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# African Review

JULY 2023

of BUSINESS and TECHNOLOGY



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"We should be capitalising on land availability to generate more in order to benefit local communities with energy access and to fill the gaps in Europe and elsewhere."

Mohamed Ismail Mansour, chairman of Infinity Power

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Cover picture: A genset being assembled at Mantrac's facility in Lagos

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# Editor's Note

Welcome to the July issue of African Review, bringing you detailed news, studies and interviews to keep you up-to-date for your business endeavours.

This month, economist Moin Siddiqi analyses opportunities that are arising from the African Continental Free Trade Area agreement as well as the pitfalls that need to be avoided (page 16).

In our power section, you can find our latest review of the genset market, which continues to play a vital role in keeping Africa on track to meet its economic potential (page 24). Mohamed Ismail Mansour, chairman of Infinity Power, gives his insights on the continent's renewable potential following his company's acquisition of Lekela Power (page 26), and we take an inside look at the Dangote Refinery, a facility expected to change the narrative around oil and gas in West Africa (page 29).

Elsewhere, we explore the benefits of selecting steel sleepers over wooden and concrete alternatives through British Steel's work in Guinea (page 34); examine the excavator innovations arriving on the market (page 37); and discover why construction machinery may look and operate entirely different in the future (page 38).

Finally, do not miss the mining features investigating the continent's strong crushing market (page 43) and the mounting demand for power solutions (page 46).

With African Review at your side, you are well equipped to lead your organisation in the arena of African business. Be sure, as well, to explore our website for daily updates on the industries that matter most to you.

**Robert Daniels, Editor**

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Consistent poor grid supply is forcing mining firms across the continent to step up their demand for power solutions in a bid to achieve energy security for their operations.

## EBRD and TIA launch digital one-stop shop

The European Bank for Reconstruction and Development (EBRD) and the Tunisian Investment Authority (TIA) have launched a digital national investment platform to improve the investment ecosystem in Tunisia.

With EBRD support, the investor platform will be transformed into a digital one-stop shop. It will

provide fully automated digital services aimed at improving the investor experience, attracting foreign direct investment and creating jobs. Services will track the entire investor journey, from declaration of investment to the granting of authorisation and aftercare.

The EBRD has collaborated with the TIA and Tunisia's Ministry of Economy to launch an interactive digital guide for investors to facilitate access to information, opportunities and incentives for business investors. To support improvements in Tunisia's business climate, the bank has also provided technical assistance to the Strategic National Investment Council, hosted by the TIA, to boost public-private dialogue by proposing policies and reforms to promote the development of the private sector. Several of the recommendations that sprung from this council have been approved by the Tunisian Government, including the reform of the authorisations regime to make it more investor friendly and a convergence roadmap aimed at unifying the investment ecosystem.

The launch of the platform was attended by EBRD first vice president, Jürgen Rigterink, and TIA CEO, Namia Ayadi. At the ceremony, Rigterink said, "We are very proud of our continued partnership with the Tunisian Investment Authority and our joint endeavours to strengthen the business ecosystem and improve investors' experience through this new one-stop platform. We hope the digital tool will provide useful guidance to investors and accelerate additional direct business investment in Tunisia."

Ayadi said, "I'm very glad to announce a project that enables investors to benefit from a digital one-stop-shop for all investments services. The EBRD partnership offers a very important opportunity for us to expand what has been done in improving the investment climate in Tunisia and we hope this will be one of many joint actions in support of attracting new foreign direct investments in the country."



Image Credit: EBRD

The interactive digital guide for investors will facilitate access to information, opportunities and incentives for business investors.

## AL MAHA TO BENEFIT EXPORTERS AND IMPORTERS

Maersk has announced that ocean shipping service, Al Maha, commenced rotation in June. The Al Maha service will rotate between the important ports across the UAE, Saudi Arabia, Oman, Qatar, Egypt, and Morocco. As a result of this implementation, Maersk will discontinue the ME3 and ME4 services and serve all customers on those trade routes with the Al Maha service. The Al Maha service aims to benefit exporters and importers in the region across different commodities.

The petrochemical exports from Saudi Arabia have traditionally faced challenges from either a cost or capacity perspective with existing ocean transportation options. The Al Maha service will offer loading flexibility from Saudi Eastern Province, enabling customers to reshuffle between Dammam and Jubail, providing ample capacity to cater for customers' needs and with more reliable schedules. The Al Maha service will offer further connections to European, Middle Eastern and Far Eastern markets for the petrochemical exporters out of Saudi Arabia.

Oman's Vision 2040 focuses on economic diversification, including creating a world-class fisheries sector that is ecologically sustainable and a net contributor to the economy of Oman. The Al Maha service, with its enhanced capacity, will be in an excellent position to support the anticipated growth in fish exports out of Duqm. At the same time, it will continue to deliver unmatched reliability to Maersk's customers.

Likewise, the UAE-West Africa market will also benefit largely from the enhanced capacity of Al Maha service. With the expectation of higher schedule reliability and predictability from this service, customers will be able to plan their supply chains well in advance and, in return, serve their end-users better.

## SOLAR-POWERED DESALINATION BY KARMWATER

KarmWater's desalination plant at Marsa Shagra, Egypt, is the first in the region to incorporate solar power in its operations. Roughly 30% of its electricity comes from KarmSolar's Marsa Alam Solar Grid, which was launched in 2022. The grid has been powering a string of resorts along the Red Sea coast where it has a license to distribute 10.9MVA.

The plan is to have the desalination plant be 100% powered by solar energy in the upcoming decade. The company's water purchase agreements (WPAs) now compliment the power purchase agreements (PPAs) that is offered to clients in the area, thus getting one step closer to becoming a vertically integrated multi utility company. Red Sea Diving Safari, the sole off-taker for this project, now enjoys a source of water that is 25% cheaper than what they had usually paid.

## ► BRIEFS

### Air Algérie, Airbus sign expansion agreement

Air Algérie has signed agreements with Airbus to take five A330-900s and two A350-1000s powered by the Trent 7000 and Trent XWB-97s as part of the airline's bold expansion and growth strategy. The Trent 7000 and Trent XWB-97 will support Air



Image Credit: Airbus

The airline is pursuing an expansion strategy.

Algérie's ambitious growth plans by providing availability, reliability and efficiency to its fleet as the airline takes longer-range routes. Both types of engines go further on less fuel and offer leading performance and noise level reductions.

### Sercel to deploy digitally advanced equipment

Image Credit: Sercel



The 508XT land seismic acquisition system can adapt to any field configuration and conditions.

Sercel has announced the sale and imminent delivery of a 60,000-channel 508XT land acquisition system and 25 VE464 advanced digital vibrator control sets to a major North African geophysical services provider. The equipment will be deployed on a 3D mega-crew project in harsh terrain and desert conditions in North Africa. The VE464 control system uses advanced technology to provide the highest levels of control and accuracy.

## Radisson unveils new hotels

Radisson Hotel Group has announced seven new hotels in Africa for the first half of 2023 in a bid to accelerate its momentum for growth in Africa.

The new initiative will add more than 1,400 rooms to its African portfolio in key markets such as Egypt and Nigeria.

The openings include the group's first hotel openings in Reunion Island and Ghana and expanding its resort presence in Casablanca and Saïdia in Morocco as well as in South Africa, Egypt and Tunisia.

Elie Younes, executive vice president and global chief development officer at Radisson Hotel Group, commented, "With the continent remaining a focus market for us, we are committed to further contributing to the African hospitality industry, providing more possibilities to our guests and employment opportunities to the local communities."

