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"We are ready for this challenge and we are already at work to deliver our transformation plan for the new Caterpillar dealership in West Africa."  
Jean-Luc Konan, the new Cat dealer principal for West Africa

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 Cover Inset: Jean-Luc Konan, the new Cat dealer principal for West Africa  
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# Editor's Note

Welcome to the February issue of African Review. While Covid-19 remains a persistent thorn in the side of economic recovery, thoughts are increasingly moving away from the pandemic and towards future growth. This month, we explore the actionable policies sub-Saharan countries can pursue in order to cope with a turbulent global environment and translate resources into prosperity (page 14).

Certainly Africa's power sector is one with seemingly endless potential. Hussain Al Nowais from AMEA Power explains how to create suitable environments to realise the renewable opportunity (page 23) and Ali Hjaiej of Karpowership explores the impact plug-and-play solutions could have when incorporated into Africa's energy landscape (page 20).

One of the biggest stories to break in recent months was the news that Delmas Investissements et Participations and the Delmas family have signed a transfer agreement for their Cat dealership activity in West Africa. In this issue, find our exclusive interview with Jean-Luc Konan, the new Cat dealer principal for West Africa, as he reveals his vision for the region (page 28).

To help guide attendees at Investing in African Mining Indaba this month – and to keep those who cannot make it in the loop – our preview inspects a selection of the key exhibitors at the conference (page 36) alongside a report on Zambia's mining prospects (page 35) and an interview with Bushveld Minerals co-founder and CEO, Fortune Mojapelo, ahead of his attendance at the show (page 42).

Discover these features and more inside, alongside our regular updates on the latest equipment ready to shape Africa's key industries in the future.

**Robert Daniels, Editor**

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## Tunisian solar plant receives funding boost

The board of directors of the African Development Bank Group (AfDB) has approved a US\$27mn and a EU€10mn (approximately US\$10.7mn) loan package to co-finance the construction of a 100MW solar power plant in Kairouan, Tunisia.

The approval covers funding from the bank, and concessional financing from the Sustainable Energy Fund for Africa (SEFA), a special multi-donor fund managed by AfDB. Additional financing will come from the International Finance Corporation (IFC) of the World Bank Group and the Clean Technology Fund (CTF).

The project entails the design, construction, and operation of a greenfield solar photovoltaic (PV) plant with a capacity of 100MW under a build, own and operate (BOO) scheme. The project is located in El Metbassta, Kairouan North region, about 150 km south of the Tunisian capital, Tunis. Société Kairouan Solar Plant S.A.R.L., developed by Dubai-based AMEA Power, will manage the project.

Kevin Kariuki, vice president of power, energy, climate and green growth at AfDB, commented, “The 100MW Kairouan Solar PV project will not only be a pioneer for other grid-based solar and wind independent power projects currently under development in Tunisia but also a benchmark for bankability of renewable energy projects in the country as it is underpinned by robust and sustainable agreements negotiated over the last three years under extremely onerous market conditions.”

“We are delighted to support the first solar IPP project in Tunisia,” said Wale Shonibare, director of energy financial solutions, policy and regulation at AfDB. “The success of the transaction, which has reached the highest bankability standards following months of negotiations with the Tunisian authorities, provides a useful template for future projects that will help move the country closer towards achieving the Government’s 35% clean energy target.”

The Kairouan Solar project aligns with Tunisia’s Nationally Determined Contribution and goal of reducing carbon emissions through the transition to renewable energy sources. It is also consistent with AfDB’s New Deal on Energy for Africa and the ‘Light up and Power Africa’ High-5 strategic priority.



Image Credit: AfDB

The project will have a capacity of 100MW.

## GENIE EXPANDS SERVICE SOLUTIONS

Genie has announced the expansion of Genie Service Solutions (GSS), a comprehensive service agreement plan, for Genie equipment owners of all fleet sizes throughout the EMEAI region (Europe, Middle East, Africa and India).

GSS allows equipment owners to feel confident in the quality of their service and maintenance, while optimising the timing and cost of servicing their equipment and increasing fleet uptime. Fleet owners can select the GSS plan that best meets their needs for specific Genie equipment in their fleet.

Matt Brint, Genie service director for the EMEAI region, commented, “Genie’s commitment to delivering quality for our customers extends well beyond delivery of the machine. By offering different service programmes, for any number of machines, we are able to customise the support our customers receive based on their business needs.”

## VNG AND SONATRACH TO COLLABORATE ON GREEN HYDROGEN

German gas group VNG AG (VNG), and Sonatrach, an Algerian state-owned energy company, intend to join forces in ramping up a German-Algerian value creation chain for green hydrogen.

Both companies have signed a memorandum of understanding (MoU) to jointly examine possibilities for the realisation of long-term hydrogen and ammonia projects with a view to importing green hydrogen from Algeria to Germany in the future.

Hans-Joachim Polk, member of the VNG executive board, explained, “Hydrogen is set to be a key component of our energy future. Large amounts will have to be imported, however, to satisfy the demand for hydrogen in Germany. Green hydrogen from Algeria could play an important role here as the potential in this respect is huge. So I’m delighted that today we have laid an important foundation with Sonatrach for ramping up the German-Algerian hydrogen industry.”

Fethi Arabi, member of the Sonatrach executive board, added, “Sonatrach is part of Algeria’s national hydrogen roadmap, which aims to kick-off pilot projects by 2030. The international infrastructure connection between Algeria and Europe that can be used for transporting green hydrogen and the availability of solar energy potential enables us to pursue a long-term strategy for realising green hydrogen projects at competitive cost. Today we are signing a MoU with a recognised strategic partner in the emerging hydrogen sector to examine long-term collaboration on joint commercial hydrogen projects.”

Initially, VNG and Sonatrach intend to work together on associated financial/technical issues such as hydrogen infrastructure and the potential for joint commercial hydrogen projects.

## BRIEFS

### OCP launches green investment strategy

Image Credit: OCP Group



The programme is based on achieving full carbon neutrality by 2040.

OCP Group, a Moroccan state-owned phosphate rock miner, phosphoric acid manufacturer and fertiliser producer, has launched a new strategic programme for 2023-2027 devoted to raising fertiliser production and investing in new green fertilisers alongside renewable energy.

The programme provides for a global investment of around US\$13bn over the 2023-2027 period. It aims to increase production capacity from 12mn tons of fertiliser to 20mn tons by 2027.

### Talgo’s intercity trains begin operations in Egypt

Image Credit: Talgo



The trains supplied to Egypt for daytime services increase capacity and service quality and reduce energy consumption per passenger.

Talgo, a company specialised in design, manufacture and maintenance of rolling stock, has announced that its trains have begun commercial operation in Egypt. ENR, Egypt’s national railway company, has started utilising the trains for services connecting Cairo to Alexandria. This milestone confirms the satisfactory progress of the project for the supply of six units and their maintenance for eight years which has also involved the construction of new Talgo facilities.

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## Equinix steps into South African market with data centre investment

Equinix, Inc., a digital infrastructure company, has announced plans to enter the South African market with a US\$160mn data centre investment in Johannesburg that augments its current footprint on the African continent in Nigeria, Ghana and Côte d'Ivoire. The new data centre is expected to open mid-2024.

With its South African expansion, Equinix is entering one of the largest and most digitally developed nations on the continent. Already a strategically important connectivity hub for digital networks, South Africa boasts a significant network of submarine communications cables. These strategic links between countries and continents are established at several points across the country's 2,850 km of coastline.

"We entered the African continent earlier this year with the acquisition of MainOne, the leading West African data centre and connectivity solutions provider with presence in Nigeria, Ghana and Côte d'Ivoire," said Eugene Bergen, president, EMEA, Equinix. "This investment will give both South African businesses the opportunity to expand internationally and global businesses to expand into South Africa."

Equinix is seeking out sustainable and reliable sources of energy for this new data centre as is customary when it enters a new market. While the exploration for sustainable and reliable sources of energy continues, this new facility is expected to feature many unique sustainable attributes including hyper-efficient cooling with outside air economisation using minimal water, allowing the company to limit its carbon footprint and maintain energy efficient operations with industry leading PUEs.



Image Credit: Equinix

Equinix is seeking out sustainable and reliable energy sources for this new data centre.

## STRENGTHENING INTERNET CONNECTIVITY IN SA

MTN South Africa and MTN GlobalConnect, in partnership with the 2Africa consortium, have landed the 45,000 km 2Africa cable in Yzerfontein and Dufnefontein, South Africa.

For MTN GlobalConnect, this landing is the first in a series of six across five countries: South Africa, Sudan, Cote D'Ivoire, Nigeria and Ghana. This will allow MTN GlobalConnect to showcase, in a tangible manner, the importance of connectivity and creating cross border networks, that connect Africa to the rest of the world. The 2Africa cable connection will go live in 2023.

This subsea cable will lay the foundation for improved global Internet access, connecting people and continents. Once live, it will play a big part in delivering much-needed capacity in Africa from Europe, the Middle East and Asia.

MTN Group president and CEO Ralph Mupita, said, "Strategic partnerships such as the one we have with the 2Africa consortium will help us accelerate and deepen Internet adoption and socio-economic progress across the African continent. Data traffic across African markets is expected to grow between four and five fold over the next five years, so we need infrastructure and capacity to meet that level of growth and demand."

MTN GlobalConnect CEO, Frédéric Schepens, commented, "The initiative complements our terrestrial fibre strategy to connect African countries to each other and to the rest of the world. We are building scale infrastructure assets to meet the explosive growth in data traffic and accelerate the digital economy on the continent, by creating a pan-African fibre railroad driving affordable connectivity."

This cable landing adds to another milestone to the digital railroads that are being built around Africa, making telecommunications accessible and available.

## NORONEX'S FIRST DIAMOND DRILLING PROGRAMME UNDERWAY

The board of Noronex Limited has confirmed that the company's first diamond drilling programme is underway at the Snowball Joint Venture in Namibia.

Diamond drilling has been selected to drill the shallow Kalahari sand cover and provide detailed geological information in a previously undrilled part of the Kalahari Copper Belt. The Mitchell Drilling rig was deployed to test the highly ranked Helm prospect.

The base of the Kalahari cover, a thick calcrete sequence, was intersected at 53 m depth downhole, shallower than expected above the interpreted D'Kar Formation sediment sequence, potential mineralisation can be developed below this at the NPF contact. The first hole 22HED01 is testing the NPF-D'Kar contact on the southern limb of the 'domal' target. Ground magnetic profiles have been collected to pinpoint the contact under the Kalahari cover.

## ► BRIEFS

### ACE and Tabono form joint venture



Image Credit: Adobe Stock

Without dedicated recycling facilities, South Africa is losing materials like lithium and cobalt.

ACE Green Recycling (ACE) and Tabono Investments (Tabono) have signed a term sheet to form a joint venture to build and operate two environmentally sustainable battery recycling facilities in South Africa. Through this venture, the companies aim to bring radical change to the management of South Africa's battery waste. Both facilities will be greenfield projects.

### Volvo expands electric truck range in South Africa



Image Credit: Volvo

Volvo Trucks has introduced new electric variants.

Volvo continues to expand its range with the launch of several new, extra heavy electric trucks, making it possible to electrify even more transport routes in cities and regions. Thanks to multiple battery, cab and chassis options, the new trucks can be designed to carry electric superstructures for a wide range of specialised transport assignments, including goods distribution, refuse collection and construction work. Production will begin in Q1 of 2023.





# Work the Future

No one said evolution is easy. But it is integral to creation, especially initiatives aimed at an industrial symbiotic economy. That's why Yokogawa has been instigating a variety of projects involving biomass material and virtual power plants: moving forward to a vital harmony bringing disparate companies and industries together for dialogue and connectivity that lead to a sustainable future. Yokogawa. Evolving to a greener day.

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## Tietto begins wet commissioning at Abujar Gold Project

Tietto Minerals, a West African gold explorer and developer, has commenced wet commissioning its 4.5 Mtpa CIL processing system at its 3.45 oz Abujar Gold Project in Côte d'Ivoire.

Tietto managing director, Caigen Wang, said, "To build a gold mine the size of Abujar in less than 12 months is a monumental achievement. To do it during Covid-19 with supply chain issues, escalated pricing and skilled people shortage made it, almost, mission impossible. Our in-house construction team has demonstrated it can be delivered through careful planning, diligent management and hard work. I would like to thank our mine construction team, ESG team, mining team, contractors and consultants, local communities, government authorities at various levels and many more. We would also like to thank our shareholders who have put us in a position where we have no debt, zero hedging and in a position to produce c.260,000 ounces in the first 12 months of production once we reach commercial production."

Tietto chief operating officer, Matthew Wilcox, commented, "I am extremely proud of the team who have delivered the project in less than 11 months from pouring first concrete, which I believe, is the most challenging schedule for a project of this magnitude that has been achieved in the last decade in West Africa. A schedule made possible by an outstanding owners' team and a great team of contractors and consultants who achieved the job safely and on budget."

"I would like to thank the construction team led by Daniel Kotzee, our outstanding engineering consultants in Primero and ECG, as well as our key contractors: Wacom (concrete), Friedlander (field erected tanks), NCP (mill installation), EPSA (mining), Peloton (electrical labour) and Enikon (SMP), as well as many other local contractors, who all went above and beyond to achieve the schedule."

Wilcox added, "A great effort by the projects commercial team, led by Hesbon Okwayo, who achieved an outstanding result under difficult global conditions, and supported by Antrak Logistics and Bolloré, who managed to get the equipment to site in the time frames required. Also, special thanks to our owners' earthworks team, led by Guillaume Hubert, and supported by Citland (HDPE lining), who achieved amazing work under difficult conditions."



A first gold pour has now been completed at the mine.

Image Credit: Adobe Stock

## WORLD BANK TO INCREASE GRID-CONNECTED RENEWABLE CAPACITY

The World Bank has approved its new Regional Emergency Solar Emergency Solar Power Intervention Project (RESPITE), representing US\$311mn in financing. The new project includes a US\$20mn grant to help facilitate future regional power trade and strengthen the institutional and technical capacities of the West Africa Power Pool (WAPP) to undertake its regional mandate.

The main objective of the RESPITE is to rapidly increase grid-connected renewable energy capacity and strengthen regional integration in the participating countries of Chad, Liberia, Sierra Leone and Togo.

It will finance the installation and operation of approximately 106MW of solar photovoltaic with battery energy and storage systems, 41MW expansion of hydroelectric capacity, and will support electricity distribution and transmission interventions across the four countries.

"Solutions supported by the new project are manifold and have substantial benefits for the countries and the region. Among others, it will provide fiscal space for countries to address food crisis resulting from the war in Ukraine, initiate development of competitively tendered grid-connected clean energy to alleviate current power supply crisis, positively address climate change by helping countries to move away from expensive and polluting fuels, and help synchronise the WAPP network to enhance regional integration in the energy sector," said Rhonda Jordan-Antoine, World Bank task team leader of the project.

The project will encourage leading international private developers to enter smaller and more fragile economies and to also demonstrate the viability of competitively tendered grid connected solar and battery storage in participating countries.

## BAOMA 1 ACHIEVES COMMERCIAL OPERATIONS

Serengeti Energy, a private company backed by shareholder KfW, Norfund, NDF, Proparco, Stoa and Swedfund, has announced that Baoma 1, Sierra Leone's first independent power project (IPP) has achieved commercialisation.

The 5MW solar power plant is the first phase of a 25MW solar PV power project in Yamandu, near Bo in Sierra Leone. The project will add approximately 15% to Sierra Leone's total electricity generation capacity. The company expects to commence building the second phase of the project in 2023.

Chris Bale, Serengeti Energy's CEO, commented, "The project will supply low-cost electricity to the local power grid for many years to come and will help to diversify the electricity mix in the country. We look forward to hosting the official launch event for the plant that will be held in early 2023 to celebrate the success of this achievement."

## ► BRIEFS

### Metso Outotec wins West African order



Metso Outotec's delivery includes two Planet Positive Premier grinding mills.

West African Resources has awarded Metso Outotec an order for comminution equipment to be delivered to their greenfield Kiaka gold project in Burkina Faso.

Metso Outotec's delivery includes two Planet Positive Premier grinding mills with a total installed power of 2MW, as well as Metso Outotec's proprietary metal and rubber mill linings and spare parts. The order value is around EU€30mn (approximately US\$32mn).

### Gravita commences aluminium recycling in Togo



The plant has an annual capacity of around 4,000 MTPA in phase 1.

Gravita India Limited, a leading recycling company with a global presence, has announced that its subsidiary Gravita Togo SAU has started commercial production of aluminium cast-alloys from a new recycling plant.

The opening of the facility builds on the company's presence on the continent, having already opened similar sites in Tanzania, Senegal and Mozambique. The plant in Togo will help the company augment its aluminium segment capacity in Africa.



## Singrobo hydropower plant reaches financial close

Financing for the Singrobo-Ahouaty 44MW hydropower project in Côte d'Ivoire has reached a close on EU€174.3mn (approximately US\$188mn) with the African Development Bank (AfDB) as mandated lead arranger.

The package is made up of capital supplied from AfDB, with additional financing provided by the Africa Finance Corporation (AFC), the Germany Investment Corporation (DEG) and the Emerging Africa Infrastructure Fund (EAIF).

Singrobo-Ahouaty is the first hydro independent power producer project to be developed by a local sponsor in the country. Located on the Bandama River, the plant will connect rural inhabitants in the surrounding villages to the national grid and will improve power supply and reliability. It will also reduce the local dependence on fossil fuels during peak demand periods – providing a welcome climate-boost – and increase the share of renewables in Côte d'Ivoire's energy mix.

AfDB director for energy financial solutions, policy and regulations, Wale Shonibare, commented, "The Singrobo-Ahouaty power plant will leverage the huge potential in Côte d'Ivoire to provide clean energy from hydropower. Despite the current global challenges induced by the Covid-19 pandemic and supply-chain related cost escalation, the project reflects the bank's resilience and leadership in the African energy marketplace in guiding it to financial close."

Paromita Chatterjee, an investment director at EAIF's managers, Ninety-One, said, "The project has seen EAIF and the Private Infrastructure Development Group deliver on three core objectives: mobilising private capital, enabling economic development and contributing to increasing Africa's stock of renewable energy infrastructure."

DEG head of infrastructure and energy, Africa and Latin America, Andreas Cremer, added, "As a development finance institution, DEG is proud to be part of the financing consortium for Côte d'Ivoire's first hydro independent power producer and to support the country's path towards more climate-friendly green energy production. The financing fits well into DEG's business strategy with its focus on climate and impact."

Image Credit: AfDB



**AfDB's vice president of power, energy, climate and green growth, Kevin Kariuki, speaks to the media during a visit to the plant.**

## OPEC APPROVES NEW GLOBAL SUPPORT

The OPEC Fund for International Development has approved more than US\$500mn in new financing, with 15 new projects being pursued.

The announcement follows the launch of its Food Security Action Plan and the adoption of its Climate Action Plan in 2022. The new engagements will support infrastructure development and investments to improve communities in the Fund's partner countries.

Included in the development is a US\$25mn loan to the Niger Solar Plant Development and Electricity Access Improvement Project which aims to connect 80,000 households to the national grid through the construction and integration of a 10MWp solar PV plant. The OPEC Fund will also co-finance the construction of electrical transmission lines in the southern region of the country and in the capital city Niamey.

In regards to food security, the Fund has approved US\$14mn and US\$10mn to Benin and Liberia respectively to support agricultural development.

US\$50mn has been allocated to a regional multilateral development bank in Africa to bolster infrastructure and a further US\$40mn will be loaned to a private sector institutions to support the import and export of agricultural commodities and fertiliser across the continent.

For Côte d'Ivoire, a programme-based loan will contribute to financing the Economic and Social Reform Support Programme intended to promote reforms aimed at providing access to basic social infrastructure for disadvantaged people.

A US\$40mn loan will also be provided to the Kiffa Water Supply Project to contribute to financing a water treatment plant, four pumping stations and more than 300 km of pipeline to deliver potable water to the city of Kiffa in Mauritania.

## MANAGEM ACQUIRES ASSETS IN WEST AFRICA

Managem Group, a pan-African and full integrated mining group, has entered into a definitive agreement with Canadian mining company IAMGOLD Corporation for the acquisition of the company's 90% interest in the corporation holding the Boto Gold Project in Senegal; Boto West, Daorala and Senala Ouest also in Senegal; all assets in Diakha-Siribaya in Mali; and Karita in Guinea. It also includes the acquisition of the company's interest in Senala joint venture in Senegal.

