES



THIRSTY TECH
A UN Environment Programme report notes that most large-scale AI deployments are housed in data centres and, globally, AI-related infrastructure may soon consume six times more water than Denmark

The focus of this year's Investing in African Mining Indaba on disruptive technology reflects a growing acceptance that mining will not remain competitive using historic operating models alone, states Boston Consulting Group's (BCG's) Johannesburg branch MD **Tycho Möncks**.

Mining Indaba organiser Hyve Group has described AI as the mining industry's "next strategic battleground", and a key focus of the 2026 Indaba is to foster a conversation that "moves beyond hype [and speculation] to hard realities as leaders dissect the rise ofAgentic AI".

Agentic AI, according to BCG, refers to autonomous systems that can "plan, act and learn on their own", mimicking human decision-making to complete tasks, and requiring limited human intervention once operational.

For decades, mining has been shaped by incremental gains and a cautious approach to digital adoption; however, Agentic AI represents "something different" – true, transformative disruption that will "define the next era of mining", Hyve Group points out.

"Costs are rising, orebodies are getting more complex and the expectations on safety, emissions and water use are increasing. The industry now needs technologies that help mines become more adaptive, more integrated and more predictive. Agentic AI can play a key role in that shift," says Möncks.

The Indaba – to be held at the Cape Town International Convention Centre from February 9 to 12 – will help to shape Africa's mining environment in the near term. It now also offers a means of "debating and evaluating how the industry realises AI's pragmatic value and reimagines the baseline for mining", adds Möncks.

He says this realisation has already started in other parts of the world, with BCG's 'Build for the Future 2025' study finding that only 30% of organisations have managed to generate value from AI. However, those that have done so have outperformed their peers by 10% to 20%, and with that gap expected to widen year-on-year.

"The promise of Agentic AI is not flashy innovation; it is a more stable and resilient mine. The challenge now is how leaders design the data, processes and governance required to deploy them responsibly," Möncks elaborates.

The Environment & AI

The question of responsible deployment encompasses environmental-impact and socioeconomic concerns. A key consideration of the former is that, despite the often incorporeal nature of AI outputs, the physical infrastructure requires significant land, water, energy, human and material resources to operate.

The July 2024 report of the UN Environment Programme, titled 'Navigating New Horizons – A Global Foresight Report on Planetary Health and Human Wellbeing' notes that most large-scale AI deployments are housed in data centres, which require vast amounts of raw materials and, consequently, produce electronic waste that often contains hazardous substances.

"Data centres use water during construction and, once operational, to cool electrical components. Globally, AI-related infrastructure may soon consume six times more water than Denmark, a country of six-million, according to one estimate. That is a problem when a quarter of humanity already lacks access to clean water and sanitation," the report states.

It further notes that data centres that host AI need a lot of energy, citing the International Energy Agency's estimate that, in Ireland, the rise of AI could see these centres accounting for up to 35% of the country's energy in 2026.

This poses the question of whether mining – an industry that already has a considerable environmental impact – can justify increasing its environmental footprint.

"The question isn't about whether it's justified, because it's inevitable. It is impossible to expect the mining sector to swear off AI when all other sectors globally are jumping onto the bandwagon. That being said, a few things should be considered by the mining sector when managing its environmental footprint," states University

of York sustainability lecturer Dr **Felicia Liu**.

"On the infrastructural side, data centres can differ a lot. Some are more resource intensive, depending on where they're located. For instance, if [it is] . . . built within an urban hub with limited land, water and energy resources, then, inevitably, it's going to strain the grid . . . [and] the water supply. It's going to compete for land with other economic and social activities."

Other considerations regarding the energy aspect include whether data centres use renewable-energy sources or hybrid systems; whether the location has sufficient energy security to support not only the 24-hour operation of a centre but also residents and/or organisations in the surrounding area; and whether they are energy efficient.

"The frustrating thing is that, as end-users of AI, we actually have limited visibility or transparency, let alone control in terms of the digital infrastructure that supports AI use. But perhaps industry as a whole, through a bit of coordination, can ensure that it achieves greater insight and understanding into the total environmental impact of the AI systems being used," notes Liu.

Further, the types of activities and outcomes for which AI is deployed need to be considered.

"Is it to improve environmental oversight? Is it to reduce inefficiencies? Is it to avoid environmental harm? When we're trying to think about this . . . we need to think about the infrastructure underpinning AI and what it is being used for."

Möncks adds that AI can be justified environmentally because the compute load required at a mine site is "small, while the efficiency gains are significant".

"When used well, AI reduces energy waste, water use and rehandling losses across circuits such as grinding, flotation, pumping and ventilation, leading to a smaller footprint per tonne. We have already seen 5% to 15% improvements in electricity use and overall process efficiency gains in the real world," he elaborates.

Nevertheless, Liu notes that increased collaboration is needed if the world is to successfully navigate the dual demands of increased digitalisation and the decarbonisation of the economy.

"I think tech companies perhaps have a key role to play in terms of coordinating with their suppliers, which are, ultimately, mining companies, to hold them accountable in terms of the environmental and social impact."

Further, much of the focus on sustainability is on various types of climate-neutral or net-zero standards for data centres, "but we rarely ever look at the entire supply chain".

She adds that the tech sector has started conversations with renewable-energy companies to source clean energy, but for other parts of the supply chain – whether land acquisition, mining or e-waste management – "the supply chain is not necessarily talking to each other to ensure that environmental synergies are being maximised".

Responding to the suggestion that data centres could be constructed at existing or decommissioned mine sites, Liu notes that the viability of such an endeavour has yet to be adequately explored but using "what is essentially a brownfield site" is not novel.

She cites Singapore as an example, where a lot of the old manufacturing sites have been repurposed for data centre use – they are not hyperscale data centres because they are constrained by the infrastructure of the old manufacturing sites and, consequently, tend to be co-location sites.

"Old mining sites may well be large enough to fit hybrid data centres, but brownfield sites are constrained by existing infrastructure availability, with the most important part being connectivity."

Liu elaborates that many of the data centres in Singapore are built very close to Internet cable landing stations, which raises the question of connectivity availability when considering potential existing mining sites, as "that is essential for building uptime".

Möncks comments that mining companies already act as anchor customers for power and water infrastructure, with their long-term offtake often underwriting renewable projects and transmission lines that would otherwise be unfinanceable.

This is evidenced by renewable-energy company G7 Renewables which, in December, told *Engineering News & Mining Weekly* that private- and mining-led transactions account for 56% of all utility-scale solar PV and 67% of all wind energy developments that have entered into construction in South Africa over the past five years.

"As AI use grows, miners should lean into their role as anchor customers, partnering with governments, utilities and tech companies so that data centre and AI demand help underwrite energy and water infrastructure that also serve households and other industries. In such a model, employing AI is not about diverting scarce resources, but about using digital demand to unlock cleaner, more reliable infrastructure for the broader economy," he explains.

Agentic AI in Mining

AI has progressed from narrow, rules-based systems to predictive models, generative models and, now, Agentic AI.

"What distinguishes AI agents is their ability to observe what is happening across a mine, plan a sequence of actions and intelligently execute parts of a workflow with minimal intervention. This reframes AI from being just a tool to becoming more of a 'colleague'," says Möncks.

A mine could deploy an "operations co-pilot" that integrates fleet data, plant conditions, maintenance priorities and external factors, such as the weather, to propose and increasingly even directly carry out adjustments to drill, haul and processing routines to maximise throughput while keeping energy, water and emissions within predetermined limits.

However, clear risks remain and must be managed. Möncks adds, for example, that equipment wears unevenly, grades deviate from models and environmental conditions shift continuously.

"In that context, even a highly capable agent could inadvertently push haul roads beyond safe conditions or accelerate component failure. Therefore, deploying AI responsibly with credible guardrails, behaviours and assurance standards becomes critical for mines."

When setting guardrails, BCG's work shows that algorithm quality accounts only for about 10% of their success; roughly 20% is technology or architecture, and about 70% is people, governance and "ways of working".

"One effective framing is to treat an AI system like a digital employee: it has a defined role, a supervisor, boundaries, escalation rules and performance expectations. Just as a mine would never place a new hire into a critical workflow without structured onboarding, checks and continuous oversight, an AI agent should be governed with the same discipline. As AI agents advance over time, they can gradually earn the trust to be given higher degrees of autonomy – but appropriate governance by humans will remain pivotal."

He adds that the convergence of operational technology, IT, people and now AI means the cybersecurity risk surface is larger and, while the specific percentage of budget allocated to cybersecurity will vary by company, investment must grow in line with digital adoption.

"Leading operators now treat cybersecurity on par with physical security, with dedicated controls to protect AI models, restrict access and detect manipulation or jailbreak attempts."

Although Agentic AI offers a genuine step-change opportunity for mining, "the true value does not come from algorithms . . . but from mining professionals equipped to work confidently with AI as a partner," Möncks concludes.



From mining roots to integrated technology provider

In today's mining and industrial landscape, safety and productivity are inseparable priorities. For nearly two decades, engineering design consultancy Matrix Design Group has been at the forefront of innovation, delivering advanced technologies that help protect workers and optimise operations in some of the world's most demanding environments. From its origins in mining safety to its evolution as a global technology provider, Matrix continues to redefine what is possible in high-risk environments, leading the way toward smarter, safer and more productive operations.

Founded in 2006, Matrix began with a clear purpose; to improve safety in underground coal mining. Early on, the company introduced groundbreaking solutions like the IntelliZone® proximity detection system, which set new standards for preventing equipment-personnel accidents. These innovations helped operators comply with stringent safety regulations while reducing injury and fatality rates.

Through developing IntelliZone and working closely with customers, Matrix uncovered critical technology gaps in mining operations. This insight revealed an overwhelming need for smarter, more integrated solutions, beyond proximity alone. In response, Matrix expanded its portfolio with innovations such as PPE2Go® a control and management tool for personal protective equipment, OmniPro® Collision Warning, and DeltaERP®, among others, each designed to tackle unique challenges and deliver measurable improvements in safety and efficiency. The next step in transformation occurs when these tech-nologies work together. Integrated into a single ecosystem, they provide a seamless flow of data across equipment, personnel and processes. This connectivity empowers decision-makers to proactively address risks, reduce downtime, and continuously improve performance, creating a safer, smarter, and more productive operation than ever before.

As a growing, safety-driven, compre-hensive technology partner, Matrix is ready to transform how industries approach safety and productivity.







Evolution

As Matrix grew, its vision extended beyond underground coal mining. The company recognised that the same principles driving safety and efficiency in mining could transform other high-risk industries. This realisation led to the development of integrated technology platforms that serve the materials handling, industrial, and energy sectors.

Today, Matrix delivers solutions that combine rugged hardware, intelligent software, and actionable analytics to help organisations advance safety without sacrificing productivity. By leveraging AI-driven insights and real-time data, Matrix empowers operations to proactively identify risks, streamline workflows, and maintain compliance in environments where every second counts.

Matrix's ability to innovate at scale is strengthened by strategic partnerships and a commitment to quality through adherence to ISO 9001 quality management standards. As a subsidiary of Alliance Resource Partners, Matrix validates its technologies in real-world conditions before deploying them globally. Collaborations with original equipment manufacturers ensure compatibility and accelerate adoption, while US-based manufacturing guarantees reliability and rapid delivery. With an expanding global network and culture dedicated to customer success, Matrix provides end-to-end solutions tailored to the unique challenges of each operation.

The Future of Mining

Matrix is not just responding to the challenges of today; it is actively shaping the mining industry of tomorrow. The future of mining demands operations that are safer, smarter, and more sustainable, and Matrix is driving this path through four key pillars.

Automation and AI

By integrating artificial intelligence with advanced sensor technologies, the company is creating platforms that can predict hazards, automate decision-making, and reduce human exposure to risk. These innovations pave the way for autonomous workflows, leveraging advanced algorithms and AI models, to optimise operational outcomes.

Electrification and Sustainability

The mining industry continues to face growing pressure to reduce emissions and energy consumption. Matrix is partnering with technology leaders to develop electrified equipment and energy-efficient motors that minimise environmental impact while maintaining performance. This commitment to sustainability ensures that productivity and responsibility go together.

Connected, Secure Ecosystems

Tomorrow's mines will be defined by connectivity. Matrix is building next-generation networks that integrate communication, tracking, mine data, and analytics into a single, secure platform. These intrinsically safe networks enable real-time visibility across operations, empowering managers to make faster, smarter decisions, and respond proactively to emerging risks. By adhering to ISO 27001 information security standards, Matrix guarantees secure data exchange and rigorous risk management enabling operational integrity.

Global Expansion and Scalability

Matrix's vision extends beyond mining hubs in North America, South Africa and Australia. By validating technologies in real-world conditions and scaling globally, Matrix ensures that its solutions can adapt to diverse environments, from underground coal mines to large-scale industrial operations. This global reach positions Matrix as a trusted partner for companies seeking innovation without compromise.

Matrix is designing a future where mining operations are not only productive but proactive, where technology anticipates challenges before they occur, and safety is embedded into every process.

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Local Anchor

Centurion Systems anchors gate motor production in SA as global demand soars

DARREN PARKER | CREAMER MEDIA DEPUTY EDITOR ONLINE

Security technology company Centurion Systems has brought previously outsourced manufacturing back from Asia to South Africa, expanded its local factory operations to double night shifts, upgraded its production lines and increased its exports to 72 countries as global demand for security-focused gate automation products continues to rise.

Centurion Systems marketing manager **Mark O'Brien** told *Engineering News & Mining Weekly* on January 14 that the company had repatriated production that was previously handled by partners in China and the Philippines in order to regain control over manufacturing processes and support local employment.

"At Centurion, we are proudly South African, from the inception of an idea all the way through to marketing the product. This year marks the fortieth anniversary of us being in South Africa. We are a global brand now and we trade in 72 countries around the world," he said.

Centurion Systems, which designs and manufactures gate automation and entrance control products, operates from its manufacturing facility in Johannesburg and primarily supplies the residential market, with additional products for commercial and industrial access control. The company's product range includes gate motors, access control systems, boom gates, access remotes and more.

O'Brien said the company's growth had required a significant expansion of local manufacturing capacity. He said the factory, which had been developed through continuous investment over time, now operated double night shifts to keep up with demand, something that had not been required previously.

"We decided we want to control everything here, but also create more job opportunities so we can control the processes. We brought everything back and the factory and the production staff turned that around within a year," he said.

The company said manufacturing automation had been introduced alongside workforce development, with the aim of improving production consistency and efficiency rather than reducing headcount.

According to O'Brien, automation had focused on repetitive tasks, allowing employees to be retrained for more skilled roles within the factory environment.

"With all the advancements, all the technology is fantastic, but without the team in the factory behind it, getting behind them, it means nothing," he said.

Centurion Systems said all its products were developed in South Africa, from early-stage research and development (R&D) to prototyping, testing and manufacturing. Products were trialled and beta-tested locally before being released to market.

"We take it from an inception idea, through R&D, through marketing, feedback from the market . . . all the way through. We develop and prototype, we manufacture and trial and often beta-test all our products," he said.

Product design has been influenced by South Africa's security environment, with the company incorporating safety and monitoring features intended to reduce unauthorised access. These include sensors that monitor movement at both the motor and the gate, as well as mechanical and electronic solutions designed to prevent forced entry.

"South Africa is definitely a unique market, and one of the things we trade on is safety. Unfortunately, we live in a country with a lot of violence and crime," O'Brien said.

Centurion Systems was acquired by international automation group FAAC, which has supported the company's international expansion and access to new markets, in 2016.

O'Brien said growth had been strongest in Africa, South America and the Asia-Pacific Economic Cooperation region, with export volumes increasing steadily.

Centurion Systems' current production is focused primarily on residential gate automation, although it also supplies commercial and industrial entrance control products.

Manufacturing in South Africa now serves both the domestic market and international customers, with ongoing investment in factory systems and processes to support further growth.



HOMEGROWN
Centurion Systems' locally manufactured gate motors support growing global demand for secure access automation

To watch a video in which Centurion Systems marketing manager Mark O'Brien comments on the company's manufacturing advances in South Africa, scan the barcode or visit www.engineeringnews.co.za.



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RENEWABLE ENERGY

Renewables Vanguard

South Africa leads Africa's renewable-energy transition, report shows

DARREN PARKER | CREAMER MEDIA DEPUTY EDITOR ONLINE

South Africa continues to lead Africa's renewable-energy transition, offering a growing range of investable opportunities in wind, solar, biofuels and green hydrogen, according to the latest Forvis Mazars 'Powering Africa's Future Energy' report.

The report highlights that South Africa generated more than 50 TWh from renewable sources in 2024, including hydroelectric at 10.1 TWh, solar at 8 TWh, wind at 9 TWh and other renewables rounding out the remaining 27.1 TWh, positioning the country as the continent's top producer.

"South Africa boasts exceptional renewable-energy resources, such as abundant solar and wind potential, and recent policy progress further supports energy transition ambitions," Forvis Mazars director **Johan Marais** said on January 12.



RENEWABLES REIGN
South Africa's renewable energy boom positions the country as Africa's top generator and investment hub

The report notes that South Africa's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) created a blueprint for enabling regulations that had influenced renewable energy policies across the continent.

The report adds that solar capacity on the continent grew by 25% in 2024, with generation advancing rapidly in Southern Africa, where South Africa remains the regional leader.

The country is also increasingly developing opportunities in green hydrogen and biofuels. South Africa is identified as one of several nations ideally positioned for green hydrogen production and export owing to its exceptional solar and wind potential and rising European demand. Significant investments are under way to develop the biofuels sector, supported by enabling policies and international partnerships.

In addition, South Africa is investing in carbon capture solutions, smart grids and solar minigrid projects, with multiple pilot initiatives currently in progress. The country contributes substantially to Africa's supply of critical minerals required for the global energy transition, including platinum group metals, cobalt and titanium.

"With their sector-specific legislation, feed-in tariffs, competitive auctions or net metering, and an independent regulator, these countries are considered pioneers and attract the majority of investments," Marais said, referring to South Africa and a select group of other African nations.

He highlighted how the country's Integrated Resource Plan aims to reduce reliance on coal in favour of a diversified energy mix including wind, solar and storage, while the Energy Action Plan 2022 seeks stable supply through renewable energy, with progressive regulations allowing independent private producers and improvements to the transmission network.

