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African Rev DECEMBER 2022 - JANUARY 2023 of BUSINESS and TECHNOLOGY **2023 REGIONAL OUTLOOK P18** Global shockwaves hamper sub-Saharan Africa's promising recovery **BAUMA REPORT** P32 An insight into the leading construction and mining machinery trade fair **ONSITE POWER P48** Mining's renewable renaissance taking shape P14

"Digital technologies are integral to building new industries and supply chains that will deliver sustainable growth and create new jobs." Amish Sabharwal, executive vice-president - engineering and simulation at AVEVA

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Cover picture: Installation of 350 mm diameter steel HDPE lined tailings pipeline during the construction of the tailings storage facility for the South Deep Gold Mine, South Africa ©WSP Cover Inset: Amish Sabharwal, executive vice-president engineering and simulation and member of the executive leadershin team at AVFVA

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Editor's Note

Welcome to the final issue of African Review for this calendar year, complete with our usual fix of reports, interviews and expert insights on the crucial industries helping to maintain the continent's continued development. As 2022 draws to a close, we take time to reflect on a year which saw most sectors mount firm recoveries as life slowly returned to normal. Despite this, an unpredictable global economy has stemmed projected growth, making for some concerning challenges ahead (page 18).

However, where there is challenge there is opportunity, and Africa is proving abundant in the latter. This is perhaps most obvious in the energy sector, exemplified by Namibia's charge to become a leading nation in the forthcoming transition by positioning itself as a hydrogen hub (page 29).

A return to normality was certainly felt at bauma this year where more than 495,000 visitors explored the solutions on display. Within, our report showcases a number of the prominent companies (page 32) as well as an interview conducted stand-side with SSAB on the prospects of fossil-free steel (page 37).

It is the introduction of innovation (specifically digital technology solutions) which appears to be shaping the mining explosives market at the moment (page 46), while renewable options are opening doors for onsite power in remote locations (page 48).

We can't be sure what is in store as we move into 2023 but one thing is certain – African Review will remain as a steadfast voice to help you make the most of whatever may come. To stay ahead of the curve, make sure to also log on to our website, with daily news and regular industry updates.

Robert Daniels, Editor

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Fresh from his attendance at COP27, Amish Sabharwal from AVEVA explains why digitalisation will play a central role in solving the climate crisis dilemma.

Going Digital Awards

The exemplary work of Bentley Systems software users in advancing infrastructure projects has been recognised at the company's Year in Infrastructure and Going Digital Awards 2022.

Economy

Economist Moin Siddiqi reflects on how 2022 has shaped the continent, with global shockwaves hampering a promising post-pandemic recovery.

Power

Namibia is leading the charge towards a hydrogen future with the first plant expected to begin producing electricity by 2024.

bauma 2022

A review of the 34th edition of bauma held in Munich, Germany, where 495,000 visitors arrived to view the latest construction and mining machinery entering the market.

Explosives

Digital technology solutions and innovations are boosting safety and efficiency in the mining explosives market.

The green economy

After being recognised as an integral part of the green economy transition due to its vast natural resources, it remains to be seen whether Africa is ready to meet this daunting challenge.

Manufacturing

Heman Kassan, director of Technodyn, provides some simple ways to reduce asset downtime in order to boost profit margins.









Egypt to host one of world's largest onshore wind projects

On the sidelines of the 2022 United Nations Climate Change Conference (COP27) in Sharm El-Sheikh, Masdar, one of the world's fastestgrowing renewable energy companies, along with its Infinity Power joint venture and Hassan Allam Utilities, signed an agreement to develop a 10GW onshore wind project in Egypt.

The memorandum of understanding (MoU) was signed by Sultan Ahmed Al Jaber, UAE Minister of Industry and Advanced Technology, UAE Special Envoy for Climate, and chairman of Masdar; and Sabah Meshaly, chairwoman of the Egyptian Electricity Transmission Company (EETC) in the presence of a number of senior officials.



The signing was completed on the sidelines of COP27.

When completed, the 10GW wind farm will produce 47,790GWh of clean energy annually and offset 23.8mn tonnes of carbon dioxide emissions - equivalent to around 9% of Egypt's current CO₂ emissions. The project, which will be one of the largest wind farms in the world, will be part of Egypt's Green Corridor initiative and will contribute to Egypt's goal of ensuring renewable energy makes up 42% of its energy mix by 2035.

The wind farm will save Egypt an estimated US\$5bn in annual natural gas costs, and help create as many as 100,000 jobs. Direct employment in the construction phase is estimated at around 30,000, with as many as 70,000 people being employed indirectly. After construction, around 3,200 jobs will be added for operation and maintenance.

Nayer Fouad, CEO, Infinity Power, remarked, "It has always been our endeavour to create opportunities where organisations and governments can make the shift to a more sustainable and renewable source of energy.

"We are confident that this project will greatly benefit the country and enable Egypt to take great steps forward on its journey in becoming a more sustainable and green nation. We look forward to expanding our portfolio of sustainable energy solutions that benefit not only Egypt, but provide the entire continent with a clean, green future."

8.2 FRANCE TO INSPECT KHALLADI WIND FARM

Dolfines, an engineering services company, has announced the signature by 8.2 France, its renewable energy services subsidiary, of a major inspection contract for 40 wind turbines at the Khalladi wind farm, located 30 km from the city of Tangier, Morocco.

Commissioned in 2018, the Khalladi wind farm generates a total installed capacity of 120MW which is the equivalent annual electricity consumption of 400,000 inhabitants. It allows an annual reduction in CO2 emissions estimated at 144,000 tonnes. 8.2 France has contracted with The First National Operation & Maintenance Company (NOMAC), a Moroccan private operator expert in operation and maintenance for desalination and a subsidiary of ACWA Power Group.

It is hoped that the satisfactory conclusion of this work, alongside other projects, will allow the company to position itself on future wind farm projects with the required references and expertise.

AFRICA'S FIRST INTEGRATED GREEN HYDROGEN PLANT

Fertiglobe, the strategic partnership between ADNOC and OCI N.V., has announced the start of the commissioning of the first phase of the green hydrogen plant in Ain Sokhna, Egypt, during COP27.

Egypt Green, which is owned, built, and operated by Fertiglobe, Scatec ASA, Orascom Construction and The Sovereign Fund of Egypt, marks an important milestone in the development of a green hydrogen ecosystem in Egypt and the broader African region.

Fertiglobe has a strong global network through its shareholders OCI N.V. and ADNOC and is an early mover in hydrogen and lowcarbon ammonia. The hydrogen tie-ins for up to 100MW of electrolysis have already been installed at Fertiglobe's two existing ammonia plants in Ain Sokhna which has a strategic position close to the Suez Canal Economic Zone. The project is being built by Orascom Construction using Egyptian engineers and state-of-the-art technology.

Nassef Sawiris, executive chair of OCI N.V. and executive vice-chair of Fertiglobe, commented, "We are pleased with the launch of the first tangible project of its kind and the first integrated green hydrogen plant in Africa. It is a true milestone that puts Egypt and Africa firmly on the map as one of the best places in the world to develop a green hydrogen hub, thanks to available land, abundant renewable energy sources, the significant pool of skilled labour, and our location on global cross-roads."

Terje Pilskog, CEO of Scatec, added, "Today represents a breakthrough for green hydrogen production in a strategically situated region. We see a massive green hydrogen demand driven by strong policy support globally, and Africa is perfectly positioned to take advantage of its low-cost renewables and strategic position."

BRIEFS

Morocco to supply UK with renewable energy



The project is expected to be operational by the end of the

Xlinks and Germany-based investor, conlenergy, have entered into a partnership to collaborate on Xlinks' plans to offer an exclusive supply of renewable energy to the UK from Morocco through four 3,800 km subsea HVDC cables.

The Morocco-UK Power Project is expected to be the world's largest endeavour of its kind, utilising wind and solar technology to provide 3.6GW of sustainable, reliable and affordable electricity to the UK for an average of 20 hours a day.

Sercel to support onshore survey



Sercel Nomad 65 Neo broadband vibrators operating in desert conditions.

Sercel, a manufacturer of high-tech solutions for subsurface exploration, has announced the sale of an 80,000-channel 508XT acquisition system and 24 Nomad 65 Neo broadband vibrators for deployment on a 3D mega-crew seismic survey in North Africa in late 2023.

The equipment will join an exiting installed base of two 508^{xT} systems and a fleet of 30 Nomad 90 Neo vibrators that were delivered in 2021 in the same area.



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Volvo Construction Equipment

Telecom Namibia and OMDis to bring Internet to Oranjemund

As part of its Integrated Strategic Business and Funding Plan, Telecom Namibia has partnered with OMDis to roll out new fibre routes in the town of Oranjemund.

Part of Telecom Namibia's Capex plan is to accelerate the roll out of fibre to pass and connect thousands of homes, thereby improving the coverage of its existing 10,676 km national fibre backbone. This project will add an additional 67.6 km of fibre to its existing national fibre backbone and will aid automation in various industries and boost innovative product and service offerings. The company aims to connect more homes and



The partnership will initiate the rollout of new fibre routes in the town.

businesses, with packages that start at 8Mbps and up to 120Mbps.

The signing of joint partnership also served as the official launch of the Oranjemund Core Fibre Connectivity Project. The agreement signals the serious intent of the two entities to invest in the expansion of digital technologies in Namibia, to enable the growth and development of digital services and digital communications. This joint investment ensures that the community of Oranjemund has the necessary infrastructure in place to enable its digital transformation.

Phase 1 of the planned joint investment commenced last month, along the CBD area, and will take about eight months to complete.

"A smart city requires a connectivity between the citizens, service providers and government. Telecom Namibia understands the pivotal role connectivity plays in a smart city ecosystem and hence we believe we are the most suitable partner to help transform OMDis into just that, a smart city with all-things-digital," said Telecom Namibia's board vice chairperson, Amanda Hauuanga.

Tony Bessinger, OMDis general manager, said, "Oranjemund will be the first town in the south to be completely covered by high-speed fibre. It is a deal structured such that the cost benefit of OMDis' investment is passed on to the end-user. High speed Internet at the cheapest price in Namibia!"

Bessinger further said that placing Oranjemund under affordable internet fibre connectivity will create possibilities not only for residents, but also for investors across industries to create businesses locally.

ORANGE LAUNCHES 5G CONNECTIVITY IN BOTSWANA

Orange Botswana is launching 5G with a coverage of 30% of the population, including greater Gaborone and Francistown. Other cities will follow in early 2023.

The announcement follows the launch of Botswana's first Orange Digital Centre, which will help bridge the digital divide and prepare Botswana youth for employment in a blossoming digital ecosystem.

5G, with its ultra-high speed and low latency, will support new disruptive services such as e-health, connected vehicles, connected cities, real-time gaming, smart homes, and learning through VR and augmented reality.

The fixed offers are available from 15Mbps for prepaid and from 20Mbps for postpaid, with a monthly rental from approximately US\$54 per month. The subscription of prepaid offers is accessible through Orange Yame App, USSD and Card to Wallet.

OCTOTEL TO EXPAND NETWORK IN WESTERN CAPE

Actis, a global investor in sustainable infrastructure, has announced that its portfolio company Octotel, a fibre network operator in the Western Cape region of South Africa, will expand its network to 500,000 homes with the support of an innovative social loan from Rand Merchant Bank (RMB).

The new facility provided by RMB will assist with Octotel's journey to double the size of its network over the next three to five years and to drive sustainable digital inclusion in South Africa.

This innovative financing solution will support Octotel's fibre rollout, particularly as it expands its network to reach areas that currently have no access to fibre.

RMB worked with Octotel to structure the loan as a social loan, which is designed to finance projects and activities that address social issues; in this instance, access to fibre and high-speed, affordable connectivity.

The loan is structured in accordance with the Loan Market Association (LMA) Social Loan Principles (SLP), which is an internationally accepted framework that seeks to facilitate economic activity that promotes positive social outcomes.

Phil Norton, transactor, sustainable finance and ESG advisory, at RMB, commented, "Social Loan financing represents a unique opportunity for RMB to partner with clients who have the potential to increase their social impact. Access to the Internet has become a basic need, and while South Africa has good connectivity in major centres, much of the country remains underserved, which limits opportunities in these areas.

"Addressing this gap, as well as issues around affordability, adoption and use of digital services, is key to an inclusive future. RMB believes that the work of Octotel plays an important role in ensuring digital inclusion."

BRIEFS

Zest WEG's delivers mobile switching station to EDM



By design, safe and quick MV switching is possible at any site.

Zest WEG has delivered a mobile switching station to Mozambique's national power utility EDM (Electricidade de Moçambique).

The 33kV switching station, complete with 36kV rated switchgear, is housed within a purpose-built enclosure installed on a double-axle trailer and includes all protection requirements to allow for quick connection and safe operation at all times. The switching station was designed and manufactured in South Africa.

Red Rocket gets legal close on wind projects



The projects will add a total of 364MW to the Eskom grid by the end of 2024.

The Red Rocket Consortium has achieved legal close for three wind projects in South Africa. The projects, Brandvalley and Rietkloof wind farms that border the Western and Northern Cape provinces and Wolf Wind farm in the Eastern Cape, were awarded preferred bidder status in October 2021, under Round 5 or the Fifth Bid Submission Phase of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP).





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Telia Cameroon and Clear Blue to power telecom services for MTN

Clear Blue Technologies International Inc will supply its Nano-Grid Smart Off-Grid power solutions and will be Telia Cameroon's preferred solar power provider for its telecommunications service rollout in Cameroon for MTN. The initial rollout of 50 systems is expected in early 2023.

"To support applications in Cameroon, we need systems that are cost-effective and provide reliable solar power without the need for diesel generators," said Jean Baptiste, manager of Telia Cameroon. "Clear Blue's systems are remotely managed and operated by Clear Blue,



The initial rollout of 50 systems is expected in early 2023.

reducing the initial size and CAPEX, while also significantly reducing OPEX, as we won't have to go to the site for maintenance and can triage a problem before it occurs."

"Telia Cameroon has a number of telecom deployments and work with major network operators like MTN Cameroon to bring connectivity to more people across Cameroon," said Miriam Tuerk, co-founder and CEO of Clear Blue. "The desire to move away from traditional diesel generator-based solutions was a key element of Telia's business plan. Their commitment to using Smart Off-Grid power will help transform access to telecom service across the country. As a market leader in the provision of clean, managed, off-grid wireless power for mission-critical telecommunications systems, Clear Blue is solving one of the biggest barriers to expanding connectivity in emerging markets: the ability to access costeffective, reliable solar power. Telia Cameroon is bringing connectivity access across Cameroon, and we are excited to see what the future holds with them."

BOAD AND DBSA PARTNER FOR INTER-REGIONAL COOPERATION

Serge Ekue, president of the West African Development Bank (BOAD), and Patrick Dlamini, CEO & managing director of the Development Bank of Southern Africa (DBSA), signed a memorandum of understanding (MoU) to lay the foundation for broader cooperation between the WAEMU region and southern Africa.

The signing of this MoU reflects BOAD's commitment to draw on the experience of other multilateral banks on issues related to inclusion in Africa.

Speaking about the agreement, Ekue commented, "BOAD is more than ever aware that the challenges facing Africa require a coordinated and multifaceted approach, involving all public and private development players. Consequently, we are convinced that the new partnership established between BOAD and DBSA, through this MoU, will help promote sustainable economic growth in the region and improve the living conditions of our communities."

Dlamini added, "Building Africa's prosperity requires all developing nations to work together to promote regional integration."

TRADE X EXPANDS WEST AFRICAN PRESENCE

TRADE X, a B2B cross-border automotive trading platform with headquarters in Ontario, Canada, has opened a new trade route in Ghana, strengthening the company's presence in Africa after having recently opened new import facilities in Lagos, Nigeria and Nairobi, Kenya.

With this, TRADE X is aiming to connect automotive dealers in various regions of Africa, which boast a rising middle-class population, to pre-owned inventory in North America, Europe and other strategic export locations.

"People in Ghana hold onto cars for a long time," said Oaniyan Jeremiah Williams, head of business development for TRADE X in Ghana. "There is both a huge market here and a need for a platform like TRADE X that connects buyers and sellers safely and compliantly."

The TRADE X platform connects automotive dealers, fleet owners, rental companies and mobility solution providers with trading partners around the world, with access to a secure and streamlined way that removes the complexities of logistics, homologation, compliance and customs. Dealers can use the marketplace to request specific makes or models using the platform's 'Instant Request' feature, review specific search results to assess real-time pricing, and make vehicle purchases safely, transparently and compliantly.

TRADE X has opened an office in Accra and plans to open a warehouse facility in the city.

"As the automotive industry responds to major shifts around environmental standards, dealers in the US and Europe will need a market for their older vehicles, and we believe that Ghana, Nigeria, and Kenya represent prime markets," said TRADE X senior vice president of global business development, Eric Gosselin.

BRIEFS

Commercial production begins at Bibiani Gold Mine



Plans to extend the Bibiani life of mine from 8.3 years to more than 10 years are on track.

Asante Gold Corporation has announced that the Bibiani Gold Mine (located in Ghana) ramp up remains on-track and commercial production has been established with three months of consistent production since the first gold pour was completed in July 2022.

All process plant and mine facilities are operating on a 24 hour per day basis and Asante plans to increase throughput to 250,000 tonnes ore per month by 01 2023.

USTDA, Zipline to expand healthcare access



The signing ceremony was hosted at the US embassy in Accra.

The US Trade and Development Agency has awarded a grant to Fly Zipline Ghana Limited (Zipline) for a feasibility study to expand healthcare access in Ghana and Nigeria using unmanned aerial vehicles.

The study will facilitate Zipline's goal of expanding its logistics services to make healthcare more accessible and affordable allowing Zipline to assess the viability of expanding its healthcare logistics services.

CarbonAi to support development of rural solar energy projects in Nigeria

CarbonAi, a developer of fully integrated GHG reduction projects and GHG emissions quantification and monetisation solutions, has signed a memorandum of understanding (MoU) with the Rural Electrification Agency (REA) of Nigeria, an implementation agency of the Government of Nigeria, to identify and develop small-scale solar energy projects in the country.

The projects will be funded by proceeds from carbon credits that are generated through CarbonAi-financed and developed flare gas capture projects in Nigeria.

Under the MoU, the parties will explore opportunities to finance and develop solar



Gas flaring is a common practice in oil and gas activities worldwide.

energy projects in unserved or underserved communities near CarbonAi's flare gas capture projects in Nigeria. The REA will apply its knowledge of Nigeria's rural electrification requirements and programmes to identify appropriate project opportunities and liaise with local communities.

CarbonAi, in turn, will apply its carbon finance and project development expertise to finance, design and construct the projects. The company will also quantify, verify and monetise greenhouse gas (GHG) emissions reductions using its proprietary data management platform.

"We are excited to work with the REA as our CarbonAi climate dividend programme partner in Nigeria," stated CarbonAi's chief carbon officer, Yvan Champagne. "We are strong believers in win-win outcomes, and we believe our climate dividend programme captures the spirit of the energy transition by leveraging immediate reductions in today's energy system to build the energy system of tomorrow in Nigeria."

Managing director and CEO of the REA, Ahmad Salihijo Ahmad, added, "REA's collaboration with CarbonAi is timely and solution-driven. The off-grid space in Nigeria is undergoing commendable growth. With the resultant opportunities, key stakeholders must take the responsibility to leverage these opportunities to accelerate sustainable impact nationwide. This is another strategic and innovative way to finance climate-resilient infrastructure in Nigeria while alleviating energy poverty."

NEOT OFFGRID AFRICA, GDS INTERNATIONAL AND ARESS TO DEVELOP MINI-GRIDS IN BENIN

NEoT Offgrid Africa, GDS International, and ARESS plan to enter the rural electrification sector in Benin by creating a joint company, Les Soleils du Bénin.

The partnership begins with a flagship project aiming to electrify 12 localities in Benin within a year. This project is operated within the framework of the call for project proposals launched by the MCA-Benin II Offgrid Clean Energy Facility.

The goal is to install 1.7MW of photovoltaic capacity and 3MWh of battery capacity in all 12 localities, supplying more than 5,000 homes and businesses with electricity.

Idris Tayebi, director of NEoT Offgrid Africa, commented, "We hope that this initiative will give rise, in Benin and elsewhere in the region, to other electrification programmes using decentralised solar energy as an energy solution for isolated or landlocked regions."

JGC AWARDED FEED Contract for floating LNG PROJECT IN NIGERIA

JGC Corporation, which operates the overseas engineering, procurement and construction (EPC) business of the JGC Group, in partnership with Technip Energies, has been awarded the contract for the front end engineering and design (FEED) of the floating liquified natural gas (FLNG) facility project in Nigeria, pioneered by UTM FLNG Limited.