"These transactions will enrich our already solid portfolio of assets, reinforce our role as a regional leader in the gold activity in Africa and consolidate our position as a top-performer within the African mining industry," commented Imad Toumi, chairman and CEO of Managem. "We are very excited to work with Boto, Diakha-Siribaya and Karita teams to advance these projects by drawing on the expertise and the experience of our teams as well as the obvious synergy between these assets."

## BRIEFS

### First phase of LRMT Blue Line complete

Image Credit: Lagos State Government



According to media reports, the electricity required to power the line will be delivered by a single, stand-alone power plant.

The Governor of Lagos State, Babajide Sanwo-Olu, has commemorated the completion of the first phase of the Lagos Rail Mass Transit (LRMT) Blue Line in Nigeria.

The completion of the first phase includes a 13 km stretch of rail as well as five stations and marks an important milestone in the delivery of the entire 27 km long Blue Line. The project is being handled by the Lagos Metropolitan Area Transport Authority (LAMATA).

### APM's truck appointment system goes global

Image Credit: APM Terminals



The system is going global.

APM Terminals has announced plans to roll out further its online truck appointment system which was piloted in 2022.

The system aims to reduce truck turn times, streamline gate access and improve logistics planning worldwide.

It is currently being rolled out to the West Africa Container Terminal in Onne, Nigeria, and APM Terminals Yucatan where it will be available to customers at the start of 2023.

## Intex opens second unit in Ethiopia

Intex Technologies UAE, a reputable brand in consumer goods such as mobile phones, computer accessories, power products, and consumer electronic products, has set its second unit in Ethiopia to cover the increasing demand in the African market, the company has announced.

“With this launch, we have strengthened Intex’s dedication to improving everyone’s life through the best consumer technology while also boosting brand recognition,” said Sanjay Bansal, managing director at Intex Technology UAE.

The company has a network of manufacturing and distribution units in India, UAE and China, having more than 600 distributors and a dealer base of over 25,000 globally.

In addition, with more than 900 service contact points, 13 warehouses, and 31 test and repair centres worldwide, Intex provides users with high-end product support.

To fill the gap between demand and supply, Intex Technologies has launched its unit in Ethiopia offering its leading products. It is set to collaborate with partners and investors to expand its product line in the region.

Intex Technologies is offering domestic to commercial products, including UPS, cables, inverters, monitors, toner and cartridges, batteries, IT and mobile accessories, and home appliances. In addition to that, Intex Technologies R&D team in India is working on German design for all the company’s products to meet quality standards suitable for the African market.

Recently, the company has unveiled 24-inch LED monitors with a streamlined appearance for a variety of environments including the workplace, home and gaming studios. The company has guaranteed top colour performance and sharp visibility with this product.



Image Credit: Intex Technologies

The unit will help cover the increasing demand in the African market.

## KENGEN TO SCALE UP RENEWABLE ENERGY

Kenya Electricity Generating Company PLC (KenGen) has announced a new plan to scale up the deployment of renewable energy in the country by an additional 3,000MW. This new campaign will be driven largely by deploying up to 2,000MW drawn from geothermal and hydro sources as baseload power to stabilise the country’s energy sources, thereby diversifying away from expensive thermal sources.

At the same time, KenGen, which is listed on the Nairobi Securities Exchange (NSE), said it has put in place plans to optimise the existing hydro sources even as it pushes for the development of new hydropower stations, and expansion of existing ones, particularly within the Tana River basin.

Speaking from KenGen’s Stima Plaza Headquarters in Nairobi, managing director and CEO, Abraham Serem, said the company had revamped its corporate strategy and rolled out a 10-year strategy that seeks to add 3,000MW within the next 10 years. He further added that the company will be seeking to rehabilitate its existing power plants to make them more efficient for sustainable generation.

Serem said that KenGen would be looking to tap into the vast potential of geothermal energy in the Rift Valley region, which is estimated to be about 10,000MW of clean and renewable energy.

“So far we have only exploited about 0.9GW of the 10GW geothermal potential and that is why a huge chunk of the additional capacity will be drawn from geothermal. Our focus going forward is to secure the baseload capacity to stabilise Kenya’s energy supply mainly from green renewable energy,” commented Serem.

He singled out the upcoming 305MW geothermal projects, with 280MW coming from Olkaria and 25MW from the Eburru geothermal power plant.

## RWANDA TO GET ITS FIRST BIONTAINER

BioNTech SE has reached the next milestone in the establishment of scalable mRNA vaccine production in Africa. The six ISO-sized shipping containers for the first BioNTainer have finished construction in Europe, underwent quality checks by BioNTech experts, and are being prepared for shipment to Kigali, Rwanda, where they are expected to arrive in the first quarter of 2023.

In parallel, BioNTech continues to develop and build its state-of-the-art manufacturing facility in Kigali, following the groundbreaking in June 2022. The facility will be housing the first BioNTainers and is expected to become a node in a decentralised and robust end-to-end manufacturing network in Africa. BioNTech also expects to ship BioNTainers to Senegal and potentially South Africa in close coordination with each respective country and the African Union. Vaccines to be manufactured in this Africa-wide network will be dedicated to people residing in member states of the African Union.

## BRIEFS

### AfDB approves trade package for Bank One



The financial support is expected to help Bank One increase its capacity to support the trade finance needs of key sectors.

The board of directors of the African Development Bank Group (AfDB) has approved a US\$40mn trade finance package in favour of Bank One Limited of Mauritius. The financial package comprises a US\$25mn risk participation agreement and a US\$15mn transaction guarantee. This facility will allow the bank to provide up to 100% guarantee to confirming banks for the non-payment risk arising from the confirmation of trade finance instruments issued by Bank One.

### Finclusion Group consolidates position in Africa



The company is now called Fin.

Finclusion Group is now known as Fin, with subsidiaries in its core markets following suit. The company is thus consolidating its footprint across Africa and aiming to be the leading international neobank across eastern and southern Africa. The company is also injecting a further equity injection to fuel growth which will be used to add new, fully-integrated territories to its business and development offerings, specifically in support of microfinance banks.



## REMA and UNDP launch hazardous waste management project

The Rwanda Environment Management Authority (REMA) and the United Nations Development Programme (UNDP) have launched a five-year project to protect human health and the environment from the adverse effects of hazardous wastes.

The five-year 'Hazardous Waste Management Project' will contribute to the Government's ambition to support public and private institutions to improve hazardous wastes management by enhancing the introduction of 'Reuse, Reduce, Recycle and Recover' approach in priority industries and economic sectors to ensure the sound management of wastes.

"This project will support Rwanda to inventory, and understand the quantities and types of hazardous in Rwanda, raise awareness of the different categories of people who are at the centre of generating wastes, and come up with best disposal mechanisms for hazardous wastes which will then create green jobs in the process of collection, transportation and disposal," said Juliet Kabera, director general, REMA.

To achieve its objectives, the US\$7mn project support will be used to develop a legal framework for the sound management of chemicals, hazardous and toxic waste as long as safer alternatives. It will also support in identifying the types, volumes and locations of chemicals, toxic and hazardous waste generation, and identify important sectors to target.

The project will also support the establishment of hazardous waste treatment facilities including interim storage, as well as raise awareness on the sound management of waste at all levels.

"This project came at the right time when we look for sustainable solutions to minimise waste generated, strengthening our policies and strategies that promote sustainable production and consumption, and it kicks off the implementation of the National Circular Economy Action Plan and roadmap we launched," said Jeanne d'Arc Mujawariya, Rwandan Minister of Environment.

Rwanda has made great steps forward in managing waste from banning plastic bags in 2008 and establishing the e-waste recycling facility in 2018.



Image Credit: REMA

The project will follow the 'Reuse, Reduce, Recycle and Recover' approach.

## GLOBELEQ ADVANCES GEOTHERMAL IN KENYA

Globeleq, a private power company in Africa, announced that it has signed financing agreements with the African Development Bank (AfDB) (as mandated lead arranger), the Eastern and Southern African Trade and Development Bank (TDB) and Finnfund, with regard to the US\$72mn debt funding for the 35MW Menengai geothermal project in Nakuru County, Kenya.

Globeleq, which is owned 70% by British International Investment and 30% by Norfund, is providing equity, project development and construction management experience. The announcement follows the recent joint commitment by the Kenyan and UK Governments at COP27 in Egypt to fast-track green investment projects in the country, including the Menengai project.

Menengai is a greenfield geothermal project and part of the first phase of the wider Menengai complex, which is the second large-scale geothermal field being developed in Kenya after Olkaria.

Construction of the project is expected to commence during the first quarter of 2023 once financial close has been reached. Globeleq will operate and maintain the power plant once it has reached commercial operations in 2025.

Steam will be supplied to the project by the government-owned Geothermal Development Company (GDC), under a 25-year project implementation and steam supply agreement. Once operational, electricity will be sold to Kenya Power, the national distribution company, under a power purchase agreement for the same timeframe. The project also benefits from a signed and effective letter of support issued by the Government of Kenya. The project will deliver clean and cheap baseload power to the national grid and enable GDC to monetise the available steam resources from the Menengai steam field.

## MPDC TO EXPAND TRACTOR AND TRUCK FLEET

Cargotec's Kalmar has secured an order from Maputo Port Development Company (MPDC) in Mozambique for 14 T2i terminal tractors and three forklift trucks - two heavy models and one medium model. The order was booked in Cargotec's Q4 order intake and the machines are scheduled to be delivered towards the end of Q2 2023.

MPDC, a joint venture between the Mozambican Railway Company and Portus Indico, was first awarded the concession to run Porto de Maputo in 2003. The company also acts as the port authority with responsibility for maritime operations, piloting, stevedoring, and terminal and warehouse operations as well as port planning and development.

MPDC currently operates a fleet of more than 35 Kalmar forklift trucks and terminal tractors, which are used to transport bulk material in skips between the quayside and trailer loading area.

## BRIEFS



Image Credit: Adobe Stock

The company will begin with wholesale services.

### Iristel expands into Kenya

Iristel, a global telecommunications service provider, has announced its expansion into Kenya, giving the company a presence on the continent as it looks to expand into the emerging market. CEO Samer Bishay said, "We will begin with our best-in-class wholesale services and expand our product offering in the coming months." For the initial rollout, Iristel will provide the capability to purchase SIP trunks, which can be aggregated with its onnet footprint, and DIDs.

### Solarise Africa to grow Kenyan operations



Image Credit: EDFI Electrifi

The company will provide renewable energy solutions.

Solarise Africa has been awarded US\$3mn by EDFI Electrifi to provide tailored financing solutions for decentralised energy solutions to selected commercial and industrial (C&I) customers across the continent. Solarise Africa provides reliable and affordable renewable energy solutions to businesses in Africa. The Electrifi Country Window for Kenya is developed in partnership with EU Delegations and host governments.

## Upcoming Events Calendar 2023

### FEBRUARY

6-9

#### INVESTING IN AFRICAN MINING INDABA

Cape Town, South Africa  
<https://miningindaba.com/>

23-25

#### MINEXPRO AFRICA 2023

Dar es Salaam, Tanzania  
<https://expogr.com/minexpotanzania/>

### MARCH

7-9

#### AFRICA ENERGY INDABA

Cape Town, South Africa  
<https://energyindaba.co.za/>

7-9

#### MIDDLE EAST ENERGY

Dubai, UAE  
<https://www.middleeast-energy.com/en/home.html>

7-9

#### SECUREXPO EAST AFRICA

Nairobi, Kenya  
<https://www.securexpoeastafrica.com/>

13-16

#### NAEPEC

Barcelona, Spain  
<https://www.naepec.com/Default.aspx?lg=en>

14-16

#### PROPAK EAST AFRICA

Nairobi, Kenya  
<https://www.propakeastafrica.com/>

14-18

#### CONEXPO-CON/AGG 2023

Las Vegas, USA  
<https://www.conexpoconagg.com/>

30-1 April

#### MEGA CLIMA KENYA 2023

Nairobi, Kenya  
<https://megaclimaexpo.com/kenya/>

### APRIL

17-21

#### HANNOVER MESSE

Hannover, Germany  
<https://www.hannovermesse.de/en/>

### MAY

9-11

#### SECUREX WEST AFRICA

Lagos, Nigeria  
<https://www.securexwestafrica.com/>

16-18

#### ENLIT AFRICA

Cape Town, South Africa  
<https://enlit-africa.com/>

23-25

#### OMC RAVENNA

Ravenna, Italy  
<https://www.omic.it/en/>

## CONSTRUCTION INDUSTRY LOOKS AHEAD TO BIGGEST CONEXPO-CON/AGG TO DATE

CONEXPO-CON/AGG, the largest construction trade show in North America, is aiming to push the construction industry to the next level by helping professionals elevate their expertise, experience the latest equipment on the market and make new connections within the sector.

The show, which is held every three years in Las Vegas, USA, is expected to be the biggest edition to date, having sold all available exhibit space. It will arrive in Las Vegas from 14-18 March 2023.

“The addition of the new West Hall and Diamond Lot at the Las Vegas Convention Center gave us, and our exhibitors, a number of new opportunities to show how we are taking the construction industry to the next level,” commented CONEXPO-CON/AGG show director, Dana Wuesthoff. “Now at 2.8 million square feet of exhibits, there’s more for construction pros to see than ever before.”

More than 1,800 exhibitors are showcasing their products and solutions at the event which will reportedly be nearly 5% bigger than the record-setting 2020 edition. Included in these ranks are CASE Construction, Caterpillar, Hitachi, SANY, Hyundai Construction Equipment, Bobcat, John Deere, Kobelco, Bomag, Komatsu, Liebherr, Sandvik, Terex, BAUER, Bell Equipment, Doka, and CDE.

Supporting this will be 150 education sessions to help attendees discover ideas and create lasting connections within the construction community.



All available exhibit space has been sold.

Image Credit: CONEXPO-CON/AGG



More than 1,800 companies are exhibiting at the trade show.

Image Credit: CONEXPO-CON/AGG

At present, the current pace of attendee registration is nearly double what it was at this time for the 2020 show.

“This is the event that construction professionals, especially those making company-level decisions, and those needing professional development hours, can’t miss,” said CONEXPO-CON/AGG show chair and Caterpillar senior vice president, Phil Kelliher. “Seeing the new equipment and techniques on a screen doesn’t compare to seeing it all in person. At the show, you can see the equipment, ask questions of the manufacturers themselves, and really understand what the equipment and education can do for your career and business.”

For more information on CONEXPO-CON/AGG, visit <https://www.conexpoconagg.com>.



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# Building self-reliant capacity in turbulent times

Economist Moin Siddiqi reports on the actionable policies available to sub-Saharan (SSA) countries as they continue to cope with a turbulent global environment in 2023.

Exacting global headwinds as manifested by a looming recession in the U.S. and Europe alongside the increasingly troubling global warming situation are weighing on economic activity across SSA. As a result, GDP expansion in 2023 could remain below pre-2020 trend-growth amid low financial buffers and higher regional debt burden.

In the face of these delicate challenges in the post-pandemic recovery period, the region needs actionable policies to build economic resilience to future crises. It must seize opportunities to unlock productivity-enhancing growth by investing in agriculture, human capital, digitalisation, green energy infrastructure, and supply chain diversification as well as forging greater intra-regional trade and investment.

Regional and trade integration within the continent offers an opportunity to enhance the resilience of African economies and militates against downturn in overseas markets. The African Continental Free Trade Area (AfCFTA) can be leveraged to coordinate and scale up investments in regional infrastructure (especially transport and electricity), transborder natural resource management, and innovation dissemination – thus fostering participation in regional value chains. Currently, however, poor road infrastructure hinders the development of intraregional trade as well as export-import of finished goods in many African countries.

“Removing trade and technical barriers to food trade, investing in regional trade facilitation, and enabling the free flow of capital across borders are essential for building resilient regional food systems.”

THE WORLD BANK



Regional and trade integration within the continent offers an opportunity to enhance the resilience of African economies.

Image Credit: Adobe Stock

“By exploiting economies of scale, intraregional trade in agriculture and food may lower the unit cost of marketing and distributing food, thus creating additional incentives for investments in transport and other logistics that facilitate the trade of goods and inputs within and across borders,” stated the World Bank.

Trade diversification will facilitate intra-regional trade, especially in agribusiness. But agricultural goods trade within SSA remains very restrictive, with regional trade in agricultural raw materials very low. Leveraging regional trade agreements can increase food supply by removing technical barriers (mainly sanitary and phytosanitary measures) that restrict food trade. Agriculture and food exports are expected to grow by as high as 80% following the implementation of the AfCFTA, while agricultural intra-Africa trade is expected to rise by 49% (according to the World Bank).

## Trade facilitation

Removing tariff barriers (i.e. taxes) and non-tariff barriers (quotas, licenses, and complex rules of origins) as well as improving ‘trade facilitation’ measures like simplification and harmonisation of export/import processes, can underpin resilient regional trading systems. Long waiting times at African borders, excessive fees, and heavy customs formalities continue to affect trade-related development.

There is a need to strengthen the capacity of countries to comply with food safety standards. Regional trade in agriculture faces the highest non-tariff barriers, including sanitary and phytosanitary restrictions. Countries should also foster competition by avoiding the imposition of roadblocks to the movement of goods and investments across borders.

Eliminating non-tariff barriers can increase intra-regional trade, whilst reducing inflation. Estimates show that domestic prices in SSA are, on average, 13% higher due to sanitary/phytosanitary measures alone. Other non-tariff barriers account for 50-60% of marketing costs and hike up domestic transportation costs. Addressing regulatory barriers and poor compliance will also lower trading costs of agricultural services and boost competitiveness.

“Removing trade and technical barriers to food trade, investing in regional trade facilitation, and enabling the free flow of capital across borders (foreign direct investment) are essential for building resilient regional food systems, with digital technologies playing a critical role,” noted the World Bank.

## Power sector

Energy deficiency is a fundamental bottleneck to growth since half of SSA’s population lacks a reliable supply of electricity, limiting the ability to start and run businesses. Yet, primary-energy resources (coal, natural gas, biofuels, geothermal, hydro, solar and wind power) are sufficient enough to generate more than 12TW of capacity (according to the International Energy Agency), which is substantially larger than Africa’s current and projected power consumption.

Africa will need investments of US\$190bn per year between 2026 and 2030 to meet its energy demand, with two-thirds going to clean energy,



according to Egbin Power Plc, Nigeria's biggest thermal power plant, which cited findings from the International Energy Agency. Nigeria, South Africa, the DRC and Ethiopia are the countries with the most investment needs.

Capitalising on energy resources requires both innovative private finance and reforms. It needs colossal funding in generation, new storage technologies, regional interconnectivity, and off-grid power systems – beyond the scope of most governments. Development banks can encourage potential investors taking project risks by providing guarantees, which cover principal repayment and/or interest up to a predetermined amount and 'full credit guarantees' (i.e., 100% of debt service due).

Such facilities (albeit limited) improve the risk-return profile of commercial financing by extending maturity, reducing interest rate costs and facilitating access to capital markets. Similarly, improved electricity sector governance can enhance the investment environment.

Africa can play a pivotal role in global decarbonisation thanks to abundant natural resources: the continent's forests absorb an estimated 1.1-1.5bn tons of CO<sub>2</sub> annually. It boasts 60% of the best solar resources globally, of which a paltry 1% is utilised. Yet solar PV is the cheapest source of power across SSA. According to the International Renewable Energy Agency (IRENA), solar PV theoretical potential could yield more than 660,000 TWh of electricity a year.

East and southern Africa possess the highest solar potential, estimated at 200,000 and 160,000 TWh per year respectively. The clean energy transition will be a critical part of the region's development. Africa is a potential supplier of goods that are in high demand from it, including minerals for low-emission technologies such as gas, cobalt, copper, aluminium, and lithium.

### Building productive capacity

Africa's resource producers are among the world's least diversified economies – hence the reliance

on global commodity markets. Approximately 50% of the fluctuations in the business cycle of African countries can be explained by 'terms of trade' (i.e., the ratio between export-and-import prices). Unfavourable terms of trade directly affect growth, inflation, public debt, and to some extent access to financial markets.