South Africa is also advancing legislative frameworks for hydrocarbons.

"More recently, the new Upstream Petroleum Resources Development Act, signed into law by the President [**Cyril Ramaphosa**] in 2024, establishes a more investor-friendly environment for oil and gas exploration and production. While this Bill is not yet in force, it reflects South Africa's move to integrate processing and local participation into petroleum legislation," Marais said.

The report also notes that private generation is expanding alongside evolving upstream frameworks, prompting companies to seek expert guidance on converting policy changes into executable projects.

"Clients want to know where to move first and how to structure resilient projects," Marais said.

Looking ahead, the report says continued investment in renewable infrastructure, combined with regulatory advances in the hydrocarbon sector, will enable South Africa to diversify its energy mix, ensure long-term energy security, attract new capital and support inclusive economic growth.

"These factors, coupled with a population exceeding 63-million and a GDP of about $400-billion, [mean that] South Africa remains an economic heavyweight on the continent, presenting significant opportunities for energy sector investment," Marais said.

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Innovation driving the future of green hydrogen

Green hydrogen is increasingly recognised as a future cornerstone of industrial decarbonisation, with its potential to decarbonise sectors and applications, such as heavy-duty mobility, which is central to mining and other industrial operations. However, producing green hydrogen reliably, safely, cost effectively and at scale requires advanced and innovative engineering solutions.

Green hydrogen plants must operate as intelligent, adaptive energy systems, by integrating various processing steps, while considering often fluctuating inputs and stringent safety requirements. Multi-disciplinary engineering applications group ENPROTEC's green hydrogen production plants are built around this reality – combining rigorous thermodynamic modelling and dynamic simulations, into a modular, containerised design to enable hydrogen facilities that are predictable, scalable and able to overcome the sector's principal barriers.

Electrolysers, purification units, storage modules, water treatment systems and advanced power conditioning systems are packaged into compact pre-integrated containerised units. This significantly reduces civil work requirements, limits site integration complexity and shortens project deployment schedules. This approach further enables easy scale-up, with the addition of supplementary modular units, without the need for major facility redesigns or modifications.

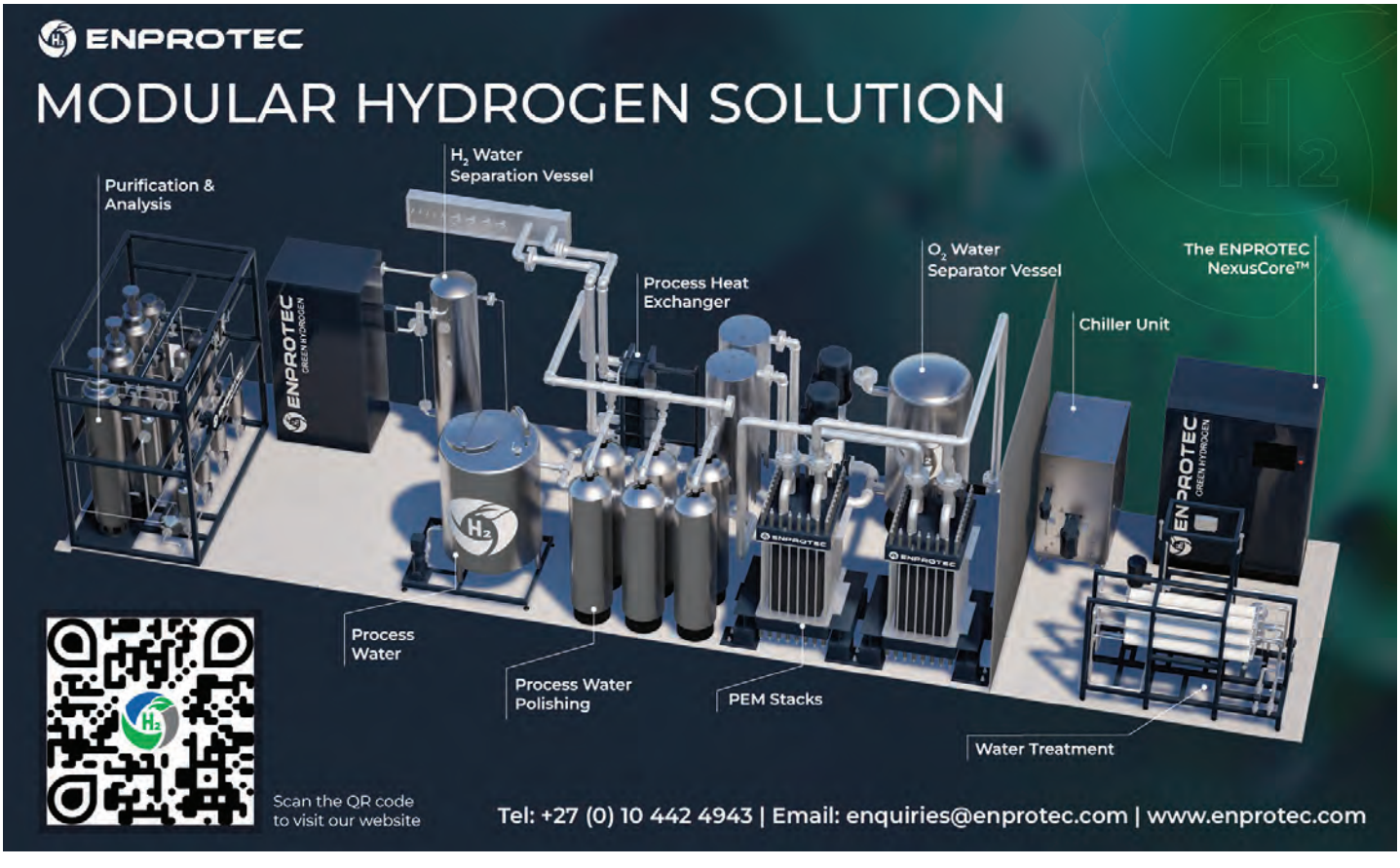
Further, the plant architecture has been intentionally developed to manage renewable intermittency. The system interfaces directly with solar PV, wind or hybrid power-supply approaches, adjusting production through real-time load tracking and synchronised control. Electrolysers operate at broad turndown ratios, enabling efficient operation even at low renewable availability, while power electronics and high-speed instrumentation allow rapid response to sudden changes in supply. The advanced NexusCore™ control systems coordinates pressures, temperatures and general stability across process units, such that the produced hydrogen purity remains within specification during ramp-up and turn-down scenarios. This further allows these units to operate reliably at sites with power supply stability constraints.

Within the green hydrogen industry, infrastructure availability – particularly with regard to storage, transportation and distribution – remains a global challenge. The deployment of containerised production units aims to address this challenge by enabling on-site production and modular point-of-use implementation.

This approach eliminates the need for extensive supporting infrastructure typically required for larger centralised plants and has the potential to enable and fast-track green hydrogen uptake, providing direct access to hydrogen as an energy carrier.

Another challenge facing the industry, is the safe and reliable operation of these production facilities. Within the ENPROTEC design philosophy, safety and optimisation are treated as a unified control problem. The system's NexusCore™ driven automation framework provides real-time data integration, with AI-assisted monitoring for anomaly detection – identifying early signs of equipment degradation, sensor drift and other relevant safety risks. With the implementation of dynamic power regulation, automated fault responses and embedded shutdown sequences, operation risk mitigation is enabled with minimal operator intervention. In the event of credible incidents, the system executes controlled depressurisation, isolation and inerting procedures, ensuring compliance with best-practice safety engineering.

The system is designed to address some of the key barriers to green hydrogen adoption. The result is a modular plant that adapts to real-world variability while consistently producing high grade hydrogen at a competitive cost – a practical and scalable foundation for the sector's next phase of growth.



ELECTRICITY

Early Focus

SAWEM market code and rules to be first order of business for new Nersa advisory forum

TERENCE CREAMER | CREAMER MEDIA EDITOR

The immediate priority of the Electricity Market Advisory Forum (EMAF), which was appointed by the National Energy Regulator of South Africa (Nersa) in December, will be to offer input on the regulatory instruments needed to facilitate the launch of the South African Wholesale Electricity Market (SAWEM), including the market code and rules, as well as the trading arrangements and platform.

The 14-member EMAF is yet to be formally convened, but Nersa executive manager for electricity regulation **Rhulani Mathebula** has been appointed by the regulator to chair the forum, which is expected to be formerly launched in the coming weeks.

The other members have been named as **Mutshidza Nndwamato**, of the Association of Municipal Electricity Utilities; **Letlhogonolo Tsoai**, of Business Unity South Africa; **Mutenda Tshipala**, of Eskom Holdings; Dr **Willem den Heijer**, of the Ferro Alloy Producers Association, **Shreelin Naicker**, of the Financial Sector Conduct Authority; **Lovemore Chilimanzi**, of the South African Electricity Traders Association; **Craig Morkel**, of the South African Oil and Gas Alliance; **Nicole Loser,** an attorney and legal consultant to the Just Energy Transition Africa Initiative; Dr **Graeme Chown**, an independent consultant, Professor **Katleho Moloi**, of the University of South Africa; Professor **Simon Roberts**, of the University of Johannesburg, Dr **Thando Vilakazi**, of the Competition Tribunal; and Dr **Tracy Ledger**, of the Public Affairs Research Institute. Alternate members include Professor **Vally Padayachee**, of the Association of Municipal Electricity Utilities and **Tendani Mutshutshu**, of Eskom Holdings.

The EMAF, which has been appointed to advise the regulator in line with provisions for such structures in the National Energy Regulator Act, is expected to be in place for six years; enough time to oversee the creation of the SAWEM and the establishment of the independent Transmission System Operator envisaged in the Electricity Regulation Amendment Act.

The forum's composition and mandate could be revised following the completion of a mid-term review in three years; however, Nersa has also reserved the right to appoint further members at its discretion.

Mathebula tells *Engineering News & Mining Weekly* that the terms of reference and operational model, including meeting schedules, will be finalised collectively once the EMAF has been formally convened.

However, the forum's initial agenda will be driven by the impending launch of the SAWEM, which is still set for April; a timeline that depends in large part on Nersa providing its approval to the faciliatory regulations and instruments required for the functioning of the market.

"I also want to stress that the EMAF does not replace public consultations and hearings and is not a decision-making body.

"Rather, what the regulator is acknowledging is that there are experts in the industry . . . that can benefit the work of the regulator, as well as the country, and the regulator is using this vehicle to access that pool of expertise to improve the quality of its decisions."

The members of the EMAF were selected from a long list of about 40 names arising from nominations made by the public.

While electricity supply industry knowledge was an important criteria in the final selection, Nersa strategic adviser **Mark Beare** said the regulator also wanted to include individuals with other expertise, particularly in relation to the environment, consumer protection and competition.

"The Electricity Regulation Amendment Act is clear that it wants a competitive market. So, it was felt that amongst all the other skill sets, competition was going to be an important one," Beare tells *Engineering News & Mining Weekly*.

The issue of genuine and fair competition within the SAWEM also arose during recent hearings into the National Transmission Company South Africa's application for a Market Operator licence, which was subsequently approved.

Some stakeholders urged Nersa to pay close attention to the balance between Eskom Generation's fixed and variable costs. They cautioned that should the balance in the vesting contracts be tilted too heavily towards fixed costs, the marginal costs bid into the SAWEM by the coal power stations would be artificially low, making it difficult for independent power producers to raise finance to build new capacity to bid into SAWEM.

Once the SAWEM is operational, Mathebula anticipates that the EMAF's focus will then shift from the market code, rules and platform to an analysis of whether it is functioning in a way that is supportive of competition.

This post-launch role is also supported by the Electricity Regulation Amendment Act, which states that the regulator should exercise regulatory oversight and facilitate the transition to a competitive market.



GRID GAME
Power lines carry more than electricity – they are central to South Africa's plan to launch a competitive wholesale market

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Solar thermal: A perfect fit for industrial heat decarbonisation

BY DR. KRISTEN GRIFFIN, CHIEF PRODUCT OFFICER, 247SOLAR, INC

Long viewed as the troubled sibling of solar photovoltaic (PV) power, solar thermal power is now ready to take on the biggest prize of all – decarbonisation of industrial heat.

Over the past several decades, as demand accelerated for renewable energy, the need for technologies capable of delivering energy around the clock has become clear. Concentrated solar power (CSP) initially appeared to fit the bill. An array of mirrors focuses sunlight on a receiver at the top of a tower, which captures the solar energy as heat. This heat is either immediately converted to electricity using a turbine or stored for later use at night or during bad weather.

Unfortunately, the limitations of technologies available at the time drove a series of design choices that increased the complexity of the system, including the selection of steam turbines. The steam turbines were paired with molten salts as the most effective heat transfer fluid and thermal energy storage medium available at the time.

Traditional solar power towers have since been characterised by challenges with reliability, toxic leaks and an ability to provide energy only 60% of the time at a high cost.

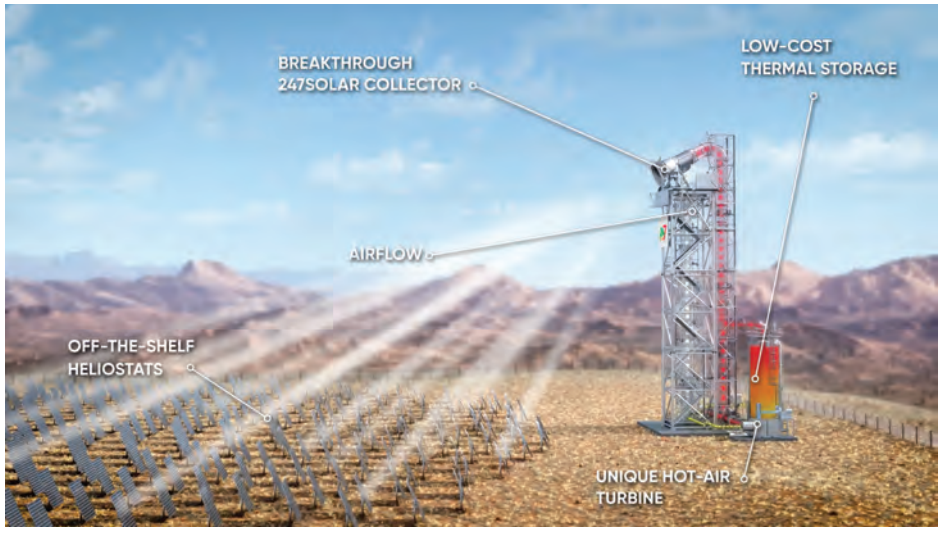
Intermittent Renewables Prevail

Meanwhile, simpler renewables like solar PV and wind rapidly became more affordable.

Yet they too were intermittent. Round-the-clock clean electricity remained a distant goal. Round-the-clock decarbonised heat was an even bigger challenge, earning the moniker “hard-to-abate,” because no solution based on solar PV or wind existed.

And so it was that even though traditional CSP had the ability to address the most pressing challenges of decarbonisation, it languished as a technology desperately in need of innovation.

As so often happens, the solution came from another scientific discipline entirely. An engineering lab at MIT was exploring applications for heat exchangers using newly developed high-temperature materials. The team, some of whom would go on to found modular concentrated solar energy system provider 247Solar Inc, envisioned using these materials for heat exchangers in air-based turbines to produce electricity.



The team realised that by transferring heat to the compressed air inside the turbine at a sufficiently high temperature (~1 000 °C), they could eliminate the turbine’s combustor and drive the turbine to produce electricity without steam or combustion. No water or fuel would be required, and no emissions would be produced. This single innovation eliminated the complexity that had plagued traditional CSP and birthed a new generation of simple solar thermal power.

Another advantage also emerged: the hot air flowing into the heat exchanger did not need to be pressurised. This meant that the entire system, including the receiver, could operate at atmospheric pressure. Once the receiver no longer needed to be an airtight pressure vessel, it was no longer limited to small sizes able to withstand high pressures and no longer required complex cooling systems, both of which had made prior air-based designs economically unviable.

In addition, the thermal storage could be a simple enclosure filled with inexpensive rocks, sand or ceramics rather than liquid-based systems, eliminating the limitations of traditional steam-based CSP.

How it Works

This next generation solar thermal plant is more like a wind turbine than traditional CSP in terms of few moving parts, design simplicity, and low risk to the environment. Like wind turbines, these modular systems can be deployed in any quantity to address the energy needs of a wide range of offtaker loads.

A receiver sits atop a tower, collecting sunlight from an array of mirrors and heating air that flows through it. The hot air can be directly provided to an offtaker for industrial processes, converted to electricity and medium-temperature heat by the turbine, and/or circulated through a thermal storage enclosure for later use. Because this system stores the sun’s energy as heat instead of electricity, no batteries are required, eliminating their costs and hazards.

This simple design provides high reliability and continuous operations through three unique features. With few moving parts and no liquid or steam, the system is easy to maintain and has an intrinsically low risk of failure. During maintenance, the modularity of the system virtually eliminates downtime; should one module be offline, the others are still available. Finally, the system includes its own backup; the turbines, by design, are capable of burning a variety of fuels to provide heat and power when neither sunlight nor stored heat are available.

Growing numbers of heat-only technologies are emerging for industrial decarbonisation, especially in relatively low temperature realms. The plant developed by 247Solar is the first to provide a comprehensive solution for both high temperature clean heat and electricity around the clock.

Prior to this innovation, commercial and industrial heat consumers were left out of the energy transition. At last, air-based concentrated solar thermal technology has arrived to decarbonise this critical sector, with simplicity, reliability and affordability that makes emissions from industrial heating no longer “hard to abate.”


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COMMUNICATIONS

Skewed Connectivity

Global number of Internet users increases, but the digital divide remains

NATASHA ODENDAAL | CREAMER MEDIA SENIOR DEPUTY EDITOR

Although there has been steady progress in expanding digital connectivity globally, the International Telecommunication Union's (ITU's) 'Facts and Figures 2025' report reveals continued gaps in quality and affordability.

An estimated six-billion people globally – about 74% of the world's population – used the Internet in 2025, up from 5.8-billion, or 71%, in 2024, representing a slight acceleration in growth to 3.3%, up from 2.9% in the prior year.

However, 2.2-billion people still remain offline, a decrease from 2.3-billion in 2024, with only 23% of the population of low-income countries using the Internet, compared with near universal Internet use in high-income countries, where 94% of the population uses the Internet.