The contract is for the FEED of a FLNG plant producing 1.2mn tons per annum of LNG and other products including LPG and condensate, with the completion date for the FEED slated for December 2023.

JGC Corporation will be primarily responsible for the topside (LNG production facilities) design, while Technip Energies will be responsible for the hull and the mooring system design.

Upon completion of the FEED, the engineering, procurement and construction (EPC) phase is envisaged and, if realised, this will be the first FLNG facility in Nigeria and a milestone project for the country.

JGC Corporation has delivered the EPC for PETRONAS in Malaysia, and together with Technip Energies for Coral FLNG SA in Mozambique. Through the UTM FLNG project, it aims to expand business in Africa and contribute to the further development of industry and infrastructure.

This project is expected to enable the West African country to maximise the exploitation of stranded gas resources in a sustainable manner, while also contributing to the Government's agenda of reducing flaring and optimising environmental sustainability in energy developments.

At the signing of the contract, Timipre Sylva, Minister of Petroleum Resources, Nigeria, is reported to have said that the project is a step in the right direction for the country to develop, exploit and monetise its more than 209 trillion cubic feet (tcf) of proven gas resources and potential upside of 600 tcf of gas.

BRIEFS

Raxio Group starts construction of Raxio Abidjan



The facility marks the group's entry into West Africa.

The Raxio Group, a pan-African data centre developer and operator, has held a groundbreaking ceremony marking the start of construction of its fifth - and Côte d'Ivoire's first -Tier III carrier neutral colocation data centre, located at the Village of Innovation and Technology (VITIB) in Abidian, Côte d'Ivoire.

The ceremony marked the first of multiple phases of construction, leading to a ready-for-service date of the data centre in the second half of 2023.

Harren Group extends presence in Africa



With the opening, the group's dedicated and personal services are made available to customers locally.

German shipping and logistics company, Harren Group, has opened an office in Lagos, Nigeria - its first on the continent

"The new office represents the entire Harren Group and serves as a basis for further business development in West Africa," explained managing director, Harren Nigeria, Paul Okpurughre. "We want to intensify the proximity to our customers and our business activities in the region."

MEMD of Uganda partners with HDF Energy to pilot first green hydrogen power plant

The Ministry of Energy and Mineral Development (MEMD) of the Republic of Uganda is aspiring to advance green hydrogen development in the country and capture domestic opportunities through green power generation using hydrogenbased storage.

The Minister of Energy, Ruth Nankabirwa Ssentamu, on behalf of the Ministry of Energy and Mineral Development, has signed a Memorandum of Understanding (MoU) with Nicolas Lecomte, HDF's director for southern and East Africa, during the Energy Day at COP27. This MoU contributes to paving the way for the development of a first Renewstable power plant in Uganda. The proposed



A renewstable power plant operates by combining a photovoltaic plant and mass storage of energy through a hydrogen chain.

first non-intermittent renewable energy power plant using hydrogen technology is set to provide yearround supply for the equivalent of 24 hours a day and prefigures the future of renewable energies by eliminating their intermittency through hydrogen long-term energy storage.

HDF Energy is developing several other multi-million Euro projects of this kind in various areas of the world, with recent success seen in French Guiana, South America, where the world's first utility scale Hydrogen-to-Power plant is being constructed. As a producer of electricity, using state-of-the art technologies, HDF Energy will locally create green jobs and develop skills, thus contributing to the regional and national economy of Uganda.

"The novelty of the Renewstable power plant is such that political support is paramount to enable a first project, and the reforms to be conducted. Our cooperation with the Ministry on a first project in Uganda aims at, amongst other objectives, working jointly on a practical case to inform the local regulation, as well as creating an enabling environment and skills in Uganda for the green hydrogen industry," said Lecomte.

Ssentamu remarked, "On behalf of my Government, we would like to thank HDF for the initiative taken. I know the technology will come with an opportunity for our people. We are open and will work with HDF, the entire region is going to be transformed."

KIBO RENEWS MOU WITH TANESCO

Kibo Energy PLC has announced the signing of a renewed MoU with TANESCO in relation to the development of the Mbeya Power Project as first announced by the company in 2018.

The objective of this MoU is to establish a general framework of collaboration and cooperation to enable the design, development, financing, construction, commissioning and operation of the Mbeya Power Project and its associated infrastructure. The project is Kibo's initial flagship energy project based in Tanzania where the company aims to build a 300MW steam-powered power station in alignment with the Tanzanian Power System Master Plan (2020).

Louis Coetzee, CEO at Kibo Energy, said, "We are delighted to see this robust flagship project revived. The renewed MoU provides Kibo with an exciting opportunity to resume co-operation with TANESCO in making a contribution towards addressing Tanzania's extensive and urgent energy needs."

HOMEBIOGAS TO SUPPLY BIOGAS SYSTEMS IN RWANDA

After HomeBiogas emerged as the winner of a UN tender in Rwanda, it swiftly decided to supply biogas systems for the treatment of organic waste for farmers in the region. This will enable families to become more resilient by creating their own cooking gas and farmers to become more independent with their own-grown organic fertiliser.

HomeBiogas also has a huge potential in reducing methane gas emissions, thus resulting in the reduction of more than six tons of carbon dioxide for each system annually. Moreover, HomeBiogas's innovative technology provides efficient and effective waste-to-resource solutions to farmers resulting in the improvement of crop outputs and revenue opportunities.

HomeBiogas has already been implemented in thousands of farms across the world which are now enjoying tens of thousands of litres of organic fertiliser as well as a steady flow of cooking gas.

Founder and CEO of HomeBiogas, Oshik Efrati, commented, "We are grateful that the UN has selected our technology for the third time this year. Our first two projects with the UN in refugee camps in Malawi and Zimbabwe were successfully implemented and now winning this tender will also bring our technology to hundreds of families in Rwanda. We see this win as an important business development and we believe it will lay the foundation for additional opportunities. We are witnessing a growing global demand for climate tech and waste management innovation, and this is noticeable at COP27, where we're currently showcasing our solutions."

The signing of the agreement with the UN followed HomeBiogas being chosen as an official supplier of the UN, thus allowing the company access to tenders for the supply of waste treatment systems in other UN projects around the world.

BRIEFS

Progress in financing for Nyanzaga Project



OreCorp has received indicative debt funding proposals for the development of the Nyanzaga Gold Project, with non-binding expressions of interest from European, African and Tanzanian banks for more than US\$400mn, well in excess of the US\$300mn debt target. Discussions have begun with potential credit funds, royalty and streaming providers as complementary funding sources to develop the mine and extend its life beyond the definitive feasibility study (DFS).

Advancing Africa's cold chain progress



The University of Birmingham plays a leading role in ACES.

Government representatives from Rwanda and the United Kingdom joined the International Finance Corporation (IFC) to sign a statement of cooperation at COP27 to help accelerate scaling up of innovative cooling technologies in Africa through the Africa Centre of Excellence for Sustainable Cooling and Cold-Chain (ACES). The goal is to accelerate deployment of sustainable, resilient, temperature-controlled, end-to-end connectivity for food and health products.

Mobility 54 invests in BasiGo to build electric mobility ecosytem in Africa

Mobility 54 Investment SAS, the corporate venture capital subsidiary of Toyota Tsusho Corporation and CFAO SAS, has decided to invest US\$1mn in BasiGo Inc., a startup in the electric bus business in Kenya.

Toyota Tsusho Group has established greenhouse gas (GHG) emission reduction targets and investment strategies and is accelerating its related businesses to contribute to the transition to a decarbonised society, which is one of its key sustainability issues. Mobility 54 has worked to build an electric motorcycle ecosystem through investments in Zembo, a startup



Electric buses will help solve social issues by reducing GHG emissions and improving profitability.

in the electric motorcycle business, and Aceleron, a startup in the battery business. The group is now entering into the electric bus business through the investment in BasiGo. Toyota Tsusho will accelerate the electric mobility business by utilising the innovative technologies of these startups and combining them with Toyota Tsusho Group's automobile businesses in Africa.

Electric buses are expected to help solve social issues by reducing GHG emissions and improving the profitability of the public transportation industry. Established in Kenya in 2021, BasiGo operates the electric bus business with importing and selling electric buses, leasing batteries, and providing charging stations, with the aim of achieving carbon neutrality in Africa and improving the profitability of public transportation operators. Partnered with electric bus manufacturers, BasiGo imports electric buses and batteries to Kenya, sells electric buses to bus operators, and leases batteries to bus operators through a battery-as-a-service platform. In a partnership with a local transportation business, they started operating two electric buses supplied by BYD Co. Ltd., a Chinese manufacturer, in Nairobi in March of this year. The buses have been well accepted by passengers because of their quietness and comfort, which is leading to an increase in inquiries for purchase.

Through this investment, the company plans to increase the number of BasiGo's electric buses in the coming years. Toyota Tsusho and CFAO group, through their CVC Mobility 54, will continue to invest in startup partners with innovative technologies and services for Africa.

AIIM INVESTS IN KENYA'S ROAD NETWORK

African Infrastructure Investment Managers (AIIM) has committed to invest US\$34mn into Kenya's Road Annuity Programme through its pan-African AllF4 Fund.

Its investment will fund road improvements to reduce travel times, bypass densely populated areas, lower vehicle operating costs, increase fuel efficiency and improve Kenya's flood resilience. As most of the transport activity in Kenya occurs on a network of gravel and earth roads, the Government of Kenya is aiming to modernise its road network by paving around 10,000 km of road across the country.

Ed Stumpf, investment director at AIIM, said, "We look forward to partnering with Mota-Engil, Lee Construction, Stanbic Bank, MIGA, and the Government of Kenya in this expansive project, which will better link regional communities to neighbouring markets and national transport networks, facilitating more efficient logistics and fostering economic growth."

AFRICA DATA CENTRES ADDS CAPACITY IN KENYA

Africa Data Centres has announced its decision to add a capacity of 1MW to its data centre facility in Nairobi, Kenya. The build began in mid-June and will take an estimated 40 weeks to complete. Moreover, it will be the first EDGE certified data centre in the region.

The decision comes on the back of the expansion announcement which Africa Data Centres made in November last year around building two more data centres in the region for approximately US\$200mn.

Dan Kwach, managing director of Africa Data Centres, said, "The East Africa region is one of the Africa Data Centres' key markets as there is a skyrocketing demand for data centres in the region. The demand for digital technologies has accelerated as businesses of every type and size in Africa move to quicken their digital transformation journeys. The immediate 1MW facility is a key part of this expansion as Kenya is a critical African market in terms of being at the vanguard of hyperscale data centre demand and digital transformation in East Africa."

One of Africa Data Centres' missions is to promote job creation, partner with local companies to build facilities, strengthen the economy, and promote social growth in all the regions of operation. The expansion sits within the already Tier III Certified environment, popularly known as the East Africa Data Centre facility.

Kwach explained that the new facility aims to pave the way for Africa Data Centres' hyperscale customers to deploy technology solutions to the region in low latency. This is one of three expansion projects earmarked for East Africa and is a significant milestone for the organisation, as it highlights the tremendous growth opportunity it sees in Kenya and the continent as a whole.

BRIEFS



forwarding business in Africa.

WeFreight launches in Kenya

WeFreight has opened for business in Kenya, with an office in Nairobi and future plans to establish a presence in Mombasa. The company's initial focus in Kenya will be the facilitation of FCL and LCL ocean freight imports, supported by customs clearance services, while also offering a full range of air freight solutions for customers.

It will also provide project logistic services, dry bulk vessel charters, refrigerated and temperaturecontrolled shipping, and warehousing.



Accelerating Burundi's economic arowth.

Unlocking Burundi's potential

By strengthening its private sector and improving its business environment, Burundi has the opportunity to create more jobs, accelerate economic growth and attract more foreign direct investment, according to a report published by IFC and the World Bank. For Burundi to realise the full notential of its agribusiness sector and develop beyond subsistence farming, the report recommends gradually liberalising tradeable sectors to open them up to more private investors.

Upcoming Events Calendar 2022-2023

JANUARY

16-18

WORLD FUTURE ENERGY SUMMIT Abu Dhabi, UAE

https://www.worldfutureenergysummit.com/

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

AFRICA ENERGY INDABA Cape Town, South Africa https://energyindaba.co.za/

7-9

7-9

MIDDLE EAST ENERGY Dubai, UAE

https://www.middleeast-energy.com/en/home.html
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/

ENSURING STABILITY, SECURITY AND SUPPLY: INVESTING IN AFRICAN MINING INDABA PREPARES FOR RECORD-BREAKING RETURN

In May 2022, Investing in African Mining Indaba set the tone for postpandemic events when the cream of the continent's mining industry descended into Cape Town for four days of speeches, debates, presentations and innovative solutions on display.

No less than three presidents graced the stage of the conference as industry professionals looked to address the important issues around the energy transition, ESG and economies -2022's leading theme.

This year, the show returns to its usual position in February (running in Cape Town from 6-9 February 2023) under the theme 'Unlocking African Mining Investment: Stability, Security and Supply'. According to Simon Ford, portfolio director for Investing in African Mining Indaba, this will capture the real geopolitical shifts and economic disruptions the continent is experiencing, and which are providing pressure points (and opportunities) within the industry.

The programme will delve into economic empowerment strategies, ways to support supply chain security for the energy transition and opportunities to capitalise on the commodities super cycle. A number of new initiatives will also be debuted, including the Explorers Showcase, the Junior MINE and the Official Government Leaders Programme.

Tom Quinn, head of content at the Investing in Mining Indaba, commented, "One particular programme we are excited about for 2023 is the Explorers Showcase, where we want to showcase early stage explorers through presentations and core samples to help stimulate those muchneeded conversations with investors."

"To compliment this, we will run the Junior ESG Forum, as well our ESG Awards. We are also delighted to launch our new InfraTech Indaba content programme which combines our previous Mining 2050 and Infrastructure & Supply Chain streams into one platform, which will showcase leading



suppliers and experts involved with the convergence of technology, infrastructure and critical supply chains."

Mainstay content streams will also feature alongside the newcomers, including the Ministerial Symposium, Intergovernmental Summit, Green Metals Day, Sustainable Development Day, the Young Leaders Forum, the General Counsel Forum, and the Innovation & Research Battlefield.

Outside of the content programme, attendees will also have unparalleled access to the latest solutions, services and equipment being offered by industry providers. More than 140 sponsors and exhibitors have already been confirmed, including Anglo American, Barrick, Rio Tinto, Mota-Engil, Newmont Africa, Exxaro Resources, BME, Caterpillar, Comacchio, Epiroc, Gecamines SA, Hitachi Construction Machinery, Honeywell, Komatsu, Liebherr, Magna Tyres, Normet, Wärtsilä Energy, and many more.

Visit the website for more information at: https://miningindaba.com/

AFRICAN REVIEW / ON THE WEB

A selection of product innovations and recent service developments for African business Full information can be found on www.africanreview.com

H₂-INDUSTRIES AND TERRA SÕLA GROUP AG TO PROVIDE **GREEN POWER**



The agreement supports Terra Sola's development of large-scale integrated solar enerav programmes

H₂-Industries, a global hydrogen generation and energy storage solutions company, has signed an MoU to support Terra Sola Group AG, a Swiss-based developer of integrated renewable energy projects, in the development of tailor-made, largescale integrated solar energy programmes for selected countries across Africa. The programmes will use H₂-Industries liquid organic hydrogen carriers (LOHC) technology.

The cooperation is aimed at accelerating the transition of local industries to renewable energy, driving electrification, and boosting socioeconomic development.

Michael Stusch, CEO of H2-Industries, said, "We have just returned from Egypt where COP27 was held this year, where the importance of transitioning the global energy sector has been emphasised by a dramatic call to action.

"Together with Terra Sola Group AG, we will focus our attention on giving selected developing countries access to much-needed clean power which will help boost their long-needed economic development, while making their contribution towards the global Net-Zero emission targets. Clean energy transition is a once-in-alifetime opportunity for Africa, a chance to reduce poverty and lift growth potential."

Several project plans are currently in the final negotiation stages with the respective government authorities of the target markets. The implementation of the first project commencement is anticipated for Q1 2023.

EGYPT'S FIRST POTAIN MCR **295 CRANES BEGIN WORK** FOR MASPERO TRIANGLE PROJECT



The Potain MCR 295 luffing jib cranes have a 60 m iib length and a load capacity of up to 16 t.

Egyptian Potain dealer IDP has successfully erected and commissioned the country's first two Potain MCR 295 luffing jib tower cranes to help contactor, Orascom Construction, develop the Maspero Triangle district in downtown Cairo.

Given the limited space on the 75acre area by the River Nile, Orascom Construction needed cranes that were not only reliable, consistent, and high performing, but which could also work efficiently on a confined jobsite, helping to meet delivery deadlines.

With a 60 m jib length and load capacity of up to 16 t. the two Potain MCR 295 luffing iib cranes were ideal for the job. The compact and versatile design with near-vertical luffing capability enables multiple cranes to be positioned on site and avoids oversailing existing buildings.

IDP and Potain erected the cranes with an initial 37 m height under hook and they will reach a final height under hook of 150 m. The cranes will remain on site for approximately three vears

HONEYWELL AND MCIT TO **REDUCE ENERGY CONSUMPTION OF** BUILDINGS



MCIT and Honeywell sign an MoU to improve operational efficiency in aovernment buildings across Eavpt.

Honeywell and Egypt's Ministry of Communications and Information Technology (MCIT) have signed a Memorandum of Understanding (MoU) which aims to advance sustainability, reduce energy consumption and improve operational efficiency in government buildings across Egypt.

the strategic MoU supports the billion-dollar National Climate Change record of delivering sustainable smart city solutions in the MENA region.

Honeywell, as part of the agreement, aims to deploy software and hardware solutions within two main government buildings: The New Governor's Building in South Sinai and the Sharm el-Sheikh International Hospital. Powered by Honeywell Forge, Honeywell Buildings Sustainability Manager is a suite of solutions designed to help reduce the environmental impact of buildings, and support carbon neutrality. By utilising artificial intelligence and machine learning. MCIT will benefit from smarter, more sustainable buildings without compromising on the occupant experience.

"Honeywell is proud to collaborate with MCIT to advance Egypt's sustainability goals through digital technologies, in support of Vision 2030," said Khaled Hashem, president, Honeywell Egypt and North Africa

FIA FOUNDATION WARNS OF **DANGERS AMID MOTORCYCLE BOOM**



There are 27 million registered motorcycles in sub-Saharan Africa as of 2022.

Urgent action is needed to address the boom in sub-Saharan motorcycles to deliver on safety, sustainability and climate, warns a new report by NGO Amend, the FIA Foundation, and the Fédération Internationale de Motocyclisme (FIM).

The report, 'The Wheels of Change: Safe and Sustainable Motorcycles in sub-Saharan Africa,' makes recommendations to maximise motorcycle benefits while managing and minimising their risks.

It highlights that there are 27 million registered motorcycles in sub-Sahara Africa as of 2022, rising from just five million in 2010. The motorcycle boom supports livelihoods and economies by offering new mobility and commerce options and their use is expected to spread and grow.

The health impacts of motorcycles are, however, profound, the report warns. Motorcycle riders account for more than half of all road deaths in some countries. Standardised helmet use is the single most effective way of reducing motorcycle head injuries by up to 72% and fatalities by up to 39% (according to WHO). Legislation and enforcement for safe use by riders and passengers alongside certified standards, with robust testing facilities, are therefore needed.

Saul Billingsley, FIA Foundation executive director, said, "There is an urgent need for an action agenda that both mitigates negative impacts, with a focus on motorcycle helmets, ABS and electrification while planning for a low carbon future based on widely available, clean public transportation."

Signed on the sidelines of COP27,

objectives outlined as part of the Strategy 2050. It also enhances Honeywell's established tracked

Counting carbon, not calories

Amish Sabharwal, executive vice-president - engineering and simulation and member of the executive leadership team at AVEVA explains why digitalisation will play a central role in solving the climate crisis riddle.

From 6-18 November in Sharm El-Sheikh, Egypt, heads of state, ministers, climate activities, civil society representatives, CEOs, and key negotiators gathered at the 27th session of the United Nations Climate Change Conference of the Parties (COP27) to marshal their efforts in the fight against the climate emergency.

While every element of this was explored, a standout facet which was discussed in detail is the role of digitalisation and how the environmental challenge should also be viewed an opportunity to accelerate fourth industrial pursuits.

This was a view presented by Sabharwal who spoke to *African Review* as he attended the conference in Egypt. He commented, "Something that has stuck with me was put forward by one of the professors speaking here. They said we have to start counting carbon like we count calories for a diet. What this really means is we need to make sure that every carbon molecule across customer supply chains is visible – this is the opportunity for a technology company like us."