Ramsay Rankoussi, vice president, development, Africa & Turkey at Radisson Hotel Group, added, "An even better indication of our growth is the materialisation of our pipeline into openings, where we have led consistently the biggest market share for the last 36 months, translating to a commendable 15% growth on our African portfolio, year-on-year, placing us well on track to reach our objective of 150 hotels within the next five years from 100 hotels today. Our rate of materialisation and openings is a testament not only to the quality of our pipeline but also reflects our conversion strategy in repositioning existing hotels under one of our brands. We are also proud to further entrench our stance as the operator with the most extensive presence in Africa with once again a new market entry as the only hotel operator."

The new hotels include: Radisson Collection Resort, Marsa Alam Port Phoenix, Egypt; Radisson Collection Hotel & Conference Center, Abuja, Nigeria; Radisson Blu Beach Resort & Spa, Banjul, Gambia; Radisson Blu Hotel Abuja CBD, Nigeria; Radisson RED Lagos VI, Nigeria; Radisson Hotel Nairobi Airport, Kenya; and Radisson Hotel Algiers El Mouradia, Algeria.



Image Credit: Radisson

The new hotels expand the group's brands, spanning from upscale to premium luxury lifestyle.

## NIGERIA-MOROCCO GAS PIPELINE PROJECT PROGRESSES

There has been another important milestone achieved at the Economic Community of West African States (ECOWAS) as four significant memorandum of understandings (MoU) relating to the Nigeria-Morocco Gas Pipeline Project were signed.

The MoUs were agreed between the Nigerian National Petroleum Company Limited (NNPC) and the Office National des Hydrocarbures et des Mines (ONHYM) of Morocco on one hand, and the Société Nationale des Opérations Pétrolières of Cote d'Ivoire (PETROCI), the National Oil Company of Liberia (NOCAL), the Société Nationale des Hydrocarbures of Benin (SNH-Benin), and the Société Nationale des Pétroles of the Republic of Guinea (SONAP) on the other hand. Once completed, the project will enhance the monetisation of the natural gas resources of the affected African countries while offering a new alternative route to Europe. According to ECOWAS, it will contribute to accelerating access to energy for all, improving the living conditions of the affected populations, integrating the economies of the sub-region and mitigate desertification.

Group CEO of NNPC, Mele Kyari, commented, "As a commercial enterprise, NNPC sees this project as an opportunity to monetise Nigeria's abundant hydrocarbon resources, by expanding access to energy to support economic growth, industrialisation, and job creation across the African continent and beyond."

ECOWAS commissioner for infrastructure, energy and digitisation, Sédiko Douka, added that the gas pipeline project is significant as it will strengthen the region's electricity production/generation capacity, stimulate industrial and agricultural development, and contribute to the energy transition by using a source of energy that is cleaner than other fossil fuels.

## SONATRACH TO CONSTRUCT PETROCHEMICAL COMPLEX IN ARZEW

Sonatrach, the Algerian state-owned oil company, has signed a contract for the construction of a petrochemical complex in Arzew alongside an agreement for its financing.

The contract was signed between STEP Polymers Spa, a 100% subsidiary of Sonatrach, and the JV Petrofac-HQC. It concerns the construction, at the level of the industrial zone of Arzew, of a petrochemical complex spread over 88 hectares intended for the production of 550,000 tonnes per year of polypropylene, for a period 42 months of completion.

The polypropylene production expected from this future complex will be intended to cover the needs of the national market and to export the surplus production to the European, Asian and African markets.

Completion of this major project will create nearly 6,000 direct jobs during the construction phase, 450 jobs during the operation phase and 2,000 indirect jobs.

## BRIEFS

### Forbes tower to run on LOHC system



Image Credit: Magnum Properties

The company signed an MoU with Schneider Electric and H2-Enterprises to tap into the long-term potential of clean hydrogen.

Magnum Properties has announced that the planned Forbes International Tower will be the first-of-its-kind project in the world to run entirely on the Liquid Organic Hydrogen Carrier (LOHC) system. The Forbes International Tower, planned in the UAE, Saudi Arabia and Egypt, will tackle critical energy challenges by utilising clean hydrogen produced in a climate-neutral manner from renewable waste sources to power the needs of its operations.

### Pratt & Whitney launch affiliate



Image Credit: Pratt & Whitney

Morocco was selected due to its growing hub of aerospace companies, cost of business and available talent.

Pratt & Whitney, a leader in design, manufacturer and service of aircraft engines and auxiliary power units, has revealed that it will launch an affiliate, Pratt & Whitney Maroc in Casablanca, Morocco, to manufacture detailed static and structural machined parts for various engine models. The investment is part of the company's strategy to develop cost-effective sourcing capabilities for competitiveness and to optimise operations footprint and asset utilisation.

## Paratus Botswana completes Gaborone metro fibre ring

Paratus Botswana, a leading telecommunications solutions provider, has announced the completion of its new metro fibre ring around Gaborone, providing fully secured, high-speed connectivity to businesses and individuals in the area.

The Paratus Gaborone fibre network also strengthens the company's network resilience and gives businesses uninterrupted access to essential services even in the event of an outage or network disruption. With its latest fibre investment and the new Gaborone fibre ring, Paratus Botswana connects all critical areas in the city and provides Botswana with a seamless add-on to its existing infrastructure backbone. It forms part of Paratus Botswana's ongoing investment in its network infrastructure to meet the growing demand for telecommunications services in the country. Moreover, it aligns with the Government's plan – Botswana Vision 2036 – to transform the country from an upper-middle-income to a high-income country.

The three-year project involved the construction of a fiber-optic network that connects business and residential areas in Botswana. By circling Gaborone, the Paratus Botswana fibre network also complements existing services, including national and international network services, Internet, voice, satellite, structured cabling, and hosting solutions. Most importantly, it connects to five data centres across the city. The completion of the fibre ring also ties in with Paratus Botswana's latest 'Fibre to the Business' campaign, which offers Botswana businesses the opportunity to experience the power of connectivity and unlock growth opportunities.

Paratus is committed to providing businesses with high-quality, fast, secure network connections, unrivalled uptime, and 24/7 technical support. Their fibre or wireless packages offer reliable Internet, value-added services, and productivity tools to take businesses to the next level. Paratus also continues investing in its infrastructure, expanding its fibre line and improving network coverage for faster and more reliable connectivity. As part of the company's strategy to help businesses grow, it is designing solutions specific to SME needs with Paratus Business Bundle (PBB) packages, offering significant savings over a 24-month period while staying connected and enhancing productivity.



Image Credit: Paratus Botswana

The completion of the fibre ring ties with Paratus Botswana's latest 'Fibre to the Business' campaign.

## PHALABORWA PILOT PLANT COMMENCES OPERATIONS

Rainbow Rare Earths has announced an update on the pilot plant for the Phalaborwa project in South Africa.

The pilot plant is split into two phases. Phase one comprises a front end where material from the historic gypsum stacks at the Phalaborwa site will be consolidated into a rare earth sulphate, containing economic quantities of the four most important rare earth elements, which are used to make permanent magnets, being neodymium and praseodymium (NdPr), dysprosium and terbium. The front-end process incorporates the front-end gypsum washing, acid leach, fluoride removal through continuous ion-exchange (CIX), rare earth precipitation and a sulphuric acid agitated bake (SAAB) to produce a high-value mixed rare earth sulphate. This will subsequently be shipped to Rainbow's rare earth separation plant situated at K-Technologies, Inc. (K-Tech) in Lakeland, US, for separation into rare earth oxides.

Phase two of the pilot plant comprises the back end situated at K-Tech, which will water leach the mixed rare earth sulphate into a pregnant leach solution (PLS), perform a cerium rejection step to minimise flows downstream (thereby further reducing operating costs and capital expenditure) into the CIX circuit for loading onto the cation resin before stripping and going into the final continuous ion chromatography (CIC) step, which will produce the separated rare earth oxides using K-Tech's patented CIX/CIC technology. The back end of the pilot plant is currently well advanced in terms of its construction at K-Tech's facility in Lakeland, with commissioning due to start in Q3 2023.