"This report highlights how today's digital divides are being defined by speed, reliability, affordability and skills, all of which we must prioritise as we work toward our mission of universal connectivity," says ITU secretary-general **Doreen Bogdan-Martin**.

In addition to digital skills, the 'Facts and Figures 2025' report highlights that affordability remains essential to achieving universal and meaningful connectivity, which will be reached when everyone can access the Internet with high-quality service, at an affordable cost, whenever and wherever needed.

> Today's digital divides are no longer just about access, but about speed, reliability, affordability and skills
>
> **Doreen Bogdan-Martin**

According to the ITU, over four in five people worldwide own a mobile phone.

Universal ownership – equating to a penetration rate of over 95% – has been reached in high-income economies, while upper-middle-income economies have surpassed the 90% mark.

In contrast, only 53% of the population, aged ten and above, in low-income economies own a mobile phone.

Although 66% of the population in Africa own a mobile phone, only 36% are online, a difference of 30 percentage points.

"However, the gap is shrinking in all regions, as growth in Internet use continues to outpace growth in mobile phone ownership.



SLOW PROGRESS
About 2.2-billion people still remain offline, with only 23% of the population of low-income countries using the Internet

"Mobile phones are the most common gateway to the Internet, so the prevalence of mobile phone ownership can provide an indication of Internet penetration," the report points out.

A typical user in a high-income country now generates nearly eight times more mobile data than one in a low-income country.

While the median price of a data-only mobile broadband basket decreased globally, access remains unaffordable in about 60% of low- and middle-income countries.

Mobile Broadband

The 'Facts and Figures 2025' report estimates that there were 9.2-billion mobile cellular subscriptions in 2025, equating to 112 subscriptions for every 100 inhabitants.

In high-income countries, this level rises to 142 mobile cellular subscriptions for every 100 inhabitants, which is twice the level in low-income countries, where there are 70 mobile cellular subscriptions for every 100 inhabitants.

The reports notes that, in Africa, there were just 92 subscriptions for every 100 inhabitants.

Meanwhile, in 2025, there were 99 mobile broadband subscriptions for every 100 inhabitants, which accounted for 89% of all mobile subscriptions, up from less than 50% of mobile subscriptions in 2015.

This shift reflects changing user behaviour, with demand increasingly shaped by data-based services and the gradual phase-out of voice-only plans, the report highlights.

However, not everyone had a mobile broadband subscription, with many individuals holding multiple subscriptions, and some subscriptions belonging to connected devices rather than individuals.

Further, regional disparities remain significant.

In the Americas, there are 132 mobile broadband subscriptions for every 100 inhabitants, compared with 56 mobile broadband subscriptions for every 100 inhabitants in Africa.

Meanwhile, while 5G networks are now estimated to cover 55% of the world's population, coverage remains uneven, with 84% of people in high-income countries having access to 5G, compared with only 4% in low-income countries.

While 5G deployment is still ongoing in many regions, 4G remains a reliable connectivity solution, currently available to 93% of the world's population.

However, in low-income countries, 4G coverage drops, with only 56% of the population covered. In these areas, 3G continues to play a vital role for Internet access.

Almost half of the global population that remain without access to a mobile broadband network are in Africa.

In Africa, 12% of the population is covered by 5G, 63% by 4G and 14% by 3G.

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TELECOMMUNICATIONS

Modest Uptick

Global smartphone market grew 2% in 2025

NATASHA ODENDAAL | CREAMER MEDIA SENIOR DEPUTY EDITOR

Global smartphone shipments grew 2% in 2025 to 1.25-billion units, reflecting a stable but uneven recovery year in which a weaker first half was followed by a stronger second half, defined by booming emerging economies and positive reception of flagship launches.

However, global research firm Omdia says rising memory costs and shortages started to impact on the market and constrain the broader volume upside during the fourth quarter of 2025.

Mounting cost pressures towards year-end point to a stronger focus on pricing discipline, profitability and operational efficiency heading into 2026, the research firm says in a statement.

According to Omdia senior analyst **Runar Bjørhovde**, DRAM supply tightness added considerable supply-side pressures to the smartphone industry, and is expected to be a key defining factor in 2026.

"Amid restricted DRAM supply of both LPDDR4 and LPDDR5, the battle to secure supply and limit cost increases is intense amongst all vendors."

All vendors are using mitigating tactics, for example, by emphasising long-term partnerships, using scale to secure capacity and focusing on their supplier base.

The situation is particularly critical for vendors with heavier exposure to entry-level smartphones, which are highly price elastic, and where memory and storage costs make up a higher share of the bill-of-materials.

"Rising cost pressures are reshaping how smartphone vendors approach 2026. Higher semiconductor costs, alongside a slowing refresh cycle, are expected to weigh on shipment momentum," added Omdia principal analyst **Sanyam Chaurasia**.

In response, vendors are tightening configurations, aligning launch strategies more closely with component availability and using channel-led levers such as services, trade-ins and ecosystem bundling to support higher price points.

"The push toward greater scale and supply-side leverage is already becoming evident, exemplified by realme moving under Oppo's umbrella, reflecting early signs of consolidation as vendors seek greater scale to manage rising costs to maintain competitiveness in the decade's second half."

During the fourth quarter of 2025, the global smartphone market grew 4% year-on-year, supported by seasonal demand and improved inventory discipline.

Growth was led by top vendors.

Apple retained the largest market share at 25%, up from 24% a year earlier.

The record fourth quarter was driven by strong demand for the iPhone 17 series, alongside continued traction from older-generation models during the holiday season.

The base iPhone 17 exceeded expectations following storage upgrades at unchanged pricing, while Pro models gained momentum as Apple ramped up production through the quarter.

Meanwhile, the iPhone Air acted as a portfolio showcase, with its slim form factor enhancing retail marketing and reinforcing the premium appeal of the Pro lineup.

Samsung ranked second with an 18% share, up from 16% in the fourth quarter of 2024, driven by sub-$300 Galaxy A17 4G and 5G sales.

Xiaomi stayed third at 11%, down from 13% in the prior year, while vivo maintained an 8% market share, driven by India. Oppo returned to the global top five, growing its share from 7% to 8%.



GROWING MARKETS
The fourth-quarter smartphone shipments growth was concentrated among leading vendors, including Apple and Samsung, across key regions.



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- What challenges are delaying grid projects, and how can approval processes be streamlined?
- Is SA investing enough in digital tools, storage integration and advanced forecasting for a modern grid?
- How can alignment between Eskom, municipalities, private operators and regulators be improved?

Confirmed panel members:



Brian Day
2DAY Innovation
(facilitator)



Mervyn Naidoo
ACTOM



Monde Bala
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COMMUNICATIONS

Next-Gen WiFi

WiFi 7 signals generational shift in wireless connectivity

NATASHA ODENDAAL | CREAMER MEDIA SENIOR DEPUTY EDITOR

The seventh generation of wireless technology – WiFi 7 – offers faster speeds, lower latency and smarter multiband connectivity, with its value cemented in reliable connections for many users, while remaining backward-compatible and future-proof, says Vox WiFi product manager **Craig Blignaut**.

"There have been six generations of WiFi, until now. The new, seventh generation has been labelled a revolution and is a response to the bandwidth-hungry modern world."

Marking a "generational leap" in wireless technology, WiFi 7's official standard, IEE 802.11be, delivers extremely high throughput and brings capabilities that move wireless connectivity from speed to "intelligent orchestration".

"WiFi 7 combines multiple technologies that, together, redefine performance," Blignaut says.

He highlights a multi-link operation, which allows a device to transmit and receive data simultaneously over several frequency bands, reducing latency and congestion.

Further, the 4096-Quadrature Amplitude Modulation, or 4k0-QAM modulation, increases data density by about 20%, compared with WiFi 6.

With channel bandwidths of up to 320 MHz – double that of its predecessor – the theoretical throughput rises to nearly 30 Gb/s under ideal conditions.



CRAIG BLIGNAUT
The new, seventh generation WiFi has been labelled a revolution and is a response to the bandwidth-hungry modern world

"However, in practical terms, WiFi 7 needs to do more than draw a long list of features. It needs to deliver on connectivity. It needs to connect hundreds of people in one office and ensure they all have a good experience because that is the metric that matters," says Blignaut.

However, WiFi 7 can handle demand, and introduces the ability to send and receive data across multiple frequency bands at the same time, compared with earlier versions of WiFi, which were built around single connections and sequential traffic.

The technology allows devices to travel between the 2.4 GHz, 5 GHz and new 6 GHz bands, depending on congestion, creating a simultaneous conversation between devices and the router.

"The result is faster data transfer and fewer interruptions within an invisible layer of intelligence that keeps connections alive, even when one channel falters."

In addition, while every generation since WiFi 4 has improved on energy use, WiFi 7 uses even less power, with the new modulation systems amplifying the signal more efficiently while consuming less energy.

"It is a detail that matters in a country where loadshedding and voltage dips are part of everyday connectivity," he says.

From a consumer perspective, he explains that the upgrade will be largely invisible, with modern laptops and smartphones already shipping with WiFi 7 capability and most new routers already supporting the standard.

"Backward-compatible by design, WiFi 7 sidesteps many of the issues that have affected moving from one standard to another in the past. It ensures older devices still function optimally while new ones extract more value from the same network," Blignaut points out.

WiFi 7 makes it possible to sustain 8K streaming, real-time virtual reality gaming and enterprise-grade videoconferencing on wireless alone.

"It is also, for gamers and technology enthusiasts, the first real step towards a wireless experience that can compete with Local Area Network."

WiFi 7 is capable of automatically selecting cleaner channels, balancing connections across frequencies and self-correcting interference, and, while the impact of the intelligent architecture is subtle, this means that users will experience fewer glitches, steadier calls and smoother video.

PORTS

Port of Maputo notches up record volumes

THE PORT OF MAPUTO last year moved record volumes, handling a total of 32-million tons – a 3.4% increase compared with the previous year's 30.9-million tons.

The Maputo Port Development Company (MPDC) says its direct operations also reached a new record last year, at 15.2-million tons, corresponding to 6.4% growth year-on-year. Rail volumes increased by 17%, rising from 9.7-million tons in 2024, to 11.7-million tons in 2025.

The MPDC says this all-time-high performance reinforces the Mozambican port's position as a key regional logistics hub, while it also reflects the resilience and efficiency of the integrated port and corridor system.

"These results reflect the collective effort of our teams and partners across the entire logistics chain," notes MPDC CEO **Osório Lucas**.

"Achieving record volumes while continuing to invest in capacity, efficiency and social impact demonstrates the maturity and resilience of the Port of Maputo.

"Our focus remains on building a competitive, integrated and sustainable corridor that supports Mozambique's long-term economic development."

The Port of Maputo is currently the subject of a number of strategic infrastructure projects, including the construction of the Kanyaka island pier bridge, scheduled for completion in March.

This project should substantially improve access, mobility and logistical integration for the island community.

The investment programme to increase capacity and improve the logistics system at the port also includes the expansion of the bulk terminal to 16-million tons; the ongoing expansion of the DP World container terminal to 530 000 TEUs; the capacity expansion at Grindrod's magnetite and coal terminal to 12-million tons; and the progressive improvement of the entire logistics corridor through interventions at key nodes such as Km4, Kudumba and TRAC.

IRMA VENTER
SENIOR DEPUTY EDITOR

AUTO INDUSTRY

Capital Charge

GridCars welcomes new investor . . . and ultrafast charging

IRMA VENTER | CREAMER MEDIA SENIOR DEPUTY EDITOR

Electric vehicle (EV) charging network operator GridCars has welcomed a new investor following Solareff's departure late last year.

The renewable-energy group sold its majority shareholding in GridCars, with a high-net-worth individual stepping in as the new investor, securing a 75% shareholding through a company called Energex.

Energex is in the same family of companies as ABC Solar, which has a strategic alliance with Huawei Fusion Solar, a subsidiary of global tech giant Huawei.

The new investor does not want to be named.

"The new shareholder strengthens GridCars' ability to scale faster, invest deeper in quality charging infrastructure and expand our national footprint and partners," says GridCars CEO **Winstone Jordaan**.

"It accelerates our transition from network leadership to industry enablement.

"Ultimately, it ensures South Africa's EV charging infrastructure stays ahead of EV market adoption in both the private and commercial sectors."

GridCars in 2009 installed its first EV charger at the Council for Scientific and Industrial Research campus in Pretoria.

Today the company is the largest public charging network operator in the country.

Its Charge Pocket app connects drivers to 445 charging sites, representing 650 chargers, including multiple high-capacity charging stations, and more than 1 200 connectors.

The app also provides EV drivers with a real-time response to queries.

"GridCars has prioritised local content and skills development, ensuring South Africa's EV transition supports jobs, industrial capability and long-term economic growth," says Jordaan.

• To page 36

> GridCars' Charge Pocket app connects drivers to 445 charging sites



WINSTONE JORDAAN
GridCars is preparing for 'a year of bold moves'

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AGRI-SCIENCE

Rooted Innovation

South African nitrogen fixation fertiliser manufacturer eyes the global stage

IRMA VENTER | CREAMER MEDIA SENIOR DEPUTY EDITOR



GERHARD VERMAAK
Chemical nitrogen is one of the biggest agricultural costs on any farm

Custom Chemistry has managed to acquire 3% of the South African agricultural nitrogen fertiliser market in the past three years, says MD and chief scientist **Gerhard Vermaak**.

"Our early-life initiation tech (EL-I Tech) – only four years old – is already being distributed in nine countries, including Australia and New Zealand.

"We have also filed patents in 95 countries, and want to get to all the others this year.

"Over the next five years, our plan is to reach as many countries with EL-I Tech as possible," says Vermaak.

Custom Chemistry last year also partnered with South African fertiliser company Greenspan to coat its monoammonium phosphate granules with EL-I Tech.

"What makes this interesting is that it gives us a footprint on the South African farms not yet familiar with our product," says Vermaak.

"This collaboration, where a Greenspan product will be biochemically enhanced by EL-I Tech, signifies a massive shift in agriculture – with global potential," adds Greenspan MD **Chris Scheepers**.

"We're bringing together the best of chemical fertiliser history with the latest in biochemistry, delivering crop health, resilience and yield like never before."

But what is EL-I Tech?

Vermaak explains: "The product leverages a novel microbial symbiosis – perfected for the first time in seven decades – that fixes nitrogen naturally, while unlocking vital nutrients like potassium and phosphorus, with minimal reliance on traditional chemical inputs.

"This means that EL-I Tech helps crops feed themselves naturally, without drawing energy from the plant. This means healthier plants that keep growing strongly from early season to harvest.

"In short, it helps crops make better use of what's already in the soil, while improving soil health and plant resilience."

Nitrogen fixation is the process of converting nitrogen into biologically usable forms –primarily ammonia or ammonium.

The industrial process to do this – the Haber-Bosch process – synthesises ammonia from nitrogen and hydrogen, for use in fertilisers and other chemicals.

Fritz Haber won the 1918 Nobel Prize in Chemistry for this breakthrough.

No-one has, however, to date, perfected a commercially viable method to do this through a biological process – until now, says Vermaak.

A biologist by training, Vermaak describes himself as a natural scientist.

"Custom Chemistry has managed to take biological nitrogen fixation to a level equal to that of industrial – chemical – nitrogen fixation."

While this may not mean much to most people, Vermaak says the rands-and-cents difference to farmers is quite significant.

"Chemical nitrogen is one of the biggest agricultural costs on any farm, and we come in at less than 10% of that cost.

"Also, one bakkie-load of our product is equal to twenty interlink truckloads of chemical fertiliser. With us you need 100 g to achieve the same results as 250 kg of standard fertiliser.

"Because of this, our product is also very cost-effective when it comes to transport and shipping."

Vermaak says EL-I Tech can be used as a standalone product, or it can be integrated into existing nitrogen systems, "supercharging them to be even better".

He adds that the product has been tested across thousands of hectares and various crops, in different climates and through multiple seasons.

He says real-world results include up to 75% higher profit in maize crops; up to 54% higher profit in sunflower crops; 35% higher yields on citrus farms; and 13% higher yields on potato fields.

"A 300-ha dryland wheat trial in Makwassie achieved 4.5 t/ha, compared with the local average of around 2 t/ha.

"You can imagine that something like this also holds significant value in terms of global food security."

Vermaak says EL-I Tech has been fully approved by the relevant regulatory bodies, making it ready for commercial use as a biological fertiliser.

"It is 100% natural and biologically safe, with no risk to soil microbiology, crops, humans or animals."

Custom Chemistry employs 38 people, with its production site as well as blending and packaging sites located in Gauteng.

• From page 35

"GridCars' intelligent charging systems are also designed for South Africa's energy environment, enabling integration with solar, batteries and smart load management, where required."

Beyond private EV drivers, GridCars also supports fleets, retailers and commercial operators transitioning to electric mobility at scale, he adds.

Looking ahead, GridCars is preparing for "a year of bold moves", says Jordaan.

"Inspired by Huawei's message of 'Charging EVs faster than making a cup of coffee', GridCars will introduce ultra-fast charging technology designed to minimise downtime and make EV travel effortless."

This goal will see the arrival of ultrafast liquid-cooled chargers in South Africa, which should bring global-standard charging speeds to South Africa, notes Jordaan.

GridCars is also set to introduce an enhanced digital experience, with smarter platforms that will improve visibility on charging station availability, and which will enable predictive maintenance and easy payment.

AN

AUTO INDUSTRY

Unshakable Crown

Still at number one, Toyota sees growing sales, despite onslaught from China

IRMA VENTER | CREAMER MEDIA SENIOR DEPUTY EDITOR

Toyota South Africa Motors (TSAM) last year retained its long-standing number-one position in the domestic new-vehicle market, with total sales of 148 124 units – a 15.1% jump from the 128 663 unit sales recorded in 2024.

Last year's numbers represent the Japanese brand's best yearly performance since 2007, and handed it a market share of 24.8%.

The total local new-vehicle market did, however, outpace Toyota's growth somewhat. Total new-vehicle sales were up 15.7% in 2025, at 596 818 units, compared with 2024's 515 976 units.

TSAM also – again – produced the top-selling vehicle model in South Africa in the form of the Hilux, with sales of this Durban-made bakkie at 36 525 units for the year, up from 32 656 units in 2024.