AVEVA's role in tackling the environmental challenge, Sabharwal continued, is to support the full spectrum of the industrial world and its customers. Traditionally this has been through utilising digital solutions to reduce operating costs and improving process safety but now there is a growing emphasis to lower carbon output as well.

"15% of global CO₂ can be abated through maximising energy efficiency in the industrial world. There are millions of plants around the world and the question is how do we improve the energy efficiency in those facilities? That is where digitalisation has a huge opportunity.

"AVEVA is probably in 80% of industrial assets around the world. where we capture industrial data such as industrial, operations and maintenance data. We store this and we can then use it help build models in the future which can allow plants to operate more sustainably (alongside bringing down operating costs and improving process safety). Important here is collaboration, between organisations but, first, between departments and individuals within businesses. I think this concept will definitely help unlock the riddle of solving sustainability and an open economy based on free-flowing data networks will be essential here." The other big opportunity for

GUltimately, digital technologies are integral to building new industries and supply chains that will deliver sustainable growth and create new jobs."

AMISH SABHARWAL, EXECUTIVE VICE-PRESIDENT -Engineering and simulation and member of the Executive leadership team at aveva Amish Sabharwal is the executive vice-president - engineering and simulation and member of the executive leadership team at AVEVA.

companies like AVEVA, Sabharwal continued, is in opening up new avenues for green energy. "I think the biggest bang for the buck, if I were to take away anything from COP27, is that hydrogen is the commodity that really has the potential to solve the climate riddle. AVEVA, in collecting and presenting industrial data in consumable forms, can help customers to build green, sustainable assets not to mention open up possibilities like carbon capture and sequestration."

Providing but one of AVEVA's many examples of its work in this field, Sabharwal explained how for the Sener NOOR Solar Plant in Morocco, the company uses IIoT technology to collect data every millisecond which is then collated in a centralised operating environment for engineers to analyse. As a result, the operator was able to observe the optimal reflective angle of one million solar cells and adjust them to maximise the capture of sun rays and ultimately produce more low carbon energy, more efficiently.

Africa at the fore

When it comes to opportunities around the energy transition, there are few regions with greater potential that the African continent – a fact made more pertinent by COP27 being held on African soil this year.

"I think it is fantastic the conference has been held here. COP27 has raised the awareness on the challenges that climate change has brought on the continent and what is clear is that Africa now has a huge opportunity when it comes to creating renewable energy sources. The continent does not have established tiresome bureaucratic processes nor is it as subjected to influential 'blocking' industries which appear to slow down the transition.

mage Credit: AVEV/

"This means that, in many areas, green assets can be established quickly to take advantage of the significant renewable potential in the form of wind and solar. We can help deliver these assets and develop the infrastructure required to support them as well as help them (and other facilities) run more efficiently."

From his experience at COP27, Sabharwal surmised that while many people are familiar with digitalisation to a degree, there remains a lot of ignorance and a lack of perception of what it can do.

"I think many people use 'digitalisation' as a buzzword without understanding what it really means – there is still a lot of education to happen on this front and one of our jobs at the conference was to raise awareness on how digitalisation can solve our customer's problems and reduce the amount of carbon they emit. Ultimately, digital technologies are integral to building new industries and supply chains that will deliver sustainable growth and create new jobs."

Indeed, in Africa this is a lesson which is being demonstrated through the use of mini-grids, minigeneration and other solutions which is transforming power delivery in the continent's big cities. not to mention the delivery of smart cities in the developing world which is encouraging more efficient energy usage. These concepts are central to AVEVA's core beliefs that the net zero future should not be seen as drab, cold and depressing but is instead an exceptionally exciting prospect which is being built on the paradigms being forged in the developing world now, not in line with old conventions.

A celebration of digital infrastructure ingenuity

Bentley Systems' Year in Infrastructure and Going Digital Awards 2022 recognised the exemplary work of Bentley software users in advancing infrastructure projects.



From 15-16 November, Bentley Systems held their annual celebration in London, UK, to shine a light on the digital progress achieved in infrastructure as well as bring the community up to date on its latest innovations.

In the case of the latter, this included announcing the extension of the iTwin Platform, which will broaden the scope and interoperability of data that can be used to create and leverage digital twins. Here, the iTwin Experience has been launched to accelerate engineering firms' 'digital integrator' initiatives to create asset-specific digital twins, incorporating proprietary machine learning, analytics and asset performance algorithms. This was coupled with the addition of iTwin Capture for capturing, analysing, and sharing reality data to create high resolution models of 3D infrastructure assets using drone video and survey imagery. Finally, iTwin IoT was released for acquiring and analysing sensor data, to enable users to seamlessly incorporate Internet of Things (IoT) data created by sensors and condition monitoring devices.

Also presented to attendees in London was Bentley Infrastructure Cloud, a set of solutions that span the end-to-end infrastructure lifecycle and value chain. Powered by the iTwin Platform and Bentley's infrastructure schemas, Bentley Infrastructure Cloud will enable better creation, delivery, and ongoing operation of better infrastructure, through complete and evergreen digital twins.

A tip to the continent

At the core of the event was the Going Digital Awards, dedicated to honouring the superb work of Bentley software users advancing design, construction, and operations across the world. Although there were no projects from Africa featuring among the finalists, there was a notable Founders' Honor (given to projects which particularly inspire Bentley) presented to China **Highway Engineering Consulting Corporation, China Communications** Construction Company Uganda Branch, and Uganda National Roads Authority (UNRA) for the design and construction of the Kotido-Kaabong Road in Uganda.

The 68.5 km road is dedicated to rural revitalisation and the development of the tourism economy. UNRA required the project team to submit digital BIM deliverables and, realising that their traditional design methods were insufficient, the team needed an integrated digital platform capable of whole process management.

Leveraging ProjectWise, iTwin, and Bentley's open modelling

applications, they established a connected data environment, performing collaborative digital design and integrating multiple data formats, improving data sharing efficiencies by 50%.

Using ContextCapture to deliver a 3D reality model of the project space reduced survey time by 25 days and saved US\$250,000. The digital solution provided 3D renderings of the project plan, improving visualisation and external communication efficiencies by 60%.

Speaking to *African Review* at the event, Alistair Stubbs, vice president - asset lifecycle information management, Bentley Systems, said that this year, the ambition to adopt digitalisation as a core part of strategies had really shone through. He added that while there were no finalists from the continent, there were nominations, in addition to previous recognition. "It is an important region for us, the same as anywhere else."

Building on this, Stubbs explained that traditionally digitalisation and digital twins are finding their feet on the continent particularly through the oil and gas industry, with many international companies operating assets on Africa that utilise elements of digital twins. Outside of this industry, he noted that a number of mines are – or are now looking at – incorporating these solutions. Indeed, mining has long been recognised as a prominent benefactor of the digital twin movement with the advantages of stimulating processing, testing new methodologies, improving safety standards, overhauling training practices and ultimately enhancing productivity.

Digital twins are particularly wellsuited for remote mining locations where transportation to site can be tricky. A digital environment can allow engineers to view issues virtually and assess problems from a different location. Stubbs described that this will also help develop local engineers, as international professionals can work hand-inhand with locals and enhance the talent pool while avoiding travel costs and complexities.

The main barrier to this digital world, Stubbs continued, is the connectivity issue due to many of the solutions being cloud-based. While this is not problem unique to Africa, it is more prevalent and can inhibit the implementation in less developed areas. Nevertheless, the sustained delivery of data centres and the demands of the youthful population is helping to tackle this issue and Bentley has a large presence on the continent (especially in South Africa), to help bring their digital solutions to infrastructure projects and all the conveniences they offer.

Nothing should get in the way of getting business done

It's time to get business done better with MTN Business ICT Solutions.



ore and more often, clients are looking for ways to keep their staff productive in a dynamically changing business environment. Whether employees are working from home, the office, or abroad, there is a growing recognition that digitising operations can offer unprecedented commercial value in flexibility, productivity and growth.

This new digital reality means that it is more important than ever to stay agile – if there is anything that can slow a business down, it is being burdened by old technology.

Having made substantial investments in fibre technology, highspeed terrestrial and undersea networks and new frequency spectrums across the markets wherein it operates, MTN is perfectly positioned to respond to this shift in the market.

A few years ago, MTN also made the decision to build an IP capable

radio network for its mobile services, giving its core network the ability to seamlessly integrate with enterprise IP networks. The company's mobile towers deliver services to enterprise clients absolutely anywhere they have a network, shortening the last mile and removing complexity and cost.

MTN's evolution

For MTN, the focus has shifted from just being a core telecommunications services provider towards also becoming a technology solutions provider.

Its service offering now also includes the Internet of Things (IoT),

For MTN, the focus has shifted from just being a core telecommunications services provider, towards also becoming a technology solutions provider."

Now there is increasing demand from clients to connect their remote sites in all areas, including rural and semi-rural. MTN has assisted clients with overcoming this connectivity hurdle, enabling their staff to get the job done wherever they are. Unified communications, Cloud solutions, Security as a Service and Managed network. The scope has changed to being client and industry specific, so the requirements and service portfolio vary from one client to the next. The expectation is that a company like MTN must respond to these challenges, helping clients to get business done better as they shift from old to new technologies.

As many businesses continue to grapple with a digitally dynamic world, they face new challenges that have to be solved. This environment will benefit those that are more digitally enabled and agile. It is a brave new world that will favour online over on-site, wireless over wired and fluid over formulaic. Businesses will seek out partners and suppliers that are every bit as flexible and forwardlooking as they are.

Ultimately, clients need partners like MTN Business that will invest in infrastructure, deliver the services they require, have market credibility, are financially sound and have a long-term commitment to their market presence.



E-commerce brings economic growth

The arrival of e-commerce to Africa yields several opportunities for the economic development and growth of the continent. Minhaj Zia reports.

report from the United Kingdom's Department for International Trade (DIT) has underlined the potential growth of bringing electronic commerce (or ecommerce) services to African economies. The report, titled 'The rise of Africa's digital economy – tackling the 'usage gap' to create a thriving market for mobile services' discussed the benefits if businesses and governments collaborate to improve access and usage to mobile channels.

By improving access to digitalfirst services across areas such as health, education and entertainment, economic growth is an achievable task. However, the key challenge lies with adopting the technology, particularly in remote locations, as access to the Internet can prove to be a difficulty. Another factor to take into consideration is affordability regarding the cost of data, smartphones and digital education.

To address this, the UK is collaborating with the mobile telecommunications industry to expand upon coverage, affordability and accessibility.

"The GSMA Innovation Fund for Mobile Internet Adoption and Digital Inclusion, initiated in partnership with GSMA and the Mobile 4 Development foundation, is helping to facilitate mobile internet adoption for 3.4 billion people around the world. It is also supporting start-ups to develop and deliver innovative mobile services for users in Africa and Asia," reported the DIT.

Boom arrives in Nigeria

In Nigeria, the launch of Boom brought about a new social ecommerce platform which allows Nigerians to buy, sell and pay for services without the need of a bank account. Peter Afred-Adeveke. founder and CEO of Boom, explained, "Boom, our app, which is blockchain-powered e-commerce without banking application, is now live and available to all Nigerians... The application can be downloaded for free in both IOS and Android phones in the Apple app store and Google Play store respectively," as reported by BusinessDay.

He went on to explain the further uses of the app, such as money transfers for consumers, businesses and government financial exchanges, primarily intra-African and cross border settlements. The app works through Boom's native utility digital token which conveys value between users within the Boom network. This is the Multicoin, an ERC-20 Token that is located within the Ethereum blockchain.

The Multicoin manages the transactions made in the app by automatically converting currencies between the user. "This way, a merchant or consumer in Nigeria can purchase goods and services internationally by simply converting the Naira into Multicoins via Boomcertified resellers nationwide," Alfred-Adeyeke said.

He also assured that Boom is a secure app for transacting parties as it requires Know Your Customer (KYC) before registration. "To ensure compliance with local and international regulations, all Boom users must go through KYC at signup, by taking a selfie with either a government-issued identity card, driver's license or passport after which their Boom account will be activated," he stated.

OmniBiz tackles the accessibility issue

Further benefits can be extended to small and medium-sized enterprises (SMEs), particularly those in fast moving consumer goods (FMCG) retail. The adoption of digital payments amongst these groups could address slow economic growth within the continent. Due to their roles as both the consumer and merchant, it is clear to see why retailers would be a primary target for adopting e-commerce into their practices.

OmniBiz, a company which partners with businesses to focus on the growth of the retail ecosystem through their unified B2B distribution platform, recognises this through their objective to "digitise trade across traditional channels on the continent," as OmniBiz stated. They achieve their goals by delivering FMCGs, typically in remote locations, to SME clients as their location allows them to have "deeper penetration and make up last-mile distribution channels unmatched by any traditional financial institutions," according to OmniBiz.

The products the retailers offer is what drives potential customers with varying levels of access to banking to them. OmniBiz's approach to this, is to group these retailers through accessibility to a constant flow of stock without the costs or difficulties of logistics. Through the digitisation of the retail sector, it introduces not only new customers to the industry due to its ease-of-access, but also reveals the potential growth opportunities for the economic development of the continent.

Multiple shocks halt Africa's steady recovery

With the global economy facing heightened uncertainties such as stagflation, property sector distress in China, the energy crisis, rising rates and quantitative tightening in advanced economies, as well as a fallout from the conflict in Ukraine, the post pandemic recovery in sub-Saharan Africa (SSA) is being undermined.

he International Monetary Fund (IMF) predicts a global output loss of around US\$4 trillion between now and 2026. In line with this, Africa's largest trading partners - the Eurozone, China and the U.S. - continue to stagnate. 'Spill-over' effects are reflected directly through external trade and foreign direct investment (FDI) and indirectly via lower commodity prices. If worldwide growth slows by an additional 1.5% per year over the next two years, the cumulative cost to SSA would amount to a loss of 0.7% of GDP across 2023-24 (IMF estimation).

The year in review

The SSA economy is expected to grow by 3.6% in 2022, down from 4.7% in 2021, due to tepid investment and the worsening of the trade balance.

High energy and food prices causing a cost-of-living crisis, tighter financial conditions and persisting supply constraints are leading to stagnating income-per-capita in the majority of countries. The overall economic activity, however, masks some regional heterogeneity.

Diversified 'non-resourceintensive' countries, led by Senegal, Rwanda, and Côte d'Ivoire, are among the more dynamic/resilient

Top 10 largest SSA economies by Gross National Income (GNI)						
	GNI 2021 (US\$bn)	Population million 2021	Projected real GDP 2023 (%)	FDI stock 2021 (US\$mn)	Sovereign rating *	
Nigeria	440.0	216.74	3.0	91,857	B-	
South Africa	386.9	61.06	1.1	173,056	BB-	
Ethiopia	113.6	101.29	5.3	31,596	Not rated	
Kenya	110.4	50.92	5.1	10,458	В	
Ghana	74.9	32.08	2.8	41,021	CCC+	
Fanzania	67.8	61.51	5.2	17,153	Not rated	
Côte d'Ivoire	66.4	28.37	6.5	12,821	BB-	
Angola	60.1	32.92	3.4	13,166	B-	
DRC	53.3	96.80	6.7	29,149	B-	
Cameroon	43.3	27.91	4.6	9,781	B-	

of essential staples (such as corn,

rice, and wheat). Fuel and fertiliser

prices have tripled, hiking transport

costs and weighing on harvests. The

External payments outlook has

slowdown in domestic activity is

largely explained by the cost-of-

deteriorated in many countries.

regional current account deficits

have widened, exerting increased

pressure on domestic currencies,

monetary policy, which weighs on

between a country's export prices

significant heterogeneity persists. Oil

improvement of 16%, while non-

drop of around 4.2% (IMF data).

approaching levels not seen in

with limited buffers. The fiscal

decades, especially for countries

resource-intensive countries face a

Macroeconomic imbalances are

deficit for SSA is projected to narrow

and its import prices) are still expected to improve in 2022,

compared with last year, but

exporters can expect an

SSA's terms of trade (i.e., the ratio

thus feeding back into higher

imported inflation. That, in

turn, led to contractionary

economic activity.

Given rising import bills, the

living squeeze.

*According to Standard & Poor's (S&P) 2022 foreign-currency debt ratings. Sources: World Bank, IMF, S&P, and World Investment Report 2022 (UNCTAD).

economies - growing by 4.6% in 2022, compared to 3.3% and 3.1%, respectively, in oil exporters and other resource-intensive countries (according to IMF data). SSA growth, excluding heavyweights Nigeria and South Africa, is projected to slow to 4.3% in 2022, from 5.1% in 2021, but exceed regional performance.

Following global trends, inflation dynamics in SSA are being driven by spiralling costs for imported food and fuel, which comprise around half of the region's consumption basket. Rampant inflation was also fuelled by currency depreciations and disruptions to global supply chains. Double-digit inflation was reported in around one-third of SSA economies. Many are net importers

SSA macro economic indicators, regional average				
		Projecti	Projections	
	2021	2022	2023	
Real GDP growth (%)	4.7	3.6	3.7	
Emerging markets & developing economies (%)	6.6	3.7	3.7	
Inflation, annual change (%)	11.1	14.4	11.9	
Fiscal balance* incl. grants	-5.1	-4.5	-4.3	
Government debt*	57.0	55.5	53.7	
Foreign official debt*	24.6	24.1	23.8	
External current account*	-1.1	-1.7	-2.5	
*As % of CDP				

Source: IMF, Regional Economic Outlook (SSA) October 2022.

slightly from 5.1% of GDP in 2021 to 4.5% in 2022, but still above recent trends. A further drawback is that budget support to Africa - including official development assistance (ODA) - has declined over the past three decades as a fraction of recipient GDP. ODA disbursements from the Organisation for Economic **Co-operation and Development** (OECD) have fallen from around 4.2% in the 1990s to below 3%.

Financial stability risks

On public debt, regional indebtedness has now reached levels on par with early 2000s before the impact of the Heavily Indebted Poor Countries Initiative. Over twothirds of SSA countries with elevated debt are non-resource-rich countries. Five countries – Fritrea (234.9), Sudan (183.8), Cabo Verde (147.7), Ghana (104), and Mozambique (102.6) - will register debt-to-GDP ratios in 2022 above 100% (World Bank data). 16 of 38 International Development Association (IDA) countries are at 'moderate risk' of distress, up from 15 previously. The number of those at 'high risk' of distress fell to 14 from 15, while eight countries

persist in 'debt distress'.

A sustained strong U.S. dollar, higher borrowing costs in advanced economies and capital outflows are a triple blow to countries with large external financing needs (including high sovereign debt). The substitution of low-cost, long-term multilateral loans with higher-cost private sources (including Eurobonds) led to rising debt-service costs and growing rollover risks for frontier-market economies such as Angola, Côte d'Ivoire, Ghana, and Kenya. Higher debt servicing plus a domestic currency depreciation underpinned exchange rate risks for countries with large external debts, namely Mozambique, Ghana, Rwanda, and Senegal.

Elevated public debt indicates governments possess less flexibility as growth falters, plus limited access to international capital markets.

Into the new year

Next year's regional prospects vary significantly across countries. Growth projections from the IMF and World Bank are a modest 3.7% and 3.5%, respectively, supported by a timid recovery in gross fixed investment and private consumption. On the production side, both agriculture and industry should also underpin steady growth and employment. In fact, 18 of SSA's 45 countries are poised to grow by more than 5%, led by Senegal, Niger, Rwanda, Congo DRC, and Côte d'Ivoire (IMF estimate).

Weakening commodity prices and contractionary macroeconomic

2

Source: IMF, Regional Economic Outlook (SSA) October 2022.

3

Top 10 fastest-growing SSA economies in 2023 (Real GDP annual % change)

Price forecasts of Africa's main commodity exports				
	2021	2022	2023	2024
Crude oil, Brent (US\$/barrel)	70.4	100.0	92.0	80.0
Liquefied natural gas, Japan (US\$/mn btu)	10.8	18.40	17.0	15.9
Cocoa (US\$/kg)	2.43	2.35	2.30	2.34
Coffee, Arabica (US\$/kg)	4.51	5.90	5.50	5.41
Coffee, Robusta (US\$/kg)	1.98	2.25	2.10	2.11
Tea, average (US\$/kg)	2.69	3.10	2.80	2.82
Sugar, world (US\$/kg)	0.39	0.40	0.38	0.38
Bananas (US\$/kg)	1.21	1.50	1.40	1.39
Logs, Africa (US\$/m³)	414	365	390	395
Cotton (US\$/kg)	2.23	2.95	2.90	2.86
Tobacco (US\$/mt)	4,155	4,200	4,100	4,116
Copper (US\$/mt)	9,317	8,700	7,300	7,361
Iron ore (US\$/dmt)	161.7	120.0	100.0	98.0
Gold (US\$/oz)	1,800	1,775	1,700	1,650
Platinum (US\$/toz)	1,091	940	1,100	1,050

btu = British thermal unit; kg = kilogram; dmt = dry metric ton; toz = troy ounce. Source: Commodity Market Outlook, World Bank report October 2020.

policies should abate inflationary pressures, especially in Botswana, Cameroon, and Senegal. However, the government debt of regional heavyweights (South Africa, Angola, Kenya, and Ghana) will remain high relative to GDP due to un-budget Covid pandemic spending and lower revenues since 2020.