Rainbow is currently exploring the option of permanently establishing its back-end rare earth oxide separation process in the US and has identified a potential site for a commercial scale plant.

## ARDAGH GROUP ANNOUNCES AFRICA CENTRE OF EXCELLENCE

Ardagh Group, a global supplier in sustainable packaging solutions, has announced the first step towards the creation of a global Centre of Excellence (CoE) to be established in Cape Town, South Africa. Ardagh's new CoE will deliver certain IT services to Ardagh's businesses across Europe, US and Africa. Ardagh sees this as a pioneering opportunity to make a positive difference by developing skills and growing jobs for South African youth in the increasingly important field of technology.

Ardagh will be working with the City of Cape Town, EXL, a leading data analytics and digital operations company, and CapaCiti. In addition to the CoE, Ardagh will work alongside several local charities as a means of giving back to the local communities around Cape Town.

## ► BRIEFS

### Lubu Coking Coal Project begins in Zimbabwe

Contango Holdings Plc, a natural resource development company, has announced that the production of washed coking coal has commenced at its flagship Lubu Coking Coal



Image Credit: Adobe Stock

The company expects to announce the first sales of washed coking coal in June 2023.

Project in Zimbabwe. Stockpiles of coking coal have already been established by the Wirtgen Surface Miner which can mine at a rate of up to 1,000 tonnes per hour of coking coal. The company will continue to undertake studies on washed coal production to ensure optimisation and samples will also be sent to several parties who have indicated they would look to enter into long-term offtake contracts.

### First Green Hydrogen Atlas Southern Africa launched

The atlas provides evidence-based information on different resources for the production of green hydrogen, which include: water resources, land availability,



Image Credit: Adobe Stock

The Atlas marks a milestone in green hydrogen developments in southern Africa.

renewable energy resources and the levelised cost of hydrogen production. These are key elements for policy-makers, investors, researchers, and potential funders for the potential of a green hydrogen development in southern Africa.

## Namibia and Hyphen Hydrogen Energy sign significant FIA

Following approval by the Cabinet of the Namibian Government (GRN), Hyphen Hydrogen Energy (Hyphen) and GRN have signed a Feasibility and Implementation Agreement (FIA) at an official ceremony held at State House in Windhoek.



GRN and Hyphen sign the FIA at the official ceremony held at State House in Windhoek.

The FIA governs the process for the development, implementation and operation of sub-Saharan Africa's largest, and only fully vertically-integrated, green hydrogen project. The partnership between GRN and Hyphen represents the first step in Namibia's journey to unlocking its potential of becoming one of the world's leading green hydrogen production hubs, by leveraging Namibia's world leading co-located wind and solar resource, vast open spaces and stable investment climate underpinned by strong democratic values. The FIA is expected to set a global benchmark for the sustainable development of large scale green hydrogen projects as the world looks to decarbonise its energy systems in a manner that is fair, just, economically inclusive and environmentally sustainable.

Central to the FIA is a dedication to driving the socio-economic development of Namibia, through job creation and local procurement. During the construction phase, it is estimated that the project will create around 15,000 new job opportunities and 3,000 permanent positions during the operational phase. Hyphen is striving for 90% of these jobs filled by Namibian talents, with a specific focus on the youth (aged 18-35) of 20%. The project is targeting 30% local procurement for goods, services and materials throughout both the construction and operational phases.

Under the FIA Hyphen is responsible for the technical, financial, environmental, social and commercial delivery of the project. GRN is responsible for providing the land on which the project will be established and developing and implementing the required legal, fiscal and regulatory environment necessary for the establishment and sustainable operation of Namibia's green hydrogen industry.

"Thank you very much Hyphen for trusting our political system and our corporate governance architecture. Let us now work together and we will deliver for the Namibian people," said Hage Geingob, President of the Republic of Namibia.

### SOUTH AFRICA'S 2023 LOGISTICS PERFORMANCE

South Africa's trade position has undergone a significant transformation, achieving a surplus of 3.3% of GDP in its balance of goods during 2022. According to the IMF, export growth has been 10% during 2021 and 7.5% during 2022. This is a remarkable accomplishment, considering the recent disruptions to global value chains, which have highlighted the critical importance of trade and transport-related infrastructure, such as ports, roads, railways, and information technology. According to Delphos, South Africa's score of 3.7 out of 5 is on par with other upper middle-income countries, such as Australia, China, Greece, Italy, Norway, and the United Kingdom, and outperforms the 2.5 average score of similar income level countries.

Investing in the energy sector and increasing product diversification, together with initiatives that leverage the existing trade infrastructure, are needed to ensure sustainable growth, Delphos noted.

### AIIM ACHIEVES FINANCIAL CLOSE ON CASTLE WIND FARM

AIIM consortium reached financial close on the 89MW Castle Wind Farm (Castle) to supply renewable energy to Sibanye-Stillwater's South African mining operations through an Eskom wheeling agreement.

The consortium consists of African Infrastructure Investment Managers (AIIM), through its renewable energy project development and delivery platform, African Clean Energy Developments (ACED), and Reatile Renewables (Pty) Ltd.

This milestone marks the effective date of the power purchase agreement (PPA) between the project company and Sibanye-Stillwater and the commencement of construction. The project will result in energy cost savings, increased energy security and decarbonisation benefits for Sibanye-Stillwater, a multinational mining and metals processing group.

The addition of increased power generation capacity to the national grid will contribute to offsetting the power deficit currently being experienced in the country. AIIM has been a strong proponent of increasing the ability of South African pension funds to invest in unlisted infrastructure investments.

These assets provide an option for pension funds to meet their investment return aspirations, and also help address the significant infrastructure backlog the country is facing.

Neal Froneman, CEO of Sibanye-Stillwater, said, "This marks our first major step in delivering over 550MW of our renewable project portfolio and is a significant milestone in our journey to carbon neutrality by 2040. The project will not only play a pivotal role in reducing carbon emissions and mitigating climate change but also results in cost savings on electricity and provides energy security benefits for Sibanye-Stillwater's SA operations."

## BRIEFS

### Second phase of Lesotho Highlands Water Project launched



LHWP involves the construction of a network of tunnels and dams to divert water from the mountains of Lesotho to South Africa.

South Africa President Cyril Ramaphosa was present in Lesotho for the launch of Phase 2 of the Lesotho Highlands Water Project (LHWP). The launch is a critical step on the journey to greater water and energy security for South Africans and Basotho, and is a demonstration of the strong relations between the two countries. It is also a demonstration of the human capital and technology that is shared and deployed jointly as neighbours, in the interest of improving the lives of citizens and economic development in both nations.

### Mphanda Nkuwa preferred bidder announced

The Mozambique Ministry of Mineral Resources and Energy (MIREME) through the Mphanda Nkuwa Hydroelectric Project Implementation Office (GMNK) has



The qualification process for selecting the strategic partner started in June 2022.

announced the consortium led by Electricity de France (EDF), which includes Total Energies, Sumitomo Corporation and Kansai, as the preferred bidder in the tender for the selection of the strategic partner for the development of the Mphanda Nkuwa Project.

## Cement facility to boost employment in Nigeria

The International Finance Corporation (IFC) has invested US\$500mn for a cement factory in Nigeria's Sokoto state. The factory will be developed by BUA Cement Plc, and the investment will help the company part-finance and develop two new, energy-efficient cement production lines that will create up to 12,000 direct and indirect jobs. Direct jobs include those in manufacturing, engineering, and advanced automation systems. Indirect jobs include those in the cleaning, maintenance, mining, and transportation sectors.

IFC and its partners will also allow BUA to replace some of its diesel trucks with vehicles that are run partly on natural gas. As part of the project, IFC will also advise BUA to create more opportunities for women across its operations.

The financing package includes a US\$160.5mn loan from IFC's own account, a US\$94.5mn loan through the Managed Co-Lending Portfolio Program (MCP), and US\$245mn in parallel loans from syndication partners; the African Development Bank (AfDB), the Africa Finance Corporation (AFC), and the German Investment Corporation, Deutsche Investitions- und Entwicklungsgesellschaft (DEG).