Despite holding sizeable mineral and hydrocarbons resources, Africa represents a tiny share of global industrial production. Thus, it relies on imported petroleum products and manufactured goods – a major constraint on balance-of-payments. With a shrewd industrialisation strategy, Africa can build aluminium smelters, steel plants, oil refineries, petrochemicals industry and gas-to-liquid facilities – hence monetising valuable domestic resources. The region accounts for 80% of platinum, 66% of cobalt, and more than 50% of manganese and bauxite production. Furthermore, Africa produced 8% and 6.4%, respectively, of global oil and natural gas production (BP 2021 data).

The continent is endowed with almost 60% of the world's uncultivated arable land, plus ample water endowment. The agriculture sector, which employs half of SSA's workforce and generates just-below one-fifth of its GDP, is severely underfunded. Consequently, Africa is a net importer of basic foodstuffs (including cereals, dairy products, edible oils and fats, and meat products) despite vast land and water resources.

Agricultural productivity per hectare in SSA falls well below other regions – reflecting a lack of modernisation, limited use of irrigation to raise crop yields, an unpredictable climate, and low energy inputs. However, investment in agricultural skills, market connectivity and infrastructure could prompt a green revolution, thus boosting food production per capita.

Africa's population is among the fastest-growing and youngest in the world. Within 10 to 15 years, more than half of the globe's job market entrants will come from SSA, according to the International Monetary Fund (IMF). To reap 'demographic

“ Africa can play a pivotal role in global decarbonisation thanks to abundant natural resource.”

dividends', investing in human capital (higher education, vocational training, and health) are prerequisites for skilled jobs in mid high-end manufacturing, engineering, and ITC.

### Inclusive development

Ultimately, future prosperity and resilience depend on high-quality growth. The IMF advises SSA to pursue a policy framework based on three key pillars. These include a well-defined redistributive fiscal policy with a clear investment strategy to assist underserved regions; macroeconomic stability to foster inclusive growth; and stronger institutions to ensure political stability and equitable public service delivery.

Governments should prioritise and increase the efficiency of public spending. More progressive tax systems and increasing their collection (particularly with property and/or land taxes) will support core public services. In advanced countries, revenues from property taxation constitute more than 2% of GDP, but only 0.6% in developing countries and even less (0.38% of GDP) among African countries (according to World Bank data).

Strengthening tax incentives towards growth-enhancing activities such as research and development, high-tech start-ups, as well as for small and medium-sized enterprises will also underpin private-sector growth.

At the same time, international assistance is critical in Africa's path to self-sufficiency. The World Trade Organisation (WTO) and other multilaterals can also play a role in limiting distortionary trade practices and fostering a fairer/more effective trading system. Debt restructuring for countries at high risk or already in debt distress are essential. More recently, the G20 approved a common framework to streamline debt relief for least developed countries.

In sum, translating Africa's resource endowments into sustainable growth requires infrastructure investments aimed at diversifying economic growth, along with prudent legal/regulatory regimes and institutional capacity to implement them. ■

Moin Siddiqi, economist



The agricultural sector is severely underfunded.

Image Credit: Adobe Stock

# The urgency of climate adaption

The Africa Adaption Initiative (AAI) has published its State of Adaption in Africa 2022 report, highlighting the worsening impact of climate change on sub-Saharan Africa's (SSA) economy and why adaption implementation must be ramped up.

According to the report, for the period of 1990-2010, Africa's GDP per capita was, on average, 13.6% lower than it would have been if human-induced climate change had not occurred.

This statistic highlights the continent's vulnerability to climate risks with the livelihoods of 53% of SSA's labour force under threat. In 2020, more than one in five people in the region faced hunger, which is double the proportion in any other. Climate change is compounding these issues and interacting with other stress factors such as inequality, reduction in natural resource, conflict and the fallout from Covid-19.

In addition, the worsening climate is likely to hamper economic growth across SSA with the report highlighting that African countries are projected to experience an 80-89% decrease in GDP per capita in a 4°C warming scenario compared to a scenario without global warming after 2010. The increasing number of extreme events caused by climate change are projected to exceed countries' capacity to respond themselves. Within these, droughts and floods have the greatest effect on the population and their livelihoods. From 2005-2020, flood-induced damage in Africa was estimated at more than US\$4.4bn, with East and West Africa representing the most affected regions.

## The need for adaption

In response to these increasingly pressing challenges, the AAI report highlighted the urgent need to adapt and plan for the rapidly changing environment. As of October 2022, only thirteen countries have submitted their national adaption plans (NAPs) to the UNFCCC. The need to transition is made pressing by the urgency of climate change and the need to achieve meaningful progress in vulnerability and risk reduction. The AAI expects that discussions on climate change at international and national levels are will have a stronger focus on how countries can make progress in the implementation of adaptation in the future. By tracking lessons learned and good practice around the implementation of adaption across the continent, the report highlighted key areas where progress can be made.



Image Credit: Adobe Stock

Addressing water scarcity will require investments in infrastructure.

## Technology

The absence of appropriate technology can limit the ability of adaption actions to be fully effective, according to the AAI. Nations have expressed how development and climate goals cannot be reached without sufficient technology development and use, most notably in relation to water management, agriculture and enabling early warning. Technology transfer is mentioned as a conditional requirement for the achievement of many national determined contributions. The report added that patenting adaption technology will be key here as it enables cheaper and quicker technology deployment and replication across the continent without having to overcome difficult hurdles relating to intellectual property.

The report highlighted the importance of digital technology which can help to implement emergency measures, inform decisions to protect lives and assets and help with long-term decision-making on climate change risks.

## A unified voice

Another point made clear in the AAI report was the need for a unified continental voice on the urgency of implementation. It stated that African governments should reflect the urgency of the

implementation of adaption in international communications and national policies and urge finance institutions to give equal priority to the implementation of adaption alongside planning.

It continued that although African countries are engaging in the mobilisation of domestic finance for adaption, international actors still need to scale-up finance. This included developed countries meeting their promise of mobilising US\$100bn a year and doubling adaption finance as well as making more ambitious commitments to enable African countries to meet the costs of adaption to current and future climate change.

International development finance institutions can also play a big part in meeting the finance demands here and the AAI suggests that they should commit to distributing finance with balance allocation among all sectors that are critical to adaption such as agricultural, water, coastal adaption and health. Concessional investments can also benefit African youth start-up investments in digital technologies for adaptation in relevant sectors.

The full AAI report can be found online with further information around the potential of the domestic private sector to contribute to adaption and the role of SMEs in accelerating this trend. ■



# The unsung heroes of Africa's logistics sector

Modern materials handling calls for increasingly robust and sophisticated machinery.

**M**obile lift trucks, or forklifts, play an integral role in the lifting and movement of loads throughout any warehouse facility or logistics centre.

Designed to carry, pull, lift and stack crates and other materials, these small mobile units can be outfitted with various attachments – standard forks for pallet-based unit load picking, or clamps or grippers for handling loads that are not palletised. And it is a competitive marketplace. Major companies supplying lift trucks to the African market include the likes of Caterpillar, Konecranes, Toyota, Hyundai and KION Baoli, among others. All continue to innovate by upgrading power, performance and energy-efficiency in their lift trucks.

Linde Material Handling's forward-looking 12XX generation of IC forklift trucks pack a load range of 3.5 to 5 tons, ensuring high pallet turnover.

The new crop of machines introduce other innovations such as more electrical power, and alternative diesel oil for cleaner combustion. Fleet operators utilising its diesel forklifts can now reduce their CO<sub>2</sub> emissions by up to 90% through the use of hydrotreated vegetable oil (HVO), which is made from totally renewable raw materials. Comfort and ergonomics also continue to improve for best operator experience.

## GLTC expands

One of the better-known suppliers to South Africa is Goscor Lift Truck Company (GLTC), which recently opened a new branch facility in Richard's Bay to add to its national network.



Linde MH's forward-looking 12XX generation of IC forklift trucks.

Image Credit: Linde MH

The new site affords quick and easy access for clients across the KwaZulu-Natal (KZN) region and follows the launch of a separate Durban branch.

Industrial equipment group, Goscor, is a BUD group company and represents leading brands across several sectors, including Bendi, Crown, Doosan and DEC Tow Motors (forklifts and materials handling equipment), Bobcat (compact & construction), and Genie (aerial lift equipment), among others.

Michael Keats, GLTC's KZN director, said the new Richard's Bay site would exploit synergies among

all the group companies operating under one roof.

"The location affords quick and easy access for our clients in the Zululand area," he commented. "It is also a modern and comfortable facility to host our clients."

Keats added that the new site also complies with the highest safety standards, and affords ample space to offer training to both employees and customers.

GLTC was recently named materials handling equipment supplier of choice once again by Famous Brands, a leading branded food services franchisor on the continent. It marks the seventh year in a row that it has won the award.

The company now has a total of 80 different types of machines currently deployed at various Famous Brands locations across South Africa. Its turnkey solutions approach means that the company can offer its client the flexibility it needs for lift trucks and other items, by offering options such as outright purchase, short and long-term rental, as well as maintenance plans.

This is complemented by its nationwide forklift sales, service, rentals and equipment spares through its comprehensive dealer network.

Other important regional distributors serving the southern Africa market include Centrocarr, with its hubs in Angola and Mozambique, selling forklifts from Doosan, as well as a range of other products to customers in the former Portuguese territories. ■



Goscor has opened a new branch in Richards Bay.

Image Credit: Goscor

## Africa's extraordinary green hydrogen potential

A new study the European Investment Bank, International Solar Alliance and the African Union has detailed the potential of green hydrogen in Africa as well as the steps required to achieve this.

Supported by the Government of Mauritania, HyDeal and UCLG Africa, 'Africa's Extraordinary Green Hydrogen Potential' report revealed that harnessing Africa's solar energy to produce 50mn tons of green hydrogen per year by 2035 can help secure global energy supply, create jobs, decarbonise heavy industry, enhance global competitiveness and transform access to clean water and sustainable energy.

Representing the first detailed research of the feasible development of green hydrogen across the continent, the new study combines analysis of investment opportunities focusing on three hubs: Mauritania - Morocco, southern Africa, and Egypt with a roadmap of technical, economic, environmental and financial solutions to unlock commercial development.

Ajay Mathur, director general, International Solar Alliance, said, "Solar photovoltaic technology has provided us with the cheapest electricity. Thanks to this low-cost electricity and decreasing electrolyser costs, the next step is providing access to a clean fuel, cheaper than all the current fossil fuels. It will enable us to decarbonise the power sector and most hard-to-abate sectors – fertilisers, steel manufacturing, and refineries."

Approximately US\$1.06 trillion green hydrogen investment can deliver the equivalent of more than one third of Africa's current energy consumption, boost GDP, improve clean water supply and empower communities.

The study outlines how production and transmission of green hydrogen can lead to investment yielding seven exajoules of energy and a correlative huge increase in GDP, creating hundreds of thousands of permanent and skilled jobs across Africa.

The new analysis estimates that green hydrogen investment could reduce carbon emissions in Africa by 40%, replacing 500mn tons of CO<sub>2</sub> a year.



Green hydrogen investment could reduce carbon emissions in Africa by 40%.

Image Credit: Adobe Stock

## GRIDWORKS TO INVEST IN RENEWABLE ENERGY

Gridworks, the UK government-backed investor in Africa's electricity networks, announced it will invest up to US\$50mn in Virunga Power.

Gridworks' investment will fund new projects across the continent, including in Burundi, Malawi, Zambia and Kenya. It will also support the substantial growth of the Zengamina hydro-backed rural utility in northern Zambia, resulting in increased generation capacity and the addition of thousands of new connections.

According to the World Bank, Zambia, Malawi and (in particular) Burundi have some of the world's lowest rural electrification rates (15%, 6% and 2%, respectively).

The impact of the investment will be measured in several ways, including new GW hours generated, new connections made, and CO<sub>2</sub> emissions avoided.

Virunga Power's current institutional backers include EDFI ElectriFI, the EU-funded Electrification Financing Initiative, and the Camco-managed Renewable Energy Performance Platform (REPP), who are leading investors in early-stage energy access and renewable energy companies in Africa. Together, they provided Virunga Power with critical growth capital during its 'Series A' investment round which closed in 2019.

Gridworks' CEO, Simon Hodson, said, "I'm delighted to announce our investment in Virunga Power. Access to reliable, clean, affordable energy is a catalyst to a better life, but this is currently out of reach for people in the rural areas that Virunga Power wants to serve. We're committed to making Virunga Power our platform to build hydro-powered rural utilities in at least four countries in southern and eastern Africa. Our capital will help them to close the energy access gap and unlock opportunities for people across the region."

## HIMOINSA PROVIDES POWER FOR LNG AND HELIUM PLANT

HIMOINSA Southern Africa has supplied rental equipment with 8MW of prime power for an LNG and helium plant in Free State, South Africa.

The Virginia Gas Project by Tetra4, a wholly owned subsidiary of Renegen, will produce LNG and liquid helium, making it the first helium facility in sub-Saharan Africa.

Eight fully synchronised generator sets, neutral earth transformers, fuel tanks and a control room were installed to run the site at 8MW prime capability, compliant with all health and safety requirements. A 200kVA unit was also provided for temporary use during the construction phase.

The plant ran efficiently on a fully turnkey solution, including the necessary manpower and operational planning requirements for the contract term, and beyond, until the utility connection was successfully installed, and the temporary power plant decommissioned.

## BRIEFS

### Eni launches second FLNG project



The FLNG will be deployed offshore the Republic of Congo.

Eni has signed a contract with Wison Heavy Industry for the construction and installation of a Floating Liquefied Natural Gas (FLNG) unit with a capacity of 2.4 million tons per annum (mtpa). The FLNG will be deployed offshore the Republic of Congo.

The 380 m long and 60 m wide vessel will be anchored at a water-depth of around 40 m and will be able to store more than 180,000 cu/m of LNG and 45,000 cu/m of LPGs.

### Cemex supports Synhelion in solar fuel production



Solar energy is crucial to combatting climate change.

Synhelion has raised US\$22.6mn in another successful financing round. The funds were primarily provided by existing investors and selected new strategic investors.

Solar fuels are a crucial solution in combatting climate change as they significantly reduce net CO<sub>2</sub> emissions by directly replacing fossil fuels. The company's drop-in fuels can be blended into the existing fuel distribution network and are fully compatible with existing vehicles and machinery.



# Yokogawa's sustainability focus

Japanese multinational electrical engineering and software company Yokogawa Electric has demonstrated its commitment to sustainability through a green power project in Kenya.



Yokogawa has provided an IoT system at the Olkaria geothermal complex.

Image Credit: Yokogawa

**Y**okogawa has completed the installation of an IoT system for the Kenya Electricity Generating Company which utilises mobile communications and other technologies to integrate the remote management of the geothermal power stations at the Olkaria geothermal complex.

This project was carried out under an agreement with the United Nations Industrial Development Organization, an agency of the United Nations which promotes sustainable, industrial and economic development.

## Meeting Kenya's energy needs

Over the past twenty years, Kenya has seen its power consumption triple due to population and economic growth.

As most Kenyan power plants

depend on expensive imported fuels, attention has turned to the use of the country's geothermal resources to ensure a reliable supply of power and reduce greenhouse gas emissions. Yokogawa has risen to this challenge by providing an IoT system that enables the integrated management of the widely distributed facilities at the Olkaria geothermal complex.

Through digital transformation and other means, Yokogawa is committed to doing its part to achieve environmental sustainability by providing its customers the support they need to optimise operations and ensure safety across entire supply chains, including those for the production, supply, and use of diverse renewable energy sources. This project has been a showcase for the provision of advanced technological solutions that address

the challenges posed by a changing climate and the need for inclusive and sustainable industrial development.

## Championing sustainability

Following the adoption of the Paris Agreement and the formulation of the Sustainable Development Goals (SDGs), Yokogawa set three key sustainability goals that it wishes to fulfill by 2050.

The first goal is ensuring the well-being and quality of life for all through the achievement of safe and comfortable workplaces and pursuits in such areas as the life sciences and drug discovery. The company promotes human resource development and employment creation in local communities, as well as diversity, equity and inclusion.

The second goal is achieving net-zero emissions to stop climate

change. This can be accomplished through the introduction of renewables and the efficient use of energy.

The third goal is transitioning to a circular economy through the realisation of a social framework and ecosystem in which resources are circulated without waste and assets are utilised effectively. The company continually contributes to the efficient use of water resources and the supply of safe drinking water.

## Success with carbon neutrality

Yokogawa has met with success in its efforts to attain carbon neutrality and has expressed its intention to partner key players in Africa in order to ensure the continent's contribution to a sustainable planet by harnessing its local resources in the most optimal manner. ■

Doğan Bey, a Shark Class Powership which was put to work in Sierra Leone.

Image Credit: Karpowership



# Achieving energy security through plug-and-play solutions

Ali Hjaiej, business development and sales vice president at Karpowership, explores the company's unique solution for providing prompt power to African shores.

While the world struggles with one of the most keenly felt energy crises in living memory, affecting all nations regardless of their development status, the importance of flexible power solutions that offer an alternative way to meet this challenge has perhaps never been more pertinent.

As Hjaiej commented, “With climate change and unstable bilateral relations between countries, the energy crisis is in front of all economies and can affect any country. In such times, a diversified energy portfolio is paramount for energy security. When it comes to Africa, many countries are facing issues in delivering stable power plants and getting electricity to its people. There are many reasons for this from lack of planification to infrastructure issues. Very importantly, the continent faces too much instability in terms of politics, government chains and decision chains and this can make it very difficult to bring projects which take several years to develop into the fold.”

“It is for this reason that fast, reliable, plug-and-play power solutions can make a big difference. The problem with power generation is like the chick and egg conundrum: you need demand to develop power, but you need power to create demand. If you install power before demand you may not be able to finance it and can lose money, whereas if you create demand and there is no power your industries will suffer and may not succeed. Plug-and-play solutions can help fill this gap and meet demand quickly when required. This is where we operate and with the solutions we have available today I truly believe there is no reason for countries to justify the lack of electricity, as we are open for business.”

“Plug-and-play solutions can help fill this gap and meet demand quickly when required.”

ALI HJAJEJ, BUSINESS DEVELOPMENT AND SALES VICE PRESIDENT AT KARPOWERSHIP

## Arrive, connect, and deliver

First established in 1948, it was not until the early 2000's that Karpowership conceived the idea that is now the staple of their global identity: the Powership. With the first floating power station delivered in 2009, the fleet has now grown to no less than 36 fully constructed and ready to operate vessels.

Barge- or ship-mounted, the fully integrated floating power plants are designed and built utilising the latest engine technology from established brands, namely Wartsila and MAN. Across the fleet, a wide range of installed capacities from 30-470MW are available and are ready for power generation within a short time. In addition, they are fuel flexible, and are capable of using natural gas, LNG, biodiesel or low

sulphur HFO to ensure the lowest cost of delivered power with no capital outlay. In regards to Africa, the company has established a large footprint with operations in Senegal, Côte d'Ivoire, Gambia, Guinea, Guinea-Bissau, Ghana, Mozambique, Sudan and more.

“Traditionally ours has been business to government but, predominantly in the last two years, we have begun taking contracts with private entities as well. There are a number of competitive advantages that makes our solution stand out globally and on the continent. One is the speed of delivery as, after collecting all the country's necessary record regulations, authorities, and licences we are ready to start generating power within a month in most cases. By example, for our operations in Senegal our Powership arrived in the country 28 days after the contract signature.

“Another is environment. Firstly, there is the fact we can utilise different kinds of fuels which is of course great for the customer as it depends what is available. But also,



the Powership arrives at sea, moors at sea, and if it needs to depart when the contract is up, it can do so easily enough. This nullifies the need for any construction or deconstruction work which saves both time and emissions.

“These factors build to perhaps the most important aspect which is flexibility. While it is good to plan ahead, to build power plants with the same capacities as ours can take years, not to mention the time taken for financing and other studies. The problems with this really came to a head during Covid-19 where lots of projects in Africa fell through with the added instability and the travel restrictions. This was, and is not, an issue for us. We are unique in that we can bring a whole package in just 30 days including engines, heat recovery and steam turbines, readily installed. Once the Powership arrives, all we need to do is connect to a power line – you do not even need a substation as this is included in the solution. Simply, we arrive, we connect and we deliver.”