Other locally produced models also delivered standout results.

The Corolla Cross recorded sales of 22 191 units, while the Fortuner contributed 9 049 units.

The locally assembled Hiace minibus taxi achieved yearly sales of 6 815 units.

All four of these vehicles are produced at Toyota's Prospecton plant, in KwaZulu-Natal.

Toyota also saw sales of 2 689 medium-commercial vehicles and 1 433 heavy-commercial vehicles, with the Hino truck brand also part of the Toyota stable.

TSAM sales and marketing senior VP **Leon Theron** says the 2025 results "reflect the strength of our locally produced product line-up, the trust South Africans place in the Toyota brand, and the collective effort of our dealers, employees and supply partners across the value chain".

"We thank our Toyota team and dealer network for their dedication, as well as our customers for their belief in our brands.

"Our goal remains to deliver exceptional value and keep Toyota, Lexus and Hino the brands of choice in our market."



REPEAT WINNER
TSAM again produced the top-selling vehicle model in South Africa in the form of the Hilux



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PARTNER CONTENT

The future of mining safety involves transforming fragmented controls into intelligent systems

Mining safety in South Africa has improved significantly over the past decade through better equipment, improved safety frameworks and cultures combined with enhanced risk management approaches. Serious incidents still occur, often in complex environments where traditional controls struggle to keep pace. As operations become more mechanised and data-driven, continuous safety improvements increasingly depend on greater coordination and connectivity across systems. The next step is integration: intelligent systems that connect people, machines, data and processes.

Intelligent business solutions provider Matrix Design Africa highlights that safety technologies, such as proximity detection, cameras, access controls and personal protective equipment (PPE) programmes have historically operated in isolation. While each plays a role, fragmentation leaves gaps, particularly in shared workspaces where people, vehicles and machinery operate simultaneously. The challenge is not a lack of technology but how effectively it is structured, integrated and applied at scale.

This shift strengthens how safety outcomes are achieved. It is increasingly a systems engineering challenge, requiring real-time awareness, contextual understanding and consistency across sites and fleets. Matrix is helping mines to achieve this shift by delivering integrated safety solutions that combine machine-level intelligence with enterprise-level insight.



INTEGRATION IS INTEGRAL
The future of mining safety will not hinge on a single device but on how effectively systems work together

Structured Proximity as a Foundation

Proximity detection remains essential, particularly in low-visibility or high-traffic areas. Basic distance-based alerts often create excessive false alarms, leading to operator fatigue and reduced trust, explains Matrix.

"Our structured approach uses defined zones and operational logic, reflecting how a site functions. Zone-based systems differentiate between controlled interactions and genuine hazards, reinforcing rules without overwhelming workers. When integrated into a broader safety framework, proximity becomes foundational for managing risk at the point of interaction. Matrix's proximity solutions are designed to deliver consistency across multiple sites and asset classes."

Adding Context Through Perception and AI

Proximity detection alerts to where risk exists but not why. Vision-based systems and AI now add perception to safety strategies. Machine vision can identify people, vehicles and behaviours in complex environments, providing context that traditional sensors cannot. This evolution from detection to perception enhances operator situational awareness at the point of decision.

By recognising unsafe interactions earlier, Matrix explains that these systems enable timely interventions and reduce reliance on reaction time alone. These insights enhance safety around mobile equipment interactions while reducing nuisance trips and unnecessary production interruptions

"While predictive safety remains a long-term goal, current applications focus on visibility and consistency, laying the groundwork for more adaptive systems over time. Matrix integrates vision and AI into its safety architecture, helping mines move toward intelligent, perception-driven systems that improve both compliance and productivity," says the company.

Elevating Safety Beyond the Machine

As technologies mature, their value depends on integration. Data generated at the machine level is most effective when it informs decisions at the management level. Enterprise platforms consolidate safety data with production, maintenance and workforce metrics, enabling leaders to move beyond lagging indicators and identify where risk is concentrated, how it evolves and which interventions deliver impact.

Digital PPE management strengthens this architecture by addressing risk at the workforce level. By providing real-time visibility into PPE availability, readiness and use, digital PPE systems help ensure people are protected before exposure occurs. When integrated with enterprise platforms, PPE data becomes part of a broader safety context – supporting accountability, proactive risk management and continuous improvement as part of everyday operations, rather than stand-alone compliance, elaborates Matrix.

"Matrix's PPE2Go platform exemplifies this integrated approach. By digitising PPE management and connecting it with enterprise systems such as Delta enterprise resource planning, Matrix enables mines to replace fragmented manual processes with real-time operational visibility. This embeds PPE readiness into the workflow, reducing administrative friction while reinforcing consistent, system-level safety performance across sites."

A Global Shift in Safety Leadership

Across the mining industry, expectations are rising. Investors, communities and regulators demand evidence that safety is embedded, not treated as an afterthought. Intelligent, integrated systems are becoming essential for meeting these expectations while supporting sustainability, workforce stability and productivity.

"Matrix is at the forefront of this global shift, providing solutions that help South African mines align with international best practices while meeting local regulatory requirements under evolving codes of practice," advances the company. The future of mining safety will not hinge on a single device but on how effectively systems work together, combining structured controls, perception-driven awareness and enterprise-level insight.

Matrix emphasises that the most successful operations will design safety architectures that evolve alongside their mines, moving beyond reactive measures toward intelligent, integrated solutions that protect people and performance.

"Matrix provides the technology and expertise to make this vision a reality," concludes the company.

SOLAR ENERGY

Safety Push

SAIA launches national campaign to promote safe, compliant residential solar systems

DARREN PARKER | CREAMER MEDIA DEPUTY EDITOR ONLINE

The South African Insurance Association (SAIA), in collaboration with municipalities, national industry bodies, insurers, financial institutions, fire protection organisations and civil society, has launched the Safe Solar PV & Storage campaign to promote safe, legally compliant solar installations in South African homes.

This national awareness drive supports both new and existing residential solar PV customers, aiming to ensure their systems are safe, registered, compliant with standards and insurable.

As solar adoption accelerates in response to energy security and sustainability needs, the campaign provides clear guidance for residential solar PV and storage systems typically below 30 kW. Educational resources, including downloadable checklists, will be shared through partner websites, social media platforms and community networks to reach homeowners effectively.

"With the rapid increase in solar PV and storage installations, customer safety and compliance are essential to prevent fires, injuries, and property damage. Homeowners must understand that they bear the legal responsibility for compliance and that noncompliance can have serious insurance consequences," SAIA insurance risks GM **Pam Ramagaga** said on January 15.

Launching this month, the campaign is designed to educate homeowners on the risks associated with unsafe or noncompliant installations and provide the knowledge needed to protect their households, neighbours and communities.

Traditional media, public-interest editorial content, digital platforms and social media will be used to communicate safety messages, while toolkits and resources will be distributed through insurers, banks, municipalities, and industry partners.

Civil society and fire protection organisations will reinforce key safety messages at the community level.

The campaign emphasises that compliance is compulsory and ultimately the responsibility of the system owner, in line with South Africa's electrical installation regulations.

By guiding consumers on selecting qualified installers, obtaining valid certificates of compliance, registering systems, and informing insurers, the initiative aims to reduce risks, protect households and uphold national safety standards.

Educational resources will be made available through SAIA and partner platforms to encourage informed and responsible solar PV adoption across the country.

> The campaign educates homeowners about risks from unsafe or non-compliant installations





Alcohol Breathalysers (Pty) Ltd

Digital breathalyser supplier Alcohol Breathalysers was established in 2004 with the aim to make available reliable, affordable and accurate digital breathalysers to ensure that all businesses and individuals can gain access to alcohol testing equipment.

The company offers the widest range of breath alcohol testers available in Africa including professional, industry, law enforcement, small business and personal models. Breathalysers save money, time and lives.

Alcohol Breathalysers is an ISO 9001:2015 and ISO 13485:2016 accredited company and its laboratory is ISO 17025:2017 accredited. The company holds a SAHPRA licence and its Bluetooth models are ICASA approved.

Improve safety in your workplace and business:

- Reduce the risk of alcohol related accidents occurring in your workplace.
- Save the lives of on-site workers and drivers on the roads.

Increase the productivity of your workforce:

- Increase the productivity of your workforce by ensuring that workers are not under the influence of alcohol while on the job.

Cost savings:

- Save money spent ondealing with alcohol related accidents in your workplace.
- Save money lost through lack of productivity and repairing your damaged company assets.

Breathalyser iBlow10 Pro

Alcohol Breathalyser's newest product, the Breathalyser iBlow10 Pro, is the latest no-contact high-speed alcohol tester for testing the breath of motorists at road blocks, drivers in fleets and employees entering workplaces.

The main benefits and features of the iBlow10 Pro:

- Built-in rechargeable LiPO battery
- Bluetooth Low Energy (BLE) connectivity compatible with its iSober App
- Suracell Fuel Cell Sensor for ethanol specific testing providing a 12 month calibration cycle
- Built-in magnet for attaching the breathalyser to gates, poles and vehiclebodies for no-touch testing
- Up to 12 breath tests a minute
- Rubberised outer skin supplied as standard
- Operating Temperature from -15 °C to +55 °C
- On-board memory storage of the last 5 000 test results, including date and time, downloadable to a Windows PC with SentechView

iBlow10 Pro provides rapid digital display of test results together with green or red bright LED indication based on a pass or fail when breath alcohol is detected based on a pre-set pass / fail limit depending on whether iBlow10 Pro is ordered for workplace or law enforcement use.

What's in the box:

- 1 X iBlow10 Pro Breathalyser with rubber skin
- 1 X operator's manual
- 1 X USB-C charging cable
- 3 x washable blow caps
- 1 x blow kit
- 1 X hand strap
- 1 X 12 month calibration certificate



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Riaan de Lange



BAT ends local cigarette production

British American Tobacco South Africa, commonly known simply as BAT, announced on January 15 that it will cease local cigarette manufacturing and close its historic Heidelberg facility in Gauteng by the end of the year.

BAT's manufacturing swan song, as it were. This metaphorical phrase originates in an ancient Greek myth in which swans sing a beautiful song just before they die, even though they are mostly silent otherwise. If you are not a smoker, will you even bat an eye?

You might not, but I ask for your indulgence: the article is not only about cigarettes; it is about more than meets the eye. If it were a literary genre, it would be an economic thriller, full of unexpected twists.

A spoiler alert: it is in part about customs and excises, which raises the question: What do you know about it, beyond the annual National Budget announcement from the fiscus? As you contemplate this, let us explore the first 69 words of BAT's press release, headlined 'BAT South Africa to close manufacturing facility, end local production in SA by year-end'.

Following this headline are three bullets: 'BATSA to close its manufacturing facility in Heidelberg, Gauteng, after illicit trade wipes out ~75% of legal cigarette market'; and 'Company remains committed to and active in South Africa, shifting to an import model'; 'Closure threatens approximately 230 jobs in Lesedi municipality as BATSA warns policy failures and weak enforcement put all legitimate manufacturers at risk'.

The announcement of the manufacturing closure marked the second end of an era, not only for the business but also for South Africa, in as many days. As for the other, on January 14, BusinessTech reported under the headline 'End of an era for South African billionaire Johann Rupert' that "South Africa's richest man, billionaire **Johann Rupert**, has decided to fully divest from BAT, ending the family's generational ties to the tobacco industry. One of Rupert's investment groups, Reinet Investments, announced that it has agreed to sell over 43.3-million ordinary shares in BAT at a price of £28.20 per share to institutional investors. This will raise gross proceeds of some £1.2-billion (~R28.3-billion)."

> Should there be a substantial and sustained trend change in the illicit trade environment, BAT will reinvest in local cigarette production

Returning to customs and excises, it becomes a bit technical – you could read 'messy'. Cigarettes imported into South Africa are liable for ordinary customs duty and specific customs duty ('sin taxes'), while locally manufactured cigarettes are only liable for specific excise duty.

Thus, there is a duty benefit for domestic manufacture. So, why would "shifting to an import model" be an economic consideration when illicit trade is seemingly rife? What would make imports immune to this scourge? Could imports still be profitable as a result of "significantly higher profit margins in the tobacco industry than in other sectors", as stated by the Smoke Free Partnership?

Is illicit trade the sole factor "directly attributable to the exponential growth of the illicit tobacco trade in South Africa", or is there another – the cost of doing business?

Although the World Bank no longer publishes a single Cost of Doing Business Index, its 2025 reports for South Africa emphasise high costs from poor infrastructure (electricity and logistics) and regulatory hurdles as key challenges. The reports highlight policy reforms in these areas and skills development as critical for reducing these costs.

At the time of writing, January 18, the South African Revenue Service had not commented on the assertion by BAT – which, surely, is one of its single biggest corporate taxpayers – regarding the impact of illicit trade, and that it is "becoming a significant issue in multiple industries". According to an African Farming article published on January 17, BAT "annually contributes between R11-billion and R13-billion in taxes and excise duties to the national fiscus".

Surely comment is warranted, more so considering that BAT states that "should there be a substantial and sustained trend change in the local illicit trade environment, BAT will reinvest in local production in South Africa".

As a parting thought from the announcement, there is a wider economic impact: "The closure will affect more than just factory employees. The broader Lesedi community, including suppliers, logistics providers, and contractors, all depend on the facility."

● *This economic and trade-focused column is written by Riaan de Lange, author of Customs & Excises in One Lesson: The Shortest and Surest Way to Understand Basic Customs & Excises, published by Wolters Kluwer Law. His first column appeared on February 2, 2001. The views expressed here are his own.*

AN

AFRICA BEAT

Martin Zhuwakinyu



Africa's bumper election year

Africa has a crowded electoral calendar this year, with citizens in more than ten countries poised to cast their ballots. Elections have already taken place in Benin and Uganda, with the rest of the year bringing contests for the Presidency and/or Parliamentary seats in countries including Cameroon, Cape Verde, Djibouti, Morocco, São Tomé and Principe, South Sudan, The Gambia, and Zambia.

As Africa watchers have come to realise, not all elections on the continent are equal – some are genuine contests capable of shaping national trajectories, while others are exercises in political choreography, designed to renew incumbency.

The year opened with elections that, while geographically distant, tell us a lot about Africa's democratic stress points. In Uganda, **Yoweri Museveni**, who has been head of State since 1986 and, at 81, is no longer a spring chicken, secured about 72% of valid ballots to extend his rule by another five years.

As I remarked a fortnight ago, that result was unsurprising; the process was not. In the run-up to election day, opposition mobilisation was severely restricted. What's more, public access to the Internet was blocked for days until after voting – a move critics charge was designed to control information flow and suppress scrutiny during voting and result reporting.

Meanwhile, Benin, once celebrated as a democratic bellwether in Francophone West Africa, offered a different, but equally instructive, story. The country's Parliamentary election, which came barely a month after a December 7, 2025, coup attempt thwarted with the help of Nigeria and other regional partners, saw parties aligned with President **Patrice Talon** win all 109 seats in the National Assembly.

This clean sweep by the President's coalition signals a significant problem – not of popularity, but of competitiveness. Following electoral law reforms that weakened opposition parties, Benin's January 11 election, for MPs, raised questions about democratic regression cloaked in procedural legality. For instance, while the main opposition won around 16% of the vote, it failed to meet the newly raised 20% threshold required in each district for representation.

> Some elections in Africa are exercises in political choreography, designed to renew incumbency

The Beninese will return to the polls to elect a new President – or extend the incumbent's tenure – in April. Concerns have already been raised, with observers pointing to the electoral code adopted in March 2024, which requires Presidential aspirants to secure the signatures of 28 sponsors – Parliamentarians and/or mayors – from at least 15 electoral constituencies.

Looking ahead, several elections stand out as particularly consequential for Africa. Zambia's is pivotal. Since the 2021 victory by **Hakainde Hichilema**, an opposition candidate, the country has been watched as a test case for democratic recovery in Southern Africa. The credibility of the August poll will either consolidate Zambia's reputation as a reformer or confirm fears that the alternation of power between political parties does not automatically entrench democratic norms.

In Cameroon, where President **Paul Biya** has been in power since 1982 and was re-elected in October for an eighth, seven-year term, voters return to the polls in May to elect new Parliamentarians. Years of electoral manipulation and the dominance of the ruling CPDM party have left little room for genuine competition. Observers will be watching whether the State can manage these elections credibly amid lingering Anglophone region unrest and widespread public distrust.

South Sudan represents a different category altogether. Any election held in the world's youngest nation – which came into being in 2011 – will be symbolically significant, but the credibility of the country's general elections scheduled for December remains deeply uncertain. As observers point out, the National Elections Commission remains underfunded and fragile, while the State machinery itself is overstretched after years of conflict that have hollowed out public institutions, leaving them dependent on decrees rather than functioning legal systems. Moreover, economic pressures that have been worsened by external factors – such as disruptions to oil export infrastructure by the conflict in neighbouring Sudan – have undermined the State's ability to fund credible elections.

In The Gambia, elections, to be held in December, remain genuinely competitive, following the 2017 defeat of dictator **Yahya Jammeh** and his subsequent exile.

Morocco and Cape Verde occupy more stable ends of the spectrum. Morocco's elections, in September, matter regionally because of their implications for governance reform in North Africa, even if real power is still limited. Cape Verde, meanwhile, continues to demonstrate that small African States can sustain stable democratic institutions – quietly and without drama.

● *Dr Zhuwakinyu, who holds a PhD in communication (media studies) from the University of South Africa, is Creamer Media senior deputy editor – martinz@engineeringnews.co.za*

AFRICA IN FOCUS

Tara O'Connor



Trump, corruption and TikTok justice

Reflecting on 2026 and what is likely to be one of the most momentous years in geopolitics for close to a century, it is hard to grasp all the implications for the world and for Africa.

The first year of Trump Mark II has seemed like the US wantonly letting loose a raging bull into a shop of the finest antique porcelain. The porcelain represents the layered and delicate art of international diplomacy, the design wrought of international country strategy, which is then fired in the finest glaze of international law. It is difficult to see what will be left by the time the November mid-terms come around and restrain **Donald Trump** – and the world begins to piece together a new future from the broken shards.

One such shard is the Trump administration's attitude to global corruption and the long-term impact it could have on a continent where Gen Z – the now dominant generation – clearly makes the connection between government corruption, failing services and a lack of investment in everything from infrastructure to schools and hospitals.