The financing was announced during the Africa CEO Forum in Abidjan, Côte d'Ivoire. BUA is Nigeria's second largest cement producer, and its newest plants will run partly on alternative fuels derived from waste and solar power. Each will produce about three million tons of cement annually when complete, serving markets in Nigeria, Niger, and Burkina Faso.

Abdul Samad Rabiu, chairman and founder of BUA Group, said, "In line with our commitment to sustainability and ESG principles, this investment will create jobs and contribute to economic and infrastructural development within Nigeria and the greater Sahel region. By focusing on greener fuels and enhancing our equipment and logistics platform, BUA Cement is building a foundation for sustainable infrastructure growth and a more inclusive society."

"We are pleased to join with our partners to support BUA with an investment that will boost industrialisation, create jobs and deliver economic growth in northern Nigeria, a region with significant economic potential," said Makhtar Diop, IFC's managing director.



The financing was announced during the Africa CEO Forum in Abidjan, Côte d'Ivoire.

## MOU SIGNED TO IMPROVE AFRICA'S DATA CONNECTIVITY

Technology group Liquid Dataport and communications company Viasat have signed an MoU to engage in B2B and B2C service opportunities across West Africa.

The companies intend to focus on the potential commercialisation and distribution of satellite broadband to reduce Internet connectivity costs and improve data connections across the region. Under the terms of the MoU, Liquid Dataport will offer Viasat's connectivity services working through local partners.

As a part of Viasat's expansion into Africa, the company's next-generation ViaSat-3 satellite constellation is expected to deliver connectivity services to Europe, the Middle East, and Africa (EMEA).

Viasat and Liquid Intelligent Technologies independently announced recent agreements with the Microsoft Airband Initiative to deliver Internet access to millions of underserved people in Africa by the end of 2025, targeting regions that include DRC, Nigeria, Senegal, Angola, Tanzania, and Zambia.

"The MoU we have signed with Viasat will increase the data connectivity options that businesses and consumers in West Africa can have at their disposal. The reduced costs for connectivity is good news for our enterprise customers businesses," said Hardy Pemhiwa, Liquid's president and group CEO.

"Viasat's ability to deliver affordable and high-quality connectivity where it is needed most, even in the hardest-to-reach regions, continues to expand as we launch our next-generation ViaSat-3 global satellite constellation. We're thrilled to work with Liquid Dataport to help reduce Africa's digital gap and create new opportunities through digital inclusion," said Peter Langkilde, general manager of EMEA at Viasat.

## AFRICA DATA CENTRES TO BUILD FACILITY IN GHANA

Africa Data Centres will begin construction on its newly acquired land in the Central Business District of Accra. The new facility has been designed for an initial 10MW, which can expand to 30MW depending on demand. It will be the largest facility in West Africa to date, outside of Nigeria.

It will be built within the scheme of the Ghana Trade Fair Redevelopment Project at La in Accra, and the first phase is scheduled to be completed within 12 months. The project is part of Africa Data Centres' continental expansion plans spanning 10 of Africa's major economic hubs, including South Africa, Zambia, Kenya, Rwanda, Egypt, Morocco, Senegal, Ivory Coast, and Angola. This expansion, partly funded by the U.S. International Development Finance Corporation (DFC), aims to accelerate private sector-led digital infrastructure and services in Africa.

## Amarinth signs PE Energy as West African agent



Daere Akobo, founder of PE Energy, and Chris Ryan, sales director of Amarith.

Amarinth, which manufactures centrifugal pumps and associated equipment, has partnered with PE Energy to expand in West Africa. PE Energy provides expertise in upstream, midstream, and downstream processes in the oil and gas industry. The new partnership will enable oil and gas organisations in the region in both commissioning and maintaining Amarith API 610 and API 685 horizontal, vertical and in-line pumps.

## WATT to supply renewable power in Nigeria



The US\$10mn contract will create 100 jobs.

WATT Renewable Corporation (WATT) has announced a US\$10mn contract with a major African bank to deliver 5.6MW of power to several branches across Nigeria. The new agreement includes the installation of solar panels, inverters, and batteries to be the main power source for a number of the bank's branches, eliminating a reliance on diesel generators. The contract is expected to create an estimated 100 local jobs.



## Odyssey Energy Solutions and REAN aim to improve solar affordability in Nigeria

The Renewable Energy Association of Nigeria (REAN) and Odyssey Energy Solutions have signed an agreement in Edo to increase effectiveness and affordability of solar equipment procurement for Nigerian solar firms.

The partnership details were officially announced at the REAN Town Hall Meeting, held virtually. Together, REAN and Odyssey will provide REAN members with US\$100mn in equipment financing, including a minimal down payment for equipment and a 60-day window for solar enterprises to pay the remainder once equipment has arrived in Nigeria. There is a large need for renewable energy sources in the nation.

However, a lot of solar enterprises have trouble finding equipment and supplies because of lengthy lead times, expensive pricing, and restricted access to high-quality goods. The cooperation between Odyssey and REAN seeks to address these issues by expediting the procurement procedure and giving REAN members better access to high-quality solar products. This partnership could result in cheaper to procure high-quality solar products.

Commenting on the agreement, Justin Tinsey, VP of procurement solutions at Odyssey, said, “We are delighted to be partnering with REAN to help improve the efficiency and cost-effectiveness of solar equipment procurement in Nigeria. Our combined expertise and resources will enable us to provide better solutions to solar companies in Nigeria, helping them to grow their businesses and contribute to the development of a sustainable energy future for the country.”

REAN President, Ayo Ademilua, also expressed his enthusiasm for the agreement, stating that “REAN is committed to supporting the growth and development of the renewable energy sector in Nigeria, and this partnership with Odyssey Energy Solutions is an important step in that direction. We look forward to working together to provide better access to quality solar products and solutions for our members.”



Ayo Ademilua, REAN president, and Justin Tinsey, VP of procurement solutions at Odyssey.

## VOLKSWAGEN TARGETS GROWTH IN SUB-SAHARAN AFRICA

In March this year, Volkswagen took over the responsibilities of the assembly facility in Ghana from its licensed importer, Universal Motors Limited. Ghana is the fourth Volkswagen assembly location in sub-Saharan Africa after Kenya, Rwanda and South Africa, where Volkswagen has been manufacturing vehicles for over 72 years.

According to the African Development Bank, of the world's ten fastest growing economies, five are in Africa – Rwanda, Côte d'Ivoire, Benin, Ethiopia, and Tanzania.

Volkswagen group's South Africa chairperson and managing director, Martina Biene, affirmed that Rwanda and Côte d'Ivoire are also two of Volkswagen's fastest growing markets. Rwanda, with an economy growing at close to 8%, shows significant potential for increased mobility solutions and electric vehicles due to its young, tech-savvy population and growing middle class.

A number of African countries have introduced compelling incentive plans for locally assembled vehicles to attract OEMs like Volkswagen to invest in the development of the automotive industry on the continent, the company said. Sub-Saharan Africa has also become very important for the company's sustainable operations.

Meanwhile, the company has highlighted Rwanda as an untapped market with high growth potential.

“Rwanda has been the success story of our growth plans in sub-Saharan Africa. It is also the innovation hub of our sustainable mobility lighthouse projects on the continent. Our mobility solutions services business, which includes ride hailing and corporate car sharing, broke even last year. Rwanda was also the first country in sub-Saharan Africa to launch a Volkswagen electric vehicle with the e-Golfs,” said Biene.

## AVANTI COMPLETES SENEGAL SATELLITE PROJECT

British satellite company, Avanti Communications, has completed the second phase of its project to build a new HYLAS 4 satellite gateway station in Dakar, Senegal. The new Ka-band antenna is 9.2 m in diameter, stands 14 m and weighs 17,000 kg. It took more than 12 months to build in a state-of-the-art facility in the USA, before being shipped to Dakar.