Non-resource rich countries are forecast to grow 4.7% and 5.3% in 2023 and 2024, respectively, thanks to lower import bills and expansion of the services sector. However, real GDP growth in resource-rich countries will remain subdued at 2.8%, down on previous the year. Despite this, according to the World Bank, it may rebound in 2024 at 3%, below the rate of growth in 2021 (3.7%). Subdued growth is attributed to faltering commodity prices (as global demand slows down), thus

8.1

73

6.7

7

8

6 7

6

reflecting heavy dependency on the extractive sector.

Economic risk in 2023

Looking ahead, the state of the global economy largely dictates how Africa fares in the New Year. However, risks to regional outlook are posing challenges for policymakers. Africa depends on export demand and inflows of official and private capital. If global market turmoil worsens and the dollar appreciates further, inflation could hike and exchange-rate pressures and even larger monetary tightening in SSA will undermine investment and fiscal sustainability.

A downturn in advanced economies might also further reduce the supply of bilateral aid to SSA, while increased capital outflows will harm countries with heavy external financing needs, such as Liberia, Niger, and Rwanda. Further escalation of the war in Ukraine could hike fuel and food prices through supply chain disruptions.

Besides the likelihood of recession in the Eurozone (hit by reduced Russia gas supplies) and the U.S. (soaring interest rates), China's slowdown is an added concern. The Asian giant is not only a major trading partner, but also a top creditor and source of FDI for most African countries. Thus, China's downturn is a drag on Africa's commodity exports.

Challenges ahead

The African region needs to build resilience against future exogenous shocks, thus achieving high-quality durable growth. Ultimately, future prosperity depends on a host of factors, chiefly: fiscal credibility, enhancing competition, removing key bottlenecks to doing business (i.e., red tape and higher borrowing costs), fostering intra-regional integration and more private/public infrastructure investments, efficient institutions to deliver vital public services, and broadening financial inclusion. Investing in human capital and digitalisation is also critical to making economies more resilient to future shocks.

Despite regional slowdown, promising business opportunities exist in retail/services trade, financials, real estate development, agro-processing, digitalisation, and green energy.

"The road will not be easy. But the region's ultimate potential remains undimmed. With help, SSA will be poised to fulfil the promise of the African century, contributing to a more prosperous, greener future for the region and the world," the IMF concluded in its recent SSA Regional Economic Outlook.

Moin Siddiqi, economist

Senegal

Niae

Togo

Uganda

Ethiopia

Tanzania

Kenya

Rwanda

Congo DRC

Cote d'Ivoire

MSC is the leader in the global container market and the BAL deal will also see it become leader in Africa.

Deal to turn sea freight tide

In a sector heavily affected by the Covid-19 pandemic, one recent development bodes well for the continent's sea freight industry. Tim Guest reports.

No industry has escaped the effects of the Covid-19 pandemic, with global shipping directly affected and Africa's sea freight sector no exception. Despite this, two leviathans active in Africa's shipping, freight and logistics world – Bolloré Africa Logistics (BAL) and the Mediterranean Shipping Company (MSC) – are steering a course for a deal that should offer reassurance to the whole sector across the continent in the face of increasing pressures from the first two years of Covid-19 and from the likes of China's continuing belt and road efforts to secure ever more control of Africa's ports and logistics.

For MSC, the first wave of Covid-19 in Asia saw a 17% drop in its cargo business almost overnight as Chinese factories closed and there was nothing to ship. That situation has, of course, now reversed. But in Africa, imports and exports into/out of western and eastern ports and the whole logistics supply chain have all been impacted. In South Africa, for example, Covid-19 lockdowns resulted in the country's ports experiencing a marked decrease in cargo volumes, exacerbated by rising freight costs during the same period as SA's National Ports Authority (NPA) increased its port tariffs way above mean global levels. Several industry analysts said the NPA should lower its costs to help ameliorate the negative trading impacts caused by the pandemic and help bolster SA's sea freight sector. However, the NPA actually applied to increase its tariffs considerably in the other direction for the years to 31 March 2025,

although the Ports Regulator of SA has responded by keeping overall increases low for that period, saying it was 'cognisant of economic challenges facing the country including the continued impact of the Covid-19 pandemic on the port system'.

Covid has certainly played havoc with the supply chain in and out of African ports, creating bottlenecks due to such things as manpower shortages and resulting in some lines re-routing from African to Pacific routes. MSC, for example, moved 13,000 TEUs of its vessel capacity from African routes to the Pacific – although that move was hardly an indication of its intentions for its impending major Africa commitment.

Acquisition signals mighty African commitment

At the end of last year, a deal was signed between the Bolloré Group and MSC Group for the sale of 100% of BAL to MSC. The acquisition comprises all of the Bolloré Group's transport, port and logistics activities in Africa, on the basis of an enterprise value, net of minority interests, of EU€5.7bn (approx. US\$5.9bn). The sale currently remains subject to regulatory and competition approvals and the agreement of certain of Bolloré Africa Logistics' counterparts.

While avoiding interest from Chinese suitor Cosco has been a relief for many, there had been some speculation that French shipping giant CMA-CGM might take the Bolloré prize. However, with MSC having overtaken Maersk as the world's leading shipowner earlier this year and the company's reported intentions for its African operations, MSC's expected takeover of BAL can only be seen as a positive for Africa. It is understood that the BAL structure and staffing situation will remain as it is once the takeover is complete, although the Bolloré name will change to Aponte.

With MSC the leader in the global container market, the BAL deal will also see it become leader in Africa, with its reported intentions to ensure the productivity of all the port terminals currently under BAL - they will also be kept out of the hands of 'entities' with altogether differing philosophies and vested interests. MSC wants to improve port efficiency wherever it is needed, through this deal, which may sometimes simply be a matter of increasing the volumes of containers in and out, something it can do easily by directing its ships to whichever ports need an uplift, knowing it can then rely on its newly acquired extensive land logistics network from the BAL purchase to move freight anywhere on the continent; this port and land network will enable MSC to bolster its maritime footprint, at the same time as boosting Africa's trading connections right across the globe.

For MSC, the BAL acquisition offers immense potential for its business across Africa and its commitment to the whole continent as one that will help foster economic and social development for at least the next 30 years. A spokesperson at MSC confirmed the deal is expected to complete by end Q1 2023.

Penspen launches Energy Transition Consultancy

Penspen has announced the launch of its dedicated Energy Transition Consultancy, a multi-disciplinary centre of expertise to lead the international energy industry on the pathway to net zero emissions.

The Consultancy unites a range of industryleading energy transition experts with the expertise to effectively advise clients on low carbon-related opportunities from a project financing and development, regulatory, and infrastructure standpoint. The move further strengthens Penspen's position as a trusted partner in the development and management of infrastructure



The Consultancy will help the international energy industry reduce its emissions

across the energy sector, providing the technical knowledge required for the industry to reduce carbon emissions and produce cleaner energy across the globe.

Credit:

Penspen's energy transition work is built around four pillars of expertise: building new hydrogen & CO2 infrastructure, the repurposing of existing infrastructure for the energy transition, operating with hydrogen & CO2, and maintaining infrastructure to maximise its lifecycle. The company's work in these four pillars spans a range of services, including: engineering & project management, asset integrity, asset management, and digital services, alongside the company's centre of engineering excellence.

Peter O'Sullivan, Penspen CEO, said, "Penspen have launched this consultancy in response to an increased focus on low carbon fuels such as hydrogen across the energy industry and to address the need to overcome the global dependence on fossil fuels. We believe a key factor in reducing hard to abate sources of carbon emissions, such as domestic heating, industrial heating and heavy vehicle transportation, will be the ability to reuse existing infrastructure at least initially."

The announcement comes following the recent COP27 conference in Egypt where O'Sullivan addressed delegates on hydrogen and the energy transition, sharing knowledge on how a significant scale-up of low carbon hydrogen is required to decarbonise hard to abate sectors - reducing both carbon emissions and production costs.

NUCLEAR TECHNOLOGIES TO AID CLIMATE CHANGE **ADAPTATION**

At COP27 in Egypt, the International Atomic Energy Agency (IAEA) released a comprehensive report on Nuclear Technologies and Climate Adaptation in Africa, describing how these technologies are already being widely used to build resilience on the continent.

"In nuclear science and its applications we have the tools to adapt to climate change conditions," said IAEA director general, Rafael Mariano Grossi. "The IAEA is at the centre of global efforts to make sure no one is left behind when it comes to benefiting from these indispensable assets."

The report highlights IAEA projects that support countries in Africa in cultivating and exporting food, including growing drought-tolerant crops and applying the sterile insect technique (SIT) to eradicate insect populations, such as tsetse flies, fruit flies and mosquitoes, that harm both human health and the economies.

EBRD AND TAQA EXTEND COOPERATION

The European Bank for Reconstruction and Development (EBRD) is promoting the expansion of renewable energy in Egypt by releasing a new tranche of financing worth US\$5.5mn to TAQA PV for solar energy under its existing facility for green private-toprivate projects.

The new funding comprises a US\$4.95mn loan from the EBRD and a US\$550,000 concessional loan from the Global Environment Facility (GEF) to finance the construction and operation of a 7MWp solar photovoltaic (PV) project in El Minya. The project will sell all of its electrical output to ASCOM Carbonate and Chemical Manufacturing (ACCM) under a 25-year power purchase agreement.

This tranche follows an initial US\$4.2mn loan in December 2020 to finance the construction and operation of a 6MWp solar PV power plant at Dina Farms in the Beheira Governorate, 80 km from Cairo. This plant was the first private-to-private renewable energy project financed by the EBRD in Egypt and it enables Dina Farms, the largest dairy farm in Africa, to use clean energy for some of its energy consumption.

The Egyptian Government aims to raise the national share of electricity generation capacity from renewables from 20% in 2022 to 42% by 2035.

Pakinam Kafafi, CEO of TAQA Arabia, said, "The new plant will contribute to ACCM's efforts to maximise the opportunities of using renewable energy resources, reducing its total annual electric power consumption by 16%.

"Its gives us great pride to extend our partnership with the EBRD, a development finance institution that focuses on promoting private-to-private, green, sustainable energy projects aimed at developing society and providing a better quality of life."

BRIEFS

Puma Energy launches solar projects

mage Credit: Adobe Stock



The project is estimated to reduce CO₂ emissions by 1,044 tons per year.

Puma Energy Namibia has launched a network of solar projects across its sites in Namibia. They now have 24 solar projects operating at retail stations, depots, and terminals in the country with a combined capacity of 781kWp able to generate an estimated 1,337MWh annually. It is projected to reduce CO₂ emissions by 1,044 tons per year. The roll-out contributes to Puma Energy's wider plans to bring more than 200 solar projects around the world by the end of 2022.

AfDB invests US\$20mn in renewable energy



The bank's investment will support sustainable growth

The African Development Bank Group (AfDB) has approved an equity investment of US\$20mn in Evolution Fund III, a pan-African clean and sustainable energy private equity fund that is mobilising around US\$400mn into renewable energy and resource-efficiency assets across sub-Saharan Africa over a 10-year period. AfDB's support will contribute to an additional 2,162MW of installed renewable power generation capacity and generate 1,309 jobs.

Paving the way for improved grid supply

The advent of smart metering technology holds the potential to improve the efficiency and performance of Africa's under-strain power grids.

S mart metering has become a means for utility companies to track energy demand and usage across their networks, which is essential especially in frail grid systems that are commonplace across Africa.

For households, smart metering has also been pitched as a way to gain greater transparency over consumption and tariffs. It is a technology that is increasingly proving its worth in a variety of African settings.

Most recently, Siemens was awarded a contract in Egypt for advanced control and metering infrastructure, including the supply of 300,000 smart meters, by Alexandria Electricity Distribution Company (AEDC).

AEDC serves Alexandria, a city of about five million inhabitants, which is in the process of upgrading its distribution infrastructure. The modernisation will benefit subscribers and companies, reducing complaints about bills and the cost of regular meter readings, as well as cases of theft and tampering with meters, according to Dr Mohamed Shaker, Egypt's Ministry of Electricity and Renewable Energy.

Smart metering technology is having a significant impact further to the south as well. Kenya Power is looking to increase the number of postpaid customers reading their meters from the current 145,000 to 200,000 during the current financial year, for example.

"Self-reading of meters will empower our postpaid customers to proactively engage with us on all matters that relate to billing for their electricity consumption," said Geoffrey Muli, Kenya Power's managing director.

"It is targeted to enhance



satisfaction among our customers through accurate and timely billing which will eliminate bill estimations and therefore reduce customer complaints."

Enhanced visibility

At the same time, advances in technology are making smart metering ever more accessible.

Powercom is a turnkey smart grid solutions provider, supplying millions of smart meters and end-toend solutions, with regional offices in South Africa, Ghana and Nigeria, among other international locations. Its smart metering solutions are already playing a key role in energy management in areas such as Ibadan, Nigeria.

The Powercom dashboard system provides reporting with real-time

visibility of all key performance indicators to give vital insights to the Ibadan Electricity Distribution Company in Nigeria (IBEDC).

The platform supports the highest levels of cyber security, while consumer engagement software gives customers access to usage data as well as other notifications.

On a broader level, it provides monitoring, analysis, control, and communication within the electrical grid to help improve efficiency and minimise energy consumption and cost. Near real-time data can also provide configurable demand response and even remote disconnection where needed.

Powercom recently selected Wirepas Mesh RF connectivity to connect is smart meters wirelessly and to speed up roll outs.

In smart meter connectivity, decentralised RF mesh meets the unprecedented requirements in developing countries, it believes.

Smart metering can

energy management.

play a key role in

"Wirepas is an ideal wireless technology partner for us," said Yackov Dar, Powercom's chief executive. "They focus on wireless connectivity technology while we manage complete turnkey solutions for utilities worldwide."

Wirepas 5G mesh is a leading RF technology that has been successfully deployed across global markets such as the Nordic countries, India and Australia. It says the new 5G mesh available in 2023 is a game changer, enabling non-licensed international 1900 MHz frequency to be used for smart metering. ■

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Nigeria's road to renewable energy

The global technology group Wärtsilä has reported that Nigeria can reach 100% renewable energy by 2060 and cut energy costs by 74% in the process.

n a new report, 'Nigeria Leading Africa to Net Zero', Wärtsilä has expressed that, with the country's desire to tackle climate change (coupled with the ambition of securing universal access to electricity among growing energy demand), the need to build a datadrive and cost-effective energy strategy is crucial. Using advanced energy system modelling techniques, Wärtsilä's analysts have outlined the most cost-effective power system that can be built in Nigeria to reach net zero by 2060.

According to Wärtsilä's report, the optimal power system will consist of 1,200GW of renewable energy capacity and require a total of 283GW of energy storage and 34GW of engine-based power plants for grid balancing purposes. The research shows that investing in renewable energy and flexibility from gas engines and energy storage is the best way to reduce energy costs, increase energy access and improve grid reliability. With this strategy, the cost of electricity generation is predicted to drop by 74% by 2060 compared to 2022 levels, and carbon emissions will drop to zero.

This modelling exercise also reveals that Nigeria's vast domestic gas reserves will play a vital role in facilitating a smooth energy transition. Being mobilised as an inexpensive bridging fuel, the resource can be used to power balancing engines in support of intermittent renewable energy generation until gas engine power



plants can be converted to run purely on green hydrogen (starting in the early 2040s).

Wale Yusuff, managing director of Wärtsilä in Nigeria, commented, "If the power system expansion roadmap presented in the report is successfully implemented, by 2060 Nigeria's power system will be fully decarbonised and able to meet the energy needs of our country's rapidly growing population. The key components of our power system will be renewables, supported energy storage technologies, together with grid-balancing engines that have been converted to run on green hydrogen. As early as 2032, Nigeria can reach universal access to electricity, and the inefficient, expensive, and polluting diesel generators still widely used today will be ancient history."

Revamping regulations

While the report delivers an encouraging outlook, delivering on this ambitious plan will require enormous investments, estimated at US\$18.7bn until 2030 and US\$425bn until 2060.

"Attracting that level of investment is possible, but not without significant policy reforms. Despite the many Government efforts to implement an increasingly strong legal framework, project developers and sponsors must still navigate a very complex and uncertain system that adds excessive investment risk," warned Yusuff.

The regulatory environment that has developed since Nigeria's power sector reforms began around ten years ago when the Government launched an ambitious privatisation and unbundling policy, is complex and still evolving. Despite an increasingly strong legal framework and the many efforts to implement reforms, project developers and sponsors still need to navigate multiple institutions with sometimes conflicting or unaligned regulations. The report continues that, in this context, streamlining planning and permitting processes for projects will be essential if the country is to achieve its power system expansion ambitions

Nevertheless, if the country can develop a sound policy framework, improve its power transmission infrastructure and deploy a datadriven power expansion plan based on renewable energy and flexibility, it will take a giant step towards its goal of securing universal access to affordable, reliable and fully decarbonised electricity.

As early as 2032, Nigeria can reach universal access to electricity."

WALE YUSUFF, MANAGING DIRECTOR OF WÄRTSILÄ IN NIGERIA

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Unbundling the power challenge

Thiago Almeida, divisional executive responsible for the power sector at Nedbank CIB, explains how private sector participation, which could be vital in the development of strong power systems, can be unlocked and encouraged.

resh announcements of load shedding in South Africa have become an unwelcome but certainly not uncommon site for citizens of the country.

While Eskom and the Government have grappled with solutions to resolve the issue, power outages have continued to hamper spirits and businesses across the country and notably contributed to the country's GDP shrinking by 0.7% in Q2 2022. According to Nedbank's 2022 MTBPS, projected economic growth in the medium term has been hampered by the slow implementation of economic reforms and a series of shocks, such as escalating power cuts. It recommends urgent action to accelerate growth-enhancing reforms, especially to boost the electricity supply.

Speaking to *African Review*, Almeida explained that while there is no "silver bullet" to South Africa's (and indeed much of the wider continent's) energy problems, there are certainly some glaring points working against them which can be addressed, as well as low-hanging fruits which could be attained.

For instance, Almeida noted that embedded generation and smallscale projects can give households and businesses essential power to cope with energy deficits. In addition, these alternatives tend to be quicker to deploy and represent a vital tool which can be implemented while larger solutions are under development.

This lesson was taken on board by the South African Government when, last year, President Cyril Ramaphosa increased the required licensing cap for embedded generation projects from 1MW to 100MW. The move was welcomed at the time by Eskom as a "progressive



Thiago Almeida is the divisional executive responsible for the power sector at Nedbank.

step that will greatly assist in the effort to provide reliable and sufficient electricity for the economy while creating space for Eskom to conduct much-needed repairs on its infrastructure.

"Customer-funded capacity alongside the contribution by independent power producers (IPPs) will greatly assist in addressing the immediate supply/demand gap and reduce the risk of load shedding over time."

In July this year, Ramaphosa announced that, since the raising of the threshold to 100MW, more than 80 private sector projects with a combined capacity of more than 6,000MW were unlocked. Furthermore, he remarked that the threshold for embedded generation will be removed entirely to accelerate greater private participation in generation capacity.

Almeida added this has dramatically increased the scope for private sector renewable investment, with a significant number of projects awaiting approval. He continued that the final solution is a hybrid one, where embedded generation is maximised and used in combination with utility-scale renewable power generation.

Another opportunity identified by Almeida is micro-grids which can play an important role in areas where a community is currently not serviced by the power utility. For example, renewable power generation can be used for a local commercial or industrial user, and neighbouring communities can benefit from the same power source through a microgrid. This would work in a similar way as a subsidy.

Almeida highlighted that a smooth schedule and reliant investment programmes are essential to realise these opportunities and ensure the private sector can deliver within its own constraints. This is demonstrated by the well-documented issues around big window five, which saw the financial close deadline rescheduled to September despite the projects being awarded in October 2021.

A range of issues reportedly caused this, including a lack of resolution on local content rules, changes to the cost and supply of goods and services due to supply chain disruptions and inflations, and questions around pricing feasibility. These culminated in the delay, pushing back the start of bid window six when the country desperately needed more generation capacity.

All bases covered

While it is paramount that private sector participation is encouraged within the generation space, Almeida noted that, unfortunately, success and historical focus has been confined to this arena while other facets of the energy network have been neglected.