Armed with a new weapon and new source of information – social media – Gen Z has collated information from the Instagram and TikTok accounts of Ministers and their families displaying flagrant wealth, clearly in excess of a Ministerial salary, and used it to denounce these Ministers, bureaucrats and officials.

Drawing on veteran anti-corruption campaigners in China, Malaysia and elsewhere, Kenya's Gen Z posts pictures of Ministers' extravagant watches, bureaucrats' cars and their prices on social media, posing the question: "How"? In South Africa, ahead of November's municipal elections, voters increasingly link corruption to service delivery failures – from water supplies to potholes, electricity and housing – echoed in the Auditor General's regular but dry reports condemning municipalities' "fruitless and wasteful, irregular and unauthorised expenditure".

One of many retrograde policies unleashed by the Trump administration is an executive order pausing enforcement by the US Department of Justice (DOJ) of the US Foreign Corrupt Practices Act (FCPA). Enacted in 1977, the FCPA has been one of the most influential US laws, introduced to curb the excesses of US corporate behaviour abroad after a government commission discovered that US firms paid hundreds of millions of dollars to foreign officials and political parties to secure business contracts and influence policies.

The FCPA, in turn, influenced the Organisation for Economic Cooperation and Development (OECD) anti-corruption convention, which has become the international standard as, gradually, countries passed and enacted laws to ban their companies and company directors from corrupt practices while doing business abroad. One of the simplest and most effective anti-bribery Acts is the UK Bribery Act, a two-page law ratified in 2011.

Even as the Trump administration pressed pause, several countries, including most recently Mauritius, moved to align their laws with the OECD process. Arguably part of the motivation for countries to ratify the OECD process was the massive size of the fines – some in the billions of dollars – that US authorities levied at global companies: treasuries started to drool at the prospect of levying fines themselves. Perhaps the US Security and Exchange Commission (SEC), the leading FCPA enforcer, may have become too effective, as the administration sought to curb what it called 'overexpansive' enforcement that disadvantaged US firms. Crucially, the FCPA has not been repealed – just paused – and the US administration has now redirected FCPA action at drug cartels and transnational criminal organisations.

The FCPA has undoubtedly improved the global business environment. Gone are the days when a bribe paid in Nigeria was tax deductible in Germany, when West African Presidents had joint bank accounts with oil companies, as with Elf Aquitaine in Gabon and France, and where sitting Presidents' children could take a suite at the Waldorf Astoria in New York – without raising an eyebrow.

The US DOJ and the SEC taking their collective foot off the pedal has already had an impact. A global anti-corruption campaigner attended the UN Conference of the State Parties to the United Nations Convention against Corruption held in Qatar in December, and reported that it was poorly attended by representatives of the Global North, notably the US and EU member countries, but well attended by representatives of African countries.

Perhaps this is a time where justice moving slowly and surely will continue to serve the clean business cause. Despite the diversion of attention away from global corruption, justice has claimed some substantial scalps – most notably in South Africa, where the Madlanga Commission of 2025 brought yet another layer of State capture to the surface.

Several infamous corruption cases involving significant major corporations concluded, or continue to bubble, in several of the world's courts. Swiss courts convicted trading company Trafigura and a former executive in January 2025 for arranging bribes to officials in Angola, while in the UK the trial of former Glencore executives accused of bribing officials in Nigeria, Cameroon and Côte d'Ivoire is expected to continue until 2027.

Perhaps most instructive is the jailing of France's former President, **Nicholas Sarkozy** – albeit for only three weeks – for conspiring to take money from Libya's **Muammar Gaddafi** to fund his 2007 election campaign. Laws, unless repealed, can bite, even decades later.

● *O'Connor is MD of pan-African consulting firm Africa Risk Consulting. She is a University of Cape Town graduate and has spent 25 years assessing Africa's political and business environment – Tara@africariskconsulting.com*

AN

PEOPLEINCAMERA



OLYMPIC CHAMPION CASTER Semenya has officially joined Chinese vehicle manufacturer JAECOO's South African family as the ambassador for the brand's first plug-in hybrid SUV, the J7 SHS. The company states that Semenya's partnership with JAECOO reflects shared values of performance, innovation and sustainability: qualities that define both the athlete and the vehicle she now drives. JAECOO adds that the partnership underscores the brand's commitment to forward-thinking mobility, built around innovation, safety and a more sustainable future.



SOUTH AFRICAN TOURISM officially concluded its participation at the 2026 edition of Vakantiebeurs in Utrecht, in the Netherlands, marking another successful year of showcasing South Africa's diverse travel offerings to the Dutch market. Building on the engagement from the show, South African Tourism started a seven-city roadshow across the Netherlands and Belgium, aimed at deepening market access opportunities for South African tourism products. The 'Come Find Your Joy' North Europe Roadshow, which ran from January 13 to 21, brought together South African tourism businesses, destination management companies, provincial tourism authorities, and experience-driven product owners to connect directly with key trade partners, media and prospective travellers in both countries. Pictured are the South African Tourism delegation at the Vakantiebeurs travel event.



FOUR OF SOUTH Africa's finest young scientists represented the country at the Initiative for Research and Innovation in STEM Global Symposium in India. The learners were top achievers at last October's Eskom Expo for Young Scientists International Science Fair. The young scientists selected for the event – hosted from January 27 to 31 – showcased ground-breaking research, from cleaning contaminated soil and mining wastewater to developing a low-cost AI-powered navigation device for the blind and visually impaired. The learners competed under the guidance of delegation leader and Eskom Expo academic director Dr Krishnie Naidoo. Pictured are Melokuhle Khuzwayo and Simesihle Khuzwayo from King Bhekuzulu High School, in KwaZulu-Natal, who presented their project named "Double Trouble, Double Solution: Neutralising acids and plastics with nature's help".

PUSH PAUSE

If you are patient in a moment of anger, you will escape a hundred days of sorrow.

ONTHEMOVE



JAMES DUTCHMAN

SRK Consulting has promoted **James Dutchman** to partner. He has almost 15 years of experience in geo-environmental and geotechnical engineering in mining and energy. He holds a Bachelor of Engineering (Hons) in Engineering Geology & Geotechnics from the University of Portsmouth and is a professionally registered scientist.



KIRSTEN KING

SRK Consulting also promoted environmental scientist **Kirsten King** to partner. King has more than 30 years of experience in areas including environmental management, impact assessments, monitoring and auditing. She holds a Bachelor of Social Science (Hons) degree and is a professional Environmental Assessment Practitioner.



GLOBAL MATERIALS HANDLING leader Combilift has celebrated a major manufacturing milestone by transforming its 100 000th forklift into a "force for good", raising and donating €100 000 to the UN International Children's Emergency Fund (UNICEF) to support children in crisis worldwide. To mark the production of its 100 000th forklift, Combilift launched its largest-ever worldwide competition, offering the "exclusive 100 000th Golden Prize" multidirectional Combi-CBE. All proceeds raised were donated to UNICEF Ireland's Children's Emergency Fund. The cheque was formally presented by Combilift CEO and cofounder Martin McVicar (right). The winning ticket was purchased by Kareen Farrell (left), who travelled to Combilift's headquarters in Monaghan to receive the one-of-a-kind Golden Forklift.

By Sheila Barradas | Senior Deputy Editor

Small Harbours Programme

Name of the Project
Small Harbours Programme.
Location
South Africa.
Project Owner/s
South African Department of Public Works and Infrastructure (DPWI).
Project Description
A programme is under way to upgrade and maintain small harbours in neglected coastal towns to a functional state.
The small harbours are the first to be built by a democratic government in post-apartheid South Africa.
The Spatial Economic Development Frameworks (SEDF) has designated areas and sites for this expansive port infrastructure investment signalling a turning point for inclusive and sustainable economic development for coastal communities.
The SEDF recommends that the first new small harbour be built in Port Shepstone, in KwaZulu-Natal. Two other sites have been identified, in Port Edward and Hiberdene.
The DPWI has already submitted the SEDF for Port St Johns, in the Eastern Cape, with Port Nolloth, in the Northern Cape, the next site expected to receive its SEDF.
Potential Job Creation
The DPWI has said the economic impact of the development of the small harbour at Port Shepstone will add about R4.41-billion in added business sales, about R1.85-billion in GDP and about 5 808 jobs to the KwaZulu-Natal economy.
Capital Expenditure
Not stated.
Planned Start/End Date
Not stated.
Latest Developments
None stated.
Key Contracts, Suppliers and Consultants
None disclosed.
Contact Details for Project Information
DPWI head of communications **Lennox Mabaso**, cell +27 082 884 2403.

Wildevoëlvlei WWTW upgrade

Name of the Project
Wildevoëlvlei WWTW upgrade.
Location
Kommetjie, Western Cape, South Africa.
Project Owner/s
City of Cape Town Department of Water and Sanitation.
Project Description
The City of Cape Town is upgrading the Wildevoëlvlei Wastewater Treatment Works (WWTW), improving treated effluent quality and helping to safeguard local waterways and the surrounding environment.
The WWTW was built in 1977 with a maximum capacity of 7.5-million litres a day. Its first upgrade was in 1999, when capacity was increased to 14.5-million litres a day.
The facility uses a conventional activated sludge system.
The current refurbishment includes a new, larger-capacity dewatering facility featuring the latest mechanical equipment.
The upgrade also involves the refurbishment of existing mechanical equipment, such as mixers and aeration systems, to enhance biological treatment efficiency.
These improvements will increase operating capacity, boost operational efficiency and further improve effluent quality.
Plans are also in place for a treated effluent pumpstation.
This facility will improve access to treated effluent in Kommetjie and neighbouring areas, supporting the city's goal of reducing pressure on drinking water resources.
A further capacity upgrade is planned for 2032, with current planning and design work already under way.
Potential Job Creation
The plant employs eight permanent and three Expanded Public Works Programme staff.
Capital Expenditure
The City of Cape Town is investing R280-million to upgrade the WWTW. It will also spend an estimated R40.4-million on the proposed treated effluent pumpstation.
Planned Start/End Date
The WWTW project is scheduled for commissioning by November 2026. Full project completion is expected by April 2027.
The construction of the treated effluent pumpstation is expected to start in early 2026.
Latest Developments
None stated.
Key Contracts, Suppliers and Consultants
None stated.
Contact Details for Project Information
City of Cape Town Department of Water and Sanitation, email water@capetown.gov.za.

Fosterville gold mine tailings storage facility

Name of the Project
Fosterville gold mine tailings storage facility (TSF5).
Location
About 20 km east of Bendigo, in Victoria, Australia.
Project Owner/s
Canadian-based gold producer Agnico Eagle.
Project Description
Fosterville is Victoria's largest gold mine and one of the highest-grade gold mines in the world.
TSF5 will be built within an existing tailings area to allow for increased processing capacity at the mine and safer waste rock storage within the existing mine footprint.
Potential Job Creation
Fosterville employs more than 650 full-time personnel and 200 contractors, most of whom live in the Bendigo region.
Net Present Value/Internal Rate of Return
Not stated.
Capital Expenditure
Not disclosed.
Planned Start/End Date
Not stated.
Latest Developments
None stated.
Key Contracts, Suppliers and Consultants
None disclosed.
Contact Details for Project Information
Agnico Eagle, tel +1 416 947 1212 or email info@agnicoeagle.com.

Mulgine tungsten/ molybdenum project

Name of the Project
Mulgine tungsten/molybdenum project.
Location
Murchison region, Western Australia.
Project Owner/s
Australian tungsten developer Tungsten Mining (TGN).
Project Description
Mt Mulgine hosts one of the largest undeveloped tungsten and molybdenum inventories in the world.
A scoping study has positioned the project as a potential long-term, low-cost producer of tungsten and molybdenum, with additional copper, gold and silver by-products.
The project will involve the development of a greenfield mine and processing operation to produce tungsten and molybdenum concentrates as its primary products, together with a copper/gold/silver concentrate.
Yearly production is estimated at 4 500 t of tungsten and 1 200 t/y of molybdenum over a 23-year life-of-mine. The operation will have a throughput of six-million tonnes a year, scalable to 15-million tonnes a year.
The scoping study proposes conventional openpit mining and a conventional flowsheet, including gravity concentration and flotation to produce tungsten, molybdenum and copper/gold/silver concentrates.
With the project's large indicated mineral resource estimate base of 175-million tonnes supporting long-term production, significant scope exists to expand the resource estimate and extend the project's life-of-mine.
Potential Job Creation
Not disclosed.
Net Present Value/Internal Rate of Return
The scoping study estimates a pretax net present value of between A$1-billion and A$1.4-billion and an internal rate of return of about 30% to 45%.
Capital Expenditure
Startup capital is estimated at between A$358-million and A$495-million.
Planned Start/End Date
The scoping study has allowed for the immediate start of the prefeasibility study (PFS), targeted for completion in the second quarter of 2026.
Pending positive PFS outcomes, TGN will target definitive feasibility study completion in the second half of 2027.
Latest Developments
Not stated.
Key Contracts, Suppliers and Consultants
None disclosed.
Contact Details for Project Information
Tungsten Mining, tel +61 8 9486 or email info@tungstenmining.com.

AN

Carina rare earths project



Name of the Project
Carina rare earths project.
Location
Goiás, Brazil.
Project Owner/s
Rare earths exploration and development company Aclara Resources Inc.
Project Description
Aclara is the first company in the world to publish heavy rare-earth mineral reserves from ionic clays in accordance with NI 43-101 standards of disclosure for mineral projects.
Average production of 4 265 t/y rare-earth oxides (REOs) is expected, contained in a mixed rare-earth carbonate (MREC) product, with very high contents of dysprosium (Dy) and terbium (Tb) of 4.1% and neodymium and praseodymium (NdPr) of 27.5%.
Average yearly production of magnetic elements and other strategic heavy rare-earth elements (HREEs) contained in the MREC product include 149 t Dy, 25 t Tb and 1 170 t NdPr.
Total production over the mine's 18-year mine life is estimated at 72 877 t total rare-earth oxides, 20 034 t NdPr, 2 536 t Dy and 436 t Tb. Other strategic HREEs include 170 t samarium, 171 t gadolinium, 10 t lutetium and 1 098 t yttrium.
Potential Job Creation
Not stated.
Net Present Value/Internal Rate of Return
The project has a pretax net present value, at an 8% discount rate, of $1.73-billion and an internal rate of return 21.8%, with a payback of 4.5 years.
Capital Expenditure
Total initial capital is estimated at $680.5-million, including a $132.2-million contingency.
Planned Start/End Date
Aclara plans to start early works on site by mid-2026 as part of the construction capital expenditure. These include camp construction, roads improvements and certain ancillary infrastructure to prepare the site for full fast-track construction in 2027.
Commissioning is expected to start in the second half of 2028, with initial production and ramp-up through 2029.
Aclara is evaluating the possibility of expediting the schedule to start initial production by mid-2028, depending on offtake agreements and access to financing.
Latest Developments
None stated.
Key Contracts, Suppliers and Consultants
Hatch Consultoria em Projetos, together with other engineering companies, including L&M Geociencias SpA, Promet 101 Consulting, Abelco Consulting SpA, LOM Consultoria em Mineração, F&Z Consultoria e Projetos, ERM Consultants Canada and Argus Media (PFS).
Contact Details for Project Information
Aclara Resources Inc, tel +56 2 2565 1033 or email investorrelations@aclara-re.com.

Magat floating solar project



Name of the Project
Magat floating solar project.
Location
Magat reservoir in the Isabela province, in the Philippines.
Project Owner/s
The project will be developed through SN Aboitiz Power (SNAP), a 50:50 joint venture in the Philippines between renewable-energy solutions provider Scatec and Aboitiz Renewables.
Project Description
The project entails the construction of a 68 MW floating solar project under the Philippines Department of Energy's Green Energy Auction Programme 4, or GEA 4.
Potential Job Creation
Not stated.
Capital Expenditure
To be confirmed at financial close.
Planned Start/End Date
The project is expected to reach financial close and start construction in 2026. The commercial operations date is targeted for 2027.
Latest Developments
None stated.
Key Contracts, Suppliers and Consultants
Not disclosed.
Contact Details for Project Information
Scatec senior VP **Andreas Austrell**, tel +47 974 38 686 or email andreas.austrell@scatec.com.

Ammonia and urea fertiliser production complex

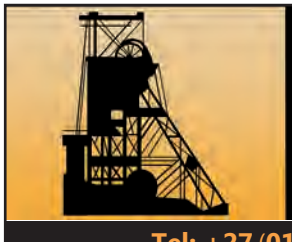


Name of the Project
Ammonia and urea fertiliser production complex.
Location
Coastline of the Caspian Sea at Kiyanly, in northwestern Turkmenistan.
Project Owner/s
State-owned chemical company of Turkmenistan Turkmenhimiya Special Concern.
Project Description
The project involves the construction of the largest ammonia and urea fertiliser production complex in Turkmenistan. In addition to the ammonia and urea fertiliser production plant with its associated utilities and off-site facilities, the scope also includes peripheral infrastructure such as temporary piers and product shipment facilities. The planned daily production capacity is 2 000 t/d of ammonia and 3 500 t/d of urea. The plant will also be equipped with a CO_2 capture facility. This facility will improve plant efficiency and reduce environmental impact.
Potential Job Creation
Not stated.
Capital Expenditure
Not disclosed.
Planned Start/End Date
The plant is scheduled to start operations in 2030.
Latest Developments
A groundbreaking ceremony was held on November 2, 2025.
Key Contracts, Suppliers and Consultants
Mitsubishi Heavy Industries and Gap Insaat Yatirim ve Dis Ticaret (basic and detailed design, procurement, and commissioning of the ammonia and urea fertiliser plant).
Contact Details for Project Information
Turkmenhimiya Special Concern, tel +993 12 39 01 02 or email contact@turkmenhimiya.gov.tm.

COMING UP

- Digital realty company and provider of interconnection platforms and vendor-neutral co-location data centres Teraco announced on November 12, 2025, the start of its CT1 data centre expansion, in Cape Town, South Africa. It serves as a carrier-dense interconnection hub.
- A scoping study published by Ganfeng Lithium Group Co and Lithium Argentina in November 2025 has proposed a staged development of the Pozuelos-Pastos Grandes lithium brine project, in Argentina. The project will be underpinned by existing site infrastructure and new process facilities.