### In African waters

The effectiveness of the Powerships was recently demonstrated in Côte

d'Ivoire when three years ago Karpowership spoke to government authorities about bringing a vessel to the country. At the time, Hjaiej explained, they were not interested as they had already made investments for the next ten years with a number of projects in the pipeline around coal, hydro and thermal, and were unfamiliar with the concept of floating assets.

Two years later and Karpowership returned to find that Covid-19 had unsettled many of these designs while energy demand had continued to expand. With the prospect of quick energy tantalising but some convincing still required, Karpowership took key decision makers to Senegal to show them the solutions at work there; a fruitful endeavour as they agreed to bring on 100MW.

“Even though we had a contact for 100MW, we brought them a 200MW solution, giving them the option to use more if required. Today, the average dispatch is indeed above 100MW and now they want to keep the larger vessel on site,” commented Hjaiej.

“One thing we kept firmly in mind with this project, as it is a key

“Even if you are an independent country, reserves are never endless and demand is going to grow.”

**ALI HJAJEJ, BUSINESS DEVELOPMENT AND SALES VICE PRESIDENT AT KARPOWERSHIP**

tenet of our company, is CSR. We prioritise local people as much as we can in terms of employment here – 49% of our employees in our Côte d'Ivoire operations are local. Of course this does not count the indirect jobs around subcontractors, waste management, water collection, oil production, etc.

“In regards to the project in Senegal, this was located in Dakar – an intensely concentrated city with a high energy demand but little available space. They tried putting power plants around the city and transfer the electricity in but this was scuppered by losses and grid availability issues. We entered and started the project at 120MW which, within two years, grew to 220MW and we are looking to add more in the future.”

### Looking ahead

For its progression in West Africa, Hjaiej surmised that they have now established a firm foothold so it has become a question of development.

“Our target in the region is to bring higher capacity for a longer duration. We have a few that are only 5-10 years so the discussions we are focusing on now is how we can deliver more and stay longer because in the countries we are operating in they recognise that they need us.”

The company is also seeking to develop the second part of its business which centres on floating storage regasification units (FSRUs). These vessels are the fruit of KARMOL, a joint venture between Karpowership and Mitsui OSK Lines, and the first was delivered in 2021 before deployment in Senegal. When used in combination with Powerships, it brings LNG-to-Power to countries with no domestic gas supply.

Hjaiej explained that such a solution is critical in helping diversifying the energy mix which has proven to be vital in the current environment.

“This has become most obvious in Europe where the cut-off of Russian gas has seen energy prices spike on the continent. Even if you are an independent country such as Côte d'Ivoire, reserves are never endless and demand is going to grow. You need options to meet this and the ability to buy gas from wherever, not just tapping into the closest pipeline is paramount. With a floating asset such as ours, you don't need a pipeline from one main supplier, but the entire world becomes a potential supplier, then it is just a matter of negotiation around price.” ■



Fatmagül Sultan, an Orca Class Powership on location in Côte d'Ivoire.

# Perkins' top tips to keep engines running effectively

Experts from Perkins Engines walk through the dos and don'ts of engine maintenance to help users keep their equipment functioning effectively for longer.

It is really not that difficult to get the most out of a modern diesel engine, but it does take a bit of planning and effort. Probably the most important thing a user can do is to develop, and then stick to, a preventive maintenance programme that includes daily checks and regular inspections. Things that should be checked every day include:

- Air filter and pre-cleaner condition and emptying the pre-cleaner if necessary
- Cooling system coolant level
- Engine oil level
- Fuel system primary filter
- DEF condition and level
- Drain water from the water separator
- Driven equipment, belts and electrical system.

Then, do a walk-around inspection of the machine, paying special attention to guards and the drive system. Users should also make sure there is plenty of airflow for the cooling system. That is particularly important in hot weather, but also in winter when snow or ice might obstruct intakes.

But, don't be tempted to open access panels or other parts of engine enclosures to 'let in more air'. That can actually make things worse by disrupting the engineered airflow pattern around the engine and cooling system while allowing dirt, dust and other contaminants to more easily reach the engine. There are a few other things that users should not do:

- Don't top off the coolant with plain water
- Don't use expired DEF, or DEF stored more than a year in hot or cold conditions
- Don't put anything but DEF in the DEF tank
- Don't pour cold fuel into a hot fuel tank, it can cause water condensation.



Filters are the first line of defence against contaminants.

Image Credit: Perkins Engines

## On start-up

Every time the engine is started the operator should look for both visual and operational indicators like excess smoke, power loss, hard starting or overheating. Smoke, for example, can tell you a lot about engine condition and help identify emerging problems before they become maintenance issues.

Learning to 'read' smoke and paying close attention to any unusual engine behaviours or sounds should be part of every operator's training. While modern diesel engines are robust and reliable, they are mechanical devices that are subject to wear over time. As that happens, they will usually provide signs and signals that a perceptive operator can recognise and report in time to avoid major maintenance issues.

## On a regular schedule

Inspections provide a more in-depth look at the engine's health and

should be performed on a regular schedule, most typically based on service meter hours. Every Perkins engine comes with a detailed list of checks and inspections and the intervals at which they should be done. These will vary by engine type and operating conditions, so it's best to check the operating manual or contact a Perkins authorised distributor for assistance.

## Avoid the engine killers

Dirt is the number one engine killer and filters are the first line of defence. The air filter is particularly important in protecting turbocharger vanes and bearings that are especially sensitive to dirt damage and costly to repair. That is why the air filter should be checked every day and changed on schedule – or even more often in dusty environments.

Oil and fuel filters also help to keep dirt and other contaminants from damaging precision engine components. They should be

checked for leaks or damage during the daily inspection, but more importantly, they should be changed on a regular schedule based on run time, operating conditions and the environment where the engine is used.

Water is another engine killer. It can cause corrosion of precision components, clog filters, damage injectors and even turn to ice in cold conditions. All fuels contain some water in suspension, even with the best storage and handling practices. That is why it is very important to inspect and drain water separators at least once every day and perhaps even more often in cold weather.

Finally, it is a very good idea to use the genuine manufacturer's air, oil and fuel filters that are engineered to meet the needs of an engine by the people who built it. Saving a little on a cheaper filter can cost a lot in the long run. Keeping an engine running efficiently isn't difficult, all it takes is a bit of planning and commitment. ■



# At the forefront of renewable energy generation

Hussain Al Nowais, chairman of AMEA Power, provides an update on the company's projects in Africa and explains the importance of creating suitable environments to ensure the continent secures its place as a leading renewable player.

As 2022 drew to a close, a flurry of activity from AMEA Power was helping to cement its position as one of the fastest-growing renewable energy companies in the Middle East and Africa.

Across three separate releases, the company announced the completion of a US\$1.1bn deal to deploy 1.1GW of wind and solar energy in Egypt; plans to expand the Mohamed Bin Zayed Solar Power Plant in Togo from 50MW to 70MW; and an agreement with the Government of Egypt to deploy a 1GW green hydrogen project.

Providing more detail on these announcements, Al Nowais explained that, in relation to the renewable projects in Egypt, construction of a 500MW wind farm will start in early 2023 with an expected delivery timeline of 24 months to complete. He stated that to support the development of the project, AMEA Power and Sumitomo brought together a consortium of international financial institutions and industry experts to support the delivery of the project. These included the Japan Bank for International Cooperation (JBIC) and International Finance Corporation (IFC), together with Standard Chartered Bank, Sumitomo Mitsui Banking Corporation, and Sumitomo Mitsui Trust Bank participating as co-lenders under Nippon Export and Investment Insurance cover. Commercial International Bank has participated as a working capital facility lender. The supplier of the wind turbines is Envision Energy while the EPC contractor is Power China.

The 500MW solar plant will also start in early 2023 but will take an estimated 18 months to complete. Similar to the wind project, to support the development here, the company has also brought together a consortium of international financial institutions and industry experts. These include the IFC, Dutch Entrepreneurial Development Bank (FMO) and the Japan International Cooperation Agency (JICA). The supplier of the solar panels is JA Solar and the EPC contractor is Energy China.

In regards to the expansion of the solar plant in Togo, construction has officially started with an additional 20MW and 4MWh batter energy storage system scheduled to be implemented by Q4 2023. Al Nowais noted that for this phase of the project (that being the third phase), Abu Dhabi Exports



Image Credit: AMEA Power

Hussain Al Nowais is the chairman of AMEA Power.

“Collaboration and alignment between all stakeholders is key to achieving the global energy transition.”

**HUSSAIN AL NOWAIS, CHAIRMAN OF AMEA POWER**

Office (ADEX) has provided the Togolese Ministry of Economy and Finance with a loan of US\$25mn. JA Solar will be the supplier of the solar panels and Sungrow will take this role for the energy storage system. AMEA Technical Services, a subsidiary of AMEA Power, will act as the EPC contractor for the expansion and will continue to provide O&M for the project.

## A feasible environment

For the delivery of these and similar projects, it is critical that suitable environments are created in order to ensure smooth delivery.

Al Nowais remarked, “Collaboration and alignment between all stakeholders (government, finance, electricity networks and project developers) is key to achieving the global energy transition. The global community needs to work together if we are to deploy renewable energy at the speed and scale that is required to mitigate climate change and provide energy access to communities. Working in collaboration with our partners de-risks opportunities and ensures developers like AMEA Power are able to identify viable projects, access funding and begin operations on the ground.

“In the case with Togo, the Government supported the project by providing land and suitable policy frameworks, while for the first phase of the project, the Abu Dhabi Fund for Development (ADFD) with the support of International Renewable Energy Agency (IRENA), were able to provide the funding for the development of the project. When all stakeholders are supporting each other in their own capacities, we are able to avoid potential barriers and move forward quickly and competitively.”

Al Nowais surmised that the Egyptian Government has been proactively supporting the transition to clean energy which is paving the way for more projects coming online. These activities have included:

- The Government working towards increasing the supply of electricity generated from renewable sources to 42% by 2035
- The country has successfully held a number of competitive renewables tenders. These include the landmark 1.4GW Benban solar project, commissioned in late 2019
- AMEA Power has partnered with the Sovereign Fund of Egypt, the Egyptian Electricity Transmission, the New and Renewable Energy Authority, and the Suez Canal Economic Zone to deliver a 1GW green hydrogen project, for the production of green ammonia focused on the export market.

Similarly, Al Nowais continued that the Government of Togo has passed several laws and national plans to support the implementation of renewable energy in the country. These include:

- Togo passed its first renewable energy development law in July 2018, which aims for

renewables to make up 50% of the national energy mix by 2030

- The Government also published a roadmap to reach 100% electrification by the same year
- The renewable energy law, published in August 2018, came one year after the launch of the AT2ER (Togolese Agency for Rural Electrification and Renewable Energy), which aims to provide electricity to some of the poorest and most rural communities in the country
- In 2019, Togo joined a global initiative where it will jointly develop several solar parks with the IFC totaling 90MW.

### Power to the people

In developing their projects, Al Nowais made it clear that support for the local population is a top priority at all times. He said, “In addition to supporting countries with their clean energy and energy access goals, AMEA Power believes strongly in working with local communities to support the economic and social development of the region – including the creation of schools, medical facilities, supporting small businesses and the creation of jobs.

“As part of AMEA Power commitment to the development of the 70MW solar plant in Togo, the company has invested in a range of initiatives to support the local community, comprising of the construction and renovation of seven primary schools, and the construction of a medical clinic with maternity support facilities. AMEA Power has also provided an internship programme for engineering students from various technical institutions across Togo to gain practical experience at the solar plant. We intend to replicate this successful model across other projects in Africa.”

With so many on the continent still without reliable access to electricity, Al Nowais believes that the answer lies in renewables, but more work must be done so the continent can suitably exploit the abundant natural resources it has been blessed with. “Solar energy is the cheapest form of energy generation today with 60% of the world’s best solar resources residing in Africa; however, the continent only currently represents around 1% of the world’s solar generation capacity. As we are already seeing with Egypt, South Africa, Morocco and other countries across Africa, over the next decade, we will see huge amounts of renewable energy installed across the continent as the necessary market mechanisms are put into place and investment from the private sector is unlocked.

“In terms of renewable energy in Africa generally, the continent has an almost unlimited potential of solar capacity (10TW), abundant hydro (350GW), wind (110GW), and geothermal



Image Credit: AMEA Power

The Mohamed Bin Zayed Solar Power Plant in Togo will be expanded from 50MW to 70MW.

energy sources (15GW). IRENA estimates that renewable energy capacity in Africa could reach 310GW by 2030; which would put the continent at the forefront of renewable energy generation globally.”

### The green hydrogen opportunity

Coinciding with the enormous renewable potential that the continent boasts, is the opportunity for the continent to become a global green hydrogen hub of the future. Al Nowais explained that, to support that vision, AMEA Power is working with the public and private sector to support the development of projects across the continent. The 1GW green hydrogen project in Egypt is one such opportunity which is expected to produce 800,000 tonnes of green ammonia per year for domestic and international export.

The company is now in advanced discussions with a number of European, Chinese and Japanese companies to secure a long-term offtake for the product and it is also conversing with Egyptian Hydrocarbon Corporation in Egypt to potentially provide it with a portion of the green hydrogen production to support the development of green industries in the country.

“To support that vision, AMEA Power is working with the public and private sector to support the development of projects across the continent. In November 2022, the company signed a framework agreement with the Government of Egypt to develop a 1,000MW green hydrogen project, for the production of 800,000 tonnes of green ammonia per year for domestic and international export.

Al Nowais explained, “Green hydrogen holds huge potential due to its wide variety of applications to support the decarbonisation of electricity grids, heavy industry, transportation etc. Over the last few years, we have seen markets around the world begin to set green hydrogen

targets, ramp up investments in the development of the technology, and begin to sign agreements to deploy large-scale projects. These commitments are becoming even more important as natural gas prices have begun to rise, further demonstrating the potential of green hydrogen as a commercial solution.

“Like any new technology, it will take some time for the technology to be deployed at scale. However, by 2030 we should see green hydrogen beginning to play an important role in the global energy mix, especially in sectors that are early adopters.”

Within this blossoming market, many are predicting that Africa could be a central player. As Al Nowais noted, “By 2030, Africa could produce 80% of the new power generation it needs from solar, wind, hydropower, geothermal and other renewable energies. The adoption of renewable energy could enable Africa to supply the world with affordable low-carbon energy in the form of green hydrogen, potentially creating thousands of jobs across the continent and unlocking billions of dollars in investment.

“By 2030, the continent has the potential to produce 5,000 megatonnes of hydrogen a year, equivalent to today’s global energy supply. As more green hydrogen projects are developed across Africa, we will see investment supporting the development of infrastructure like roads, bridges and shipping ports.

“However, to maximise Africa’s potential, countries will need to work together on the production and distribution of green hydrogen. This could mean, for example, some countries which are landlocked becoming producers of clean electricity from renewables, which is then exported via interconnects to neighbouring countries that produce and export the green hydrogen as green ammonia,” Al Nowais concluded. ■



# Finding the right genset

Mantrac Group is on hand to ensure users are able to find the right generator sets to meet their business needs.

**G**enset sizing is part science, part art. There are many variables to consider during the selection process – location, footprint, load types, distribution – just to name a few.

Whatever the power need, Mantrac Group provides consultations and tailored solutions for the most affordable and efficient genset. With a decades-long history of providing efficient and tailor-made solutions, Mantrac is a leading supplier of gensets across the world's markets.

Mantrac's goal is to deliver systems that meet requirements and are proven to be reliable, bringing users maximised uptime and bottom-line power savings. Mantrac uses Cat, an industry leading manufacturer of gensets and systems.

Finding the right genset for business needs is easily done in three simple steps with the Cat power hub tool. With the power hub, users can size a genset to find the right one for their power and project needs, explore Mantrac's local inventory, build and

customise their own genset to perfectly fit their needs and access a set of calculators to assist in planning genset installation.

## Performing under pressure

Every Cat genset is a product of perfected engineering, bringing customers the highest possible standards of reliability and efficiency. Businesses around the world depend on Cat's premium range for a diverse range of applications, including commercial operations, utility, Combined Heat and Power (CHP), landfills,

wastewater treatment, coal mining and construction.

Cat gensets are designed to provide performance under pressure, even in the most extreme and rigorous operations. Tested as



Image Credit: Mantrac

**Every solution comes from generations of engineering and tried-and-tested technologies.**

individual parts and as a whole, at over 100% of rated load emission compliance, Cat genset owners save time and costs of routine emissions compliance checks.

Mantrac's dependable solutions have helped power everything from shops and buildings to entire industries and cities across Africa, the Middle East and Western Siberia across applications, including construction, mining, data centres and defense.

Every solution comes from generations of engineering and tried-and-tested technologies,

end services, including installation, customisation, and long-term support. Its power systems experts are on hand to look at client's space to provide the optimal gas genset and containment solution, ensure selection of most feasible genset configuration, and calculate long term project's financial (OPEX, ROI, NPV, IRR).

Plus, business with Mantrac ensures customers have access to quick maintenance and repairs. Training of personnel to operate equipment with minimal wear and tear is also available, as is complete overhaul with experienced Cat-certified professionals.

In addition, Mantrac offers credit and financing, short-and long-term rentals, and industry-leading warranties to ensure its customers continue to operate with peace of mind, 365 days a year. ■

*Use the power hub tool and chat to Mantrac Group's power systems experts now at: <https://www.mantracgroup.com/power-hub/>*

**“ Cat gensets are designed to provide performance under pressure, even in the most extreme and rigorous operations.”**



Image Credit: Adobe Stock

**Mantrac's dependable solutions have helped power everything from shops and buildings to entire industries and cities across Africa.**

## DP World to upgrade Port of Bosaso

DP World and Somalia's Government of Puntland, have signed a construction agreement for expansion and upgrade work at the Port of Bosaso.

The agreement was signed in Dubai by Ahmed Yaasiin Saalah, Puntland's Minister of Ports and Maritime Transport, and Suhail Al Banna, DP World's CEO and managing director, Middle East and Africa, in the presence of other key stakeholders.

The 12-month project, starting in early 2023, will include the development of a 150 m quay, as well as repairs to the current 215 m quay. Other infrastructure will include the development of a new 3,000 sq m container yard, and a 4,000 sq m container stripping yard. The gate area to the port will also be upgraded to improve access control.

Saalah commented, "The expansion and upgrade of the Port of Bosaso is key to Puntland's economic growth, which will benefit not just the people of the state, but also Somalia and the Horn of Africa. It will ensure the region is further integrated into the global trade ecosystem, as a bigger, more efficient port with the ability to receive container vessels, will facilitate increased trade."

Once complete, the port will be able to handle container vessels and attract more direct calls from feeder ships from Dubai and other regional hubs. It will also become an important hub for transport serving the Somali coast.

Al Banna added, "DP World has a lot of experience in the development and operation of ports and terminals, not just around the world, but also in Africa.

"We will bring all our expertise and capability to the project, to support the Government's vision for the port as an enabler for economic growth. I would like to thank the Government of Puntland for partnering with us on this exciting project."



The agreement was signed in Dubai.

Image Credit: DP World

## UNICEF AND WFP BEGIN OFFICE CONSTRUCTION

The United Nations Children's Fund (UNICEF) and United Nations World Food Programme (WFP) have kicked-off the construction of their multi-million-dollar joint office premises in Mbuya, Uganda.

The UNICEF and WFP joint premises will enable the two agencies to reduce long-term operational costs, while giving their staff a safe and healthy work environment so that they can be more productive to serve the most vulnerable populations in Uganda.

Situated on a UNICEF leased land of 2.6 acres, the premises will feature parking space; health amenities; gender-sensitive services such as breast-feeding rooms; green gardens; and a separate conference facility. Special focus will be given to making sure the premises are energy efficient, making maximum use of natural light and using renewable energy sources such as solar. It will also provide for sewage treatment, water recycling and rainwater harvesting.

The building has been designed and will be built to save 20% on energy use, water consumption and material-used in the building. This will be achieved by a combination of measures that will include solar power in the building, improved insulation of the wall, natural ventilation of the offices, water recycling, rainwater harvesting and sewage treatment. The scheme also targets to retain over 50% of the greenery and trees in the landscape, while minimising the building's carbon footprint.