The new antenna system offers higher broadband support to deliver backhaul and large-scale connectivity for telecoms and government. Avanti's local gateway partner, Free in Senegal, will host and support the operations of the new gateway from its Tier III data centre facility in Diamniadio. The new gateway will extend the coverage of Avanti's HYLAS 4 satellite to Senegal and the surrounding West African countries of Guinea, Sierra Leone, Guinea Bissau, Gambia, Liberia and Ivory Coast.

## BRIEFS

### Climate finance for Egypt and Senegal



Room2Run provides climate financing for African countries.

The United Kingdom has launched the first two projects under the Room2Run guarantee programme – a US\$2bn guarantee provided to the African Development Bank (AfDB). It is aimed at providing financing for water infrastructure projects. The US\$86mn Egyptian wastewater project and US\$40mn water sanitation project in Senegal, will focus on water supply and sanitation and will offer benefits to millions in their respective African countries.

### Multipurpose dam in Nigeria

Nigeria's former president, Muhammadu Buhari, has commissioned the Kashimbila Multipurpose Dam, along with a 40MW Hydropower Station and Associated 132KV



The dam will be located in Taraba State.

Switchyard, Transmission Line and Distribution Substation (Phase I) Project. The dam, which is located in Taraba State, will have a storage capacity of 500 million cubic metres. The dam was initially meant to serve as a buffer to contain possible discharge of water from Lake Nyos.

## AfDB to support infrastructure and value chains development in East Africa

The African Development Bank (AfDB) has committed to supporting East African countries to accelerate structural transformation, reinforce resilience, and create more decent jobs.

This ambition is encapsulated in the Bank's East Africa Regional Integration Strategy Paper (EA RISP) 2023-2027.

The strategy paper, approved by the bank's board of directors, sets out two priority areas to achieve its main objective, namely, improving regional infrastructure and supporting regional value chains development and trade facilitation.

Under the first priority area, the bank will invest in cross-border electricity interconnections to strengthen connectivity and increase cross-border trade in electricity. It will also support regional solar energy development through the Desert-to-Power initiative as well as hydroelectric and geothermal energy to harness the region's endowments. Strengthening the capacity of the East African Power Pool and regional electricity infrastructure, initiatives such as the Nile Equatorial Lakes Subsidiary Action Programme and Energy in the Great Lakes countries will also be areas of focus.

Investment in the regional electricity trade should enable East African cross-border electricity interconnections to increase from seven to nine, and for the regional power pool to become operational. It will also support cross-regional power pools interconnectors such as the one between Eastern and Southern Africa Power Pools. The bank will also commit financial resources to multimodal transport systems for roads, railways, air transport and inland waterways while continuing to strengthen transport management institutions' capacity and regional corridors. Particular emphasis will be placed on the main corridors and feeder roads that link production centres to major markets and promote intra- and inter-regional connectivity. These initiatives will help reduce transit times along strategic corridors and enhance trade within the region and under the African Continental Free Trade Area (AfCFTA).

Under the second priority area, AfDB will support the development of regional value chains, particularly agro-industry, manufacturing (textiles and clothing) and mining.



The pipeline for regional operations during the first three years of the EA RISP is estimated at US\$1.3bn.

## JS HELD ACQUIRES AFRICA MATTERS LIMITED

Global consulting firm, JS Held, has acquired Africa Matters Limited, an Africa-focused strategic advisory firm providing business intelligence, stakeholder engagement, and sustainability consulting services. With offices in London, UK, and Kampala, Uganda, this acquisition strengthens JS Held's reach in Africa. Africa Matters Limited advises investors as they grow and expand across the continent. The firm also helps clients and host governments find common ground and points of alignment on investment and trade issues.

"The acquisition of Africa Matters Limited expands JS Held's Global Investigations Practice and our wider business, further strengthening our expertise in risk consulting," said Philip Worman, senior managing director in JS Held's London office.

Ross Alexander, executive chairman of Africa Matters Limited, noted, "Africa Matters Limited's extensive public and private sector networks across the continent, developed over 26 years, allow us to deliver proprietary analysis, gain access and influence, and achieve impact for clients seeking to maximise opportunities and mitigate risk.

"Our global client list in energy, mining, and financial services, among others, includes those with a long-established presence in Africa as well as those making their first investments in the continent."

Piers Dawson, managing director of Africa Matters Limited, commented, "Africa Matters Limited's Business Intelligence services focused on African markets help clients understand the environment in which they are investing or operating.

"Our deep understanding results in bespoke intelligence which facilitates market entry, and as appropriate, partner identification, while mitigating risk and supporting reputational integrity."

## HYDRONEO EAST AFRICA INVITES FIRMS TO DEVELOP MPANDA HYDROPOWER PLANT IN BURUNDI

Hydroneo East Africa, an independent power producer, has invited expressions of interest (EOI) from competent and experienced firms for the design and build of the Mpanda Hydropower Plant (10MW) in Burundi (Lot 1) and the associated Interconnexion Facilities (Lot 2).

As outlined on social media, the project is being developed under a public-private partnership (PPP) and power purchase agreement (PPA) signed with the Government of Burundi and Regideso. The objective of the project is to increase the country's electricity production capacity and provide reliable and affordable electricity to meet the growing demand of the Burundian population.

The deadline for submission of EOIs is 25 July. Hydroneo East Africa reserves the right to reject any EOI that does not comply with the requirements or to cancel the EOI process at any stage.

## ► BRIEFS

### Kampala to get strong power transmission with Elsewedy

Image Credit: Adobe Stock



The contract was signed at the Uganda Electricity Transmission Company office.

The Japan International Cooperation Agency (JICA) and the Government of Uganda have awarded a US\$3.6mn contract to Elsewedy Electric Indonesia to strengthen the power transmission network in the Kampala urban area through Africa's first mobile substation of El Sewedy Electric.

The unit will be effectively monitored and controlled from anywhere using any device, thanks to the used special automated system.

### Morgan Cargo becomes part of Kuehne+Nagel

Image Credit: Adobe Stock



Morgan Cargo is specialised in the transport and handling of perishable goods.

Kuehne+Nagel has signed an agreement to acquire Morgan Cargo, a leading South African, UK and Kenyan freight forwarder specialised in the transport and handling of perishable goods. During 2022, the company handled more than 40,000 tonnes of air freight and more than 20,000 TEU of sea freight globally, managed by approximately 450 logistics experts. The acquisition of Morgan Cargo complements Kuehne+Nagel's perishables logistics service offering.

## Sun King and Citi collaborate on sustainable securitisation transaction

Sun King and Citi have established a first-of-its-kind, bank-led and entirely Kenyan-Shilling-denominated US\$130mn sustainable securitisation transaction. The transaction leverages Sun King's existing and future Kenyan customers' payments for solar products to raise funding for further growth and expansion.

Arranged by Citi and supported by leading development finance institutions and commercial lenders from six countries across the globe, the investment paves the way for future African securitisation deals and diversifies funding for Kenya's off-grid solar energy sector. Through the proposed transaction, customers' future payments for solar products bought on credit will be securitised and funded by investors.

Approximately, three out of every ten Kenyans live without access to electricity. Many off-grid households devote 5-10% of their income to kerosene lanterns or gas generators for light and power. Solar energy offers clean and reliable energy as well as long-term cost savings for homes and businesses, but the upfront equipment cost blocks many Kenyan consumers from transitioning to solar energy.

Sun King designs, distributes, installs and finances solar energy solutions for African and Asian households and businesses who cannot access, rely on or afford traditional electric grid connections. Sun King customers can purchase products using the company's technology-enabled, pay-as-you-go 'Easy Buy' financing service, which breaks payments down into regular, affordable instalments. These payments can be made via mobile money or cash for as little as US\$0.15 a day. Approximately half of Sun King's registered pay-as-you-go customers in Kenya are women, the majority of whom access formal financing products for the first time.