For example, there is urgency for investments in transmission and distribution, which play a vital role in the power matrix but often need to receive the attention or capital they deserve. Almeida has previously written that as far back as 2013, the Financial and Fiscal Commission stated that investment in South Africa's electricity network was significantly lagging, so only 60% of what was needed was put into the grid. Since then, little policy has been implemented to combat this, hinting at the enormous gulf in funding.

In turn, the inadequate energy infrastructure commonplace across the continent often manifests as a deterrent to funding coming into generation. By example, Almeida surmised the solar and wind opportunities in the Northern Cape and Eastern Cape, respectively, hold significant potential but are being restricted due to issues connecting to the grid.

Distribution and transmission networks must become smarter, more efficient and minimalise losses; to do so, they must receive more funding. Almeida remarked these systems can benefit from welldeveloped and structured private sector participation contracts to help inject required capital.

Unbundling utilities

One of the great challenges for Africa in this regard is bundled utilities. The verticalised power systems often found across the continent are responsible for power generation, submission grids, and distribution rates.

Almeida suggested that to create opportunity in this space that opens the door for commercial funding and allows the sector to be more competitive, "unbundling is a

C The unbundling discussion is now taking place around Eskom, and it is a trend not just confined to South Africa."

THIAGO ALMEIDA, DIVISIONAL EXECUTIVE RESPONSIBLE FOR THE POWER SECTOR AT NEDBANK

critical step." By moving away from a silo mentality and incentivising a more merchant market approach akin to those in Europe and North America, obvious needs are created, and the importance of investing in the transmission and distribution space is demonstrated.

"The unbundling discussion is now taking place around Eskom, and it is a trend not just confined to South Africa. It is a modern way of looking at the energy problem and is gaining momentum across the continent."

Nedbank's portfolio

Even before Ramaphosa increased the licensing cap, Nedbank had a dedicated team looking at the corporate and industrial space in South Africa and coming up with solutions to fund embedded generation projects. Almeida explained the bank is looking across the board from smaller powergenerating assets to utility-scale investments. It has committed about R35bn (approx. US\$2.03bn) into the sector and has increased the funding threshold to R50bn (approx. US\$2.89bn) to demonstrate its commitment to ensuring energy security for the country.

In Nedbank's publicly available energy policy, the bank has demonstrated its commitment to further accelerating embedded generation financing to reach R2bn (approx. US\$115mn) by 2022 and has aligned itself with the Paris Agreement. In the case of the latter, this includes focusing on power generation from renewable resources, on energy technologies such as energy storage, and ultimately having zero exposure to all activities related to fossil fuels by 2045.

Almeida noted, "We have an appetite for transmission and distribution projects; we are the banker to a lot of municipalities and provincial governments in South Africa and lenders to Eskom; we have plenty of deals and products focused on the embedded generation space from residential spaces up, and we are significant players on the utility-scale. We are dedicated to bringing power online to support the economy and making this cleaner while helping our clients decarbonise."



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The oil & gas industry is going through unprecedented fluctuations.

How oil and gas control rooms can deal with change

Oil and gas control rooms are bracing themselves for important changes in the industry and while dealing with this is always hard, control room managers can make important technology choices to make transitions much smoother.

The oil and gas industry is going through unprecedented fluctuations. The transition to renewable energy is accelerating globally, forcing oil & gas companies to reduce costs and even review their business models.

At the same time, the industry is facing the challenge of accelerating digital transformation to reduce operating costs, offer better customer service, and maintain flexibility. Digital technologies are expected to play an important role in making energy systems around the world more connected, intelligent, efficient, reliable and sustainable.

Coping with change

As control room operations need to be adapted to the reigning market conditions, an important question arises: which technologies are needed to smoothen the transition? Barco sees three important trends: Technology to transition smoothly: Control rooms are transforming more and more into fully networked environments. Visual information can be sent to operators and other users wherever they are connected. By using standard networks instead of traditional AV equipment, control rooms can scale and adapt almost without limits.

Organisational changes also often force control room operators to transition from one control system to another. Networked visualisation solutions, like Barco's Transform N CMS, make this much easier and even enable operators to work with different systems at the same time.

Technology to view ergonomically: Today's control room operators need to handle a variety of data sources and sensor types. The challenge for control room integrators is then to provide an intuitive and ergonomic

way for operators to view and interact

with this multitude of sources. Operator workspace solutions such as Barco's OpSpace enable operators to visualise all critical sources in a single pixel space and easily control them with a single keyboard and mouse.

Granular access control (based on users and roles) ensures that operators see only the data that is relevant to their job.

Additionally, to provide a full situational overview for a group of operators and foster their collaboration, a large video wall can make the difference. TruePix, Barco's latest LED video wall, is an excellent choice for this, including some unique features to tackle operator eye fatigue.

Technology to scale securely:

Whatever the future brings, the workspace and common operational picture in the control room will become more complex. At the same time, that information might also need to be shared securely across an increasing number of global sites and experts.

Networked visualisation allows control room content to be sent anywhere in a secure way. With a workspace solution like OpSpace, operators can securely access and mix OT and other content sources across multiple security domains and physical locations, integrating the data only at the presentation layer.

Supporting the transition

Barco can help customers make their modernisation process much smoother. With more than 30 years of experience in control rooms, clients can count on Barco to view better, share faster, resolve quicker.

To find out more, discover the company's control room solutions for utilities at https://www.barco.com/en/solutions/co ntrol-room/transmission-control-center or get in touch with a Barco expert at https://www.barco.com/en/contact

Altaaqa addresses West Africa's power needs

Altaaqa Global (ATG) has demonstrated the viability of its solutions to West Africa - a principal growth region for the company - with landmark achievements in 2022.

TG, a pioneering international energy services business providing costeffective integrated power solutions, project consultancy and advisory services, has made a point of actively expanding its footprint in West African over the last few years. It is a policy born out of capitalising on the resource-rich region and helping those operating there to exploit the opportunities which are readily-available.

Speaking to African Review on why the company fits so well into the region, Abdou Poulho Sow, sales director for West Africa and Central Africa at ATG, explained, "In general, the current low electricity coverage in West Africa offers huge opportunities for power solutions companies. However, what keeps us above our competitors is that we are strategically positioned across the energy mix through our capability and expertise to provide the latest energy production solutions that can cover the gap in the energy demand and requirement in West Africa."

This year, ATG has unveiled two landmark projects which have served to highlight this point.

First fire for 20MW power plant

The first achievement came as ATG achieved commercial operation for a 20MW natural gas power plant in the region.

The project manager for the client, a major refining company, said that the units they had were not very efficient and did not fully meet environmental requirements. However, ATG's modular power plant were less expensive, permanently available and met the efficiency and environmental requirements put in place.

In regards to the project, Sow commented, "The utilisation of state-of-the-art equipment, along with the expertise of our team in ensuring the continuous operation of the power plant and the delivery of uninterrupted power supply to the refinery, have resulted in and will continue to provide huge savings and cost-efficiencies to the refinery. Simply put, the huge costs from any power disruptions are avoided. would further benefit the local community and economy."

On some of the challenges with implementing such a project, he remarked, "As the power plant is located inside the refinery, it is imperative that its operations and maintenance adheres to the strictest compliance and observance of all safety procedures and regulations, while seeing to it that the power plant is running 24/7. Thanks to the expertise of our team and their proactive approach at

In general, the current low electricity coverage in West Africa offers huge opportunities for power solutions companies."

ABDOU POULHO SOW, SALES DIRECTOR FOR WEST AFRICA AND CENTRAL AFRICA AT ATG

"In addition, the power supply provided by the power plant frees up the power demand of the refinery from the grid, which would then provide the much-needed power for other purposes that ensuring the safe operations of the power plant, we have successfully managed to fulfil and deliver on the requirements of the project.

"Gas remains an important element in West Africa's future



The 20MW natural gas power plant began commercial operations earlier this year.



Abdou Poulho Sow is the sales director for West Africa and Central Africa at ATG.

energy mix as it will help in keeping the cost of electricity low. This is the reason why current discussions are focused on utilising gas sources within West Africa itself and how to distribute this across the region using Floating Storage Regasification Unit (FSRU) and virtual pipeline solutions."

BOOT provides utility boost

The company also declared that it has won a 60-month, 50MW buildown-operate-transfer (BOOT) project in the region.

According to ATG, the BOOT model provides customers with the peace of mind that it will take care of everything while delivering the financial performance and engineering expertise that the company is known for.

It allows for the transfer of ownership of the asset at the end of the contract, requiring no upfront or balloon payment. This method "addresses a major gap in the energy industry," according to, Mahmoud El-Zaafarany, general manager of ATG. "This win is a testament to the attractiveness of our BOOT solutions to utility providers looking to own a profitable and well-managed asset."

Sow concluded, "Our solutions are designed to address the power needs of a wide range of industries. Through various arrangements such as a BOOT model, not only do we ensure that their power needs are properly addressed, but that we do so with the added value of costefficiency and reliability. In the case of West Africa in particular, it can be within the utilities, oil & gas, manufacturing and mining sectors."

Namibia accelerates green hydrogen development

Namibia is planning a hydrogen future, with the country's first hydrogen power plant to produce electricity by 2024. Stephen Williams reports.

The French independent power producer HDF Energy expects its green hydrogen power plant in Namibia to be producing electricity by 2024, according to a senior company executive.

"Yearly we can produce 142 gigawatt hours, enough for 142,000 inhabitants and that is conservative," Nicolas Lecomte, HDF Energy director for southern Africa, says.

Once operational, the US\$181.25mn Swakopmund project will supply clean electricity power, 24 hours a day all year round, boosting electricity supply in the southern African nation. Namibia currently imports more than a third of its power from neighbouring South Africa

One of the world's sunniest and least densely populated countries, it wants to harness its vast potential for solar and wind energy to produce green hydrogen and position the country as a renewable energy hub in Africa.

In fact, while Namibia is a frontrunner in developing a green hydrogen industry the country has joined other African countries in this endevour. Six African countries formally launched the Africa Green Hydrogen Alliance and invited others to join in making their continent a global frontrunner.

Kenya, South Africa, Namibia, Egypt, Morocco and Mauritania intend to intensify collaboration to supercharge development of green hydrogen projects on the African continent.

Green hydrogen development in Africa promises access to affordable and clean energy, to create jobs, provide public health benefits such as cleaner air, promote new green industries and wealth creation, and open opportunities to new export revenues.



Hydrogen is categorised "green" when it is made with renewable power and is seen as key to help decarbonise industry, though the technology remains immature and relatively costly.

The intention is to foster collaboration on creating a sustainable enabling environment to supercharge green hydrogen development.

This includes development of public and regulatory policy, capacity building, financing and the certification needed to mobilise green hydrogen production for domestic use and export.

Academic backing

Green hydrogen has also received academic support. Mulako Mukelabi, and Dr Richard Blanchard of Loughborough University along with Professor Upul Wiayantha of Cranford University (both institutions UK Based) have outlined how Africa's renewable energy resources and minerals can be utilised to provide clean energy to millions of households and help meet global net zero targets.

They point out that despite Africa's carbon footprint accounting for only 3% of global greenhouse gases due to current low economic activity, it heavily depends on traditional biomass fuels such as wood and coal to meet daily energy needs.

Published in the Renewables and Sustainable Energy Review Journal, Mulako and his colleagues research specifically focuses on the role hydrogen can play in decarbonising Africa's predicted greenhouse gas emissions.

The report states, "Most of the current global hydrogen (80%) is produced through carbon intensive methods involving methane (grey hydrogen).

"However, hydrogen can be produced through electrolysis – the process of using electricity to split water into oxygen and hydrogen – and this can be powered by renewable electricity, i.e. green hydrogen." Mulako and his team is the first to look at hydrogen potential at a country-level and assess communities' water and energy access needs, transportation systems, and costs.

The key criteria for an ideal fuel are inexhaustibility, cleanliness, convenience, and independence from foreign control. In large part, hydrogen possesses all these qualities and is being evaluated and promoted world-wide as an environmentally benign replacement for petrol, heating oil and natural gas.

However, hydrogen does represent some challenges. Hydrogen is about 14 times lighter that air and diffuses faster than any other gas. This means that its storage and distribution requires quite sophisticated technologies.

Despite the challenges, green hydrogen energy development has attracted attention around the world. Uses for hydrogen are expanding across multiple sectors, the World Bank reports, including power generation, manufacturing processes in industries such as steelmaking and cement production, fuel cells for electric vehicles, heavy transport such as shipping, green ammonia production for fertilisers, cleaning products, refrigeration, and electricity grid stabilisation.

A continent-wide solution

As well as Namibia, HDF Energy is also eyeing new hydrogen projects across Africa and other parts of the world. "Soon after southern Africa, you will see HDF developing projects in East Africa," Lecomte believes.

It is estimated that by 2040, approximately 150mn tons of hydrogen will be required annually.

Another company, Namibianregistered Hyphen Hydrogen Energy, is in talks with Namibia's government to secure an implementation agreement for its planned US\$10bn

Now is the time where we have to really decide whether we want to be locked in in fossil fuels or whether we want to leap forward into clean energy."

URSULA VON DER LEYEN, PRESIDENT OF THE EUROPEAN COMMISSION

green hydrogen project that will produce some 350,000 tonnes of green hydrogen a year before 2030 for global and regional markets.

Regrettably, the agreement was not reached in time to be announced at COP27 in Sharm El-Sheik, Egypt, but news of a breakthrough on the subject of the loss and damage caused to developing countries through climate change will give extra impetus to the continent's green energy ambitions.

As the Green Hydrogen Organisation chief executive, Jonas Moberg, says, "Green hydrogen is key to Africa's shift to green energy.

"It must provide energy for Africa's growing population and industrial needs. It will also offer a major export opportunity for the continent. Capacity to govern this key part of the energy transition is needed. We need to learn from each other and coordination is needed across government, industry and civil society."

And there was more positive news for Namibia at COP27 with the European Investment Bank (EIB) agreeing a loan of up to approximately US\$509mn to Namibia. The aim of this debt is to support renewable energy, including green hydrogen.

The EU and Namibia have agreed to develop an operational roadmap for 2023-24, the statement, with concrete joint actions within six months of the MoU signing.

"Now is the time where we have to really decide whether we want to be locked in in fossil fuels or whether we want to leap forward into clean energy. This is not only wind, this is not only solar, but it is also green hydrogen," European Commission president Ursula von der Leyen stated.

SHARP ANNOUNCES WATT UPGRADE ON THREE HALF-CELL PANELS

Sharp has announced a five-watt upgrade for three of its half-cell panels, the NU-JC415, NB-JD545 and NU-JD545. The new NB-JD545 is the upgrade to the NB-JD540 and is a bifacial half-cut cell monocrystalline silicon photovoltaic (PV) panel, designed for commercial and utility scale free-field installations. It has a module efficiency of 21.1%, a low temperature coefficient of -0.349%/°C



The modules have been tested for compliance with international standards.

and is equipped with 144 M10 wafer-sized half-cells. The module is designed for a system voltage up to 1,500V and is printed with white reflectors in the gaps between the cells on the rear glass to increase light absorption on the front side.

The NU-JD545, the upgrade to the NU-JD540, has a module efficiency of 21.1%, a low temperature coefficient of -0.341%/°C and is designed for a system voltage up to 1,500V. Like the NU-JD545, it uses 144 M10 wafer-sized half-cells. It uses 1,750 mm cables which enable easy wiring in landscape installations and allows for leapfrog wiring when installing in portrait mode.

The NU-JC415, the upgrade to the NU-JC410, comes with 108 half-cells, an anodised silver frame and white backsheet, delivering an efficiency of 21.25% and a low temperature coefficient of -0.341%/°C. The dimensions of the NU-JC415 are 1,722 x 1,134 mm and it weighs just 20.7 kg, making it ideal for residential and small-scale commercial and industrial (C&I) rooftop systems.

All modules feature 10 busbar technology using round ribbons to increase the power gain from each cell and make them less sensitive to microcracks, thus improving module reliability. Furthermore, all three panels have three small junction boxes instead of just one, each fitted with one bypass diode. The safety, quality and durability of the panels have been recognised with IEC seals (IEC61215 and IEC61730). The modules have been rigorously tested for compliance with international standards and for endurance under extreme conditions, passing tests for ammonia, salt mist, sand and PID resistance.

ROLLS-ROYCE LAUNCHES NEW MTU ENGINES

Rolls-Royce is taking an important step towards a more climate-friendly future in construction equipment, industrial applications, agriculture and mining with the approval of mtu Series 1000, 1100, 1300, 1500 and 4000 engines for sustainable fuels. The mtu Series 1000, 1100, 1300 and 1500 engines have already been approved for use with EN15940 paraffinic diesel fuels following successful bench testing. This year, many mtu engines for mining applications of the Series 4000 will also be released for the sustainable fuels. Engines for emissions regulations EU Stage V will follow.

Sustainable synthetic fuels include biomass to liquid (BtL), hydrotreated vegetable oil (HVO) and power to liquid (PtL) such as e-diesel. To convert from conventional diesel fuel made from fossil petroleum to synthetic fuels of the EN15940 standard, no adaptation of existing engines is necessary.

"The use of sustainable fuels enables our industrial, agricultural and mining customers to significantly reduce greenhouse gas emissions - without compromising performance compared to conventional diesel," said Lei Berners-Wu, vice president Global Industrial at Rolls-Royce business unit Power Systems.

Rolls-Royce announced in 2021, as part of its sustainability programme 'Net Zero at Power Systems', that it would realign its product portfolio so that by 2030, new fuels and mtu technologies can reduce greenhouse gas emissions by 35% compared to 2019.

Change for Caterpillar dealership network in West Africa

Delmas Investissements et Participations (DIP) and the Delmas family have signed a transfer agreement for their Caterpillar dealership activity to a consortium conducted by Ivorian entrepreneur Jean-Luc Konan.

Included in the sales is JA Delmas and its network of African representative companies in charge of sales and after-sales in 11 West African countries. Konan, who will be named the new regional dealer by Caterpillar at the end of the operation, created the COFINA Group in 2013, a meso-finance institution recognised leader in western and central Africa in financing small and middle-sized companies. COFINA Group currently employs close to 1,500 people and is present in nine countries: Senegal, Cote d'Ivoire, Burkina Faso, Mali, Guinea, Togo, Gabon and Congo with a representative office in France.

Konan will bring to this new role jointly developed financing solutions that will enable local small and middle-sized companies (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.

Hervé Delmas, chairman of the board for DIP, said, "It is with great confidence that we



Jean-Luc Konan will be named the new regional dealer by Caterpillar at the end of the operation. hand over to Konan, wishing him the best success for the years to come. The Delmas family's entrepreneurial activities in Africa will carry on in the fields of energy (with Africa Power Services), equipment handling (Manutention Services) and handling, lifting and transport equipment rental."

Konan commented, "With these acquisitions of reference enabling us to build a group employing over 2,000 people with an expected turnover of 700 million euros, we are taking over the flag of the Caterpillar representation and will strive to contribute actively to the economic development of West Africa pursuing the dealer transformation, with the help of the current management team on board the new organisation, into a service company with a higher added value and even closer to our customers."

ALSTOM TO DESIGN, BUILD AND MAINTAIN CAIRO METRO LINE 6

Alstom, a mobility solutions provider, has signed a framework agreement with the National Authority of Tunnels (NAT), to design, build and maintain the Cairo Metro line 6.

The construction of Cairo Metro Line 6 is part of Egypt's plans to increase and improve public transport capacity and passenger experience for citizens. It will be 35 km long and will accommodate around 1.5mn passengers. The line will run north-south through the Greater Cairo neighbourhoods of Shubra El-Kheima and New Maadi, ending at the beginning of Ain El-Sokhna Road, Al-Khosos. The project will also include 26 stations, 12 of which will be located underground. The creation of Cairo Metro Line 6 will reduce the congestion on Cairo Metro Line 1 and provide more options to residents moving across Cairo.

Andrew DeLeone, president of Alstom in Africa, Middle East, and Central Asia, commented, "We are proud of our partnership with National Authority of Tunnels and to be part of the growth and modernisation of Egypt's urban network. Alstom is further committed to localise a significant portion of the Cairo metro line 6 project, aligned with Egypt's 2030 vision and sustainable development goals. This agreement, signed during COP27, demonstrates Egypt's commitment to ensuring Cairo is an inclusive, safe, and resilient city."

Alstom will provide the rolling stock, the Metropolis, the state-of-the-art metro; it will bring an unprecedented level of comfort to Cairo residents and tourists. Its interior layout will be tailored to specific customer requirements and designed to maximise the train's capacity while improving passenger comfort, accessibility and circulation. At peak times, each train will be able to carry 2,580 passengers and its eco-design will improve energy efficiency and will be 98% recyclable.