As the multi-million-dollar project goes into procuring construction materials and paying for services, the project will contribute to the national economy and will create jobs for an estimated 200 people. UNICEF and WFP aim to use locally available construction materials and will ensure that the building is easily accessible by all staff and visitors including those with disabilities.

## LASG SELECTS PREFERRED BIDDER FOR FOURTH MAINLAND BRIDGE

The Lagos State Government (LASG) has selected the CCECC-CRCCIG consortium as the preferred bidder for the proposed Fourth Mainland Bridge project.

The bridge is a propped transport infrastructure development which will comprise a greenfield tolled road and bridge and adjacent real estate. According to the special advisor to the governor on public private partnerships, Ope George, the bridge would become the second longest in Africa when completed. It will feature three toll plazas, nine interchanges and is expected to be constructed adhering to environmental considerations.

He added the bridge will reduce congestion on the existing Carter, Eko and Third Mainland Bridges while opening new areas of the city for future developments.

## BRIEFS

### Djibouti signs US\$1bn rocket deal

Image Credit: Adbibe Stock



Infrastructure will be handed over to Djibouti upon the completion of a 30 year contract.

A delegation of Hong Kong Aerospace Technology Group (HKATG) arrived in Djibouti to discuss business cooperation and strengthen feasible research. According to media reports, this mission proved fruitful as Djibouti's President, Ismail Omar Guelleh, signed on for the construction of a US\$1bn satellite and rocket launch site. With construction works completed as early as 2027, the project will include the delivery of port infrastructure and highways in northern Obock.

Image Credit: Adbibe Stock



The SGR is a 2,561 km network meant to link the Port of Dar es Salaam to Mwanza on Lake Victoria.

### Final phase of SGR confirmed

China Civil Engineering Construction Corporation (CCECC) and China Railway Construction Company (CRCC) have signed on to build the final 506 km section of the standard gauge railway (SGR) in Tanzania.

According to reports, the final section could be completed by 2026 and will reduce cargo transportation costs between Dar es Salaam port and the DRC once it is fully operational. It will also significantly reduce transportation time.



# A LONG WAY TOGETHER



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# Caterpillar's new flagbearer in West Africa

Jean-Luc Konan, the new Cat dealer principal for West Africa, explains why he led the decision to take over the Caterpillar dealership in West Africa and explores his vision for the region moving forward.

At the end of 2022, Delmas Investissements et Participations and the Delmas family announced that they had signed a transfer agreement for their Caterpillar dealership activity, including JA Delmas and its network of African representative companies in West Africa.

After 90 years representing the Cat brand, the reins are being passed over to a consortium conducted by Ivorian entrepreneur Jean-Luc Konan, who created Groupe COFINA, a mesofinance institution present in eight African countries, with a representative office in France. In the announcement, it was noted that Konan and the consortium would utilise their experience and solutions to enable local small- and mid-sized companies (SMCs) to strengthen their participation in the development of West African infrastructures.

Konan expressed at the time that his intention, with the help of the current management team, was to drive the dealer transformation into a service company with a higher added value, closer to its customers. In an exclusive correspondence with *African Review*, the new Cat dealer principal for West Africa expressed these goals in more detail.

**African Review (AR): Why did you choose to pursue this opportunity?**

**Jean-Luc Konan (JLK):** Acquiring the Caterpillar dealer for 11 countries (Benin, Burkina Faso, Cote d'Ivoire, Gambia, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Senegal and Togo) in West Africa is a strategic step towards our ambition to build a leading pan-African financial and industrial group and thus to participate actively and sustainably in the economic development of our continent.



Jean-Luc Konan, founder and CEO of Groupe COFINA and new Cat dealer principal for West Africa.

Image Credit: Groupe COFINA

As an entrepreneur with a financing and banking background, I know how powerful financing can be an enabler to build and boost an economic ecosystem. We will develop tailored financing solutions for our customers especially for local SMEs and entrepreneurs working in strategic and booming sectors such as mining, construction and energy.

This acquisition goes far beyond a financial transaction, it is a large-scale and impactful operation that we are carrying out for Africa. We are ready for this challenge and we are already at work to deliver our transformation plan for the new Caterpillar dealership in West Africa.

**AR: What are your priorities as you head into this new role and how will past experience help in this?**

**JLK:** The management remains with the new dealership to ensure business continuity while we execute a five-year transition plan.

We will focus on service growth for which we will accelerate investment in world class service facilities which are critical for our key customers and in a training academy. A brand-new Component Rebuild Center will start operations in the second semester of 2023 in Dakar in Senegal.

In addition, widening our customer base, digitalisation with

e-commerce and connectivity of equipment and being a socially responsible company are our key priorities.

From my past experience, we will bring to this historical machine and equipment solution supplier in construction, mining and power services fields, new jointly developed financing solutions that will enable local SMCs to strengthen their participation in the development of West African infrastructures, while maintaining their knowledge of the economic structure and specific needs of companies within this area.

**AR: How do you hope to develop the network and to do so for the benefit of the West African community?**

**JLK:** The new Caterpillar dealership I am heading intends to be as close as possible to our customers to better service them. Periodically we review the suitability of our network (local branches, workshops, warehouses, maintenance facilities, etc.) to improve and to optimise the coverage in our territories. This goes along with the dynamics of the market such as where will the business take place in the upcoming years with for example new mining projects or major infrastructure programmes in the region.

The rationale for setting any new branch, upgrading or closing a maintenance facility is discussed and the outcome is a long-term infrastructure development plan which will be implemented by order of priority as included in the capex plan.

As the community is concerned, the ESG requirements are shaping our business and are being part and parcel of our way of doing business to demonstrate how we care for

“ We are ready for this challenge and we are already at work to deliver our transformation plan for the new Caterpillar dealership in West Africa.”

JEAN-LUC KONAN, CAT DEALER PRINCIPAL WEST AFRICA



people, for the environment also while being profitable.

**AR: What are some of the challenges you are expecting to encounter in this transition?**

**JLK:** JA Delmas has been Caterpillar dealer in West Africa for 90 years, which demonstrates a deeply established way of doing things in the company. Among others, we could anticipate some challenges such as:

- Defining a comprehensive change management methodology to shape the dealership for several decades
- A changing business ecosystem with more local content requirements to accommodate in our business strategy
- Customer value proposition for SMCs to include tailored financing solutions
- A growing ESG compliance need for our stakeholders to be answered in our way of doing business.

**AR: Why do you believe it is so important to encourage governance anchored on the African continent for business activities that focus there?**

**JLK:** While economic growth tends to stall elsewhere in the world,

Africa is an area where economic indicators are promising with a young population and numerous needs to be fulfilled in economic infrastructures.

In West Africa, the mining, construction and energy sectors are booming. Caterpillar as the leading machine and equipment solution provider for those critical business sectors has opted out for local dealers as part of their strategy which has been successful for almost a century. Dealers must be close and available to their customers to provide solutions to all their needs in a timely and effective manner where the operations are taking place. This principle applies for Africa also.

In addition, the economic development of the African continent must involve local companies, and governments are encouraging local economic actors through legislation such as local content acts which cover local staffing, local empowerment, local equity and local governance.

**AR: Could you provide a comment on how exciting you find the prospects for the West African region in regards to key industries?**

**JLK:** The construction and mining sectors are particularly booming in

**“ The new Caterpillar dealership I am heading intends to be as close as possible to our customers to better service them.”**

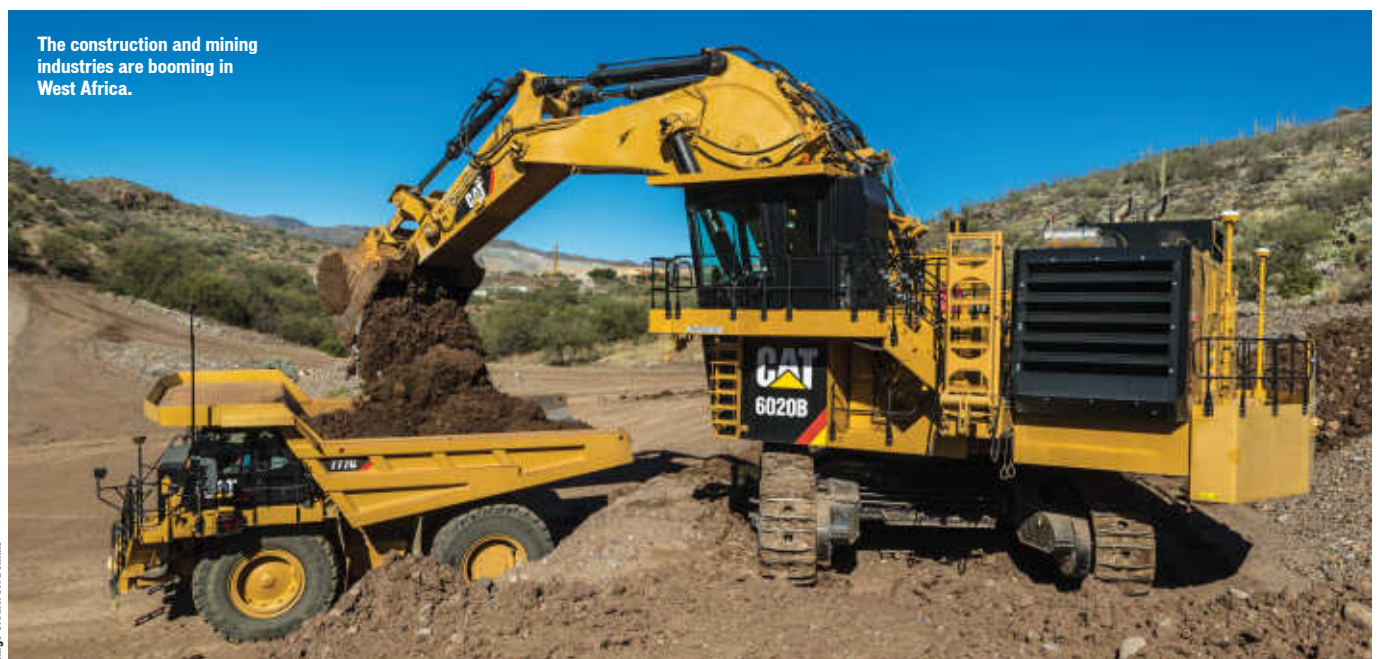
**JEAN-LUC KONAN, CAT DEALER PRINCIPAL WEST AFRICA**

West Africa. As far as the construction business is concerned, there are several ongoing national and cross border infrastructure projects such as roads, dams, urban trains, industrial economic development zones in countries such as Senegal, Cote d'Ivoire and Benin. We will participate in all tenders with tailored proposals. For some of them like the urban train project in Abidjan, the 1,600 km road rehabilitation PSD project in Senegal and the highway Dakar to Saint Louis are all in tender stage and ongoing today.

For mining, despite the imminent terrorist threat in both Mali and Burkina, there is a healthy outlook in most of our territory. Very active and dynamic transactions and trade between mining companies for mining permits shows that this industry is very alive in West Africa.

We have seen recent expansions on current mining sites with mining companies either expanding existing operations or pursuing adjacent deposits.

There are also quite a few greenfield projects that we look forward to in the medium- and long- term. Mali and Cote d'Ivoire are very active gold mining territories with promising future development. Guinea, a territory that hosts many rich and diverse mineral deposits promises exciting iron ore, gold and bauxite projects in the near future. Mauritania continues strongly on the iron ore front with some interesting projects ahead. Cat machines are highly regarded in the mining industry and supported by our service, parts and commercial departments, we are very excited to grasp these new opportunities. ■



The construction and mining industries are booming in West Africa.

Image Credit: JA Delmas

# Eyes on the excavators

New machines and technology advancements are ensuring excavators continue to pull their weight on site.

Capable of carrying out a wide range of jobs from material handling and landscaping through to demolition, excavators are often referred to as the linchpin on any construction site.

As an unequivocally essential piece of equipment, manufacturers are constantly striving to ensure their offerings are capable of meeting the ever-developing demands of the industry and satisfying the expectations of their customers.

In regards to the latter, one of the most prominent concerns permeating the thinking of organisations across the continent (and across most industries) is the environment. Whether erecting new schools in Nairobi or breaking ground at a mining site in Nigeria, companies are becoming increasingly aware of their carbon footprint and are looking at ways to nullify their emissions output.

As a sign of the road ahead in this respect, Zepp.solutions has delivered two hydrogen storage and Y50 fuel cell systems to Terberg Techniek which have been used to convert two Liebherr 916 Litronic wheeled excavators from diesel to hydrogen-electric vehicles. With six months of operational testing complete, the two excavators mark the first application of Zepp's fuel cell systems in the construction equipment industry. It appears this endeavour has gotten off to a flying start as results show the excavators are reliable and perform as

expected while producing no emissions other than water. According to Zepp, hydrogen is gaining popularity in the construction equipment industry which, outside of low-emission output, offers other advantages such as noise reduction. If the hydrogen economy continues to develop as expected over the next few decades, it seems increasingly likely such vehicles will become a more common sight on location.

## Elevating expectations

Focusing their attentions on delivering enhanced efficiency and profitability, John Deere has debuted its latest P-Tier and G-Tier excavator models to its portfolio of mid-size machines. In the former, the 135, 210, 245, 250, 300 and 345 models have been added its lineup, while the brand-new 200 G-Tier

model is also ready to face whatever challenge clients may have.

The P-Tier models boast advanced features for enhanced performance and extending service-life; the redesigned boom-foot bushings, for example, are built with durability in mind. Meanwhile, the 200 G-Tier's PowerTech 4.6 litre engine has been included for optimal efficiency. The easy-to-maintain, high-uptime exhaust filters help decrease downtime for service while the in-monitor adjustable flow and pressure auxiliary hydraulics can be easily controlled using the auxiliary function lever.

Also expanding its portfolio is CASE Construction, which has launched a four-model E-Series wheeled excavator range with a fifth, larger model joining in the future. Built under an existing supply agreement with Hyundai

Construction Equipment, the lineup will include the conventional tail swing WX140E and WX160E along with the short radius WX155E SR and the WX175E SR. These four models will be joined by a conventional tail swing WX210E at a later stage.

Features of smaller models include Bosch Rexroth Load Independent Flow Sharing hydraulic systems for smooth operations and maximum control alongside enhanced site safety via a large operator cab with CASE Maximum View Monitor (this includes 360° view cameras and additional rear radar). Capable of operating on a range of biodiesels, HVO and other synthetic fuels due to the Cummins diesel engines, the wheeled excavators will be available in a range of lower frame layouts, with several combinations of front and rear dozer blades. ■



The two Liebherr excavators have undergone six months of operational testing.

Image Credit: Zepp.solutions



The new 200 G-Tier Excavator has been designed to enhance profitability and efficiency.

Image Credit: John Deere



The Gifted Hands Library and Resource Center.



Image Credit: PERI

# Ready-made for developing cities

Alongside a variety of uses, concrete moulds are capable of providing a fast, reliable and cost-effective means of building construction and, after successful pilots in Kenya, TwistBlocks has become the latest entry into this practical market.

Few who visited the PERI hub at bauma 2022 would have missed the section dedicated to TwistBlocks, the Start Somewhere concept which is carving out a foothold in sub-Saharan Africa.

The TwistBlocks were designed when Start Somewhere sought to address two major challenges plaguing the global south: informal housing environments and facilities for humanitarian organisations. The solution they delivered is a construction system based on stackable concrete blocks for safe and swift building. The blocks require no plastering or mortar and, according to Start Somewhere, can be assembled up to ten times faster than standard masonry. PERI supported StartSomewhere in the development of a mould that allows the blocks to be produced by hand in small local factories.

Naturally fire resistant, the unique design of the TwistBlock allows for the construction of straight or curved

walls and, if ever the need to decommission a building, up to 80% of the blocks can be recovered for reuse. Such is the flexibility of this solution that houses, sanitary facilities, schools, landscape design and more are all achievable.

There are few requirements for producing TwistBlocks which can be produced at a rate of one TwistBlock per day per mould at factories directly in townships; creating unskilled employment opportunities. Start Somewhere will assist with factory design and implantation, training the manufacturer, help supply specialist mix-design to suit local raw materials and provide ongoing quality control assistance.

### A concrete base in Kenya

This year, the very first factory was setup in the heart of Kibera, Kenya, where all relevant equipment, successful certification of the blocks at KEBS, training and employment of five local informal

settlers was achieved in June. In the factory, 75 blocks are produced daily against a total setup cost of just approx. US\$37,000.

The facility has been consistently churning out TwistBlocks ever since which has led to the delivery of buildings such as housing units in Mashimoni, a quarter in Kibera where a fire previously burned down 160 properties, and a new school comprising of 18 classrooms and other facilities which will be able to accommodate more than 800 children.

These undertakings follow previously completed pilot projects in the division of Nairobi, such as the two-storey Gifted Hands Library and Resource Center which was delivered in just five months.

### New horizons

The beauty of building moulds such as the TwistBlocks concept comes in their versatility, cost-effectiveness and speed of deployment, all of which can

make an enormous difference to developing communities.

After the efficacy of TwistBlocks was demonstrated in Kibera, PERI has been producing TwistBlock moulds (using locally sourced recycled plastic) at an existing plant in Cape Town, South Africa, which will help form the bedrock for setting up more factories across sub-Saharan Africa.

In line with this, a second independent factory is about to begin production in Ahero, Kenya, and a third factory in Gugulethu, South Africa, is on schedule for completion in March 2023.

Jürgen Mayer, project responsible at PERI, commented, “The beauty of the project for me is that in addition to a new low-cost construction method, it also creates value in informal settlements. The manual production of the TwistBlocks and their sale also outside the township can thus create the basis for a steady and sustainable development of such settlements.” ■



The production of TwistBlock moulds by PERI in South Africa (from locally sourced recycled plastic).

Image Credit: PERI



The first delivery of TwistBlock Moulds to Kenya.

Image Credit: PERI

# Providing efficiency through innovation

At projects in Mozambique and South Africa, Layher's scaffolding solutions are proving their worth.



Image Credit: Layher

MLS Scaffolding was contracted to erect scaffolding at the Moatize Coal Mine.

The erection of high-rise buildings brings a number of challenges for those delivering construction projects across the continent. As structures increase in height, new considerations such as vertical transportation, increased wind load and alternative fire concerns come into play, changing the health and safety outlook and delivery time. For such occasions, it is paramount that the most robust, reliable and secure equipment is utilised to protect workers from coming to harm and the project from derailing. Layher's solutions have been proving their worth in this regard for clients operating across sub-Saharan Africa, most recently on sites in Mozambique and South Africa.

## Moatize Coal Mine

At one of the world's biggest coal mines (by reserve), the Moatize Coal Mine in Tete province of Mozambique, MLS Scaffolding, a local company providing erection, inspection and dismantling scaffolding services, was contracted to erect the

scaffolding on a plant as part of plans to ramp-up the mine's output.

While holding innovation and safety as top priorities, MLS Scaffolding sought to cover large volumes with reduced quantities of scaffolding as much as possible, and opted for Layher's Lightweight Allround system to meet this criteria.

Produced since 1974, the Allround system uses a unique bolt-free connection technology which makes for strong and statically rigid connection. Up to eight connections can be made at one level, with four small openings in the rosette automatically centring the ledger at right angles and four large openings for free choice of angles or to accommodate diagonal braces.

Since its introduction, the system has been consistently improved (while remaining compatible with earlier variants), introducing safe, time saving and efficient scaffolding innovation, without compromising the quality and load-bearing capacity.

In opting for Layher's solution, MLS

Scaffolding was able to reduce the total weight of scaffolding on site by 30% while still performing the same workload.

## On site in South Africa

In South Africa, Layher's Allround lightweight scaffolding was deployed by TMS Industrial Services, working with scaffolding erectors Umngeni Scaffolding, for a plant in Mpumalanga.

For the project, Layher's scaffolding information modelling (SIM) was used to virtually design, test and produce an accurate material list with costings for the client, complete with 3D models. In doing so, the company suggested adding an additional 38 platforms to allow workers to more efficiently move from one section to the next.

On site, the FlexBeam and FW were used to adapt around obstacles as the structure progressed and TG 60 was deployed to support the FlexBeam and take load transferred from the bridging solution.

A representative from Layher explained, "Shoring towers TG 60 are connected together and braced using Allround ledgers and diagonal braces in the Layher system dimensions to create birdcage scaffolding. This results in extremely strong scaffolding structures – even for very large support heights."