Under the securitisation structure, investors are financing the pooled expected future payments from Sun King customers. The structure connects unbanked or underbanked customers to the finance they require to purchase solar assets and provides investors with access to a steady yet underserved market that offers risk-diversified returns.



Image Credit: Sun King

The investment diversifies funding for Kenya's off-grid solar energy sector.

## ENHY'S HYDROELECTRIC INSTALLATIONS TO BOOST ELECTRICITY NETWORK

Groupe Filatex, an energy, industrial free zones and real estate Malagasy company, has announced the creation of ENHY through a joint venture with the French hydroelectricity expert Hyvity.

ENHY will begin operations through the development and repowering of small and medium-sized hydroelectric installations, adding an estimated 100MW or 20% more capacity to the current Malagasy electricity network by the end of 2028. In 10 years, ENHY expects to have a portfolio under development of a further 300MW.

Supported by Groupe Filatex, ENHY currently has two projects under study in the Antsirabe region.

If successful, those will be able to produce 20MW of within three years, expandable to 60MW once the regional grid has been updated to allow the significant energy capacity to run through the network.

Further to the development of major hydroelectric projects, ENHY will work with JIRAMA, the state-owned utility and water services company in Madagascar, to support the upgrading of the national electricity grid, financing the power increase operations and working to ensure the flexibility of the energy network at a controlled and stable cost over time.

Hasnaine Yavarhousen, CEO of Groupe Filatex, said, "For each unit of electricity produced by hydro rather than oil, there is 99% less carbon released into the atmosphere. ENHY will allow for the best of Malagasy knowledge and French technical expertise to lead a transformation of the Malagasy energy sector, enabling energy access for millions of Malagasy people. There is no better partner than Hyvity for this exciting joint venture that will radically change the energy production and consumption landscape in Madagascar."

## GRAVITA TANZANIA RECYCLING WASTE RUBBER

Gravita Tanzania Limited has officially commenced commercial production and recycling of waste rubber at a facility, the company announced on a social media post. This cutting-edge recycling plant marks a significant milestone in its mission to reduce costs and carbon footprints.

By utilising pyrolysis oil generated during the rubber recycling process, the company is powering its operations with a sustainable alternative energy source, benefiting both the environment and its battery and aluminium scrap recycling operation.

Gravita is committed to achieving ESG goals while boosting operational efficiency. It is thus fostering synergy in scrap sourcing and procurement optimisation.

The company has plans to establish similar rubber recycling facilities at its other manufacturing locations as well, paving the way for a greener and more sustainable future.

## BRIEFS

### Swissport upgrades cargo centre

Swissport continues to invest in upgrading its air cargo facilities globally. The latest example includes the expansion and upgrade of a cargo centre at Nairobi's Jomo



Image Credit: Swissport

Kenyatta International Airport (NBO). The facility now boasts a new 750 sq m interconnected cold storeroom with direct access from the perishable's hub to the airside. The new cold storeroom can hold up to 110 aircraft pallets, which is equivalent to a load that fits on just over three B747 freighters.

### AGL, Zanzibar Ports Corporation strike maritime deal

Africa Global Logistics and Zanzibar Ports Corporation have signed a contract for the management of the Malindi Container Terminal at the Port of Malindi in Zanzibar.



Image Credit: AGL

AGL will handle cargo operations at Malindi Port.

AGL will be responsible for cargo handling operations and maritime services at the country's main port infrastructure. The company is committed to implementing an investment programme for the modernisation and development of the Port of Malindi.

## Upcoming Events Calendar 2023

### JULY

9-13

#### **NOG ENERGY WEEK**

Abuja, Nigeria  
<https://www.nogenergyweek.com/>

11-13

#### **WATER EXPO NIGERIA**

Lagos, Nigeria  
<https://elanexpo.net/waweexpo/>

11-13

#### **MEGA CLIMA NIGERIA**

Lagos, Nigeria  
<https://westafricahvacexpo.com/>

13-15

#### **POWER & ELEC UGANDA**

Kampala, Uganda  
<https://www.powerelecuganda.com/>

24-27

#### **AFRICA INTERNATIONAL HOUSING SHOW**

Abuja, Nigeria  
<https://africahousingshow.com/>

### AUGUST

10-12

#### **2ND UGANDA BUILDCON**

Kampala, Uganda  
<https://ugandabuildcon.com/>

29-30

#### **DIGITIZING AFRICA**

Johannesburg, South Africa  
<https://africadigitrans.com/>

### SEPTEMBER

5-10

#### **IAA MOBILITY**

Munich, Germany  
<https://www.iaa-mobility.com/>

12-14

#### **PROPAK WEST AFRICA**

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

19-21

#### **NIGERIA ENERGY**

Lagos, Nigeria  
<https://www.nigeria-energy.com/>

28

#### **UK - AFRICA TRADE AND INVESTMENT CONFERENCE**

London, UK  
<https://african-chamber.com/uk-africa-events>

## AIHS aims to achieve affordable housing

After emerging as one of the largest housing and construction event showcases to come out of Nigeria, Africa International Housing Show (AIHS) will return from 24-27 July 2023 to develop the industry and facilitate the sealing of housing business deals.

The conference will run at the International Conference Centre in Abuja, Nigeria, and will feature product presentations; an exhibition showcasing building technology for affordable housing from different parts of the world, home interiors, modern construction equipment, chemical and paints products, mortgage services, as well as innovative projects; and interactive forums with prominent stakeholders.

The conference was created more than 10 years ago in an initiative to encourage resilient and affordable housing in Nigeria and the rest of the continent. It provides a platform to connect international and local investors in property and construction and give partners and businesses an opportunity to showcase their products and projects. The organisers have estimated that more than 100bn Naira (approximately US\$210mn) worth of transactions have been conducted across the history of the mega event, based on the testimonies and feedback from those who have participated in the annual programme.

This year, attendees will make the most of the 40+ visionary speakers who will be participating in more than 30 specialised sessions as well as the 400+ exhibitors from around 21 countries.



Image Credit: Adobe Stock

The conference was created an attempt to encourage resilient and affordable housing in Africa.

Those arriving in Abuja will also benefit from the 'AIHS CONNECT' mobile application which will provide a rundown of daily events; connect participants with speakers, exhibitors and partners; and create room meetings with banks, government officials, international financial organisations, and more, for people to further network and make sales.

Previous editions of the conference have drawn the attendance of vice presidents, governors, ministers, legislators and

ambassadors from various countries, high profile business executives, leading housing finance and urban development industry leaders, building materials and home investors and a range of international finance agency representatives including from the International Finance Corporation, World Bank, African Union for Housing Finance, and many more.

Find more information on the 17<sup>th</sup> edition of AIHS at the website: <https://africahousingshow.com/>

# An ecosystem for the ecological transition

Six themed macro-areas, a single ecosystem for ecological transition: Ecomondo 2023.