Alstom will be also in charge of signalling systems, infrastructure, telecom systems, traction, power supply, high voltage substation, depot equipment, design of the depot, trackwork, third rail and automatic fare collection.

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bauma's week in the spotlight

bauma 2022 lived up to expectations as an enormous contingent of the construction and mining industries enjoyed a week of networking, presentations and new solutions.



The 34th edition of the world's leading trade fair for construction machinery, building material machines, mining machines, construction vehicles and associated equipment drew to a close at the end of October, with attendees revelling in the return of a live event which many thought could have been disrupted by the lingering pandemic.

While it was not the first showcase to bring the international community together again after the emergence of Covid-19, it was most certainly one of the largest, as around 3,200 exhibitors from 60 countries put their wares on display and set their stool to engage with the global community. Despite some turbulent weather doing its best to unsettle proceedings at the start of the week, spirits remained high and the crowd continued to arrive in their droves – official count listed more than 495,000 visitors from around 200 countries – as bauma enjoyed its 'week in the sun'.

Those who made the journey to Munich were treated to a lively supporting programme focusing on the five key topics of construction methods and materials of tomorrow; mining - sustainable, efficient, reliable; the way to zero emission; the way to autonomous machines; and digital construction site. Of these, according to Franzlosef Paus, managing director of Paus Maschinenfabrik GmbH and chairman of the bauma advisory board, the latter two featured prominently and have become dominating topics of the trade fair which now seems irreversible.

Adding his sentiments on the show overall, Stefan Rummel, CEO of Messe München responsible for the event, commented, "This bauma has again stoked enthusiasm and fascination! After the world fundamentally changed following the last bauma, we're really thrilled that bauma 2022 demonstrates that the trade fair remains a powerhouse of the construction equipment industry thanks to our customer's great variety of innovations, good business deals and many visitors from all over the world."

The following is a review of some of the leading companies which, through their products, solutions and services on display, helped Rummel arrive at this buoyant conclusion.

Volvo Penta

At this year's bauma, Volvo Penta took the opportunity to present new technologies and service offerings that will help support both the current demands to reduce emissions as well as the future business needs of industrial customers. This was in line with achieving the company's commitment to the Science Based Targets initiative (SBTi), where it aims to reach net-zero value chain emissions by 2040.



Volvo Penta's stand with the hydrogen dual-fuel engine in front.

As part of this offering, the company revealed its dual-fuel hydrogen engine as an evolution of its proven D8 model. Expected to reduce CO₂ emissions by up to 80% without impacting power or performance, the engine operates in a similar way to the D8 model but uses mainly hydrogen instead of diesel. If hydrogen is not available, the engine can continue to run on traditional fuel, safeguarding productivity and uptime.

Currently, the engines are being run in test cells to optimise the hydrogen-diesel injection strategy for maximum reliability and emissions savings.

Speaking at the show, Anders Wernsson, product manager for the dual-fuel hydrogen engine, commented, "We want to show that we are moving in the direction of sustainable solutions, learn and support our customers in their efforts in this space and, to do this we are starting off close to our hearts, in Europe. The plan is to launch around pilot installations in 2023 and we will use it to get the product into our customers' hands in order to get their understanding and prove the concept works. This will also allow us to gain experience and, if everything is successful, from 2024 and onwards we can slowly ramp up with more installations.

"I see Africa as a very interesting continent because there is some serious interest in hydrogen there and so that could logically be the next step with a lot of potential. We are starting off in Europe as mentioned to establish a good proof-of-concept and for us, it is a question of getting customers adapted to this change and show it can work."

Perkins

Also highlighting their commitment to supporting customers through the energy transition, Perkins presented its range of advanced power solutions designed to address the needs of original equipment manufacturers (OEMs).

These solutions included fieldproven engine technologies that



Perkins Ecoplus filters are designed specifically for Perkins engines.

lower greenhouse gas emissions while delivering significant improvements in power density, performance and operating efficiency, as well as expert technician services, flexible engine repower and replacement options, and genuine replacement parts. Perkins is also engaging in a battery programme as part of its ongoing initiative to help its customer base of more than 800 OEMS.

One part of this commitment, prominently on display at the company's stand at bauma was Ecoplus fuel filters which feature an element-based design that eliminates the metal housing and centre tube, requiring fewer materials, minimising waste and enabling recycling after use.

Perkins Ecoplus filters are designed specifically for Perkins engines to help maintain efficiency and maximise performance. The complete range feature proprietary technology that safeguards engines and extends the lifetime of investments. Perkins Ecoplus filters use an 'element based' design, which means they are significantly better for the environment. The engineered filter element inside the metal canister uses fibreglass spiral roving to hold the media in place to prevent the pleats from flexing. Reducing flexing and movement of the filter pleats improves particle retention and holding capacity. The addition of spiral roving has also been shown to increase resistance to collapse.

Kohler

Kohler Power Systems focused part of their presence around the release of the R550C5, which has completed its STAGE V rental compact range consisting of seven power nodes ranging from 20 to 550kVA.

Speaking at the stand, Kévin Bougault, product manager from Kohler, explained, "The R550C5 was released in October and they are in production currently in our facility and, so far, this has gone really well with several orders already taken. I am hoping to see the first one in the field at the beginning of next year." The R550C5 rental compact genset with Stage V compliance is integrated into the M5228 module of the Rental Compact range to create mobile generating sets dedicated to demanding rental applications, providing 500kVA PRP / 550kVA ESP, while ensuring a reduction in polluting emissions.



The R550C5 was released in October.

The six-cylinder engine built with a high-pressure common-rail fuel system and full-authority electronic controls boasts DOC and DPF exhaust filters, and uses PowerTech Plus technology with series turbochargers alongside an optimised SCR system.

"These products are for all the industry but I would highlight they are particularly well-suited to the construction segment, used continuously on-site to feed the different equipment and infrastructure.

"The Stage V range is now only targeted at the European markets but, for sure, in the next few years we would like to bring it to Africa and everywhere else where there are ambitions to lower carbon emissions. A non-emission certified product line is also available gathering all the benefits of the Rental compact design but without after-treatment systems. However, as I said, we are looking to get there with these new solutions as, although there are less regulations about pollutant emissions. I think the global objective to reduce greenhouse gas emissions is taking hold there so I expect we will see units of this kind on the continent at some point."

Another message important with Kohler's presence at bauma and which Bougault was eager to point out was that the company has approved use of hydrotreated vegetable oils (HVOs) for all its diesel engines after intensive laboratory and on-field testing by its engineering team. "So you can use this fuel now on our current engines, blend it at whichever percentage you want and use it in the engine without the need to clean it up. By doing so we reduce greenhouse gas emissions by up to 90% in the global lifecycle of the fuel."

JDPS

At John Deere Power Systems' (JDPS) stand, the JD18X, part of the next generation engine lineup, was front and centre. This features different performance levels to meet customer needs, with each offering a unique set of benefits suited to various application types. The different performance levels include G, P, and X. Currently, the JD18 is available as a JD18X. The JD14 has a P and X model.

Michael Lefebvre, manager - global marketing and product strategy at John Deere, explained, "The JD18X is particularly well-suited for pump applications and construction and agriculture applications in the 572 – 677kW power range. The JD18X will be available for African markets and can be used in all countries where emissions regulations allow the sulfur content in fuel to be below 500 ppm.



The JD14 (left) and JD18X (right) at the JDPS stand.

"We were excited to showcase the latest innovations in powertrain technology at bauma and enjoyed engaging with other industry leaders. We had a great turn out at our booth and saw a lot of interest from visitors in our JD18 engine and the Kreisel Battery Pack 63 (KBP63)."

The Kreisel Battery Pack 63 (KBP63) incorporates Kreisel technology benefits into one product and utilises Kreisel Electric's patented immersion cooling technology for efficient thermal management. This ensures that all cells are stressed equally, prolonging battery life while meeting exceptional safety standards.

Lefebvre continued, "As for products that have had interest from OEMs in the African market, our range of mechanical G-drive engines equipped with a mechanical highpressure fuel pump and fitted with a cooling kit have been very successful in the African market due to their robustness and reliability. For the same reasons, as well as their simplicity of maintenance, our comprehensive range of industrial and marine mechanical engines have also been successful in the African market."

Caterpillar

Despite the size of the show, there was no missing Caterpillar's presence which had dealer Zeppelin displaying their construction products under the theme 'Let's Do The Work'. Across their extensive exhibit, more than 70 pieces of equipment and attachments from Caterpillar Construction Industries were shown with the Industrial Power Systems Division displaying multiple engines as well.



Cat Productivity delivers actionable site-level information.

Since the show, the company has indicated that one of the solutions that drew interest from the visitors during the week was Cat Productivity – an easy to implement cloud-based application that provides a complete overview of machine and jobsite production on construction sites and quarries.

A statement shared by the company noted, "It is a data rich tool that delivers consolidated and actionable site-level information to analyse performance by tracking material types and tonnage moved, fuel costs and machine hours and pulling live payload data for analysis and compare productivity between shifts. The user can review dashboards to detect and fix high idle time, redeploy fleet based on hourly utilisation updates and use data to determine the optimum distances between cycle segments. The application helps increase profits by identifying and improving instances of high fuel burn, assess utilisation levels to determine when to buy new, used or rent and pull historical data for more accurate bids on future projects."

It continued by explaining that performance metrics are displayed on a single, easy-to-read dashboard, providing quick oversight of multiple jobs with the key equipment performance data needed to track detailed information on what the machine is doing and draw the full potential out of every asset.

Wirtgen

Like Caterpillar, Wirtgen also arrived at bauma with a formidable presence that included 97 exhibits (including 37 world premieres) alongside dedicated exhibition spaces covering digital system concepts and sustainability.

Jerry Muchiri, regional manager sales & business development East & West Africa, Wirtgen, commented, "bauma 2022 was a resounding success with the most visits and unprecedented participation by Africa multi-sectoral customers with business interests ranging from infrastructure, concrete, agriculture, asphalt and mining. We also had diversity in representation going by the number of potential and current customers who were from all over the continent and not dominated by a select geographical region."

Included in the next generation of road construction equipment was VÖGELE's Dash 5 road pavers,



VÖGELE's SUPER 1900-5(i) on display in Wirtgen's area.

featuring the SUPER 1900-5(i) and SUPER 2100-5(i). The former manages pave widths between 2.55 m and 11.5 m while the SUPER 2100-5(i) handles up to 14 m.

The next generation of pavers boasts a number of features to drive productivity including the new Paver Access Control (PAC) function which enables the pavers to be equipped for work on the job site more quickly, more conveniently and more safely. The control unit allows all the initial steps to be performed safely and conveniently from ground level. This promotes safety and saves time, as the paver operator cannot forget to lock the hardtop in position and can start heating the screed as soon as he has arrived on the paver operator's platform.

The automation of processes has also been intensified through assistance and control systems to prevent paving errors, increase efficiency and improve paving quality. An example of this includes the AutoSet Plus, which is already tried and tested in the market. As ever, environmental considerations have been taken into account as the pavers are equipped with VÖGELE's low-emissions package.

Bell Equipment

Aiming to 'keep it special' with their appearance this year, Bell Equipment sought to meet customer needs by displaying its designed industry solutions. Included here, and carving out a memorable sight at the company's stand, was the new generation of the two-axle ADT Bell B45E 4x4. The second-generation B45E is aimed at small- to mediumsize quarry operations, where it competes against rigid trucks in the 45 to 55 tonne class or 6x6 ADTs with payloads of 40 tonnes or more. Compared to both vehicles, the 4x4 trucks has a distinct advantage in typical hard-stone quarrying on rough ground with steep climbs and tight bends, as well as wet weather.

Another facet of their display which Bell was keen to promote was their autonomous ADT platform. "Autonomous applications are industry specific and require surveying and guidance by an industry expert. We want our customers to be able to choose a guidance solution that they are most comfortable with and that can be fitted to all the machines in the work cycle. Keeping the guidance system independent of the OEM gives customers the flexibility to run a mixed fleet and benefit from the efficiency and productivity that it provides," remarked Bell Equipment ADT product marketing manager, Brad Castle in a previous release.



The B45E at Bell's booth.

"Similarly, by adding further layers on top of the existing PDS ISO standards, we have created an autonomous ready platform that uses an open communication protocol principle to integrate easily with third party suppliers," added Bell Equipment's manager: electrical and software, Eben Lemmer.

Layher

In its regular fashion, Layher took to bauma with a plethora of innovations at its stand ranging from the AGS System, Stalu deck 50 and Stalu deck T21 to the star of the show in the Aluminium Twixbeam.

A popular product that is especially relevant to the African continent is the Aluminium FlexBeam. Through a post-show comment, the company noted that in the past, constructing suspended and cantilevered access types of scaffold structures would involve heavy steel lattice beams requiring time-consuming installation as well



Layher received many visitors from Africa across the show.



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To know more contact: Mr. Shobith K : Ph: +91 88868 80788 Email: shobith.k@ajax-engg.com marketing@ajax-engg.com www.ajax-engg.com as the use of further materials for lacing, bracing and tying the structure. However, the Aluminium FlexBeam is an innovative solution that does all this in a single product facilitating rapid assembly.

Reflecting on the company's experience at bauma, Thierry Baranzika, business development manager at Layher South Africa, commented, "It was impressive the amount of innovation that you could see from a single stand and the dedication that all Layher representatives had for the one message which is to grow together with our customers."

Baranzika added, "It was great to see that there were companies from Egypt, Kenya, and Madagascar present at the expo, seeking and looking to discover what there is to offer for the markets in these countries in terms of scaffolding solutions. Layer South Africa is currently providing some of these solutions to countries such as South Africa in the form of the All-round system, the Protective System, and the Aluminium FlexBeam."

TII

At the TII stand, visitors were welcomed by the sight of the new TIIGER UHD, especially designed for emerging markets in South and southeast Asia, the Middle East, South America and Africa. The heavy duty model is ideally suited for transporting heavy goods, with maximum payloads possible thanks to the lightweight construction, larger steering angle and excellent manoeuvrability.

Based on functionalities of the K25 series, the TIIGER UHD offers robust technology, an attractive cost-benefit ratio and can be combined with many other transport modules in the existing fleet.



The TIIGER UHD at TII's booth.

Carmix

A representative at the Carmix stand expressed their delight that the show was able to go ahead after Covid and the outbreak of the conflict in Europe, and said they had received visitations from attendees arriving from across the globe.

The highlights of their stand included the premier of the Carmix 45 EVO which will go into production next year. The selfloading concrete mixer is equipped with a new ergonomic and comfortable closed cab, a single joystick to control all the bucket functions, LED lights for higher safety and visibility and an EU Stage V compliant engine.



The 45 EVO alongside the 3500 TC.

This shared the stage with another release in the form of the MyCarmix App available for vehicles such as the 3500 TC. This solution offers userfriendly software available on heavy tablets to remote control and manage mix design, allow unit checks and diagnosis and provides proactive remote assistance.

DECOMDA

Amongst the established household names which dominated much of the show, there was also room for the new, as the Start-up Area provided a unique platform for fresh innovations and companies who are looking to break out into the industry in line with the key topics of the show.

Amongst these was DECOMDA, which had the opportunity to present their solution for underground data communication which shared the area together with more than 20 other companies.

Tobias Krichler of Decomda explained, "DECOMDA offers a decentralised communication and data acquisition system for all areas where neither LTE, WiFi or any other typical communication solution can be used cost-efficiently. No external power source is required with the Data Logger collecting all kinds of data at any location. The data is then passed to the Data Collector (be it a person, vehicle or drone) as it passes within a distance of 60-150 m depending on the cross section – this is done automatically so the Collector does not have to interrupt its journey or work. The data will then be transmitted to a superordinate system whenever the Collector finds a WiFi or LTE signal.

"We were able to hold a large number of interesting talks with specialists from all industries, which showed us the importance of underground communication once more and also additional use cases outside of the mining industry. Our booth attendees came from almost all parts of the world. For us, it was a special honour, that a delegation led by the consulate general of the Republic of South Africa in Bavaria, visited our booth among two others within the Start-Up Area."

The tip of the iceberg

Of course, the companies mentioned here were a drop in the ocean of companies who descended on Munich in October. Other notable mentions included:

- Bobcat took the opportunity in Munich to announce that its lineup of innovative ground maintenance equipment is now available to customers across Europe, the Middle East and Africa
- Parker Hannifin presented its portfolio of key technologies under the theme 'projecting and engineering a greener future' alongside more than 15 talks on topics covering electrification, hydrogen technologies and material science, IoT, alternative fuel delivery systems, and engine and hydraulic filtration, among many others
- Liebherr at its corner which spanned more than 15,000 sq m of exhibition area, showcased the LTM 1100-5.3 new mobile crane. Presented under the slogan 'the master of all roads' the vehicle can travel with an axle load of

only 9 tonnes to offer economical mobility worldwide

 Featuring as a full-range supplier, the Faymonville Group across its booth of around 1,450 sq m boasted a unique variety of equipment thanks to three product brands in MAX Trailer, Faymonville and Cometto. One highlight included the BladeMAX1000 from Cometto, with a lifting capacity of 1,000 mT, celebrating its world premiere in Munich.

Finally, an honourable mention must be given to BKT who, aside from bringing its accomplished range of robust tyres to the fore (now including the EM 933 SUPER which was launched at the show), also brought the entertainment. The company set up BKT HOOPS, a game area dedicated to visitors and sport enthusiasts which allowed visitors to win prizes by playing basketball. The company made parallels with the true values on display in the sporting world which are shared by the company, and aimed to bring this message to life at bauma.

While the stunt proved an enjoyable addition to a show, there was little need to add to the excitement already in the air as the industry rejoiced in returning to live events once again. A show that was filled with innovations and forward-



BKT provided some fun with their game area.

thinking, for a community which has grappled with a challenging geopolitical climate over the last few years (perhaps more than most), it marked a welcome highpoint and reversion to normality, which will certainly be cherished for some time.

Catalysing change in one of the world's dirtiest industries

With steel production responsible for an estimated 8% of CO₂ emissions globally, SSAB is on a mission to clean up one of the world's dirtiest industries.

arlier this year, Volvo CE made a giant leap forward in climate-sensitive manufacturing by delivering an A30G articulated hauler to a customer, built using fossil-free steel. Volvo has since followed this by beginning series production of its heavy-duty, 44 tonne electric tonne trucks some of which are being delivered with fossil-free steel. The use of this material marks a significant milestone in the green transition, highlighting the possibility of creating fossil-free value chains to help mitigate the daunting effects of climate change.

In both of Volvo's cases, SSAB, a Nordic steel producer, was the company behind the carbonneutral material – a revolutionary product which has been delivered in test batches to Volvo Group and was proudly on display at the company's stand at bauma 2022.

Speaking to African Review at the conference in Munich, Johan Anderson, marketing director at SSAB, explained that the impetus behind their innovation started in 2016 when the company took it upon itself to make change within the steel industry as it represented one of the dirtiest (in terms of CO₂ emissions) in the world. Together with partners LKAB and Vattenfall, the HYBRIT initiative was created with the aim of revolutionising iron- and steel-making. With HYBRIT technology, hydrogen is used instead of coal in the ore reduction process to emit water instead of CO₂. By replacing coking coal with fossil-free electricity and hydrogen, SSAB and its partners are pioneering a way to deliver highquality steel with virtually no carbon footprint.



Johan Anderson, marketing director at SSAB, holding a piece of the fossil-free steel at bauma 2022.

Inspiring change

While the company will use the technology to meet its own climate targets, Anderson noted he hopes this will also be a catalyst for change within the wider industry.

He said, "In collaboration with POSCO, a South Korean steel-making company, we recently hosted a conference which incorporated much of the steel industry worldwide. It was clear that climate concerns were shared across the board and there is a common movement for the industry to reduce their emissions. Our aim is to transform SSAB by removing all CO₂ emissions by



around 2023, and hopefully inspires others to target similar feats."

With the technology tried, tested and proven with pilot projects, SSAB is now aiming to bring its fossil-free steel to the market at an industrial scale in 2026. Anderson remarked, "Once this was announced, we were overwhelmed by the demand from customers, many of which were asking for huge volumes. Now, in line with our goal of accelerating the green transformation and reducing our company's emissions, we are looking to build two completely new steel mills to facilitate fossil-free steel delivery. We have already begun specification and building permits and they should be up and running in 2030."

African interest

This is a trend that is not occurring solely outside the continent either as Anderson remarked, "Across the supply chain, there appears to be more and more conversations around reducing emissions and a tangible desire to do so – I met someone the other day whose job title was 'head of zero emissions'; you would never have seen that ten years ago, perhaps not even one!

"In Africa, I have found we are having the same kind of discussions. We are constantly asking our customers across the globe about the demand for fossil-free steel and it is really moving."