Image Credit: Layher

TG-60 supporting FlexBeam on site in Mpumalanga.

As compared to a similar column elsewhere on site, the use of Layher's solutions saved the client seven weeks in erection time, representing a 41% improvement. In addition to these benefits, it recorded a 16% weight saving despite providing an additional 1,932 sq m of platforms. The 600% access improvement from the extra 38 levels of boards was critical in facilitating rapid delivery, highlighting how innovative solutions introduced to the scaffolding landscape can facilitate safer, more efficient projects across the continent. ■



## VOLVO ELECTRIC SCREEDS HEAT UP LARGE-SCALE PAVING

Electrically heated fixed screeds by Volvo Construction Equipment (Volvo CE) have now been introduced to make large-scale paving even more cost-effective and to boost the productivity and efficiency of major road projects.

With the launch of the MB122 and VTD121 Electro Thermo Controlled fixed screeds for its large tracked pavers, Volvo CE is not only growing its range of screeds, but empowering customers to produce the high quality finish they come to expect and now in less time with less effort.

These fixed screeds are now available on the Volvo P6820D ABG, P7820D ABG and P8820D ABG models and benefit from an expansive paving width of 2.5–13 m. They have been designed to lay everything from hot asphalt through to dry lean roller-compacted concrete



Image Credit: Volvo CE

The screeds are powered by a 55 kVA generator.

and cement-bound materials, all the way to railway ballast and graded mineral mixes.

The new electric heating function enables a start-up in just 40 minutes. When combined with one heated tamper bar and two heating elements per screed section for optimised heat distribution, precise thermo-controlled heating with an automatic temperature adjustment and individual temperature sensors per section,

customers can be guaranteed a speedy and efficient screed heating process.

Maximised pre-compaction is paramount to achieving a greater density in the finished mat, resulting in a longer-lasting pavement and lower operating costs. The new vibratory and tamping fixed screeds provide just that, delivering the smoothest possible finish for any job. Featuring variable vibration speed and tamper stroke, they can be specified with a single or double tamper bar solution.

Its double tamper technology delivers a 5-7% higher degree of compaction than with a single tamper and can achieve a 98% Marshall density, substantially reducing rolling work requirements and associated costs. It also provides the best possible even surface due to the feeding effect of the first tamper.

## ModulMAX AP-M: a three-in-one solution

Faymonville has announced the ModulMAX AP-M, a modular trailer that combines the supporting assist mode with the self-propelled mode and the classic trailer mode.

The motorised axles of the modules can be engaged and disengaged at any speed, an important advantage because operators don't need to stop the convoy for this manoeuvre. It is an absolutely unique feature in combination with the high traction.

Additionally, all the motorised axles have powerful and homologated brakes. Up to 10 driven axles in the High-Torque-version can be used.

The modules build up on a dual-link patented suspension system offering a better spread of the forces and bending moments. The stroke of 650 mm and 45 tons payload capacity per axle line highlight the strengths.

The ModulMAX AP-M offers seamless interoperability and can be combined with conventional 3,000 mm wide Faymonville ModulMAX modules and other brands. Users can couple it also with common equipment such as lowbeds, spacers, drawbars etc.

The Power Pack Unit used for this mechanically steered module is identical with the one used within the electronically steered vehicles. There are three different versions depending on the application fields of the operator:

- Endurance: For on-road long distance heavy-duty transports where it is important to assist the tractors with a constant pulling force at high speed
- Standard: For universal heavy-duty transports and an approximate 20/80 ratio between on-road and in-site missions
- High Torque: For heavy-duty transport missions when it is necessary to get a high pulling force and an assist speed of 15 km/h is sufficient.



The ModulMAX AP-M has 1,270 kN of traction force from one Powerpack Unit.

Image Credit: Faymonville

## HX SERIES: HAMM'S NEW FLAGSHIP

HAMM has announced a new generation of pivot-steered tandem rollers with the HX series, the new flagship for the HAMM fleet. Designed for asphalt compaction, the HX 70i model (7 t/55.4 kW) and HX 90i (9 t/74.4 kW) achieve high surface outputs on large construction sites.

They also impress in tasks such as compaction in curves with a high degree of precision. Here, the pivot steering shows its strengths with a large turning angle, large track offset and four different steering modes.

A foundation for high compaction quality is intelligent drive control with automatic reversing. In combination with the electrically adjustable seat operating unit, it guarantees quality and comfort. It brakes and accelerates the rollers quickly, but smoothly.

The seat also turns automatically in the direction of travel when reversing. This is unique in the market. It produces first-class surfaces and ensures ergonomic working with safety at all times.

New LED turn indicators and details around the cab give the HX series its distinctive design. The fully glazed panoramic cab offers an improved field of vision with an excellent view of the drum edges. Lighting for drums and drum edges can be added.

A camera system with two robust monitors (IP 67) are integrated as standard to provide optimal vision and, thanks to division of the screen, views to the front and to the rear are always visible regardless of seat position.

## Fortuna strides forward with Séguéla Gold Project

Fortuna Silver Mines has provided an update on construction activities at its Séguéla Gold Project located in Côte d'Ivoire.

“We are pleased to report two significant milestones in the construction process with the energisation of the high voltage substation and the commencement of the SAG mill installation,” commented David Whittle, chief operating officer – West Africa. “The project continues on-time and on-budget with the majority of materials and equipment now on site. Focus has now shifted to operational readiness in preparation for the commissioning of the processing plant with first gold pour expected in mid-2023.”

The company provided construction highlights including:

- Overall project is 85% complete as of 30 November, 2022 and first gold pour remains on target for mid-2023
- SAG mill installation has commenced with all critical components on site
- Construction of the 90 kV transmission line and high voltage substation is complete and energised
- Clearing of the Antenna Stage 1 Pit is complete and grade control drilling has commenced, ahead of mining activities which are scheduled for Q1 2023.

Lycopodium has progressed in advancing the critical path scopes for the processing plant and, as of the start of December, ongoing construction activities include:

- Installation of the SAG mill commenced with a Metso-Outotec representative on site



Image Credit: Fortuna Silver Mines

SAG mill installation.



Image Credit: Fortuna Silver Mines

The project is progressing on-time and on-budget.

- Installation of carbon-in-leach (CIL) top-of-tank steel platform
- Assembly of conveyors
- Erection of the gold room commenced
- Mechanical equipment installations in the crushing, surge bin and milling and grinding areas
- Installation of overland piping and the 11 kV overhead powerline commenced.

The installation of the SAG mill remains on the project's critical path and, despite global supply chain challenges, all critical components are now on site.

With the high voltage substation and transformers being energised in early December, the grid connection scope of work has been complete. Power is now available for reticulation to the site infrastructure; namely, the processing plant ahead of commissioning activities.



Image Credit: Fortuna Silver Mines

Crusher apron feeder first lift.

### Operational readiness

Mota-Engil, the mining services contractor at Séguéla, is well underway with its mobilisation activities for the project. First deliveries of the mining fleet have arrived on site and are being commissioned, including a 95 tonne excavator, two 100 tonne haul trucks, two dozers, one grader and two fuel trucks.

Preparations for the operational phase of the mine are progressing well and construction progress in the mine services area and explosives facilities is on-track to support commencement of mining activities in the Q1 2023. Construction of the run-of-mine pad has commenced along with grade control drilling following the clearing of the Antenna Stage 1 Pit.

Orders for spare parts, consumables and lubricants have been placed and are expected to arrive on site in the first quarter of 2023.

Planning for the processing plant commissioning is underway with power and water supply available. Earthworks and high density polyethylene (HDPE) lining of the tailings storage facility (TSF) is expected to be completed by year end.

As of November 30, 2022, approximately US\$169mn of the total approved budget of US\$173.mn has been committed.

## ► BRIEFS

### 5G technologies enhances efficiencies at Nungu Mine

Image Credit: BCX



The project at the Nungu Mine consists of two phases: above-ground and underground.

BCX, a large systems integrators in Africa, has collaborated with partners Huawei, MPI Holdings, Umnotho Technologies and Dahua to transform operational efficiencies and safety at the Nungu Mine, South Africa, through 5G wireless-enabled technology. According to BCX, the mine has been revolutionised with wireless connectivity, data analytics and automation that enables video monitoring via drones, integrated connectivity, and a facial recognition Proximity Detection System.

### Perenti wins contract extension at Mako Gold Mine

Image Credit: Adobe Stock



Perenti, through AMS, has provided surface mining activities at the Mako Mine since 2017.

Perenti, a diversified global mining services group, has announced that its surface mining business in Africa, Africa Mining Services (AMS), has been awarded a contract extension for surface mining activities at Resolute Mining's Mako Gold Mine in Senegal. The contract includes load and haul, drill and blast, grade control and crusher feeding activities at the mine and is valued at approximately US\$185mn over a period of four years.



# Zambian mining set for rebound

Nawa Mutumweno reports on the prospects of Zambia's mining industry, which has been placed at the heart of the country's economic growth going forward.

**Z**ambian mining remains a kingpin of the country's economy, accounting for 17.5% of GDP and more than 70% of foreign exchange earnings in 2021.

Concerted efforts should be made if Zambia is to reclaim its top copper producer position in Africa which the Democratic Republic of Congo (DRC) wrestled from it a few years ago. With new sites expected to come on stream at Kitumba Copper Project in Mumbwa, Kashime in Mkushi and Mwekera Copper Mine in Ndola, more direct mining jobs and others in related and indirect areas will be created.

"It is noteworthy that in his 2023 national budget announcement, the Minister of Finance has re-affirmed the Government's plans to grow the country's copper output from the current 800,000 metric tonnes to 3mn metric tonnes in the next nine years," Deloitte commented.

The target of 3mn metric tonnes of copper production per annum demands aggressive strategising and planning. One route to this is expeditiously resolving the challenges at the country's major mines such as Konkola and Mopani.

Plans to boost Government participation in the mining sector by increasing its shareholding in major mining companies are on course. Through its mining arm, ZCCM Investment Holdings (ZCCM-IH), it has concluded the negotiations for 100% acquisition of Mopani Copper Mines (MCM). There is also commitment to seek a strategic investor for Konkola Copper Mines (KCM).

## Diversity is key

Diversification should be scaled up to spur the sector. Things are looking up in view of the nickel mine in Kalumbila, north-western Zambia, which is set to commence production in 2023.

A US\$250mn investment in the Enterprise Nickel Project by First Quantum Minerals (FQM) is poised to make Zambia the top producer on the continent and a top 10 producer of one of the world's most sought after metals. This project is a component of the US\$1.35bn expansion investment announced by FQM which also covers Kansanshi operations.

It will help Zambia play a critical role towards transitioning to clean energy that has less impact on the environment through contributing raw



Zambian President Hakainde Hichilema at the ground-breaking ceremony of FQM's Enterprise Nickel Project.

materials for batteries needed for electric vehicles. This development reveals the genesis of Zambia's economic reliance upon the copper mining industry, on 'King Copper', an emphatic principle in the New Dawn Government's blueprint for economic revival.

Coal production at two sites in Southern Province and manganese production in Chipili, Luapula Province have also kicked-off.

"The proposal to diversify the mining sector by promoting other minerals like precious metals, gold and manganese will not only increase the job opportunities and revenue for the country, but also foreign exchange earnings that could help cushion the country in times of copper price instability," said Dale Mudenda, researcher and head of the economics department at the University of Zambia (UNZA).

It is heartening to note that there seems to be genuine cooperation between Government and mining firms in determining the policies through which the sector is to perform at optimum levels. The Government has been consistent in acknowledging that mining is a strategic sector which will be at the heart of the country's economic revival programme and has pledged major mining sector reform, including tax policy and administration reform.

In doing so, the Government has reset the tone to one of rebuilding confidence and spurring growth, according to Godwin Beene, president of

Zambia's Chamber of Mines. "The industry is very positive that with this common-goal approach to the way forward, there will be more of a partnership with Government than we have ever seen before."

Alongside the Government's promise of collaboration with mining houses and endeavours to improve stakeholder participation, there should also be policy stability. The lack of this (through frequent and erratic changes to the mining fiscal regime) in recent times has held back the sector's growth.

It is a fact that without policy predictability, investors cannot plan for the future or be optimistic that they will reap adequate returns on their investment. Indeed, stable and good mining policies are the missing link to making Zambia competitive with other resource rich countries.

With the price of copper on a rising trajectory, on the backdrop of the green energy sector's copper demands, Zambia needs to leverage its production in order to cash in on the promising environment.

"Without investment, we cannot expand – or even maintain – the level of production, and if we don't do this at the same time as cashing in, we'll discover that in the medium to long-term, we will have lost out," remarked Zambian economist, Oliver Saasa.

As the Chamber of Mines has aptly quipped time and again, "Only through growth can we deliver more." ■

# Showcasing the future of African mining

Under the theme ‘Unlocking African Mining Investment: Stability, Security, and Supply’, Investing in African Mining Indaba is returning once again to serve as a pivotal meeting point for one of the continent’s key industries.

The 2023 edition returns to its February slot after the event was held in May last year. In 2022, the conference focused on ESG and returning the continent’s economies back to full strength after the pandemic-induced lull. Highlighting the drive of the industry to return to normality, the conference was a resounding success with more than 6,500 attendees arriving from 93 countries and more than 530 mining companies were represented alongside 212 junior mining companies.

Building on this solid platform, Investing in African Mining Indaba 2023 will arrive at the CTICC in Cape Town from 6-9 February, offering once again the opportunity for the continent’s mining industry to come together and drive the sector to new heights. This year, according to portfolio director, Simon Ford, the show is entering a new chapter with a theme to capture the geopolitical shifts and economic disruptions being experienced: ‘Unlocking African Mining Investment: Stability, Security, and Supply’.

Across the 2023 programme, expert participants will delve into integral economic empowerment strategies, ways to support supply chain security for the energy transition and the opportunities that can be seized for capitalising on the commodities super cycle. The impressive speaker lineup this year features senior representatives from organisations such as Barrick Gold, Anglo Platinum, Rio Tinto, Anglo American, ICMM, Wood McKenzie, World Bank, International Lithium Association, Newmont Corporation and many more alongside government officials from some of Africa’s top mining nations.

A number of new initiatives and programmes will also be debuted, including the Explorers Showcase, the Junior MINE and the Official Government Leaders Programme.

Delegates will also enjoy classic content

streams including the Ministerial Symposium, Intergovernmental Summit, Green Metals Day, Sustainable Development Day, the Young Leaders Forum, the General Counsel Forum and the return of the Innovation & Research Battlefield – a unique platform for academic institutions and start-ups to showcase their latest ideas. Within these, excitement is especially building for the Green Metals Day, supported by JOGMEC, which will cover the impact of COP27 outcomes on green metal demand and supply; battery metals and carbon neutrality; green metals outlooks; Africa’s hydrogen potential; and ways to build domestic manufacturing industries as part of mineral value addition. With the global concerns around the climate reaching a crescendo, there is a real opportunity for African mining – home to 30% of the world’s mineral deposits including critical metals needed for green technologies, to put itself at the heart of the energy transition for years to come.

## On the exhibition floor

As ever, forming the backbone of the conference and offering a place for attendees to look into the future technologies and services which will be supporting Africa’s mining industry for years to come, is the exhibition area.

Here, a wide variety of solution providers for every facet of the industry; prospective investors; national stands; mining companies; and everything in between will present their offerings and look to make business connections that will last well into the future. Exhibitors this year include the likes of Aggreko, Normet, Caterpillar, Getac, Honeywell, Hitachi, Komatsu, Liebherr, Advanced Global, Bosch Rexroth Africa, DP World, Epiroc, Mota-Engil and many more. Take a closer look at some of the companies and solutions that will be on display:



Investing in African Mining Indaba welcomed more than 6,500 attendees in 2022.

Image Credit: Mining Indaba

## BME



Image Credit: BME

### BME’s AXSIS Titanium will be on show.

Omnia Group company, BME, has expressed its excitement to being face-to-face with the mining industry once again at its exhibition booth and, this year, it will be showcasing its breakthrough electronic initiation system, AXSIS Titanium.

Globally launched in November 2022, BME is expecting the wide international audience at Indaba to be inspired by the advanced features of this electronic detonator system.

BME marketing manager, Michelle Fedder, commented, “AXSIS Titanium, in concert with BME’s ongoing innovations across its offerings, is helping mines drive down their energy costs and carbon footprint.”

AXSIS Titanium boasts improved safety levels enhancing communication with the detonator during manufacturing to avoid defects. Performance is raised through the increased blast duration per detonator, more units per blasting box and precise firing accuracy. The incorporation of an application-specific integrated circuit chip in BME detonators gives the system more internal safety gates against stray current and lightning, enhancing safety levels and allowing for inherently safe logging and testing.



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## SEEQUENT



Image Credit: Seequent

**Seequent's Imago software can be used in the field or core shed.**

Seequent, the Bentley subsurface company, will showcase its exploration software to aid African mining opportunities at the conference in Cape Town.

The longstanding Mining Indaba participant will be exhibiting an expanded mining solutions portfolio. Well known for its Leapfrog 3D geological modelling software, newer solutions include Imago for high-quality core sample imagery and drill data collection tool MX Deposit. Seequent Central enables team collaboration.

"Global expansion in exploration, accelerated by increased demand for critical minerals in support of green energy transitions, is creating new opportunities for resource-rich Africa," said Louis Louw, head of business development, emerging solutions - EMEA at Seequent.

"We're excited to showcase our broader suite of exploration solutions to help customers advance subsurface investigation and discover faster, drill smarter and make more confident decisions with their geoscience data."

Seequent has a special relationship with Africa and the mining community. The company gained its first major mining customers when it introduced its Leapfrog software over 15 years ago – enabling geological modelling in hours, not days.

Seequent has continued to invest in innovation to expand its portfolio and cloud capabilities, reinforcing its position as a trusted partner in the mining industry. It now works with customers in diverse areas, from civil infrastructure to water security. Its growing presence in Africa includes local teams in South Africa, Mali, Ivory Coast and Ghana, supported by its global team.

## ELPHINSTONE

Choosing the right support vehicle designed to thrive in Africa's harsh underground mining environment, can significantly increase the productivity of the production fleet and reduce operational costs. This is why at Investing in African Mining Indaba this year, Elphinstone will be promoting its mining support vehicles best suited to the African market.

The Elphinstone WR810 Delivery (payload 11,130 kg) and WR810 Flat Deck (payload 15,000 kg) are valuable additions to

Elphinstone's ever-expanding underground support fleet. The highly configurable WR810 series also comprises a scissor lift, water cannon, agitator (6 cu/m), and fuel and lube truck.

"We're expanding the range of WR810 applications to meet the underground support equipment requirements of our customers, with several exciting additions in development," commented Elphinstone's sales and support representative for Africa, Kyle Allen.

Available in both Tier 4 and Tier 3 engine arrangements, the WR810 Delivery and WR810 Flat Deck ensure parts, components, equipment, and maintenance personnel are transported safely and securely throughout the mine.

Having invested a lot of resources into product development, Elphinstone has its eyes set on battery electric next.

"We have the Tier 3 and Tier 4 engine – the next step is to add battery electric to the WR810 model. We have a highly qualified team focused on battery electric while reviewing customer feedback and developing other products in parallel," said Tim Mitchell, global sales and marketing manager.

Both Mitchell and Allen will be attending Investing in African Mining Indaba 2023 and welcome attendees to visit their stand.



Image Credit: Elphinstone

**The Elphinstone WR810 Delivery.**

## TOMRA MINING

Tomra, which boasts more than 200 machines in operation across the world, will present its sensor-based ore sorting solutions at Investing in African Mining Indaba 2023. Of particular interest will be its latest innovation in diamond recovery, the TOMRA COM XRT 300 /FR sorter, a unique new-generation machine that has the potential to revolutionise diamond flowsheets.

The TOMRA COM XRT 300 /FR uses the company's proprietary ultra-high-resolution sensor, advanced new image processing and high-precision ejector valve system to produce an ultra-high diamond-by-weight concentrate with an exceptionally low yield. The sorter offers 100% diamond detection within the specified size fraction and >99% guaranteed diamond recovery with appropriate feed material preparation. It is also a dry process that does not require water or chemical reagents.