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MINING INDABA PREVIEW

Minerals Council pushes for structural reform acceleration

LUMKILE NKOMFE | CREAMER MEDIA WRITER



REFORMS NEEDED FOR COMPETITIVENESS
Without urgent improvements in energy reliability, logistics performance and regulatory efficiency, Africa risks losing further ground to global mining competitors

This year must be one of decisive, demonstrable progress in stabilising energy supply, improving logistics performance and restoring regulatory efficiency as South Africa prepares to engage investors at this year's Investing in African Mining Indaba, says mining industry employer organisation Minerals Council South Africa.

The advocacy organisation reiterates that without a materially improved operating environment, the country will continue to diminish in competitiveness compared to peer jurisdictions.

The Minerals Council notes with concern that exploration activity remains subdued, with South Africa attracting less than 1% of global exploration spend for several consecutive years.

This trend, it argues, is inconsistent with the country's geological endowment and poses long-term risks to the sustainability of mining, employment, regional economic development and future production.

The mining sector directly employs more than 470 000 people, rising to nearly 900 000 when the associated supply chain employment is included.

Using a conservative multiplier formula, the Minerals Council notes that mining and its related industries support about 3.6-million dependants, underscoring the national importance of revitalising exploration so that future mines can materialise.

The industry is heavily involved in training its employees, and, equally importantly, within mine-host communities, with a special emphasis on unemployed youths.

Training provided to mine employees more than doubled in 2024 from the previous year, with companies delivering nearly 860 000 training interventions, up from 407 899 in 2023, according to a study by the Mining Qualifications Authority (MQA).

Between 2021 and 2024, the mining industry implemented an average of more than 601 000 training programmes a year for employees, the Minerals Council highlights, adding that most of the training was short courses, with safety as the dominant theme.

In the five years to 2025, more than R1-billion was spent on providing higher-education bursaries.

In 2024, 51 430 community members – nearly 78% of whom were unemployed – received training funded by mining companies, rising steadily from 41 130 in 2021 as the industry increases its focus on developing local skills, education and capacity for work within mining or in other businesses.

The training was focused on young people, with the provision of more than 12 800 bursaries in 2024 and nearly 10 800 short courses, which are designed to provide skills in a time-efficient manner.

In total, 36 520 youth and 3 300 school children received training during 2024. This is critical for the creation of sustainable communities and local economies, post-mining.

This year, the Minerals Council will continue working with government, industry partners and the Presidency through the coordinated

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Partnership imperatives to shape regulatory discourse

LUMKILE NKOMFE | CREAMER MEDIA WRITER

Cross-institutional alignment, predictable governance structures and pragmatic policy implementation will be central to unlocking domestic and cross-border mining and associated investment, says law firm Webber Wentzel corporate partner and mining sector head **Jonathan Veeran**.

The theme of this year's Investing in African Mining Indaba – Stronger together: Progress through partnerships – is set to feature legal, regulatory and policy collaboration efforts. The event will be held from February 9 to 12, in Cape Town.

Veeran, who has been closely involved in advising mining and energy clients across Africa, notes that delegates can expect the Investing in African Mining Indaba 2026 to intensify focus on the practical steps needed to sustain and expand African mining competitiveness.

"The theme recognises that mining jurisdictions, regulatory bodies, financiers and communities cannot operate in silos."

He adds that South Africa's reform momentum, particularly mining regulatory permitting, digitalisation and licensing efficiency, will likely feature prominently as the South African government aims to demonstrate progress in these spheres to international investors.

While legal and policy frameworks remain under close scrutiny, Veeran argues that the direction of development is encouraging, even if execution risks remain, citing positive efforts to address regulatory bottlenecks, improve collaboration between State agencies and accelerate the deployment of renewable energy for mines.

A key expectation of delegates of this year's Mining Indaba is a sharper focus on regulatory certainty and institutional capacity across African jurisdictions.

Veeran highlights that African mining investments are increasingly shaped by transparency of processes, clarity of timelines and the uniform application of rules.

As several countries revise their mining codes to attract new capital, the quality and stability of these reforms will be under close investor scrutiny.

South Africa's mining ecosystem continues to show resilience despite structural challenges; however, improved alignment among policymakers, regulators, utilities and industry stakeholders will be crucial for strengthening growth prospects.

"The Indaba will likely emphasise the importance of integrated institutional frameworks, as these partnerships determine how effectively emerging opportunities are realised," adds Veeran.

Further, infrastructure reliability, including grid capacity and port performance, is expected to feature prominently in stakeholder discussions.

Veeran acknowledges the significance of the recent restructuring of State-owned enterprises and the introduction of private-sector participation in logistics, energy and freight. These developments, he emphasises,

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Advanced Fire Global strengthens its leadership in vehicle fire suppression industry

Fire suppression solutions provider Advanced Fire Global continues to cement its position as Africa's leading fire suppression solutions provider, driven by exceptional growth, strategic expansion, and the continuous roll-out of ANSUL NF-40 LVS vehicle fire suppression systems across the continent.

Over the past months, Advanced Fire Global has secured multiple flagship ANSUL projects across West Africa, marking one of the most significant periods of growth in the company's 25-year history. These wins reflect the trust placed in Advanced Fire Global by some of the world's largest mining houses and demonstrate the company's unwavering commitment to reliable systems, professional installations, and world-class maintenance support.

Its ongoing investments in localised service capacity, in-country stockholding, client training, and technical excellence have strengthened its footprint in key mining jurisdictions such as Mauritania, Guinea, Mali, Burkina Faso and Côte d'Ivoire, ensuring that clients receive fast, competent and compliant support — no matter how remote the operation.

The Standard in Mining Fire Protection

The ANSUL NF-40 LVS system remains the preferred choice for heavy-duty mining equipment across Africa. Backed by FM 5970 HDME approval and engineered for the continent's harshest conditions, ANSUL provides industry-leading protection for both personnel and assets.

Advanced Fire Global's continued installation success across multiple new mine sites proves once again that Africa's mining sector trusts ANSUL and trusts Advanced Fire Global to deliver it professionally, safely and on time.

With the rise of various competitors in recent years, mining clients have had the opportunity to explore different products and service providers. While this has offered greater choice, it has also exposed many operations to several risks. These include inexperienced installation teams, non-compliant system designs, inferior product performance, limited technical support and training, and the underspecification of system sizes.

Through experience, education, and first-hand exposure to these challenges, clients across the continent have increasingly returned to the trusted brand ANSUL and the world-class service offered by Advanced Fire Global. This renewed confidence highlights the importance of compliance, technical expertise and proven system reliability in safeguarding high-risk mining environments.

Growing the African Network

Advanced Fire Global now supports customers in more than 30 African countries and Madagascar with offices and distribution partners in 13 nations. Recent strategic partnerships include Group IBS in Guinea, Côte d'Ivoire and Senegal, as well as Local Flexibles in Mauritania, further strengthening its regional presence. These partners benefit from Advanced Fire Global's technical oversight, training programmes, and stringent quality standards, ensuring consistent service across all territories.

In line with its mission to uplift emergency response capability across the mining and industrial sectors, Advanced Fire Global, together with its sister company Rural Metro, is finalising the development of what will be one of the largest and most advanced emergency response training facilities on the African continent.

Located in Heidelberg, South Africa, this world-class centre will host comprehensive firefighter training, mine rescue and emergency response programmes, technical and scenario-based preparedness simulations, and IFSAC-certified training through Rural Metro.

The company anticipates the facility to be fully operational by March 2026, setting a new benchmark for emergency response excellence in Africa and providing much-needed capacity-building for the mining sector.

Engineering, Technical Support & Integrated Safety Services

Supported by the Advanced Group of Companies, its capabilities extend far beyond fire suppression. These include manufacturing specialised firefighting and





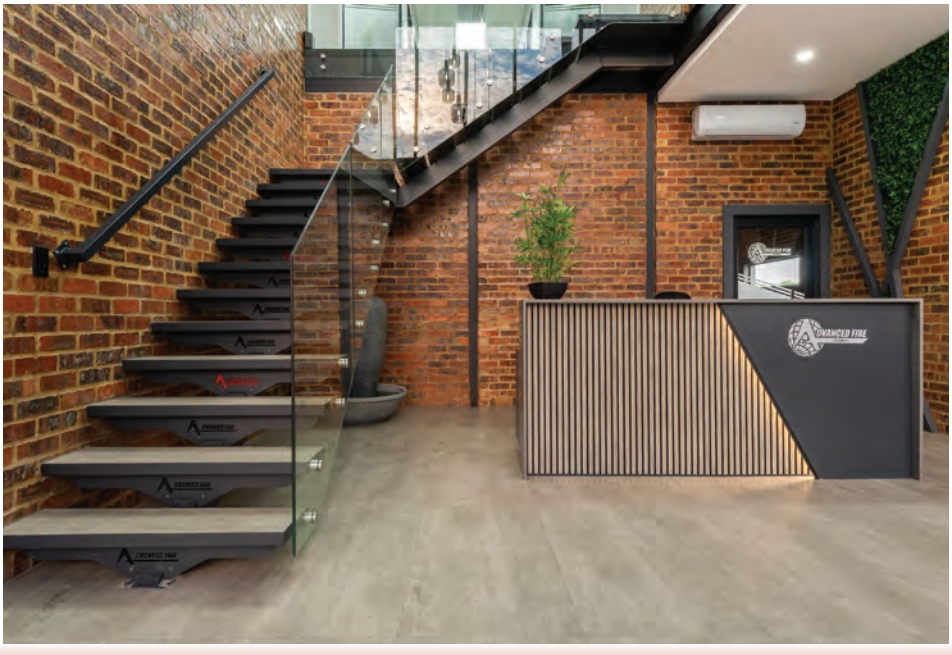
rescue vehicles, supplying petrochemical-grade pumping units, providing certified firefighter and emergency-response training, and supporting mines with on-site emergency response teams and equipment.

This integrated ecosystem allows Advanced Fire Global to deliver holistic, compliant, and reliable safety solutions across Africa's most demanding operations.

With new projects secured, new partners established, and new technologies launched, including the FM 5970 HDME-approved MS-2+ Detection & Control Panel, Advanced Fire Global is positioned for another remarkable year of expansion across Africa.

Its commitment remains clear, to deliver proven, compliant and reliable safety solutions, backed by the highest levels of service, to every client, every time.





As CEO **Westley Barnardt** affirms: "Our customers are not just customers, they are part of the Advanced Fire Global family. We grow because they trust us, and we honour that trust by continuing to deliver the very best in fire-suppression systems, technical support, and mining safety solutions across Africa."

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crisis structures to address energy, logistics, crime and corruption.

While the organisation acknowledges improvements in electricity availability, it warns that the cost of power remains "structurally uncompetitive", as electricity tariffs for large industrial users have risen by more than 900% since 2008, thereby eroding operational margins and constraining smelting capacity.

On logistics, the Minerals Council observes that the "alarming decline" in rail performance has stabilised, with early indications of recovery of key rail corridors; however, deep structural reform remains essential to further revitalisation.

Including the private sector in rail and port operations through transparent, timely concessioning processes is a core component of the Minerals Council's advocacy, as reliable and predictable export corridors are critical for bulk producers aiming to optimise output and reinvest in South African operations.

Policy Reform Imperative

Regulatory reform remains a central priority for the Minerals Council, as it continues to push for policy certainty and improved investment conditions in the mining sector.

With members accounting for 90% of South Africa's yearly mineral production by value, it will continue to engage the Department of Mineral and Petroleum Resources on the Mineral Resources Development Bill.

The Minerals Council has submitted concerns pertaining to the Bill in its current form, saying it does not provide the clarity, predictability or investment incentives required to stimulate new minerals exploration and mining project development.

Central to the Minerals Council's regulatory agenda is the implementation of a modern and transparent mining cadastre that aligns with international best practice. Such a system, it stresses, is essential for reducing administrative backlogs, improving rights management and restoring investor confidence.

Further, the Minerals Council emphasises the need for integrated and time-bound permitting processes across environmental, water-use and mining legislation.

Continental Cooperation

In keeping with the Investing in African Mining Indaba 2026's emphasis on continental cooperation, the Minerals Council highlights its participation in the Mining Industry Association of Southern Africa, which brings together ten national mining associations.

Although cross-border corridor development, critical minerals integration and green-energy frameworks remain governmental responsibilities, the Minerals Council believes that coordinated regional advocacy is necessary to support stable and competitive mining jurisdictions across sub-Saharan Africa.

Learning from each jurisdiction and adopting best practices in the region will stimulate investment and growth to the benefit of all living there.

On social performance, the organisation will again call for reform of social and labour plans (SLPs), as it has long argued that the strict ringfencing of SLPs to single operations limits impact, while shared, area-based SLPs would allow for larger-scale, more sustainable community development.

The Minerals Council also stresses that improved municipal governance capacity is essential for the effective design and implementation of community programmes.

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will be viewed as pivotal tests of the reform trajectory.

Renewable-energy procurement for mines is another area where partnership structures are becoming increasingly sophisticated.

As power constraints persist in several jurisdictions, Veeran says mining companies are accelerating investment in hybrid energy systems, behind-the-meter solutions and cross-border wheeling arrangements.

He expects that project developers, financiers and law firms will use the Mining Indaba platform to showcase structuring innovations that derisk these investments.

Cross-Border Collaboration, Policy Future

With the global energy transition accelerating, African mineral resources are becoming more strategically significant. Countries with critical-mineral endowments are positioning themselves to secure greater downstream value while balancing the investment conditions required to attract exploration capital.

Delegates of the Mining Indaba can, therefore, expect elevated discussion on policy harmonisation, beneficiation strategies and regional collaboration, adds Veeran.

Moreover, he emphasises that clear, coordinated frameworks that promote investment competitiveness are essential for ensuring that Africa captures long-term value.

"Greater alignment across the continent on critical-minerals policy will be a central point of discussion, and the Indaba remains a key forum for building consensus on how African countries can optimise the opportunity presented by the global energy transition."

He also anticipates deeper conversations about community participation, inclusive development models and environmental stewardship.

As expectations regarding environmental, social and governance integration continue to expand, Veeran says mining companies are under increasing pressure to demonstrate measurable commitments and strengthen accountability structures.

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SEW-EURODRIVE awarded largest African projects, partnerships grow

As the spotlight falls on Africa's mining progress at this year's Investing in African Mining Indaba, global drive technology specialist SEW-EURODRIVE reports a milestone performance for the past year – being awarded some of its largest projects yet in the copper, chrome, coal, platinum and gold sectors.

"It has been a phenomenal year for us as a South Africa-based entity operating in 23 African countries," says SEW-EURODRIVE national sales and marketing manager **Jonathan McKey**.

He adds that the company has had great success in Africa's mining sector, building on the market's confidence in SEW-EURODRIVE's quality solutions and customer support.

This success, says McKey, reflects almost three decades of technical investment, relationship-building and a deep understanding of African mining conditions.

With its partnership-driven approach to the mining value chain, SEW-EURODRIVE works closely with original-equipment manufacturers; engineering, procurement and construction management (EPCM) contractors and mining companies, from feasibility through to commissioning and beyond.

This ensures that its drive systems are sized correctly, aligned with mine layouts and specified to meet life-of-mine requirements.

The company is also expanding its planetary gearbox offering and reinforcing its presence in open gearing girth gear solutions, which are areas critical to mill performance.

"We have closed the loop on our end-user relationships and brought extensive value back to our work with the project houses.

"Through our detailed understanding of end-user requirements, as well as the dynamics of their facilities and production needs, we now have the inventory and insights to add further value to our relationships with EPCM players," says McKey.

This, he argues, has positioned SEW-EURODRIVE as a partner of choice in both greenfield and brownfield projects – from new conveyor installations to plant expansions, drop-in replacement solutions and modernisation programmes.

McKey highlights that energy efficiency and reduced downtime remain central priorities for African mines, and SEW-EURODRIVE's drive technology is engineered to support both goals.

"There has been a strong shift towards mines being more energy efficient, in Africa and globally," he says, adding that SEW-EURODRIVE continues to evolve its drives and technology to ensure clients consume less power without compromising reliability or output.

"Our on-site energy surveys for mines have become an important platform for partnerships that drive improvements across whole operations."

Predictive maintenance has also become a focus for mines to optimise uptime by preventing unplanned equipment stoppages.

He says SEW-EURODRIVE is supporting mining operations through digital tools such as its DriveRadar predictive maintenance suite, which in conjunction with the DriveRadar diagnostic unit, monitors gearbox, motor and drive health in real time.

"DriveRadar monitors vital indicators such as vibration, oil viscosity and temperatures – gathering and analysing the data to enhance how mines monitor their equipment and identify any performance anomalies," he says. This allows customers more flexibility in managing their products' reliability and ensuring more uptime.

Training remains a strategic pillar in SEW-EURODRIVE's partnership with mining customers, he says, with the company's Drive Academy providing a dedicated and professional resource to train artisans, engineers and plant personnel to better understand and maintain their equipment.

"The Drive Academy also strengthens our in-house expertise at various levels; when we employ new personnel, for instance, their induction process includes extensive training sessions in the academy," says McKey.

As part of this training, he says salespeople even go into the workshop and physically assemble gearboxes so they understand every element of the product.

A cornerstone of SEW-EURODRIVE's value proposition is its significant investment in South African manufacturing and service infrastructure. In recent years, the company has expanded its production and warehousing facility at its headquarters in Johannesburg, considerably increasing its local stockholding to underpin its capacity and responsiveness.

"The value of our stockholding has grown from around R100-million to well over R500-million," says McKey, adding that this includes all aspects of SEW-EURODRIVE's offerings to mining in Africa.

"By understanding customer requirements and investing in our solutions, we have stocked accordingly to improve our agility, delivery time and aftermarket support."

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New HPE CEO sets bold plan to take South African innovation global

Having largely been a South Africa-based company with a few exports here and there, under the leadership of new CEO **Freddy Mugeri**, Hydro Power Equipment (HPE) is aiming for global expansion.

In a video interview with *Mining Weekly* publishing editor **Martin Creamer**, Mugeri voiced his intention of turning the company, which has been designing and manufacturing high-pressure water-powered equipment for the mining industry since 1985, into a multinational force.

"The time is right and our shareholders agree," said Mugeri, who officially took the helm in September, in his first interview as CEO.