Maximum versatility with mini excavators

Mini excavators from leading manufacturers are making light work of projects across the continent.

hen it comes to construction machinery, there are few traits as highly valued on Africa's shores than versatility. With projects ranging from inner-city buildings to remote infrastructure development under harsh conditions, the ability to adapt to the surroundings while maintaining a high level of productivity is highly prized indeed. As one of the most versatile pieces of kit on the market, capable of performing a multitude of different tasks while operating in confined spaces or delicate surfaces, it is no wonder that mini excavators are a common site on construction sites from East to West



Ensuring that the continent is well-served for all its mini excavator needs is Bobcat, a company which has been providing reliable compact equipment for more than 60 years.

To understand more about the company's mini excavator offerings in the region and discover the factors driving sales, African Review heard from Nicolas Dumont, district sales manager - Africa at Bobcat who provided his broader perspective, before listening to local representatives associated with the company.

Dumont commented, "The 4-5 t models, E50z and E55z, are by far the top sellers in terms of volume. They account for about 60% of our sales. They are

G In Morocco, customers now understand the versatility and advantages of having a compact mini excavator dedicated to the smaller jobs."

SILVIO ROCHA, DEPUTY DIRECTOR GENERAL AT HYDRAU MAC

followed by the E37.

"We have excellent market share across the continent with these machines. South Africa is the most diversified market in terms of model mix where E17z and E27z are also quite popular."

Continuing, Dumont noted that applications for these models are very diversified and really depend on the country in which they are deployed.

"While it is more traditional in North Africa for urban works, MEX are used in fruit plantations (banana or pineapple) in West / central Africa for digging trenches for irrigation or in vineyards in the Western Cape of South Africa.

"The cheap hand labour in Africa is still mostly used for urban works in cities. This is why MEX are mostly used in remote locations where labour is harder to find and where a compact machine is needed (in plantations or vineyards)."

"The key benefit of our MEX range is that we are able to provide machines with mechanical injection engines. This really is a must to cope with the high sulphur content as well as the contamination of the fuel (such as water or dust) due to poor storage (external tanks where condensation is created) and/or transfer conditions," he added.

Finally, Dumont considered what he thinks is setting Bobcat's machines apart from competitors, surmising, "We have several competitive advantages. On the product itself, the mechanical engine is the main advantage. Many African customers had bad experiences with high pressure / common rail injection engine and they would rather buy a second hand machine with a mechanical engine rather than a Stage V unit.

"Some of our competitors do have mechanical engines as well, but on some models they only propose a canopy while we have an air conditioned cab option on the E37, E50, and E55z which considerably improves the operator comfort in the hot and humid environments found in Africa."

South Africa

Providing context from one of the continent's more developed countries, Clayton Sadler, sales manager for Bobcat for Goscor Earthmoving Equipment, explained that while supply challenges have unfortunately limited market sales in 2022, this year sales have largely gone to rental and agriculture.



"The rental units have been used in vineyards and plantations removing old vines and trees, preparing land for replanting and general maintenance for irrigation and drainage. One E55 model with thumb attachment went into game farm management where it has been put to work de-bushing,

maintaining trenches and road making. The customer is very satisfied with the additional scope of work the thumb attachment offers.

"We see the MEX being more of a rental machine in the construction segment where it is used during mid stages of building due to its compact nature."

On what is setting Bobcat's range apart, based on customer feedback, Sadler remarked, "With the 'long arm' option on the E55 we have a similar reach to a 6 tonne machine. Our vineyard customer therefore enjoys the benefit of being able to work on up to three rows of vines from one position. This means less repositioning, thus time saving and therefore less fuel for the customer. This and the power of the brand make the Bobcat MEX an easy choice."

Angola

In Angola, the top sellers are "by far and away" the E35, E37 and E50, according to Ivo Araujo, general manager Angola at Centrocar. He remarked that these models are currently and most commonly working in the rehabilitation of cities' infrastructure all over the nation on many key projects.



This includes the National Road 230 Luanda-Saurimo (connecting the capital with the eastern border with DRC) as well as other projects including Lubango peripheral highway, Luanda military hospital and Luanda child care hospital.

On what customers in the country find most attractive around Bobcat's machines in this field, he remarked that reliability and running costs have been highlighted, in addition to outstanding productivity.

Morocco

Finally, moving to the other end of the continent, Silvio Rocha, deputy director general at Hydrau Mac in Morocco, explained, "The main model by far is the E50z, which is very attractive because of its capability for operating in compact working zones. The E35/E37 models are also popular for finishing works and site preparation in narrow spaces.

"In Morocco, customers now understand the versatility and advantages of having a compact mini excavator dedicated to the smaller jobs that before were always carried out using backhoe loaders."

He continued by noting that most of the units are working inner city on tramway expansion works but customers are now using them in smaller and narrow construction jobsites where the small and compact size matters.



An E45 at work in Morocco.

"Mostly our customers are choosing Bobcat models not only due to the reliability of the machines but also because of the technical support and aftersales assistance, which is very important when they have construction works that always have a very tight time schedule to be finished."

Caterpillar completes next generation line

Of course, Bobcat is not the only manufacturer helping to meet mini excavator demand. Caterpillar, which traces its history into the early years of last century, has released the new Cat 305 CR Next Generation Mini Hydraulic Excavator.

The machine, which promises to provide an improved customer experience, delivers more power to the hydraulic pump, higher bucket breakout forces and deeper standard stick digging depths to increase performance by up to 20% over the previous 305E2 CR.

Up to 10% lower owner and operating costs can be achieved through the industry-leading grease intervals and extended filter service lift, in combination with common components throughout the line and easy-to-replace side panels.

A new engine on the 5-tonne class Cat 305 CR Excavator delivers enhanced machine performance and the hydraulic system improvements provide higher breakout forces – 49.2 kN bucket, 28.3 kN standard stick and 25.2 kN long stick. It also offers a deeper dig depth than the 305E2 CR at 140 mm, giving it more application flexibility. At the same time, stability is ensured with its 1980 mm track width and counterweight option.



In addition to a host of restyled features to enhance efficiency wherever possible, the new model also ensures operator comfort and safety through heating and/or air conditioning, a large glass area for all-round visibility, a display providing machine function control and monitoring of critical parameters, and a canopy option available in some regions.

The 305 CR model is the final machine to be reengineered to the Cat next generation mini hydraulic excavator line concept. From the 1.5 to 10 tonne class models, all 11-13 Cat mini hydraulic excavators in the range (depending on the region) offer common features and consistent controls layout to simplify training and operator adaptation.

Answering the call for cleaner construction materials

Consumer demand for more environmentally-friendly products have not been lost on the construction industry as calls for cleaner cement and associated materials is being reflected in new initiatives and solutions.

t is no secret that the construction sector represents one of the most carbon-intensive industries on the planet. In 2019 the IEA reported that the buildings and construction sector accounted for around 36% of final energy use and 39% of energy and process-related carbon dioxide emissions in 2018. A large amount of this can be attributed to the manufacturing of building materials and products with some estimates suggesting that the cement industry is responsible for about 7-8% of carbon emissions alone.

However, in the face of this concerning message has come a steely determination from many organisations within the industry to not allow these statistics to become a planetary swansong. In recent months, the Global Cement and Concrete Association (GCCA), which reportedly represents 80% of the global cement industry, has led the charge by re-affirming its decarbonisation commitment, one year on from the release of its industry Net Zero Roadmap. At the New York Climate Week, the GCCA focused on the material's key critical role in achieving a sustainable and resilient built environment as well as the progress made over the past 12 months as it looked to turn pledges into action.

On the continent, this was partly realised in the MoU signed between the United Cities and Local Government of Africa (UCLG Africa) and the GCCA to increase collaboration towards decarbonising cement and concrete industries. As part of this, the two entities will organise events that strengthen advocacy for the involvement of local governments in decarbonisation and solidify their own efforts to help make low carbon cement manufacturing investible in



Africa and stimulate demand for low-carbon concrete products.

Thomas Guillot, GCCA chief executive, remarked, "As the world faces an unprecedented climate crisis, the need to accelerate decarbonisation efforts becomes clearer with each day. Last year our industry made a milestone net zero global commitment to reduce our carbon footprint to zero by 2050. Crucial to this commitment is supporting and driving change across the African continent. Our MoU, signed today with UCLG Africa at Africa Climate Week, marks an important next step in tailoring efforts to ensure a greener concrete future."

Thinking sustainable

It does appear that this message has been taken to heart by much of the industry operating on the continent. Lafarge Africa, by example, recently launched its 2021 sustainability report to highlight how the

company's focus on the environmental factor has been effective and yielded positive results for stakeholders. The Nigerian company is a leading innovative and sustainable building solutions company with a range of productions and solutions relating to concrete, mortar, aggregates and more. In its environmental review, it proudly explained it had reduced CO₂ emissions at its Ewekoro Line 1 plant by 69%, achieved a 25% increase in the use of waste through its geocycle business and increased corporate social investments by more than 90%. Lafarge has now set out four strategic pillars on which its sustainability plan is based including climate and energy, the circular economy, nature and people.

Suez Cement, a subsidiary of HeidelbergCement, has pursued its own climate-driven initiatives by looking to set up a photovoltaic solar power station within its Suez Plant. The company has signed a power purchase agreement with Intro Power and utilities for the delivery of the facility which will supply around 45GWh of clean electricity annually and account for approximately 20% of the plants total power supply. The company took this step after recognising the energy-intensive process of its cement manufacturing with construction scheduled to begin in 2023.

Elsewhere, East African Portland Cement (EAP) has answered customer calls for an alternative, more environmentally-friendly product by launching Green Triangle Cement. Having already received the go-ahead from the Kenya Bureau of Standards, Green Triangle Cement is a new product aimed at minimising carbon emissions and will be applicable in the preparation of mortar for brick and block laying as well as rendering, plastering and repair works.

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Complete construction solutions for Africa

With vital construction projects underway across the continent, Mantrac is on a mission to provide profitable and dependable solutions to meet whatever needs that arise.

ccording to Mantrac, there are more than 570 major construction projects underway in Africa worth an estimation of US\$450bn. A significant number of these derive from the energy sector as the continent continues to fight for universal energy access, while other sectors such as the transportation (including roads. airports and railways) are also making a notable contribution to this figure. With such vital projects at stake, finding the right equipment, supplier and aftermarket provider is key.

For the past 40 years, Mantrac Group has been providing end-toend construction solutions across Africa's various territories. As one of the largest authorised Caterpillar dealers in Africa, Mantrac supports the entire market across all industries, including construction, forestry, oil and gas, mining, industry power and manufacturing; and across all machinery needs including earth moving machines, articulated trucks, asphalt pavers, loaders, bulldozers, drills, compactors, crushers, batching plant and more.

Mantrac experts are also on hand to train teams to properly manage their fleet and utilise cutting-edge technology such as Cat Grade and semi and fully autonomous machines, to see increases in productivity and profits, including 45% higher uptime and a 30% reduction in fuel cost.

Mantrac aims to give its customers peace of mind with strong guarantees and warranties of up to 24,000 hours of coverage. Flexibility is also on offer when it comes to finances. With Mantrac, companies can access a range of options for flexible ownership to suit any budget. From equipment buyback and rental, to training for personnel to active fleet management and maintenance contracts, whatever the need, Mantrac has a solution.

Committed to success

As the preferred partner worldwide, Mantrac supplies products recognised for excellence in quality and value, aiming to be a market leader in every region of operation while being good corporate citizens. Customers can talk to professional experts for help finding the best contractors in specific areas and managing all aspects of the construction process to ensure the success of projects before the ground has even been broken.

To help highlight the right equipment for specific operations and as a display of their commitment to their customers, Mantrac is currently delivering unique construction webinars which are available live and recorded. Mantrac Live & Cat Expo Live are being delivered to showcase the best the company has on offer in the form of exclusive product demonstrations, new product launches, best practices and Q&As with experts.

Visit www.mantracgroup.com for more information and register for the company's Build Africa Together webinar series at: https://www.mantracgroup.com/const ruction-webinar/

BOBCAT LAUNCHES NEW ATTACHMENTS FOR SALS

Bobcat has launched two new Brushcat rotary cutter models and a new log grapple attachment for the company's range of small articulated loaders (SALs).

The smallest Brushcat attachments offer cutting widths of 1,118 and 1,372 mm respectively, with the larger models offering cutting widths of 1,676, 1,829 or 2,032 mm.

Like the new smaller Brushcat attachments, the log grapple is compatible with both the Bobcat L23 and L28 SAL models. The log grapple meets the challenging demands of landscaping and site clearing jobs, and can also be used on the new MT100 mini track loader.

Like the larger models, the two new smaller Brushcat attachments deliver powerful cutting and mulching action in areas of untamed growth and can pass through gates and other narrow entrances. The new Brushcat attachments feature a high-efficiency, direct-drive motor that maximises hydraulic horsepower for optimal cutting and mulching of tall, thick vegetation in one pass. The high cutting speed and heavy-duty blades maximise momentum to cut and mulch vegetation up to 5 cm in diameter.

The log grapple attachment also has reinforced tines, which with the heavy-duty teeth provides outstanding grip when managing unwieldy logs and brush. Rope bollards provide an additional anchor point, assisting in stability while at work

The log grapple also features a 143 cm wide opening and 360° rotation for increased productivity and ease of use for operators. The open sides allow for easy clamping of logs and piles of brush, clearing areas more quickly.

JCB unveils hydrogen industry-first

JCB has unveiled a world-first for the construction industry in the form of a mobile hydrogen refueller. The company is investing in a project to produce super-efficient hydrogen engines and has already showcased working prototypes of a backhoe loader and Loadall telescopic handler powered by hydrogen.

Building on this, the mobile hydrogen refueller will provide a quick and easy way for customers to refuel their machines on site. Around 97% of construction machines have fuel delivered to them while working on site which means customers are already used to a transportable fuel, allowing refuelling to take place in a matter of minutes.

JCB chairman Lord Bamford, commented, "Since we became the first construction equipment company to unveil machines powered by hydrogen, many have asked how they can be refuelled.

"Well today we have an answer with our new mobile hydrogen refuelling system, which allows hydrogen to be taken from on-site tube trailers and distributed to machines by our refueller as they work on the job site. This is no different to today when diesel is taken in bowsers to refuel machines.

"Fossil fuels are not the future and hydrogen is the practical solution to powering our machines in the decades to come. Our engineers are doing a fantastic job in developing this technology and there are many more exciting developments to come."

The first hydrogen powered machine to be unveiled was a JCB backhoe loader followed, a year ago, by a Loadall telescopic handler. The technology went on to be shown in the Green Zone at COP26 in Glasgow as world leaders debated measures to drastically reduce greenhouse emissions.





The log grapple in action on a L28 SAL.

The Bobcat L23 and L28 SALs offer high lift capacities in confined spaces, ease-of-use with simple intuitive controls and low ground disturbance for working on any terrain. The machines' compact size, with a width of just over one metre combined with a tight turning radius, allow Bobcat SALs to work effectively in tricky and hard to reach areas.

VOLVO EC550E EXCAVATOR ARRIVES IN SOUTHERN AFRICA

The Volvo EC550E crawler excavator is now available in southern Africa with Babcock, the authorised Volvo CE dealer in the region, bringing and delivering the first unit to a customer.



The excavator, which was introduced to the world market earlier this year, is well suited to large infrastructure projects as well as mass excavation and mining applications. With the machine, Volvo CE introduced the independent metering valve technology (IMVT) hydraulic setup, in conjunction with a totally new engine trim on the D13 engine block and electrohydraulic command for the joysticks. As a result, it offers production more in line with a bigger class machine in the 60-65 t range, despite the decals stating 55 t. Customers can take control of their productivity with an on-board weighing system. helping to ensure the optimum amount of material is loaded. The optional system provides real-time information to eliminate under and overloading of haul trucks and also records total tonnage for complete production management.

With a host of features delivering maximum uptime, efficient fuel usage and ultimately high performance, there is little doubt the Volvo EC550E will prove a welcome sight as it arrives on projects across southern Africa.

SES and Shevon provide African mining with connectivity boost

A leading African mining company based in the DRC will be enjoying high-speed satellitebased connectivity services as part of a new agreement between Shevon and SES.

The two-year agreement will see Shevon provide for the first time SES' O3b Medium earth Orbit (MEO) high-throughput and lowlatency connectivity services, enabling the DRC mining company to implement new services and applications that will improve workers' safety, digitalise operations and maximise profitability through increased agility and automation.

The new agreement reflects the strength and success of the existing long-term partnership between the two companies.



Shevon will provide SES' 03b MEO high-throughput and lowlatency connectivity services.

Craig Jennings, CEO of Shevon, commented, "SES has been providing us geostationary satellite capacity for years and it has served us well. However, in recent years, we have seen the energy sector in this region growing and developing where the demand for reliable, high-throughput and low-latency services is more critical than ever. We are excited for our first MEO contract with SES and how the low-latency services will transform our business."

Caroline Kamaitha, vice-president of sales Africa at SES, added, "Digitalisation is helping the mining industry to evolve. High-throughput, low-latency connectivity and native integration with cloud platforms is enabling a new generation of more profitable operators, who can also boast high levels of oversight and compliance over their remote sites. At SES, we are proud to be helping to spearhead this change through our O3b MEO network – and through our upcoming O3b mPOWER service."

According to SES, O3b MEO is the world's only commercially successful non-geostationary satellite system that provides a critical connection to core network Internet access points. It ensures that rural and remote areas have the same quality of experience as more developed regions, providing them with the opportunity to grow and expand.

LUCARA DIAMOND EXTENDS AGREEMENT WITH HB

Lucara Diamond Corp. has entered into an extended diamond sales agreement with Lucara Botswana Limited, and HB Trading BV (HB), for the purpose of selling +10.8 carat rough diamonds produced from Lucara's Karowe mine until 2032.

Lucara first partnered with HB in 2020 to sell Karowe's large, high value diamonds, which have historically accounted for approximately 60% to 70% of Lucara's annual revenues.

Under the agreement, Lucara's +10.8 carat production is sold at prices based on the estimated polished outcome of each diamond, determined through state-of-the-art scanning and planning technology, with a true up paid on actual achieved polished sales thereafter, less a fee and the cost of manufacturing. The agreement is consistent with the terms of the previous arrangement with HB, with refinements to more accurately reflect how the parties have been working together.

NEW TAILINGS TECHNOLOGY EXPLORED BY BHP AND RIO TINTO

Global miners BHP and Rio Tinto have formed a partnership agreement to accelerate the development of technology that could significantly increase water recovery from mine tailings, and in turn reduce potential safety risks and environmental footprints associated with tailings storage facilities.

The first project will involve testing the application of an innovative large-volume filter unit at a BHP copper mine in Chile, which would remove up to 80% of the water in the tailings stream before it is deposited in a storage facility.

Both organisations will work in collaboration with leading technology and equipment providers, technical experts, research groups and the academic sector.

Manufacture of the filter unit is already underway. The pilot will test the potential of a large-scale tailings filter unit for scalability and cost-effectiveness across the industry.

Removing more water from tailings would reduce potential risks associated with moisture in storage facilities, reduce the footprint required by such facilities, and create opportunities to productively re-use tailings. The additional water recovered from tailings by filtration could be re-used in processing facilities, reducing overall water consumption.

BHP chief technical officer, Laura Tyler, commented, "The world will need more critical minerals in the decades to come to support economic development and decarbonisation pathways.

"It is important that we keep working together across the global mining sector to raise standards and make sure our operations are as safe and sustainable as they can be. Responsible management of tailings and improved water use is a big part of that."

BRIEFS

Metso Outotec to deliver flash smelting furnace



Metso Outotec has delivered more than 60 flash furnaces around the world since the 1950s.

Kamoa Copper S.A. has selected Metso Outotec to supply a high-capacity direct blister furnace to the company's copper mining complex expansion in the Democratic Republic of Congo. Metso Outotec's scope of delivery consists of key equipment and automation for the direct blister furnace designed for the production of blister

furnace designed for the production of blister copper in a single flash furnace, in addition to intelligent safety and monitoring automation systems for the furnace.

Hitachi names new dealer in Africa



Representatives from both SMT and HCME celebrated the announcement at bauma in Munich.

Hitachi Construction Machinery (Europe) NV (HCME) has announced a new dealer for customers in Africa.

SMT will provide the complete range of Hitachi Zaxis and EX excavators with a targeted focus on the mining market. SMT is active in 15 countries in Africa, where it has a total of 27 branches. HCME president Takaharu Ikeda, said, "It's fantastic to welcome a new dealer to the Hitachi family in our 50th anniversary year."