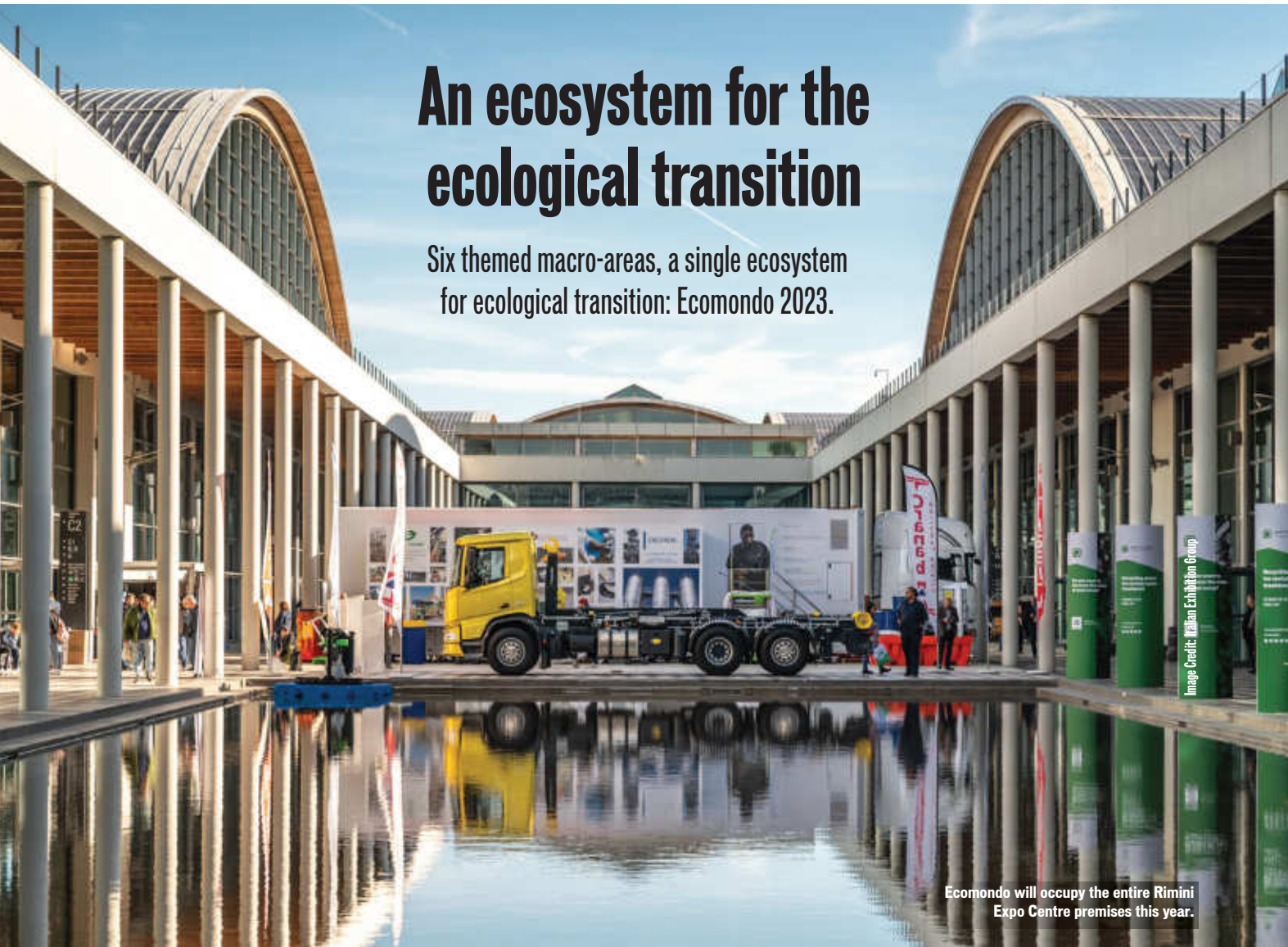


Image Credit: Italian Exhibition Group

Ecomondo will occupy the entire Rimini Expo Centre premises this year.

**E**comondo, Italian Exhibition Group's (IEG) international trade show for industrial technologies and services for the circular economy, will be opening the doors of its 26<sup>th</sup> edition from 7-10 November at Rimini Expo Centre, Italy, with a new payoff: 'The Ecosystem of the Ecological Transition'.

The conference will cover a range of topics including exploiting waste to make further resources for the regeneration of soil, agro-forestry and food ecosystems; energy obtained from biomass; and the use of waste as secondary raw materials. Further, the entire integrated water cycle, environmental monitoring, the protection of the sea and aquatic environments in their essential

function for human sustenance alongside economic development will all be covered in Italy.

This is the exhibition layout with which IEG will be presenting the most innovative technologies for sustainable competitiveness to the market. This year's edition is also the first in which Ecomondo will occupy the entire Rimini Expo Centre premises since renewable energies have now found their independent position on the calendar of sector expos with K.EY 2023 taking place back in March.

Waste as Resource, Sites & Soil Restoration, Circular & Regenerative Bio-economy, Bio-Energy & Agroecology, Water Cycle & Blue Economy, and Environmental Monitoring & Control will be the

themed exhibition areas at Ecomondo 2023.

Two sectors will be highlighted from among and alongside these: the specific 'Water' area and the new edition of SAL.VE. In the former, visitors will find the entire water resource supply chain; from capture to restitution and reuse with a focus on digital transformation (now a key element in improving water management). Top national and international utility service companies and trade associations, including Utilitalia, will be featuring in this area with a programme of accompanying seminars. In the biennial SAL.VE area, organised in partnership with ANFIA, leading manufacturers will be exhibiting vehicles for ecological waste

collection and disposal services as well as urban sanitation. Test drives will be available outside.

## Attention to the new generations

Millennials and Generation Z are showing considerable sensitivity towards environmental protection and IEG's event acts as a platform of ideas to give shape to today's technological research and create the jobs of tomorrow. With the exchange of knowledge, access to research tenders and European funding, Ecomondo will address the new generations so that they can participate in the ecological transition. ■

Find out more at:  
<https://en.ecomondo.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](http://www.africanreview.com)

## DP WORLD, STANDARD BANK TO EXPAND TRADE FINANCE IN AFRICA

Image Credit: Adobe Stock



*Access to finance is one of the biggest barriers for businesses.*

African companies looking for trade finance will now be able to seamlessly access working capital from Standard Bank via the DP World Trade Finance platform.

DP World Trade Finance connects business with financial institutions as a fintech platform while also directly offering trade finance facilities on its own. It offers businesses a single window to access trade finance solutions.

Access to finance is one of the biggest barriers for businesses seeking global trade opportunities, evidenced by the struggle that many organisations face in securing the upfront funds required to move cargo. By bringing Standard Bank onto the platform, DP World Trade Finance now offers an array of financing solutions.

Sultan Ahmed Bin Sulayem, group chairman and CEO of DP World, said, “DP World exists to make the world’s trade flow better and this partnership with Standard Bank is a testament to that goal. Africa is a key market for us, with this partnership completing our ongoing investment and development across the continent.

“With the addition of DP World Trade Finance into our offerings, we aim to support African businesses of all sizes for their working capital needs. Together with Standard Bank, we will help African businesses go from strength to strength and grow their exports to new markets.”

## DRONES BRIDGE THE GAPS IN AFRICA'S HEALTHCARE INFRASTRUCTURE



Image Credit: Wingcopter

*The solution will adopt the latest in digital technology.*

Siemens Healthineers Middle East, Southern & Eastern Africa and Wingcopter GmbH have signed a memorandum of understanding (MoU) to develop an integrated drone delivery solution to transport various laboratory diagnostic materials as well as other medical supplies in Africa.

The solution will adopt the latest in digital technology provided by Siemens Healthineers and Wingcopter, from highly automated drone delivery to laboratory information systems, which will accurately track and report results directly to the patients.

Ole Maloy, managing director of Siemens Healthineers Middle East, Southern & Eastern Africa, commented, “Our partnership with Wingcopter will look to bridge the existing gaps in healthcare infrastructure, providing equitable and affordable access to diagnostic testing and medical supplies.”

Wingcopter’s delivery drones, interconnected with Siemens Healthineers’ laboratory diagnostics facilities, will allow for quick and automated two-way delivery of samples, medicine and other medical products.

These sustainable drone delivery networks will allow for the centralisation of sample testing and medical consumables distribution, resulting in improved access to diagnosis, faster turnaround time, increased efficiency and reduction in costs.