A trained engineer, he was drawn to HPE's engineering excellence – evident in the technology that HPE has perfected over the years – as he too is an innovator, an industrialist and has been building up a portfolio of manufacturing-focused businesses.

"HPE's technologies are far superior to the other water-powered solutions that I have seen in the mining industry."

However, expanding beyond South Africa's borders will require more than ambition.

"I want to build a very strong team that can take us multinational. I have already identified in-house talent comprising capable people in the business. We may need to augment here and there, so that we've got capacity to manage and run a business that operates in multiple geographies."

Over the next 12 months, Mugeri plans to focus on building a team that can execute this plan, while also expanding locally as he believes there is still scope to double HPE's business. In parallel, the company will prepare for global entry.

"We will start to analyse all the countries that have mines that can benefit from our technology, beginning with those mines that have narrow or tabular orebodies."

Thereafter, HPE will choose appropriate route to market channels, be that the setting up of greenfield businesses, acquiring existing businesses in those markets and exporting of products directly or through third parties.

"My first preference is to have HPE dotted all over the world and carry the brand internationally, while still being proudly based here at home in South Africa," added Mugeri.

Harnessing Water Power

HPE's story is deeply intertwined with innovation and sustainability. HPE has built a powerful suite of technologies that can be broken into three broad categories.

The first is its range of high-pressure valves, capable of handling pressures up to 250 bar.

"That's serious pressure, considering that car tyres are pumped to about 2.5 bar. We're among the few companies in the world manufacturing valves to that pressure rating. These valves are exported worldwide at the moment."

The second innovation involves energy-saving systems that cut electricity costs associated with pumping water underground to the surface.

"We've figured out a system of using the head of the water coming down to push the used water out of the mine. Through that system, we help customers save between R2-million and R3-million (between $115 000 and $170 000) a month on pumping costs. We're also developing a product that could revolutionise the industry – hoisting ore using hydropower, especially where vertical shafts are not affordable."

The third and largest category is HPE's hydro-powered drilling systems, which deliver impressive productivity gains.

"Our systems help customers get between 20% and 30% more blasts per month," Mugeri said proudly.

"We've designed our system to be extremely reliable, with availabilities consistently north of 90% being achieved, for example, with our Flat End Development Rigs. Indeed, one customer reported 98% availability on our equipment for these systems, which is fantastic."

Hydro Power is Way Better

Mugeri is confident that HPE's technology supports the new sustainability agenda in the global mining space.

"Compared with compressed air, we use less than half the energy. Our drills are two to three times faster, improving safety by reducing drillers' exposure to dangerous areas. Using water for lubrication instead of oil, as with conventional drills, further improves health and safety by not only creating a cooler working environment but also eliminating a mist of oil in the air that could potentially be breathed in by workers."

For South Africa's narrow-tabular orebodies, HPE's technology is a game-changer, reducing the complexity in a confined space.

"Those who have switched to hydro will tell you they don't want to see an air drill ever again. Hydro is much faster, lighter, cooler and for mine owners, if you can get 20% to 30% more blasts per month, the business case is made," emphasises Mugeri.

Financially, environmentally and operationally, HPE's water-powered systems outperform conventional alternatives.

"Compressed air is extremely wasteful – it leaks everywhere. If you compare systems fairly, including compressor costs, hydro is cheaper. In real-life tests, we use less water than air drills, because we're in and out faster, and have a jet pump to collect water on the ground as well," elaborated Mugeri.

Scan the QR code to watch a video in which HPE CEO Freddy Mugeri discusses his plans to take the company global.

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Mineral innovation advanced through strategic partnerships

LUMKILE NKOMFE | CREAMER MEDIA WRITER

South Africa's ambition to expand mineral beneficiation, accelerate technology transfer and deepen collaborative innovation aligns closely with this year's Investing in African Mining Indaba theme of Stronger together: Progress through partnerships. These priorities underscore national mineral research organisation Mintek's expanding role in enabling research-driven industrial development, says Mintek mineral processing executive manager Dr **Lawrence Bbosa**.

Mintek's operational model is anchored in structured collaboration with government, research institutions and industry, with Bbosa adding that through the Department of Mineral and Petroleum Resources (DMPR); the Department of Science, Technology and Innovation; the National Treasury; and national science bodies, the organisation continues to secure coordinated support for research programmes that advance local value addition.

A recent example is Mintek's proposed coal-waste revalorisation initiative, which integrates commodity recovery, market development and environmental mitigation in line with South Africa's critical minerals strategy.

With industry partnerships remaining central to translating research into commercial readiness, Mintek is piloting solutions across Africa's suite of critical minerals, including manganese, lithium and cobalt, and has strengthened cooperation with equipment suppliers to house multiple modern process units for impartial performance testing.

"We want to take the science and translate it into impact so that innovation drives new industries, creates jobs and builds beneficiation capacity," adds Bbosa.

Strengthening Beneficiation Capacity, Skills Development

South Africa's newly published critical minerals strategy of the DMPR identifies platinum-group metals (PGMs), manganese, iron-ore, coal and chrome as high-criticality minerals, with rare earths also being prioritised.

Mintek's pilot-scale facilities, covering processing, extraction, refining and downstream application development, provide an integrated platform for progressing these mineral systems from concept to pre-commercial demonstration, highlights Bbosa.

This capability, he adds, supports the State's ambition for South Africa to become a continental hub for critical minerals processing.

"Our role is to be an enabler by leveraging our pilot infrastructure to produce bankable proof-of-concept technologies that can be readily implemented by industry."

Several research and pilot projects are targeting the challenge of treating increasingly complex orebodies, while multidisciplinary PGM studies are applying mineralogy, chemistry and processing science to develop predictive methodologies for difficult ores, he explains.

In iron-ore, Mintek is piloting novel gravity and magnetic separation flow sheets to viably upgrade C- and D-grade material for

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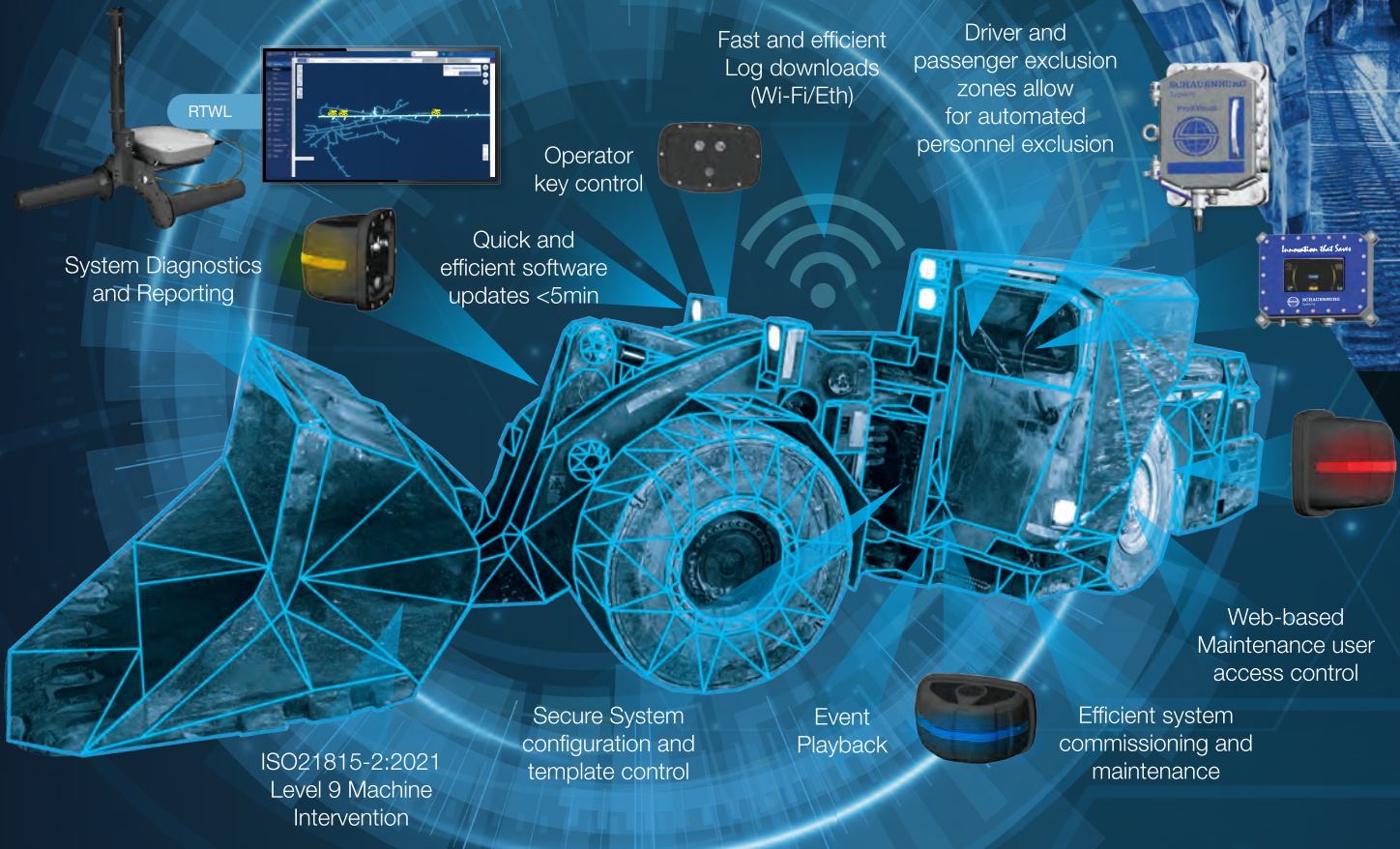


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Holistic partnerships driving ethical mining

LUMKILE NKOMFE | CREAMER MEDIA WRITER

As this year's Investing in African Mining Indaba places the theme of Stronger together: Progress through partnerships, at the centre of its agenda, mining advisory firm Levin Sources believes the coming mining cycle could mark a structural shift in how African governments, financiers and mine operators recognise and integrate artisanal and small-scale mining (ASM) into responsible mineral supply chains.



ESTELLE LEVIN-NALLY, JARA BAKX & JOSE DIEMEL
The coming mining cycle could mark a structural shift in how African governments, financiers and mine operators recognise and integrate artisanal and small-scale mining

Speaking to *Mining Weekly* ahead of the Cape Town gathering, Levin Sources founder and CEO **Estelle Levin-Nally**, senior adviser Dr **Jose Diemel** and adviser **Jara Bakx** report that long-term cooperation, affordable finance and evidence-based regulatory reform could enable ASM communities to participate more meaningfully in Africa's critical-minerals future.

Levin-Nally considers persistent structural barriers to be the most significant constraint on ASM upliftment and legitimacy.

"Inadequate and unenforced regulatory regimes keep millions of artisanal miners in the shadows, as without the ability to demonstrate traceability and risk management, ASM is often seen as too risky for responsible buyers," she says, citing legal uncertainty, limited technical support and weak access to finance as drivers of informality. This lack of market recognition prevents responsible actors from proving their credibility.

However, Levin Sources has tracked clear signals of change where blended public-private finance is deployed early in the value chain to derisk engagement.

From the Democratic Republic of Congo (DRC) and Zambia, to Tanzania and Côte d'Ivoire, Levin Sources observes encouraging

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blending with higher-grade ores. Additionally, pilot-scale rare earth processing work includes methods to manage radiation-associated impurities while achieving international-standard purity.

Digital process modelling partnerships are also improving circuit predictability and efficiency, adds Bbosa.

The organisation's beneficiation work also extends into reprocessing tailings and waste material to extract vanadium, aluminium and other commodities, where emerging technologies are being tested to unlock new value streams and support the circular economy.

Mintek collaborates across all domains with a broad network of universities, research bodies and commercial partners.

Meanwhile, skills development is integral to sustaining South Africa's competitiveness in mineral science. The organisation is hosting postgraduate researchers, interns and in-training engineers, exposing them to advanced technology platforms across the full value chain, from extraction and processing to environmental and socioeconomic disciplines, notes Bbosa.

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> We want to take the science and translate it into impact so that innovation drives new industries, creates jobs and builds beneficiation capacity
>
> **Lawrence Bbosa**

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progress in innovative corporate structures and cooperations that improve bankability and offtake prospects for ASM enterprises.

In this regard, Bakx emphasises that scaling must include those historically excluded from mining economies, particularly women.

"If ASM formalisation leaves out the most vulnerable, it isn't responsible transformation, it's selective progress that reinforces exclusion," she says.

Framework for Partnership-Led Reform

Levin-Nally argues that durable reform increasingly originates not from regulation alone, but from strategic cooperation between miners, governments, financiers and minerals processors.

"The most effective ASM solutions today are being built through coalitions that share risk, profit and responsibility," she states.

Levin Sources' own Cooperation Pathway for Sustainable Minerals Value Chains framework was developed to guide governments and industry on how far and how deeply partnerships should integrate.

"[The framework] helps stakeholders move from transactional relationships to long-range development strategies," explains Levin-Nally, noting its application in regions where ASM and large-scale mining (LSM) intersect.

Across West and Central Africa, new partnership frameworks are being tested at scale, with Bakx highlighting the Multistakeholder Partnership for Sustainable and Responsible Small-Scale Mining (MSPI), which is piloting innovation in ASM and LSM engagement in Côte d'Ivoire alongside gold mining companies Perseus and Allied Gold.

The MSPI was founded by international development organisation the World Bank, international gold trade organisation the World Gold Council, and the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development.

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Smoothing the bumpy ride to steady state production

Whether it is a greenfield mine, an expansion or a transition from opencast to underground, the shift to steady state production is often one of the riskiest phases in a mine's lifecycle.

It is during this period that shaft sinking and mine development take place – stages where unexpected and challenging conditions are almost always encountered.

Speaking to *Mining Weekly*, Cementation Africa new business director **Graham Chamberlain** explains that few mining companies have the in-house skill sets required for these arduous and highly specialised activities, as they are only needed occasionally.

"This is why clients call on companies like Cementation Africa to get them started.

"We can initiate and develop everything until the project reaches a steady state, then hand it over to them," he says.

Drawing on over 50 years of experience, Cementation Africa undertakes a broad range of development work – from shaft and decline establishment to ore reserve expansion and extraction.

Chamberlain says this experience is particularly valuable for clients without the training or infrastructure to start mining operations themselves.

"As an underground mining contracting company, our expertise allows clients to start projects without immediately investing in extensive training and personnel.

"A vital element of success is the relationship between the client and contractor, along with the right equipment selection. This can either be equipment they already own or that we procure on their behalf," says Chamberlain.

Cementation Africa also contributes a strategic fleet of flameproof equipment for coal mining projects.

The company's in-house capabilities extend to mine design, underground equipment rebuilds and maintenance programmes.

A fully documented handover process marks the end of each development phase or the start of steady state production.

"We differentiate ourselves through our comprehensive systems and handover processes. These encompass everything from procurement, warehousing and equipment maintenance to payroll and safety systems," he says.

With executives and managers who have hands-on operational experience, Cementation Africa brings deep institutional knowledge to effectively manage risk.

"Safety is a cornerstone of our culture.

"Our planning and systems ensure the highest standards and this is reflected in the integrity of our project infrastructure and the quality systems we implement. Every detail is managed, from survey documents to cement mixes for construction," says Chamberlain.

Recent Projects

Among the company's recent successes are two platinum projects in South Africa, where

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Zambia eyes copper, growth opportunities

LUMKILE NKOMFE | CREAMER MEDIA WRITER

Stronger collaboration across Zambia's mining ecosystem will be central to unlocking the country's copper and critical-minerals growth ambitions, says Zambia Chamber of Mines (ZCM) CEO **Sokwani Chilembo** ahead of this year's Investing in African Mining Indaba.

Zambia's mining industry is driving a partnership-led agenda to drive sustainable growth, and the ZCM will use the Mining Indaba platform to deepen dialogue to promote the country's mining prospects, he notes.

Representatives from the ZCM are set to attend the Mining Indaba.

Chilembo says Zambia has set ambitious targets for its copper and critical-minerals sectors.

"The ZCM will continue to support growth goals by taking full advantage of the government's open-door policy on regulatory improvements. This will help deliver a level playing field and an investment environment that makes Zambia compelling and low risk."

Chilembo says the ZCM has long championed a mining ethic that strengthens host communities, from exploration to closure, which ties in well with the Indaba's theme of promoting inclusive partnerships.

"We have advocated for local-content legislation that emphasises host community job creation. Licence holders must show progress in building supplier development programmes that link mines and processors with banks and business developers."

He adds that mining companies of all sizes can participate or outsource support to help local suppliers gain working capital and skills over a two-year period. This timeframe refers to the duration of participation in the United Nations Development Programme-supported supplier development programme, during which firms receive business support and access to working capital.



SOKWANI CHILEMBO
Zambia has set ambitious targets for its copper and critical-minerals sectors

"Over time, mines, processors, local businesses and banks will build secure jobs, broaden local services and make the industry more competitive," says Chilembo.

Mine Operationality

Regarding sustainability, technology and mine-life extension, Chilembo highlights the role of multi-stakeholder partnerships in advancing responsible mining, as innovation in ore extraction and processing assisted in opening Zambia's copper and cobalt resources in the 2000s.

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Cementation Africa guided clients from contractor models to owner-miner operations.

"We developed the infrastructure for narrow reef, bord and pillar mining, initiated production up to steady state and then handed over in an orderly fashion," says Chamberlain.

Each handover includes a comprehensive data pack covering all completed work, providing a foundation for the client to move forward confidently.

Most recently, Tharisa Minerals announced Cementation Africa as a key partner in its strategic transition from opencast to underground mining.

"We believe this reflects our reputation for safely delivering projects on time and to specification," he says.

On the technology front, Chamberlain notes that while Cementation Africa embraces innovation, it adopts a cautious approach to automation, prioritising safety over productivity.

"Our most effective solutions have been in remote-controlled operations that remove personnel from hazardous areas.

"We have also built important partnerships, such as in disk cutting, where our sister company operates the equipment on behalf of the original-equipment manufacturer," says Chamberlain.

Adding to this, he highlights the company's focus on leveraging digital technology.

"Our focus is on continual improvement. In addition to fibre and WiFi for faster data transmission underground, we have implemented a 'mule' data transfer system that enables machines to network, gather data and upload it at strategic points," says Chamberlain.

Through this combination of technical excellence, collaboration and safety-first innovation, Cementation Africa continues to play a pivotal role in smoothing the journey from mine development to steady state production.