Credit: WS

WSP and SLR Consulting oversee delivery of TSF for South Deep Gold Mine

WSP and SLR, two leading professional services firms, have maintained a successful collaborative relationship for more than 10 years in order to bring technical expertise, innovation and project oversight for Gold Fields' South Deep Gold Mine in South Africa.

The relationship around South Deep Gold Mine began when, in 2007, Golder Africa (now WSP in Africa) and Metago (now SLR Consulting) were appointed by Gold Fields to complete the design of the Doornpoort tailings storage facility (TSF) – which was achieved in 2009. This incorporated a 400 ha TSF with a 14 ha, 1mn cu/m HDPE lined return water dam (RWD). The design of the TSF included, but was not limited to:

- Earthfill starter walls
- Concrete encased penstock decant outfall pipeline including six temporary penstock intakes and one permanent penstock
- Underdrainage systems within the TSF (toe drain, main drain and cut-off curtain drains) along with a drainage collection system downstream of the TSF wall
- · Catchment paddocks with associate decant structures
- Silt trap
- Three pump stations (two slurry and one water)
- · Three motor control centres
- 12 km of overhead powerline
- Two provincial road crossings
- 35 km of steel HDPE lined pipelines.



Installation of 350 mm diameter Steel HDPE lined tailings pipeline at a concrete culvert.

MONTAGE ACQUIRES MANKONO PROJECT IN CÔTE D'IVOIRE

Montage Gold Corp. has closed the acquisition of a 100% indirect interest in the Mankono Sissédougou Joint Venture Project from subsidiaries of Barrick Gold Corporation and Endeavour Mining.

Montage has acquired the issued and outstanding shares of Mankono Exploration Ltd. Which indirectly holds Mankono.

Rick Clark, Montage CEO commented, "With the addition of Mankono, our consolidated land position grows to more than 2,250 sq km over one of the most prolific gold belts in West Africa at the centre of which is our Koné deposit. Drilling has started on our newly acquired ground looking to add higher grade resources to the Koné development plan.

"We very much look forward to reporting on the progress of our aggressive exploration programme, which is designed to maximise the potential of a strong economic mining operation centred on Koné."



Aerial view of key components of TSF; namely the main, toe and herringbone drains, starter wall, catchment paddocks and storm water trench.

After the successful completion of the design, the client appointed an owners' team consisting of Golder Africa and Metago to manage the execution of the construction of Phase 1 with WBHO as contractor and, in 2011, the commissioning of Phase 1.

Following the success of this, Gold Fields appointed the same consultants as the owners' team for Phase 2 (alongside WBHO as main contractor again). The main components of the Phase 2 project consisted of bulk earthworks, main and toe drains, two concrete penstock towers, choke station and 4.6 km of steel HDPE lined pipelines.

In March 2021, WSP and SLR assisted South Deep Gold Mine with the Phase 2 tender process as well as the technical and commercial adjudication. With this, construction commenced in June 2021.

During this process, the team encountered several setbacks on the project including piles failing in the middle of penstock tower construction; challenges finding a suitable supplier that could meet the filter sand design specification; and the project site receiving more than double the average rainfall during the rainy season.

However, the project benefited from the lessons learned from a team which had worked together since 2007 on Phase 1 of the TSF as well as the extensive experience of the consultant firms. As a result, the challenges were overcome and the project was able to reach practical completion at the end of August 2022.

SANDVIK RECEIVES MINING EQUIPMENT ORDER IN DRC

Sandvik has won a large mining equipment order from the Chinese global mining services provider, JCHX Mining Management Co., Ltd., to be used in the Kamoa-Kakula copper mine and the Kamoya copper and cobalt mine in the Democratic Republic of the Congo.

The order, for a fleet of load and haul equipment, will be booked in the fourth quarter 2022 with first delivery expected in 2022. Primarily, however, the equipment will be delivered during 2023.

Mats Eriksson, president of Sandvik Mining and Rock Solutions, commented, "I am pleased to see the continued demand for our highly productive offering of intelligent mining equipment. Our highestcapacity intelligent load and haul equipment has been in operation at Kamoa since 2019, and this order is a testament to the strength and quality of the solutions we provide."

MINING | EXPLOSIVES



Breaking new ground

Digital technology solutions and ongoing innovation boost safety and efficiency in mining explosives market.

hen Africa's mining sector grows, so too does the niche explosives market. Commercial explosives like PETN and RDX have long been used for blasting work around the world in order to unearth new orebodies and to extract mineral ore in metal mining, quarrying, non-metal mining, and coal mining applications.

According to a recent report, 'Mining Explosives Market Information by Type, By Application, and Region: Forecast till 2028', it is a niche that's estimated to grow at a 6.78% annually through to 2028.

The report states that the mining explosives industry's development rate has been significantly boosted by a surging demand for minerals and metals worldwide.

That's a view largely endorsed by the likes of Sanjeev Gandhi, managing director and chief executive of Australia-based Orica, which supplies commercial explosives and related blasting technology to the industry worldwide.

"We expect the demand for critical minerals to remain strong in the year ahead," he noted, commenting on the group's 2023 outlook.

"Our customer's appetite for new technology and our refreshed strategy sets us on a clear pathway to drive organic growth from blasting technology and accelerate the adoption of our new technologies and digital solutions from mine-to-mill, growing beyond blasting."

In the African setting, South Africa remains one of the primary users and manufacturers of commercial explosives given its vast mining and industrial background but the reach of Africa's mining industry means plenty of scope in other territories too.

BME improves blast quality

Another major player in this niche is BME, a division of the JSE-listed Omnia Group, a blasting and explosives solutions provider which has similarly embraced technology in its product suite offering to customers.

Building on the flexibility and accuracy of electronic detonation, these digital blasting tools can assist in enhancing mines' efficiency and reducing carbon emissions. A key part of that is software platform integration, by ensuring innovative digital tools can operate seamlessly with a mine's existing systems.

BME's own collaborations with technology partners have aided the development of solutions that enhance mining productivity, efficiency and of course, safety.

An innovation that has received global acclaim is BME's electronic detonation system, AXXIS, which was developed by an in-house team of specialists to improve the quality of blasts and mine productivity.

The fully programmable, accurate and easy-to-use electronic delay detonator system is one of the safest initiation systems available, and is now being rolled out to new territories.

High in the mountain kingdom of Lesotho, BME recently achieved the first blast outside of South Africa with its new AXXIS Silver electronic initiation system.

Generation of the second strategy sets of the second strat

SANJEEV GANDHI, MANAGING DIRECTOR AND CHIEF EXECUTIVE of orica The company was assisting a diamond mining customer to conduct quality blasts in all weather at a mine it has been active on since 2016.

Located at an altitude of over 3,000 m, the area frequently experiences snow and sub-zero temperatures, according to BME's AXXIS support manager Hennie du Preez.

"This means blasting under challenging conditions, including extreme cold, snow and ice," he said. "BME provides everything from the emulsion explosive to the detonation equipment, which all continues to function well under these conditions."

The AXXIS Silver initiation system used at the mine is a leaner version of BME's flagship product AXXIS Titanium.

The company conducts the priming, logging and firing of the blasts, and ensures a regular supply of emulsions to the site.

"Among the benefits of AXXIS Silver is its thin, copper-cladded downline wire, which de-coils easily for use in small diameter holes – even when they are waterlogged," said Du Preez.

"Due to their robust quality, our electronic detonators were able to remain in the holes for two days before blasting, in temperatures below zero where the hole collars froze solid."

Resources squeeze throws doubt on green economy transition

With its vast natural resources, Africa could find itself on the front line when it comes to helping the rest of the world meet its carbon emission targets. But is it geared up for the challenge?

Whith the world pledging to reach net zero on carbon emissions over the coming decades, replacing fossil fuels with alternative energy sources and transitioning to electric vehicles (EVs), it feels like a major turning point in global economic development.

These lofty aims were repeated again at the recent COP27 summit in Egypt, the first United Nations Climate Change Conference to be held on African soil.

But what are the actual consequences for Africa and how realistic is this utopian vision?

Whether it's an electric car or a gas-guzzling diesel, the basic metals and materials still need to be extracted from the same earth.

With the world's population now exceeding eight billion, it is a mighty ask for the planet to give up the resources required to rise to the challenge – and an equally big assignment for mining companies, who will be tasked with suppling the raw ingredients for this energy transition.

While much of Africa's mining sector has evolved into a sophisticated world-class industry, there remain huge gaps, notably in frontier markets such as the Democratic Republic of Congo, where human rights violations remain a problem.

The Extractive Industries Transparency Initiative (EITI) recently launched a report which highlights the relationship between global energy transition objectives and the need for stronger mining sector governance at the national and local level. The study identifies



key risk areas in the value chains of minerals needed for low-carbon energy technologies, ranging from environmental impacts and corrupt deals to price shocks and disruptions in global supply chains. If not addressed, it notes, these risks could hinder the sector's contribution to sustainable development; impede energy security and access; and even inhibit the fight against climate change, as countries face growing demand for transition minerals.

A monumental task

The projected growth in demand from energy technologies by 2040 for major transition minerals is staggering and expected to soar rapidly – the demand for lithium alone is forecast to rise over 900% during the period, a timeframe of just 18 years. Other key metals and minerals with a similarly high forecast demand trajectory include graphite, cobalt, nickel and copper – making Africa a region of key strategic importance.

The bottom line, according to the EITI, is that without responsible mining, there is no energy transition. Even then, the scramble for resources as the energy shift advances and EVs take hold in major consumer markets may not yield a like-for-like transition.

The European Parliament voted in 2022 to ban the sale of new cars using gasoline or diesel by 2035 – cranking up the pressure on Africa and other resource-rich regions to come up with the materials needed for a battery-power revolution.

Some miners have already warned that global metals shortages could potentially undermine the shift to EVs. For example, there are thought to be around 1.5 billion cars on the road worldwide today. Will there be enough resources in the ground to build the same again, and over the next generation, this time fitted with electric batteries? Even with the best recycling initiatives in place, that seems unlikely, though Africa's vast natural minerals wealth means it stands well placed as nations chase scarce resources.

Certainly, based on current investment trends there will come a day of reckoning. "One third of the demand in 2035 is not projected to be satisfied based on investments that are happening now," a senior vice president at MP Minerals, a rare-earth miner, told *Fortune magazine* in an interview earlier this year.

Still, for those countries rich in transition minerals – and there are multiple across Africa – the green mining boom could bring with it jobs, investment and new economic opportunities, as well as improved governance. As the saying goes: where there is a challenge, there is an opportunity. But with metals fast becoming the new oil, and with demand set to rocket, it will be a fine line to tread for many African states over the next couple of decades.

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Mining is a powerintensive industry.

Redefining onsite power for mining projects

The traditional onsite power plant for mining sites and other remote projects is experiencing a renaissance with the rise of renewables.

O nsite generation has long been popular in Africa, in key industries such as mining, given the frail nature of the continent's electricity grid.

A form of decentralised energy, producing power onsite enables businesses to make and use their own electricity at any given location, rather than relying on erratic gridbased supply. For critical applications in mining and other strategic industries it's a prerequisite.

Mining is a power-intensive industry and because sites are often in remote areas, the potential shortfall of available grid-based output introduces further complexity into operations.

Traditionally, this has resulted in mines relying on fossil-based fuel sources such as heavy fuel oil (HFO) and to supplement these with massive onsite diesel generators.

But to counteract the high cost and environmental impact of these traditional approaches, there is growing interest in adopting hybrid energy solutions, notes Dinesh Buldoo, power director at WSP in Africa, an engineering firm working across the power, energy and mining sectors. He says mining firms across Africa are looking to invest in standalone or micro-grid hybrid power solutions that incorporate some form of alternative resource such as gas, or renewable energy options like solar or wind to address off-peak demand.

These enable mines to address the risks associated with grid power interruptions and also offset the unstable costs and risks associated with a reliance on diesel. Moreover, at a time when the focus on ESG (environment, social and governance) is intensifying, the rollout of hybrid power solutions can also see mines positively contribute to the carbon reduction of their operations.

Indeed, there is clear evidence of a shift, as technology and renewable energy applications open new doors to mining firms.

Receptive to renewables

TotalEnergies recently announced that it had reached a milestone of 500MW of onsite business-tobusiness (B2B) solar distributed generation in operation across more than 300 industrial and commercial customers worldwide, including Africa. Its current African portfolio includes Morocco, Egypt, Senegal and South Africa.

But mine sites across the continent are becoming increasingly receptive too, especially in frontier locations with weak grid-based supply.

Finnish power group Wärtsilä delivered a 15MWp solar photovoltaic (PV) plant in 2018 to the independent power producer (IPP) Essakane Solar SAS in Burkina Faso, part of the Essakane mine complex. Built next to a 55MW HFO power station, the solar farm produces energy during the day, while the thermal plant provides back-up for the site, which is located approximately 330 km northeast of Ouagadougou. The PV solar power plant and the motor power plant are controlled and operated in a synchronised fashion, making it the largest PV solar-motor hybrid power plant in Africa.

It's a trend that is likely to

Therefore, a mining industry cannot base its entire activity on such energy [renewable] - hence the interest in using the hybridisation system."

> PAUL FRANÇOIS CATTIER, VENTURE PARTNER AT ENERGY Access ventures

accelerate in the coming years, according to a 2022 paper on Renewables for Mining in Africa by law firm Bird & Bird, which notes that renewable energy infrastructures, such as mini-grids and hybrid plants, are becoming increasingly popular as a solution to electricity supply in remote sites.

This might typically consist of a group interconnected distribution energy resources, such as production sources, PV, diesel gensets, along with energy storage to control some controllable loads.

In the paper, Paul François Cattier of Energy Access Ventures, and former vice president of economic development for Africa and the Middle East at Schneider Electric, said falling costs will further drive interest in renewables.

The cost of wind and solar electricity is expected to fall by 26-59% by 2025, he noted, and it is estimated that energy costs in new mines will be reduced by 25-50% through the hybrid energy management programme.

This energy is not flawless, however. "One of the particularities of renewable energy is that it is an alternative energy source," notes Cattier. "Therefore, a mining industry cannot base its entire activity on such energy (risk of blackout etc) – hence the interest in using the hybridisation system (mixed power supply)."

MINCON UNVEILS NEW DTH HAMMER LINE-UP

Mincon Group plc has launched its nextgeneration DTH hammer range that will be available starting in 2023.

The product range is centred around highefficiency DTH hammers that combine class-leading penetration rates with proven energy savings that will help customers reduce their drilling costs and carbon emissions.

Mincon's MP series is the company's next generation of DTH hammers. Starting with the MP30, a three-inch-class hammer that can be equipped with drill bits between 85 mm and 105 mm, it tops out with the MP400, a 40-inch-class hammer for large-diameter drill bits between 1,000 mm and 1,524 mm.

Each hammer model supports the industrystandard shanks for its size class. Additionally, Mincon offers hammer variants that support drill bits without a footvalve (also known as tubeless drill bits). Drillers may prefer to use drill bits that have no footvalve depending on ground conditions and also for reliability reasons.

Included in the comprehensive range are two



The 2023 DTH hammer range offers a comprehensive selection of models for all ground conditions and applications.

all-new models to bolster the large-diameter range: the MP150 and MP400; both of which have been designed to deliver efficient performance for piling and foundation drilling.

Since launching its first DTH hammer design

in the 1980s, Mincon's ethos of continuous improvement has seen its product range evolve and grow. Mincon's technical experts work closely with drillers to get feedback from work sites, which the engineering, manufacturing, and customer support teams use for the ongoing development of new models.

Mincon manufactures all models in the MP series of DTH hammers at its state-of-the-art facilities. With ownership of the manufacturing and heat-treatment processes, Mincon is able to ensure that each DTH hammer is built to deliver the most reliable and efficient performance.

The 2023 DTH hammer range offers a comprehensive selection of models for all ground conditions and applications. When used with other products in Mincon's range, including DTH drill bits, drill pipe, and associated accessories, customers will benefit from next-generation drilling technologies that improve penetration rates without compromising on efficiency, while reducing emissions and drilling costs.

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GHH LAUNCHES LF-10 NEO LOAD HAUL DUMPER

GHH, a mining and tunnelling equipment manufacturer, has unveiled a new load haul dumper, the latest in a line of new loaders alongside the LF-14, the LF-7 and the LF-8.

The LF-10 NEO, designed for underground hardrock mining, is a powerful and compact 10 ton loader.



The NEO joins the company's mid-range segment of load haul dumper offering.

Complete with a z-link design with the maximum tipping height in its class (2.5 m), the LF-10 is well-suited for truck loading all 30 ton trucks in the market.

Ingo Rath, product line manager loaders at GHH, commented, "The high break out forces, efficient boom and bucket motion times as well as the strong power to weight ratio makes the LF-10 NEO one of the best in class."

With a length of 9.6 m and width of 2.6 m the LF-10 NEO is very compact and versatile for excellent manoeuvrability in a mid-seam underground mining environment. The standard bucket holds 4.6 cu/m or 10 tons at 2,500 mm width, making loading and unloading easier and more cost-effective.

"GHH installs the water-cooled Mercedes OM936 diesel engine with 240kW which is the best in the 10 ton loader size class," added Rath.

Low operating costs are achieved by reduced fuel consumption, ease of maintainability and a robust design to ensure durability and reliability. In addition, the LF-10 NEO has an operator compartment which boasts excellent ergonomics.

In general, the loader now comes standard with useful safety and maintainability features such as the Proximity Detection System (PDS) interface, which allows the integration of third-party equipment, and optional wear sensors on the brakes.

Including seamless integration with electronic monitoring and digital analytics systems, 'GHH inSiTE' provides for great insight into the machine performance and maintenance requirements, being able to be tailored to customer's specific needs.

How to minimise asset downtime in manufacturing

With manufacturers pushing for more efficiency in their operations, Heman Kassan, director of Technodyn, describes simple ways to reduce asset downtime and boost profit margins.

n average, large manufacturing plants around the world lose 323 production hours annually due to downtime. This translates to more than US\$530,000 per hour, totalling more than US\$172mn per year.

According to the IFS Manufacturing Outlook Executive Summary, improved efficiencies translate to incorporating more automation on the production line. In turn, this sees an increased reliance on the machines that form part of the manufacturing process. Of course, in developing countries across Africa automation might seem like a swear word, especially the popular misconception that it will result in job losses. The reality is far different, as it could empower manufacturers to upskill and reskill plant workers to deliver more strategic functions and move away

from being stuck on repetitive tasks. If any machine breaks down, disruption ensues which directly impacts delivery dates, profit margins, and the reputation of the manufacturer. One of the ways to further optimise the environment is by equipping the manufacturing with the technology and the means to automate the process of calling a repair technician should the worst happen.

Linking the chain

This does not have to be a complex undertaking. By connecting the production machines to an Enterprise Asset Management (EAM) system, a repair technician of the correct level of competency can be notified that there is an issue on the production line as soon as it happens.

For its part, the EAM must have sight of where the repair technicians are and be able to identify the ones



This also provides manufacturers with critical insights into identifying problematic machines on the supply line and ensuring they have the right number of technicians available to service those units. This is where upskilling becomes vital as employees must be trained to have the right skills to work on automated production lines.

An example of such an intelligent environment can be found in IFS Cloud. Its single database and open architecture are designed to know where the technicians are and if they have the required skills to repair. It links the monitoring of the machine with data stored on the technicians' records and finds the nearest available to reduce the downtime of the stopped machine.

Making sense of data

At its core, an intelligent solution must be able to provide the EAM system with an integrated source of information across the manufacturing environment. This enables the organisation to link the notification of a stopped machine with the production plan to look for alternate machines that might be available to take the load while the stopped machine is repaired.

Additionally, a scheduling engine in the enterprise resource planning (ERP) part of the database can 'talk' to the EAM part to alert the right technicians and have them dispatched without any manual intervention. The time saved to automate this previously manuallydriven process can result in downtime being saved.

Having the data seamlessly connected and integrated in a database provides the operations planning team with complete visibility on the issues at hand and quickly identify the problematic machine or machines. They can then act on suggestions for alternative routing of the operations. By doing this, any delay to the delivery date to the customer is minimised, and operations 'downstream' of the stopped machine are kept operating as close to the production plan as possible.

Supply chain efficiencies

The disruptions experienced by global supply chains in recent years are already pressuring manufacturers to maximise machines' performance to keep up with demand. Any breakdowns, especially lengthy and complex ones, can have a profound effect on operations and the ability to meet customer demand.

The ability to automate repair call-outs can deliver significant improvement in efficiencies to strengthen time to market and provide a quality customer experience while minimising the potential of significant downtime.



Automation does not translate to

job loss, according to Kassan.





Bi-monthly issue contains a mix of editorials devoted to sustainable development, market intelligence, products, techniques and innovations across agricultural sectors, as well as coverage of all the major exhibitions and trade events

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