The TOMRA COM XRT 300 /FR completes TOMRA's partnered diamond recovery solution, which covers the entire process, from bulk concentration to final recovery and sort house applications. "We are now able to offer our customers a full XRT solution to sort +2-100 mm particles: our bulk concentration sorters for +4-100 mm particles and the COM XRT 300 /FR in its final recovery, sort house or small-capacity exploration applications for +2-32 mm particles," commented Corné de Jager, global segment manager diamonds at TOMRA.



Image Credit: TOMRA Mining

**The TOMRA COM XRT 300 /FR completes TOMRA's complete partnered diamond recovery solution.**



## COMACCHIO

Italian drill rig manufacturer, Comacchio, will present its new eGEO 405, the first battery-powered fully-electric drill rig designed for soil investigation and mineral exploration applications.

The heart of the machine is the battery pack, consisting of a modular battery system, delivering a total energy content of 52kWh and reaching a nominal voltage of 350V.

The battery system has a compact size and is placed on the rear part of the machine in a separate and exchangeable box, to ensure continuous operations even under extreme load conditions (the rig is supplied with two swappable power boxes).

The low-voltage DC power provided by the battery pack is changed into conventional AC by power inverters, allowing precise control of the flow of power to any of the rig's AC motor loads that provide motive power for the rotary head, pumps and winches.

The high-performance rotary head, driven by a 100kW motor, can reach 850 daNm peak torque and a speed of 650 rpm. Thanks to the electric motor, the adjustment of torque and rpm according to the actual operating conditions can be carried out in a precise manner. The rig is equipped with a 6500 daN pull mast, with 3,500 mm stroke. Further accessories include mud/water pump, service winch and wire-line winch.

The eGEO 405 is designed to cover the full spectrum of mineral exploration applications, including conventional and wire-line coring using BQ, NQ, HQ and PQ rods up to 350 m depth. The machine can also be configured for reverse circulation (RC) drilling using DTH hammer. The multipurpose design of the rotary head allows multiple drilling types to be performed with minor changes. This flexibility results in reduced unproductive time and lower total cost of ownership.



Image Credit: Comacchio

The eGEO 405 is designed to cover the full spectrum of applications connected with mineral exploration programmes.



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## MAGNA TYRES

Magna Tyres is keeping companies on the move with the best off-the-road (OTR) tyre solutions. Its core product range includes a wide selection of large size OTR tyres and deep tread patterns, specifically developed to handle the most extreme conditions in any mining or earthmoving operation.



Image Credit: Magna Tyres

**Magna Tyres' product range includes a wide selection of large size OTR tyres.**

The company has designed its tyres to meet the ever growing demand for OTR tyres that optimise cost per hour without yielding on quality. Its high performing products combined with short lines of communication and large local stock around the world have allowed it to work with leading OEMs in over 130 countries.

With the goal of strengthening its position in the world as the largest 2<sup>nd</sup>-tier supplier of OTR tyres, Magna Tyres continues to expand its local presence and the number of valuable partnerships around the world.

That is why it has launched the Magna MA60 mining pattern. Available in size 800/80R29, the MA60 was specifically designed for 60 tonne ADTs. The versatile mining pattern is characterised by its specially designed wider steel belt to offer better protection, which increases longevity and gives the tyre a more evenly spread footprint.

## SPECTROMETER TECHNOLOGIES

United Spectrometer Technologies will be exhibiting the Thermo Scientific Niton XL5 Plus handheld XRF analyser. Where low detection limits and high sample throughput are critical, the Niton XL5 Plus' combination of hardware and software allows users to meet difficult analytical requirements.



Image Credit: Spectrometer Technologies

**Thermo Scientific Niton XRF analysers have already helped thousands of users.**

Thermo Scientific Niton XRF analysers have helped thousands bring their lab to the field to obtain geological data. Products such as the Thermo Scientific Niton XL3t, and Thermo Scientific Niton XL2, have empowered mining operations to make faster decisions, while increasing operational efficiency.

The Niton XL5 Plus analyser is designed to allow users to observe increased analytical performance and lower limits of detection (LODs) over legacy Thermo Scientific Niton XRF analysers. New accessories also include the Thermo Scientific mini test stand, which is lightweight, collapsible and designed to improve portability and the Thermo Scientific soil guard and backscatter shield. The new mining mode is designed to allow geologists and mining companies in early and late stage exploration, as well as in mining operations, to accurately determine, measure and evaluate the elemental composition of geological samples from magnesium to uranium, within seconds. Soil mode is designed to enable regulatory bodies and environmental laboratories to detect and quantify heavy metals.

## WÄRTSILÄ

Wärtsilä has emphasised decarbonisation for its participation at the conference this year. The company's decarbonisation services help customers identify and implement the solutions needed to decarbonise their power systems, taking into consideration their long-term planning and CO<sub>2</sub> emission reduction targets.

Decarbonisation services is based on a long-term partnership with customers on the journey to a 100% renewable energy future. As a partner, Wärtsilä helps customers understand their current situation and plan a way forward with advanced modelling and dynamic simulations. All of Wärtsilä's considerable solutions, experience and skills are brought to execute the decarbonisation roadmap. This allows customers to make the most of reducing CO<sub>2</sub> emissions, integrating renewables and future-proofing their assets without sacrificing their core business.

Decarbonisation services uses advanced tools so companies can create and implement a decarbonisation roadmap for their energy systems, saving money and lowering emissions while maintaining reliability. By Leveraging hard data and deep modelling, Wärtsilä helps make decarbonisation in mining a reality.

Finally, the implementation of the decarbonisation roadmap is carried out using the GEMS Digital Energy Platform to achieve continuous optimisation of the microgrid and all its assets. The sophisticated energy management software suite monitors, controls and optimises energy assets on both site and portfolio levels. GEMS dynamically adapts to changes in market conditions, future-proofing energy assets, and reducing costs.

## ASPENTECH



Image Credit: AspenTech

**Aspen Mtell has been implemented in different aspects of the metals and mining value chain.**

Powered by AI, AspenTech's predictive and prescriptive maintenance solution, Aspen Mtell, avoids unplanned fixed and mobile plant and equipment outages by identifying the earliest possible indicators of potential failures using machine learning. At Investing in African Mining Indaba, representatives from the company will be on hand to discuss the solution in more detail.

Aspen Mtell notifies maintenance teams of issues using aggregations of sensor data to highlight potential failures and suggest mitigating actions, thereby providing a structured approach to improve maintenance efficiency and reduce risk of unplanned plant and equipment downtime.

Aspen Mtell has been implemented in different aspects of the metals and mining value chain from haul trucks and excavators to ball mills and mineral processing plants. By reducing equipment downtime, losses in productivity, and energy inefficiencies, Mtell has created significant a business impact helping customers to run efficient, safe, and sustainable mining operations.



## CIRCULAR

According to Circular, for certain commodities, the surge in demand seeks volumes ten times or more than the current market size and regulators and investors are simultaneously setting higher ESG expectations. Change is being driven by investor behaviour; regulation; consumers; and supply chain vulnerability and geopolitics.

Increasing public awareness, regulatory, legislative and investor pressure is compelling organisations to demonstrate the origin of materials, ensure responsible sourcing and extraction, and reduce greenhouse gas emissions. Organisations that are able to address these challenges soonest will significantly reduce their operating risk, boost competitiveness, and increase shareholder value.

However, answering the opportunity requires the right enterprise technology and supply chain digitisation. Circular is a technology business specialising in supply chain traceability and carbon emissions tracking. At Mining Indaba, Circular will discuss its mature, proven, and complete technology solution available to track high-risk and high-human-impact materials used within manufacturing and recycling supply chains. Rather than following paperwork as a proxy for the materials, Circular tracks materials as they change state within and throughout the manufacturing processes. Circular delivers multiple benefits for miners by reducing risk, increasing resilience and driving competitive advantage.

## AMIS

African Mineral Standards (AMIS), a leading international manufacturer and supplier of a wide range of matrix matched certified reference material (CRMs), has an international customer base and holds key partnerships with global commercial laboratory groups.

At Mining Indaba, AMIS will be exploring CRMs, all of which are multi-element certified products, manufactured from globally sourced ore materials from different deposits and commodities. AMIS has certified over 850 standards, consisting of major commodities such as gold, platinum group metals, base metals, and green metals.

The three key services offered by AMIS include CRM sales from an extensive library; custom-made CRMs using the client's own ore materials; and proficiency testing scheme – AMIS runs 50 or more interlaboratory testing schemes each year designed.

AMIS prides itself with providing quality matrix matched CRMs, to assist mining companies and mineral laboratories to monitor their quality control. The company is committed to providing a consultative service that ensures clients receive the best-suited CRMs for any deposit.



Image Credit: AMIS

**All AMIS CRMs are multi-element certified products.**



**DELIVERS A  
MAXIMUM  
PAYLOAD OF  
15,000 KG**

**The Elphinstone WR810 Delivery is designed to thrive in Africa's harsh underground environment.**

This flexible transport solution can be optioned with either a crane for lift on or lift off capability, or a larger deck to increase the payload to 15,000 kg. Ideal for moving parts, components, equipment, and maintenance personnel safely and securely throughout the mine site, the delivery will fit 6 or 8 standard size pallets dependent on deck length. To find out more, contact your local CAT dealer or visit stand D42 at African Mining Indaba (Feb 6-9).

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WR810 Delivery with crane



WR810 Delivery with 4.8m x 2.5m deck



Bushveld Minerals first acquired Vametco in 2017, with the plant being one of the four primary vanadium processing facilities in the world.

# A golden opportunity for Africa's mining industry



Image Credit: Bushveld Minerals

Fortune Mojapelo is the co-founder and CEO of Bushveld Minerals.

Ahead of his attendance at Investing in African Mining Indaba 2023, Fortune Mojapelo, co-founder and CEO of Bushveld Minerals, discusses the opportunities the energy transition is offering to the continent's mining industry.

**African Review (AR): What role will Africa have in the forthcoming energy transition and how will this benefit the continent?**

**Fortune Mojapelo (FM):** Africa stands to benefit from the shift to clean energy and technologies. The continent has 30% of the world's mineral reserves, including many minerals essential to the green transition. For example, the Democratic Republic of Congo (DRC) produces about 70% of the world's cobalt, while South Africa has the largest share of manganese reserves, platinum reserves and primary vanadium reserves, and among the world's largest sulphide nickel reserves. Madagascar and Mozambique have significant shares of graphite, and Zimbabwe has large deposits of lithium.

So, at an absolute minimum, Africa has an enormous role to play in the energy transition as host to much of the resources that are required. With the exception of South Africa, however, Africa has been predominantly a raw minerals exporter, with limited refining or linkages to domestic industry. The green energy transition and the rising demand for critical minerals presents

an opportunity for the continent to build a strong position in the green technology value chains beyond just supplying the mineral raw materials.

In the case of vanadium, Bushveld's founders identified early on, that the commodity was poised to benefit greatly as a viable long duration energy storage (LDES) solution for the global energy transition, given its specific attributes, which include long lifecycles, scalability, safety and re-usability. Specifically, Bushveld recognised the coming growth in the stationary energy storage sector and the dominant role that LDES and with it VRFBs, would play in this space.

With some of the largest high-grade reserves, solid infrastructure, and existing brownfield processing capacity-built decades back, the company recognised South Africa's unique positioning and opportunity to build a significant space in the vanadium market.

This coupled with our vertically integrated strategy that combines upstream, primary vanadium mining, beneficiation and downstream energy storage platforms, all driving for the global adoption of vanadium redox flow batteries.

**AR: How can the mining sector position itself to meet this burgeoning demand?**

**FM:** Just having the minerals in the ground doesn't mean the continent is front of the queue in terms of delivering these commodities of the future. There are many examples of regions in the world with major mineral deposits that have never been efficiently extracted due to various obstacles, either natural or man-made.

In the first instance, Africa must properly recognise the potential or opportunity and the enablers available to it in order to unlock them. This opportunity is a global market created by the energy transition. That market needs to be defined beyond the market value of the commodities, as ore, concentrate or refined metal, but beyond that to products/components for the energy transition technologies. This moves one from seeing a multi-billion-dollar opportunity to a multi-trillion-dollar opportunity.

Secondly, the enablers to capture a meaningful share of the value chains for these energy transition solutions are immediately available and accessible to the continent.

They include:

- The massive high-grade mineral resources
- Existing primary processing infrastructure that Africa has
- Technical capacity along the value chain – in a global marketplace this is highly mobile and available
- Abundant solar and wind power generation potential
- Captive local energy market supportive of the kind of critical mass needed to build local industry. Beyond basic access to electricity, a growing African economy will drive even greater electricity demand.

To pull all these enablers together what is needed is a coherent industrial strategy that mobilises the key policy levers – including but not limited to:

- A stable and competitive mineral and a visionary industrial policy
- A solid base of geological primary data
- Sound infrastructure, such as water, power and transport
- Fiscal levers that were so important in the development of the Li-ion industry.

Supporting this are the pre-requisites of political stability,



regulatory clarity, effective and efficient application of regulations – and here the challenges are significant but not insurmountable.

The industry will need to recognise the opportunity to play an active role in developing a supportive ecosystem for the energy transition technologies which will in turn support demand growth. It is a self-reinforcing loop. A good example of this is the work Bushveld Minerals, and indeed other vanadium producers have been playing in supporting the role of VRFBs in the stationary energy storage space, or the PGM industry's proactive efforts in supporting the development of the hydrogen economy.

**AR: How can the mining sector on the continent attract the investment required to do this?**

**FM:** As described above, the levers to attract this scale of investment needed are there and accessible. What is required to pull these levers together is the work of largely governments working collaboratively with the industry. Long term investors like certainty, and that covers everything from currency stability, the fiscal regime, mining regulations and costs.

In addition, having strong ESG credentials is more important than ever for the mining sector and its ability to gain a social licence to operate. With the growing importance of the mining sector in providing the materials needed for the green energy transition, more outside eyes are on the sector than ever before. Strong ESG credentials are key factors in attracting investment, with the mining industry under pressure to prepare for and mitigate the environmental and social risks mining operations hold, to ensure adoption of ethical practices, while working towards decarbonising processes.

**AR: What role will vanadium play in the forthcoming energy transition?**

**FM:** According to industry analysts, the vast majority of new electricity generation capacity going forward

will come from renewable energy sources supported by stationary energy storage. Stationary energy storage is forecast to grow more than 122 times in the next 20 years and will exceed 2,400GWh by 2040. By 2027, 90% of stationary energy storage applications are expected to be LDES a sweet spot for vanadium redox flow batteries, thanks to their longevity, scalability, safety and attractive levelised cost of energy proposition, among others.

The LDES applications will see vanadium demand more than triple in the coming decades according to the International Energy Association and the World Bank Group, which predicts that vanadium will be the fifth most impacted material by the energy transition, with the energy related demand for vanadium in 2050 alone being double the 2018 market at approximately 190,000 mtV of vanadium annually. And this is assuming vanadium is only one of several technologies in play with a relatively modest market share.

While this demand upside, which is accelerating, is promising, we still see demand in the short- to medium- term remain dominated by the steel sector where vanadium is, as it has been for more than a century, used as a strengthening alloy. In this sector, demand is expected to continue growing at a CAGR of ~3% through 2030.

Against this demand background, the natural question is whether there is sufficient vanadium supply to meet this demand. In the short-term occasional surpluses may be realised, we see in the longer term a potential structural deficit that will require significant investments in new processing capacity. There are abundant vanadium resources in the world, albeit geographically concentrated among a few countries – China, South Africa, Russia and Brazil, and to a lesser extent Australia. What will be required however is processing infrastructure to be built and this, in turn, will require sufficient incentive prices to be realised over a sustained period to attract the needed capital.



Aerial shot of the Vametco plant. Vametco operates as an open-pit mine which supplies ore to a vanadium processing plant located on the same property.

Image Credit: Bushveld Minerals

**AR: How is the company aiming to meet this potentially lucrative market?**

**FM:** Over the past six years, Bushveld Minerals has pursued a strategy that entails securing scalable, brownfield primary processing infrastructure to match its primary vanadium resources, while actively supporting the adoption of VRFBs in the energy storage sector. The company has invested more than US\$160mn in acquiring and refurbishing two plants – two of only four operational primary processing plants in the world – from which it supplies just under 4% of the global vanadium market. With a funded near term annual production rate of around 5,000 mtV, the company has a low unit cost production base that can yet be scaled even further as the market grows.

Our asset base is scalable with potential to increase production above the approx. 5,000 mtV production run rate to 8,000 mtV p.a. over the medium- to long-term. This growth will be facilitated through the advancement of the feasibility and pre-feasibility studies at Vametco and Vanchem, respectively, which will require modest further capital expenditure, relative to greenfield operations. The production growth potential is an opportunity to reduce unit costs further and can be done in incremental phases, each phase being value accretive with attractive internal rates of return per phase. The result is a large, low-cost primary vanadium producer with attractive cash generation potential through the vanadium price market cycles

Our vertical integration strategy

has seen us establish a meaningful role for the company across the full value chain of the VRFBs that are set to play an important role in the growing energy storage market, driven by the tremendous global energy transition push. These activities include:

- Construction of a 200MWh (8 Megalitres) vanadium electrolyte plant in East London, South Africa, which is nearing completion and will be commissioned in H1 2023
- Developing and deploying an innovative vanadium electrolyte rental solution that takes advantage of the non-degradation of vanadium electrolyte in VRFBs through the battery's lifecycle
- Development and construction of a proof-of-concept mini grid comprising 3.5MW PV Solar plant and a 1MW/4MWh VRFB at one of our operations, which paves the way for deployment of VRFBs across our operations and across the commercial and industrial as well as utility markets
- Investing in VRFB manufacturing capacity, through an indirect effective 25% shareholding in Austrian based leading VRFB manufacturer, CellCube.

This strategy, which has been implemented with reasonably low capital intensity (relative to the upstream mining and processing activities) has created significant opportunities for the company to capture economic value in this growing market sector, simultaneously supporting the growth and diversification of vanadium demand while positioning the company as a key supplier of vanadium in this sector. ■

Image Credit: Caterpillar

In September 2022, trucks equipped with Cat MineStar Command surpassed over 5bn tonnes of material hauled autonomously.

# Reimagining mining

The future of autonomous mining in Africa is closer than you think.

To some degree, autonomous mining is already embedded in much of Africa's vast mining sector, with computer-driven processes helping operators to maximise safety, efficiency and profitability on many different levels.

That's not true of course for the countless artisanal mining operations that proliferate on the continent. But in the more sophisticated corporate projects that churn out the bulk of Africa's coal, diamonds and precious metals, advanced technology is already playing an integral role.

An example is Resolute Mining's Syama gold mine in Mali, a modern sub-level cave operation producing around 2.4 Mtpa of ore. It is progressing to be the world's first fully autonomous underground gold mine, which will mean utilising autonomous haulage systems (AHS) and robotic loaders, used to move ore and waste to the surface, as well as drilling processes.

The goal is to create a state-of-the-art mining operation located within one of West Africa's least developed economies.

Swedish engineering group Sandvik Mining is working alongside the operator to fully automate the gold mine after signing a strategic framework deal several years earlier. To fully automate the Syama mine, Sandvik is delivering the proven AutoMine and OptiMine systems for analysis, process optimisation and automation,

including a full fleet of Sandvik TH663 trucks and Sandvik LH514E electrical loaders. But the company's automated loaders and trucks have now been working in mines around the world for over 20 years – so not such a new technology after all.

Sandvik recently landed a new order for a fleet of load and haul equipment to be delivered during 2023 on behalf of the Chinese mining services provider JCHX Mining Management. The machines will be used in the Kamoa-Kakula copper mine and the Kamoya copper and cobalt mine in the Democratic Republic of the Congo, where Sandvik's 'highest-capacity intelligent load and haul equipment' has been in operation since 2019, notes Mats Eriksson, president of Sandvik Mining and Rock Solutions.

Despite any upfront layout associated with the autonomous equipment at Syama, it is a strategy that is expected to significantly reduce long-term costs at the mine. This has already reduced the cost of gold production by US\$135 per ounce and cut mining costs by 30%, according to a 2022 analysis report by FutureBridge. Given the scale of cost savings over the lifecycle of a mine, this is set to be an area of prime interest to other mining operators across Africa and beyond.