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"Meeting the current critical minerals cycle will require replicating that success across new commodities and geologies while lowering environmental, social and governance footprints."

Chilembo notes the chamber's support for local universities in developing centres of excellence, including collaboration with universities to build mining technology and innovation capabilities aligned with industry needs.

The ZCM is also involved in shaping predictable policy frameworks that attract investment.

"Thought leadership through media, research and partnerships, such as those with Mining Finland and Mining Canada, helps [to] inform stakeholders on sector dynamics," he says, adding that the ZCM interacts year-round with investors, mining majors and juniors, academia and entrepreneurs, often in collaboration with government bodies such as the Zambia Development Agency.

On dialogue platforms, the 83-year-old ZCM co-chairs a quarterly technical working group (TWG) with the Ministry of Mines and Minerals Development.

"The TWG, supported by a public–private dialogue forum, fosters consensus on regulatory issues. Smaller subgroups tackle technical or complex matters."

Chilembo also points to the chamber's participation in research on local content, mineral regulation and artisanal mining, which resulted in evidence-based inputs into mining policy strategy and regulatory framework development.

Considering global energy transition trends, he says the ZCM aligns its advocacy with global industry leadership organisation the ICMM, and long-term strategic framework the Africa Mining Vision.

"At forums, such as the Indaba, we encourage value-addition in battery chemicals and other products. This strategy builds capital for exploration and mine development," concludes Chilembo.

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Policy alignment key to advance mining

LUMKILE NKOMFE | CREAMER MEDIA WRITER

Africa's ability to attract sustainable mining investment increasingly depends on coherent policy frameworks, regional integration and coordinated infrastructure development – an outlook that aligns closely with the theme of this year's Investing in African Mining Indaba, highlights Botswana mining industry lobby organisation Botswana Chamber of Mines (BCM) CEO **Charles Siwawa**.

Investor confidence is strengthened when mining jurisdictions offer predictable, stable and regionally compatible governance environments, with consistency, transparency and long-term clarity essential to attract domestic and foreign capital.

"You have to entice the business community to find a ripe ground for investing, whether the capital is local, regional or international," he adds.

Through regional mining association the Mining Industry Association of Southern Africa, the BCM continues to advocate for harmonised mining policies, licensing processes and fiscal frameworks across the Southern African Development Community (SADC) region.

For example, the shifting global diamond landscape presents an important example of regional opportunity, says Siwawa, citing the efforts of Botswana, Angola and Namibia to play a stronger collaborative role in diamond exploration and marketing.

Here, an integrated industry approach could enhance transparency, strengthen negotiating leverage and build a more competitive Southern Africa diamond value chain, he suggests.

Regional Focus

The growing convergence of national interests demonstrates an increasing understanding that regional alignment can offer greater returns than isolated national strategies.

Infrastructure integration is equally critical, and the SADC's strong mineral endowment must be matched by reliable cross-border logistics, transport corridors and water systems. Without efficient corridors to ports and markets, the region cannot capture the full value from its mineral resources, adds Siwawa.

Opportunities for public–private partnerships and intergovernmental coordination, therefore, remain extensive, he says, highlighting the energy landscape as another strategic area in which Botswana and Namibia hold significant resources with some of SADC's strongest solar-generation potential.

Leveraging this potential would strengthen the Southern African Power Pool and help meet investor expectations around low-carbon mining, he urges.

In Botswana, community partnerships, beneficiation and economic participation remain central to the country's long-term mining strategy. BCM members have made significant progress in social investment and enterprise development, with many companies allocating funds to corporate social responsibility, even without legislative compulsion, he adds.

The country's beneficiation efforts, guided by the African Union's African Mining Vision, continues to expand the domestic value chain.

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A&R GROUP
SAFETY THROUGH INNOVATION



A&R GROUP: CAPABILITY STATEMENT

ENGINEERING SAFETY AND EFFICIENCY BENEATH THE SURFACE

For nearly half a century, deep beneath the earth's surface, a quiet revolution has been unfolding. It is a revolution driven not by brute strength or heavy machinery, but by precision engineering, data intelligence, and an unwavering commitment to human safety. At the centre of this transformation is A&R Group, a South African-based pioneer redefining what is possible in underground mining operations across the globe.

From the goldfields of South Africa to the vast silver, platinum, and polymetallic mines of Mexico and Zimbabwe, A&R's technologies have earned a reputation for reliability where it matters most: in some of the world's most hazardous work environments.

A LEGACY OF INNOVATION IN UNDERGROUND MINING

The A&R Group (established in 1976) has, after partnering with specialist electronic OEM, Embedded IQ, grown far beyond its roots as an equipment supplier. Today, it stands as a vertically integrated technology leader: designing, engineering, manufacturing, and supporting digital systems that boost productivity while safeguarding thousands of mine workers every day.

A&R Group's flagship solution, the Comprehensive Mine Management System (CMMS), is the digital nervous system of many leading mining operations. The system seamlessly integrates with mine personnel and time-and-attendance platforms, applying safety-driven business rules long before workers even enter high-risk zones. Real-time tracking of people and equipment, detailed reporting, and compliance enforcement have made CMMS indispensable in an industry where margins are tight and safety is non-negotiable.

This integrated approach has earned A&R the trust of mining giants including Harmony Gold, Impala Platinum, Sibanye, Valterra, Glencore, and Koura. Each relying on A&R's technology to maintain operational discipline underground.

WHERE SAFETY MEETS TECHNOLOGY

The mining industry is under constant pressure to reduce accidents and adopt smarter systems. A&R has stayed ahead of this curve with Embedded IQ powered products that combine rugged hardware with modern digital intelligence.

COLLISION PREVENTION SYSTEM

In operation since 2016, our Collision Prevention System has become one of the most trusted safety solutions in underground mining. With accurate detection and minimal nuisance alarms, the system is EMERST Level 9 compliant, a global benchmark for collision avoidance. When integrated with CMMS, the CPS gives mines unprecedented control over equipment behaviour in high-risk zones.

MISSING PERSON LOCATOR (MPL)

Our DMPR-compliant MPL system currently monitors approximately 75,000 miners across multiple operations and has been deployed at multiple mining groups and sites since 2017. The second generation of this technology, XTend MPL, launching in 2026, builds on this foundation by providing continuous Wi-Fi and BLE coverage at a per-read-zone deployment cost that is a fraction of that of competing technologies. This transforms MPL from a last-known-location system into a real-time, continuous live-location solution, giving rescue teams the critical visibility they need when seconds matter.

1000CT LOCOMOTIVE CONTROLLER

A&R's dominance in locomotive control systems — the majority of the South African market— comes from its focus on modularity, safety, and reliability. The addition of AI-driven camera technology is paving the way for autonomous tramming, a major milestone in underground efficiency.

WINCH PROXIMITY SYSTEM (WPS)

Winch scraping remains one of the most dangerous underground operations. Our WPS uses proximity tags and antenna modules to protect drivers and pedestrians from scraper and



cable hazards—a life-saving advancement born out of more than seven years of collision-prevention expertise.

AI CAMERA PLATFORM

Designed specifically for the harsh realities of mining environments on both the surface and underground, our AI camera system delivers real-time video, object detection, and analytics—all processed on the edge. Integrated via CAN bus, it can actively influence TMM and Locomotives behaviour, opening the door to smarter, safer machine control underground.

TECHNOLOGY WITH PURPOSE

At the heart of A&R's mission lies a simple idea: everyone who goes underground must come out again safely and return to their families.

This philosophy shapes the company's RAISE values: Respect, Accountability, Innovation, Safety, and Efficiency. It informs everything from product engineering to staff training and long-term partnerships with global mining houses.

With our technologies now embedded in more than 50 mining operations worldwide, the company continues to push the boundaries of what safe, efficient underground mining can look like.

Let's discuss how we can upgrade your mining operations to ensure compliance:

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Regulatory certainty a critical component

DEVINA HARIPERSAD | CREAMER MEDIA REPORTER

Partnerships will shape Africa's next phase of mineral development, says advisory company Deloitte South Africa economic advisory leader **Hannah Marais**, noting that while Africa holds major reserves, the continent attracts only a small share of global exploration spend.

Deloitte will participate in dialogue on mobilising capital to finance a new wave of mining projects in Africa during the 2026 Investing in African Mining Indaba.

According to S&P Global Market Intelligence, the continent received about 10% of global exploration budgets in 2024, with most capital flowing into brownfield exploration activities. This, Marais adds, represents a trend which requires regulatory reform to create the conditions for new discoveries and project development.

Several reforms remain central to unlocking exploration activity, including faster licensing, digital cadastral systems and clear compliance processes; these systems improve transparency and reduce discretionary decision-making, which, in turn, helps to strengthen investor confidence, she explains.

Investor Friendly

Investor confidence depends on the ability to balance local benefit with regulatory predictability, with local-content rules, export policies and State equity stakes being carefully designed so as not to discourage long-term investment, says Deloitte Technical mining advisory senior manager **Julia McFarlane**.

"Reforms to energy markets, infrastructure and tax policy also remain urgent. High electricity prices have also undermined downstream processing in South Africa."

Improved rail and port performance, supported through regional partnerships and public–private partnerships, will be vital to ensure and lift competitiveness.

This need for predictability also extends into regional cooperation, she adds.



JULIA MCFARLANE
Local content rules, export policies and State equity stakes must be designed carefully so that they do not discourage long-term investment

While both advisers agree that better policy alignment across borders will unlock new investment, Marais says harmonised rules, shared standards and stronger coordination between neighbouring countries will help improve financial confidence and reduce disputes. She elaborates that alignment of royalties, tax treaties and responsible mining standards are valuable considerations.

McFarlane notes that harmonisation must still respect national priorities, but it should

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Why most mining ESD programmes don't produce bankable suppliers – and what SMMEs actually need

Mining companies across South Africa invest significant resources in enterprise and supplier development (ESD), yet supplier failure rates remain persistently high. Many small, medium and micro enterprises (SMMEs) enter mining value chains with ambition, technical skill and drive, only to struggle once contracts are secured and operational pressures intensify. This is often framed as a capacity issue at SMME level. In reality, it is more frequently a failure of programme design.

The broader context for supplier development in South Africa is sobering. Up to 70% of SMMEs fail within their first two years, highlighting the fragility many businesses face even before engaging with complex corporate value chains. Despite yearly ESD investment estimated at R20-billion to R30-billion, research points to limited emphasis on long-term sustainability outcomes – reinforcing the need for programmes that build readiness, not just spend.

Too many ESD initiatives are structured primarily to meet compliance requirements rather than to prepare suppliers for the realities of operating in a mining environment. Funding is introduced before businesses are operationally ready. Skills development is generic rather than contextual. And market access is often treated as an outcome rather than a capability. The result is suppliers that may win work, but lack the depth and resilience to sustain it.

"Market access in mining is often misunderstood," says development finance solutions provider Phakamani Impact Capital CEO **Nick van Rensburg**. "Our role is not to place SMMEs into contracts, but to reduce the barriers that prevent capable businesses from competing effectively and sustainably."

This distinction matters. Mining suppliers must navigate complex procurement processes, stringent compliance requirements, tight margins, safety standards and delivery pressures that leave little room for error. Without the right systems, governance and operational structure in place, access to opportunity can quickly become a point of failure rather than growth.

What SMMEs actually need is readiness.

In practice, readiness means operating at mining standard – with appropriate systems, financial controls, compliance discipline and operational depth to perform consistently under pressure. Yet many ESD interventions underestimate the gap between entrepreneurial capability and mining-level execution, exposing SMMEs to risks they are ill-equipped to manage.

The experience of mining transport provider Mamoja Trading & Projects founder **Annah Manugu** illustrates what happens when ESD support is designed around operational readiness rather than output metrics. Operating in the transport and logistics sector – one of mining's most demanding value chains – Manugu has built a business specialising in the movement of platinum concentrate, chrome, ore and coal across the North West and Limpopo mining belts.



Nick van Rensburg



Annah Manugu

In November last year, Mamoja secured a R150-million contract with Sibanye-Stillwater at its Marikana operation to move ore, a milestone that reflects both scale and operational trust. Importantly, the contract was not awarded through preferential placement. Manugu applied competitively, and the business was assessed on its ability to deliver at mining standard.

"The entire year, the Phakamani programme was preparing me for this contract," Manugu explains.

Through Sibanye-Stillwater's Women in Mining ESD programme, designed and managed by Phakamani Impact Capital, support was deliberately sequenced. Business coaching focused on developing a credible, execution-ready business plan, with securing and delivering on a large mining contract identified as a strategic objective. Practical attention was given to compliance, operational restructuring and governance, ensuring the business could function efficiently without constant founder involvement.

With the contract now secured, Phakamani Impact Capital is in the process of securing funding for the specialised equipment required to deliver at scale, introduced at a point where the business could absorb growth rather than be destabilised by it.

The case highlights a common but often overlooked risk in ESD: Access without readiness can accelerate failure. SMMEs are frequently expected to perform at mining standard without having been built to mining standard.

For mining companies, the implications are material. Supplier failure creates operational disruption, reputational risk and additional cost, undermining both production continuity and transformation objectives. By contrast, ESD programmes that prioritise capability, sequencing and real-world readiness are more likely to produce suppliers that endure.

As mining faces increasing environmental, social and governance scrutiny, localisation pressure and the need for reliable suppliers, the question is no longer whether to invest in ESD, but how. The future of supplier development lies not in expanding spend, but in designing programmes that reflect operational reality – and equip SMMEs to compete, perform and grow on their own merit.

IMPACTFUL FACTS

As a solutions partner to the mining industry since 2015, Phakamani Impact Capital's impact has been extensive, disbursing over R1-billion to small businesses, supporting 1 423 SMMEs, helping sustain 24 000 jobs and achieving a loan recovery rate of 93%.

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New global standard to refine responsible mining

DEVINA HARIPERSAD | CREAMER MEDIA REPORTER

Collaboration among industry, governments and civil society is becoming more urgent as Africa aims to convert its mineral wealth into sustainable economic gains, says mining and metals advocacy group ICMM president and CEO **Rohitesh Dhawan**.

Speaking to *Mining Weekly* ahead of this year's Investing in African Mining Indaba, he says the continent's ability to translate its geological advantage into lasting development will depend on stronger partnerships.

ICMM's role as a global convener allows for bridging these partnerships by bringing together 26 of the world's largest mining companies, representing more than one-third of global production and operating over 650 sites in about 50 countries.

While Africa offers "immense opportunity", the continent also faces infrastructure gaps, regulatory uncertainty and rising social and environmental pressures, consequently making multi-stakeholder cooperation essential.

The ICMM's experience since 2002 has shown that open engagement with its stakeholders strengthens accountability and accelerates progress on responsible mining practices, he states.

"The Consolidated Mining Standard Initiative [CMSI] is a key example of collaboration shaping the future of responsible mining," he says, adding that it brings together ICMM, The Copper Mark, the World Gold Council and the Mining Association of Canada to merge the strongest elements of their four established standards into a global framework.

The CMSI is being advanced through a structured process that reviews, aligns and integrates the four existing responsible mining standards into one framework. This process is being guided by dedicated stakeholder and industry advisory groups, whose expertise is helping refine the final standard.

Dhawan says the crowded landscape of responsible mining standards has long been a barrier for many operators, but the CMSI, set for launch in 2026, aims to provide clarity for mining companies of all sizes, across all locations and commodities.

"Broad adoption could cover hundreds of mining facilities across about 60 countries, including major African jurisdictions that are preparing for increased demand linked to the global energy transition."

Dhawan believes that the CMSI will be particularly valuable for governments aiming to align environmental, social and governance expectations as they position themselves for critical-minerals investment.

The Investing in African Mining Indaba 2026 will also premiere The World's Deepest Marathon documentary, which Dhawan describes as a "cinematic showcase of modern responsible mining".

The underground marathon, filmed 1 120 m below surface in October 2025 at a mine operated by Swedish multinational metals, mining and smelting company Boliden, highlights industry diversity, technological progress and improved safety standards.

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Cooperation key to mining partnerships

With this year's Investing in African Mining Indaba set to focus on the theme Stronger together: Progress through partnerships, deeper regional cooperation will be critical to building a resilient and competitive African mining ecosystem, report financial services provider Absa Commercial and Investment Banking (CIB) managing principal, and resources and energy head **Shirley Webber** and Absa CIB public sector and growth capital solutions managing executive **Stephen Seaka**.

They posit that collaboration between governments, mining companies, investors, communities and infrastructure providers must increasingly take place across borders, reflecting the regional nature of Africa's mineral endowment and the scale required to support global value chains linked to the energy transition.

While Africa holds close to a third of the world's known reserves of future-facing minerals including the metals driving the global energy transition – copper, cobalt, manganese, graphite, nickel, lithium and the platinum group metals – Webber and Seaka point out that they are widely dispersed.

"With the International Energy Agency projecting sharply higher demand for key battery metals and transition-linked commodities over the next two to three decades, Africa's mineral endowment places it at the centre of an emerging geopolitical and industrial reordering," they say, noting that this makes the case for regional thinking almost self-evident.

However, Webber and Seaka note that many continental strategies blur the distinction between regional cooperation and regional approaches to beneficiation.

"Regional cooperation is about how States organise the rules of the game across borders. It includes tariff alignment, customs procedures, rail and port concessions, environmental and social standards, power-pool governance, dispute-resolution mechanisms and the regulatory treatment of long-term public-private partnerships," they state.

Regional beneficiation, by contrast, is about where along the value chain different activities are located and how those activities are sequenced, point out Webber and Seaka.

They add that while ore can be crushed, concentrated, smelted, refined, turned into precursors, assembled into components and eventually integrated into finished products, some of these steps require substantial power and water, while others are knowledge-intensive, highly trade-exposed and shaped by logistics costs.

"It seldom makes sense to duplicate each step in every country that hosts a deposit. It is more efficient to map which segments of a copper-cobalt-manganese-lithium chain should sit in which locations along a corridor, then design fiscal regimes, power investments and skills programmes accordingly," highlight Webber and Seaka.

Nonetheless, both agree that Africa's continental policy landscape is starting to move in this direction, exemplified by the African Union's Green Minerals Strategy positioning critical minerals as a regional industrialisation opportunity and promoting integrated value chains and corridor-based infrastructure planning.

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