## A competitive market

Leading players in the emerging AHS field include the likes of Hitachi, Caterpillar, Komatsu and Volvo. For

now, though, it remains a growing trend: by the end of 2020-21, there were only 855 autonomous mining trucks deployed in total around the globe, notes FutureBridge.

One of the reasons for the more rapid take up in developed markets is the higher cost of labour in comparison to sub-Saharan Africa. But in these advanced markets there's little doubt that autonomous mining technologies are now proving their worth.

In September 2022, Caterpillar surpassed 5bn tonnes of material autonomously hauled on mining trucks equipped with its Cat MineStar Command system. Cat autonomous trucks were on pace to haul more than 1.4bn tonnes in 2022 alone, a record for any single calendar year.

The trend is also driven by a coming together of technology, digitalisation and sustainability, as the mining sector and other industries worldwide grapple with all the challenges posed by the modern era, from climate concerns to resource scarcity.

The further advance of autonomous mining solutions, including intelligent haulage and drilling, is of course dependent on a robust network environment, capable of processing ever-increasing amounts of data and collecting feedback from a multitude of sensors and systems.

Technology group Rajant Corporation in 2022 completed a

first deployment of its fourth-generation BreadCrumb Peregrine system in South Africa with Anglo American at one of its open-cast platinum mines. The service provides a 4-6 times increase in overall throughput capacity enabling a host of new applications which can support applications for mine production systems, including proximity detection, fatigue management, and tele-remote drilling. This allows the mine to scale the overall network with the operation's demands quickly, bringing much higher bandwidth closer within areas of its pit production environment.

At the same time, investment and innovation will also further advance autonomous mining machinery and hardware. In September 2022, Sandvik unveiled an AI-enabled, fully autonomous Automine concept underground drill, known internally by the name 'Amelia'.

The battery-electric drill has no operator cabin, creating space for onboard water and battery storage. The drill only needs to know which tunnel and face it should tram to and can plan the rest of its mission autonomously, using data from the preferred mine planning software.

During drilling, the drill rig uses an AI-guided automatic drill bit changer to identify when bits are worn and changes them automatically. It's not yet to be found in the mines of Africa, but it's a future that is not far off either. ■





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# Smart minerals sorting eases eco concerns

Intelligent minerals processing has an important role to play in helping the mining industry prepare for the environmental challenges ahead.

Intelligent minerals processing could have a key role to play in helping Africa deliver the future resources the world needs, whilst minimising environmental footprint.

Interest in rare earth minerals is hotting up as consumer markets transition to more electric cars and adapt to other new technologies.

Europe wants all new vehicles registered to be zero emission by 2035, which will require high volumes of lithium for batteries.

Sensor-based sorting technology could significantly contribute to reducing the environmental impact of lithium mining and processing in different ways, according to experts at TOMRA Mining, which has its regional base in Johannesburg, South Africa, providing support to customers across the continent.

On the one hand, this technology is able to selectively reject waste and low-grade ore upstream of processing, which means that less material is processed, resulting in significantly lower usage of energy, water and chemicals. A complementary environmental advantage of this technology is the reduction of wet tailings.

On the other hand, sensor-based sorting technology addresses the challenge of basalt contamination, typical of lithium mines. Due to its high density – similar to that of spodumene – this high-iron, barren material is also concentrated by Dense Media Separation, contaminating the final product.

With sensor-based ore sorting technology, it is possible to sort out the basalt and therefore unlock value from existing stockpiles of contaminated materials, achieving a high-purity product.



The energy transition is putting minerals such as lithium in high demand.

Image Credit: TOMRA Mining

TOMRA Mining has already proved the concept at sites around the world, such as the Galaxy Resources Mt Cattlin mine in Australia, which had been stockpiling basalt contaminated material since 2016, while it searched for an effective solution. In 2021 it installed a TOMRA Pro Secondary Laser sorter, and over 12 months it processed around 1.2mn tons of stockpiled material, consistently achieving high purity with less than 4% basalt.

The technology has also proved its worth in processing phosphates at a sorting plant at Wa'ad Al Shamal in Saudi Arabia, with a capacity of around 1900 t/h.

The run-of-mine material contains significant amounts of unwanted flintstone, or chert, which has to be removed before the phosphates are

fed downstream for refinement processes. TOMRA's X-Ray Transmission sorters remove flintstones from the phosphate to reduce silicon content, so that the downstream process can be significantly downsized, resulting in much lower consumption of energy, water and flotation reagents.

With a growing presence in Africa, today there are around 190 TOMRA sorters in operation across the world, delivering a reduction in CO<sub>2</sub> emissions of 168,945 metric tonnes per year.

As attention turns to the continent to deliver more of the materials and minerals for the world's energy and environmental transition, advanced sorting and processing is likely to gain greater significance.

## A collaborative effort

Collaboration will be key in all industries, and companies like TOMRA are actively seeking opportunities to build partnerships with the big mining houses and other stakeholders across the mining supply chain.

It believes this is the path to achieving a circular economy where mining will play a vital role by supplying the minerals needed for the energy transition and the new low-carbon technologies.

Collaboration will also enable the mining industry to operate more sustainably, maximising the opportunities to reduce its environmental footprint. ■



A TOMRA Pro Secondary Laser sorter was installed at Mt Cattlin mine in 2021.

Image Credit: TOMRA Mining



## ORICA AND EPIROC COMMENCE LIVE BLASTING WITH AVATEL

Orica and Epiroc, in partnership with Agnico Eagle Mines Limited have successfully commenced live blasting with Avatel – the world's first semi-automated wireless underground development charging solution.

The milestone brings to life an industry-driven concept that improves safety at the face, which is one of the highest risk activities in underground mining today.

The award-winning innovation enables a single operator to prepare and wirelessly complete a full charging cycle from the safety of an enclosed cabin without compromising the quality of blast outcomes through the integration of Epiroc and Orica's flagship digital, automation and blasting technologies.

The first successful blast was loaded and fired wirelessly from the surface at the end of 2022, at Agnico Eagle's Kittilä mine in Finland.

Celebrating the significant milestone, Orica's



Image Credit: Orica

### Avatel at the face charging.

chief technology officer, Angus Melbourne, stated, "Together with Epiroc and Agnico Eagle we are extremely proud of the team in creating a solution that keeps people out of harm's way during what is considered one of the highest risk activities for underground miners around the globe.

"With Avatel, we can now effectively manage risk for the people who spend the most time every shift directly exposed to hazards at the development face while delivering all of the blast optimisation benefits that Orica's flagship technologies bring. The combination of digital, automation and wireless blasting technologies and by partnering with customers and peers, we can continue to solve the industry's biggest challenges across safety, productivity and sustainability, together."

Sami Niiranen, president for Epiroc's underground division, said, "This is a true milestone achieved for our industry where Epiroc in partnership with Orica have led the way to safer underground operation. By building on our recognised solutions and advanced Rig Control System, Avatel paves the way to safe productivity for the mining industry."

## The ideal tyres for quarries and mineral transport

After being utilised by Spanish company Cufica for its rigid dumpers, BKT's EARTHMAX SR 45 M tyres have distinguished themselves in the field under difficult conditions.

In line with its policy of gathering user feedback to help develop and perfect its products, BKT visited Cufica, a Spanish company founded in 1980, which operates in the extraction and transformation of slate, a water-resistant stone of common usage, especially in roof building.

Cufica is a leading company that employs about 100 people with a main and reference market in France and the United Kingdom.

"Cufica has made its contribution to develop the area by sharing its value. Generally speaking, I think the company is a very important source for the area," tells Juan Antonio Illescas Mateo, the Cufica's financial director. "People are the company's most important asset. Since our operations rely on manpower, it is essential being able to count on qualified workers, who are aware and prepared for this type of activities."

The people working for Cufica deal with the extraction of slate from quarries, i.e. extracting, loading and finally transporting the mineral to the factory. For all these activities, a large fleet of manifold equipment including loaders, drills, dumpers, and boring machines is necessary. To better deal with transport operations, the company decided to equip five rigid dumpers with BKT EARTHMAX SR 45 M tyres sized 24.00 R 35.

"In such difficult operating conditions, the required main features of a tyre are robustness, grip and traction, and of course, resistance and a long tyre life-cycle," explains Fernando Buelta Gonzalez, foreman of mineral operations at Cufica. "At our quarry, there are paths with a 10% slope. So, above all in adverse climatic weather conditions such as rain and snow, excellent traction and grip are required. Cufica's experience with BKT is extraordinary since they fully correspond to our needs and our operators can work in full safety."

EARTHMAX SR 45 M is an All Steel radial tyre that is available in three different compound types: normal, heat-resistant, and cut-resistant. Thanks to its distinctive feature, an E-4-deep tread, the tyre is able to withstand cuts and punctures. This is why adversities, as found in operating sites like extraction quarries with very demanding usage



Image Credit: BKT

### Cufica representatives explained that BKT tyres had excellent grip, traction, resistance and durability.

conditions, are no obstacle. Excellent traction and great resistance also for transport conditions on long hauls are guaranteed for all available versions.

### Keeping in touch

One of BKT's priorities is catering for the manifold user needs by developing increasingly effective and specific products that are particularly designed for different operating conditions. This is why BKT considers the direct testimonials of those who actually use their tyres on a daily basis (such as Cufica) so important.

The multinational company from India aims at a close contact with its users also by means of their website where the BKT Stories – namely user testimonials – gain broad visibility. Users can find the right product based on their specific needs.

Watch the BKT Story about Cufica at:

<https://www.bkt-network.com/bkt-stories/bkt-conoce-cufica>

# Liebherr wheel loaders to meet global challenges

Liebherr has launched three new wheel loaders, tailored to markets outside of Europe and North America.

Since 2010, Liebherr has been offering a series of wheel loaders tailored to markets outside of Europe and North America. Now Liebherr is modernising the three largest wheel loaders in this series with the new L 550, L 566 and L 580 models.

Liebherr has developed the three new models at the Bischofshofen plant, its long-standing centre of excellence for wheel loaders. Decades of experience in designing wheel loaders was one of the keys to success in the development process. “We also analysed our international customers’ demanding wheel loader operations over a long period. This included observing different mining operations around the world, some in Africa and South America, coal handling in India and timber work in several countries. Our customers’ experiences were crucial to the development of the new wheel loader series,” explains Wolfgang Rottensteiner, who is responsible for sales of the wheel loader series at Liebherr-Werk Bischofshofen GmbH.

## Performance increases

The new L 550, L 566 and L 580 wheel loaders feature the proven hydrostatic Liebherr travel drive, which is renowned for its great efficiency. Thanks to increases in engine power – approximately 17% for the L 550 – the travel drive is even more powerful while maintaining the same low fuel consumption. This is advantageous when accelerating or penetrating material and lowers fleet fuel costs. Liebherr has installed the diesel engine in the rear, where it also acts as a counterweight thereby increasing the tip load for the wheel loaders.

Liebherr has three lift arm versions on offer for the new models. Firstly, the z-bar kinematics, which come to the fore particularly in the lower lifting range and for the break-out force. Secondly, the industrial kinematics, which have been designed for working with heavy working tools such as high dump buckets and log grapplers. Finally there are the High Lift arms – an extended version of the z-bar kinematics with the longest lift arms in this wheel loader segment. These ensure greater reach and more productive loading procedures at great heights.

The working hydraulics of the wheel loaders are now characterised by larger components and new electrohydraulic pilot control. This technology also ensures responsive movements of the lift arms, independent of the size or weight of the working tool. Liebherr also offers a new, optional weighing device on the bases of the electrohydraulic pilot control. The assistance system works automatically as a check scale and provides real time information about the loading procedure. This data helps machine operators to precisely fill dumpers, lorries and railway wagons with the specified quantities and to avoid overfilling.

## Increased safety

The electrohydraulic pilot control enables operators to perform individual adjustments on the new wheel loaders. For example, they can set lift limitations and maximum tilt-out heights, thus reducing the risk of accidents in areas where space is restricted. The tilt-out speed can also be



A Liebherr L 550 wheel loader from the new series feeding a mobile crushing plant.

Image Credit: Liebherr

programmed to protect lift arm components and the installed equipment.

In addition to these optimisations for operating safety, Liebherr has also invested in the operational reliability of the new wheel loaders. Because they are faced with an abundance of challenges such as remote operating areas, extreme climates, demanding loading materials and multi-shift operation over a long period demand a high degree of reliability. For this reason, Liebherr has installed larger axles than were fitted on predecessor models. When maintenance and servicing are required, Liebherr supports its customers with a global sales and service network.

## Comfort and functionality

The modern design of the new L 550, L 566 and L 580 wheel loaders has particular functional advantages in addition to the bold look. The clean lines on the rear as well as the large glass surfaces in the cab facilitate good all-round visibility. Furthermore, the new reversing

camera, which is installed in a protected position in the engine bonnet, assists the machine operator to keep an eye on the area to the rear. Numerous details that have been seamlessly integrated in the wheel loaders’ exterior design make service work easier.

A sturdy cab access leads to the redesigned and spacious operator’s cab. One of the special features of the cab is the height-adjustable 9-inch touch display with intuitive menu navigation. The high-resolution display provides a clear overview of all the wheel loader’s operating information. The Liebherr control lever enables the highly-sensitive control of work movements as part of the modern operating concept. Hydraulic working tools, such as the log grapples, can also be precisely controlled with the optional mini joystick on the control lever. The new electrohydraulic pilot control also makes an important contribution here. Large window surfaces and well-thought out storage areas complete the modern cab design. ■



## KOMATSU SHOWS INTEREST IN GHH GROUP GMBH

Komatsu has entered into an agreement to acquire GHH Group GmbH (GHH), a manufacturer of underground mining, tunnelling and special civil engineering equipment headquartered in Gelsenkirchen, Germany.

Founded in the 1960s and currently part of the German-owned Schmidt Kranz Group, GHH offers a wide range of equipment focused on loaders (LHDs) and articulated dump trucks in the mid-seam mass mining, narrow vein and low-profile market segments.

The company also supports customers with aftermarket parts and service support through the entire life of each machine.

With this acquisition, Komatsu will add GHH's factories and rebuild facilities in key markets, in addition to its robust product offerings and talented staff.



Image Credit: Komatsu

The GHH MK-42 truck operating underground.

“We are very excited about this acquisition as it represents a great opportunity for Komatsu to expand its offerings for underground mining

equipment and accelerate new product development through synergies with Komatsu's existing team and product offerings,” said Peter Salditt, president and CEO, Komatsu Mining Corp. “By adding GHH's factories and rebuild facilities in key markets in Europe, South Africa, India and Chile. We also aim to strengthen production and service capabilities for our customers.”

Komatsu intends to continue the excellent service GHH provides and plans to support business as usual post-acquisition. The combined team will then work together to expand Komatsu's offering for underground mining equipment and increase customer access to products in new territories.

The official close of the acquisition is projected for the first half of 2023.

## NORDBLOND AND LOGRUS IT LAUNCH EDUCATIONAL PRODUCTS

Nordgold Group, an internationally diversified gold producer, and global high-technology company, Logrus IT, have launched a new educational product line that was designed based on Nordgold's best practice fitting a wide range of corporate users from various industries.

The line includes ready to use online courses covering disciplines such as asset management, basics of mechanics, hydraulic engineering, electrical engineering and cyber security, bearings and pollution control.

The courses consist of training and test sequences and can be integrated into any client's internal training platforms, which enables tracking trainees progress.

## Metso Outotec unveils Optimus Sinter

Metso Outotec has launched Optimus Sinter, a digital optimiser for iron ore sintering plants. The new tool facilitates improved sinter plant process performance and stability by holistically optimising the overall sintering processes.

Optimus Sinter is one of Metso Outotec's leading-edge digital solutions to ensure the optimal operation and maintenance of iron ore sintering plants. A sophisticated thermodynamic model forms the core of Metso Outotec's Optimus Sinter. It calculates the process conditions in the sinter bed, which cannot be measured with sensors due to the high temperatures, and offers advanced insights into the sinter plant operations.

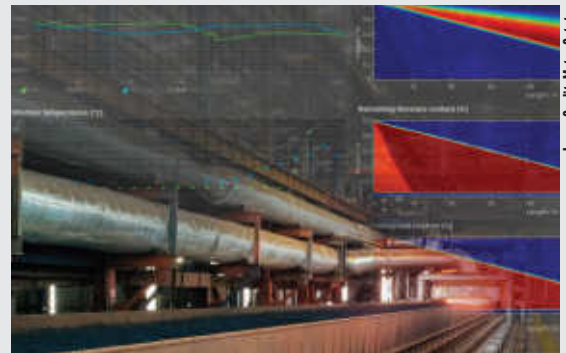


Image Credit: Metso Outotec

Optimus Sinter provides online, real-time process calculations.

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# Demand for cloud-based services sees data centres spike

According to Werner Schneeberger, data centre lead for Middle East and Africa at infrastructure firm AECOM, while the installed base across the continent is relatively small, there has been a massive growth spurt with the data centre market in Africa growing by 15% year-on-year.

The sector presents significant opportunities, especially as more companies require cloud-based services and solutions. However, at present the installed capacity across Africa is about 300MW, compared to a typical European city like Frankfurt with 500MW installed capacity. South Africa accounts for 75% of the data centre infrastructure on the continent.

“We lag far behind in providing installed capacity for businesses to migrate to the cloud,” says Schneeberger. Issues include political instability, endemic corruption and an unpoliced regulatory environment. In addition, there is a lack of suitable infrastructure across the continent, from power generation to terrestrial broadband fibre networks. Hence the main data centre developments in Africa tend to be concentrated where the subsea Internet cabling infrastructure lands.

AECOM has been involved with major data centre projects in South Africa since 2017, on the back of its US connections with major players such as Amazon Web Services, Google and Microsoft. The benefits offered by the local market are a strong banking system, a good e-commerce platform and a high demand for cloud-based enterprise services. “We have good connectivity and increasingly better fibre networks, which is why the bulk of the larger players have set up shop here,” says Schneeberger.

Data centres are typically multidisciplinary projects, which is where AECOM’s combination of in-house environmental, architectural, civil, structural and Mechanical, Electrical, Plumbing and Fire Protection (MEPF) engineering skills stand in good stead, combined with its cost control and programme management expertise. All of this is underlaid by a strong modelling coordination team: “A reason for our repeat work from major players is that we understand how to design and model with the latest collaboration tools available to us,” says Schneeberger.

Data centres are distinguished in terms of scale and complexity, referred to as hyperscale facilities on the larger end and edge facilities on the



Image Credit: AECOM

Werner Schneeberger is the data centre lead for Middle East and Africa AECOM.

“There is major growth in edge data centres, which are increasingly prevalent in Africa due to their modularity and compactness.”

**WERNER SCHNEEBERGER, DATA CENTRE LEAD FOR MIDDLE EAST AND AFRICA AT AECOM**

smaller end. Despite the size, all comprise common elements such as a server room and cooling and power supply, including back-up

power. The latter is increasingly based on renewable energy sources such as solar power or battery energy storage systems.

When major players enter a new territory, they typically lease space in a vendor neutral, co-located facility that is purpose built and mid- to large-sized, combining storage and processing in a single facility. However, exponential advances such as the Internet of Things has created a need to have smaller, high-powered processing facilities closer to the load or need to reduce latency and energy impact.

“Placing computing power within reach of the end user translates into a better customer experience and improved service delivery. There is major growth in edge data centres, which are increasingly prevalent in Africa due to their modularity and compactness,” says Schneeberger.

## The future of connecting the continent

AECOM is involved with major projects in Africa, supporting development of long haul terrestrial fibre networks in remote areas. “We became involved through our US colleagues and were asked to produce a concept design,” explains Schneeberger. An interesting aspect of the project is that the signal amplification stations, which are designed to boost the signal, will be located in remote towns or villages, combining it with small servers to create mini data centres.

“This will allow for a fibre line to be installed to such a village and effectively connect it to the rest of the world. The implications for the development and technological advancement of the rest of Africa are profound,” notes Schneeberger. The design includes a bolt-on power and cooling solution, with power from solar with battery energy storage.

“There is a move away from hydrocarbon fossil fuel solutions such as diesel gensets to more sustainable energy sources,” adds Schneeberger. “There is a lot of talk about green hydrogen, but we have a long way to go before it becomes feasible, especially for smaller installations. The advantage of this model is that it can be rolled out massively across Africa. It is the future of connecting the continent.” ■



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