## CHAD TAKES STEPS TO FIGHT WATER INSECURITY



Image Credit: Vergnet Hydro

*Workers from Setra building the foundations for a water tower.*

Chad’s Ministry of Economy, Development Planning and International Cooperation has awarded a contract for the supply and installation of four drinking water supply systems (DWS) to a consortium made up of Vergnet Hydro and Setra.

The equipment to be supplied by the companies is expected to provide a long-term and continual water supply to 47,000 inhabitants of the Logone Occidental region. All installations will be up and running by November 2023.

Romain Dubreuil, area manager at Vergnet Hydro, said, “These are the first DWS installed in Chad by Vergnet Hydro. We are particularly proud that this first experience is part of the ambitious Food and Nutrition Security Implementation Plan set up by the 11<sup>th</sup> European Development Fund.”

Vergnet Hydro is the project leader of the initiative and will supply the equipment while Setra will carry out the work. This will include the installation of four water towers of 50-150 cu/m, perched 12 m high. These towers will supply 44 community standpipes and 314 private connections through 32 km of pipework.

Underground water will be collected through five submersible electric pumps and then treated at four chloride dosing stations. This contract also includes setting up an after sales service and the training of four local maintenance technicians.

## AFRICA PROJECTED TO BE SECOND-FASTEST GROWING REGION



Image Credit: Adobe Stock

*The report forecasts that the continent will consolidate its post-Covid-19 recovery to 4.3% GDP growth in 2024.*

According to the African Development Bank’s (AfDB) African Economic Outlook 2023 report, Africa is set to be the second-fastest growing region in the world after Asia in 2023-2024.

This projected growth demonstrates the resiliency of the continent’s economy despite the global shocks of recent years. However, it will depend on global conditions and Africa’s ability to bolster its economic resilience further.

The report forecasts that the continent will consolidate its post-Covid-19 pandemic recovery to 4.3% GDP growth in 2024, from 3.8% in 2022. Around 22 countries are expected to record growth rates above 5%. To ensure this growth is realised, AfDB recommends robust policy actions, including incentivising green industries and providing guarantees at scale to de-risk private sector investments.

African Development Bank Group president, Akinwumi Adesina, said that African countries must do more, including mobilising domestic resources and restructuring debt to withstand global headwinds.

“African economies are moving in the right direction, but as we gather here, the world is facing multiple challenges, including climate change, inflation driven by higher prices of energy, commodities, and disruption of supply chains due to the ongoing Russia-Ukraine war.”

Africa has the potential for a step-change in prosperity if adequate investment can be unlocked.

# Step-changing Africa's growth

Sub-Saharan Africa is on the brink of a major socio-economic transformation, and the role of resources, trade, and international investment is increasingly crucial, says Elise Donovan, CEO, BVI Finance.

**A** World Bank Africa Overview report offers insights into the dynamic shift awaiting the region, underpinned by its vast human and natural resources and bolstered by robust economic growth in several countries.

By 2050, half of the more than one billion inhabitants of sub-Saharan Africa will be under 25 years old, translating to a youthful workforce that can fuel economic expansion. Several countries, such as Kenya, Côte d'Ivoire, and the Democratic Republic of Congo, have shown resilience and robust growth in recent years. This economic resilience suggests an encouraging trajectory for the region, even for non-resource-rich nations, which are witnessing substantial growth due to lower import bills and service sector expansion.

## Economic transformation

Resources, particularly oil, gas, and minerals, offer significant potential for economic transformation,

provided they are managed sustainably and responsibly. The World Bank report identifies the management of these resources as a critical factor in improving fiscal and debt sustainability in Africa. These resources can also catalyse progress towards universal, high-quality energy access – a significant challenge for the continent, where 43% of the population lacked access to electricity as of 2022.

The World Bank also points out the importance of regional integration and the implementation of the continental free trade agreement in driving economic transformation across sub-Saharan Africa. Such initiatives can stimulate economic growth, increase resilience, and provide domestic markets with access to a larger regional (and even international) consumer base.

## Beyond globalisation

In this evolving economic landscape, international finance centres such as

the British Virgin Islands (BVI) can play a pivotal role.

The report produced by London-based economic consultancy firm Pragmatix Advisory '*Beyond Globalisation – The British Virgin Islands' contribution to global prosperity in an uncertain world*', notes the BVI's pan-geographic appeal and its capacity to facilitate cross-border investment and trade. With a robust legal framework, regulation, and compliance in line with international standards, the BVI can act as a crucial bridge, channelling global investment flows into sub-Saharan Africa. The *Beyond Globalisation* report notes that Africa has the potential for a step-change in prosperity if adequate investment can be unlocked.

The BVI has a track record of success in this area. Assets held in BVI Business Companies have a substantial global footprint, equivalent to 1.5% of annual global



Image Credit: BVI Finance

## Elise Donovan, CEO, BVI Finance.

GDP and 4% of all sectors' total cross-border banking liabilities. Beyond financial metrics, this activity supports over two million jobs worldwide and contributes more than US\$14bn annually to public sector revenues.

In summary, sub-Saharan Africa's prospective growth and development lies in harnessing its resources, fostering regional integration and partnering with international finance centres such as the BVI to attract investment.

This multifaceted approach can catalyse a step-change in prosperity for the region and its people. ■

“With a robust legal framework, regulation, and compliance in line with international standards, the BVI can act as a crucial bridge, channelling global investment flows into sub-Saharan Africa.”

ELISE DONOVAN, CEO, BVI FINANCE

The report, '*Beyond Globalisation: The British Virgin Islands' contribution to global prosperity in an uncertain world*', can be downloaded here: <https://bvifinance.vg/The-BVI-Advantage/BeyondGlobalisation>

# Empowering Africa's economic growth

Moin Siddiqi, economist, discusses the opportunities and challenges arising from the African Continental Free Trade Area (AfCFTA) agreement.

The AfCFTA could unleash opportunities in many sectors, such as transport and logistics.



Image Credit: Adobe Stock

The African Union (AU) flagship project, the African Continental Free Trade Area (AfCFTA) agreement connects 1.4bn people across 55 countries in a US\$3.4 trillion economic bloc. It envisages vastly increased 'intra-continental' trade in goods and services by dismantling rigid trade barriers, strengthening efficiency in customs, leveraging digitalisation and most importantly, closing the region's infrastructure gaps.

"Creating a single, continent-wide market for goods and services, business and investment would reshape African economies. The implementation of AfCFTA would be

a huge step forward for Africa, demonstrating to the world that it is emerging as a leader on the global trade agenda," said Caroline Freund, global director of trade, investment and competitiveness, World Bank.

**“The implementation of AfCFTA would be a huge step forward for Africa, demonstrating to the world that it is emerging as a leader on the global trade agenda.”**

**CAROLINE FREUND, GLOBAL DIRECTOR OF TRADE, INVESTMENT AND COMPETITIVENESS, WORLD BANK**

The African continent has capacity to achieve 7-10% growth by taking advantage of its population to grow a robust single market, as China and India have done.

"Building a single market will

enable Africa to position itself among the three largest global marketplaces," said renowned US economist Prof Jeffrey Sachs. AfCFTA goals can unleash opportunities in transport, logistics, energy, ITC, and banking services (trade finance).

### **Comprehensive charter**

The scope of AfCFTA is ambitious: progressively eliminate tariffs and nontariff barriers (NTBs) on goods; enhance trade facilitation and address technical barriers to trade (TBTs); liberalise trade in services and boost competitiveness; encourage intra-Africa and foreign direct investments; and develop



regional and continental value chains.

Member states are phasing out 90% of tariff lines (i.e., items listed in a country’s tariff schedule) within 5-10 years, while 7% (deemed sensitive) are given an additional period and 3% are placed on an exclusion list (see box on p18). Thus far, 80% of AU countries have submitted their tariff reduction schedules. The signatories will benefit from reduced tariffs, hence lower prices of imported goods for consumers and producers using intermediate inputs.

NTBs impose onerous regulations (red tape) like strict technical and phytosanitary standards, higher quotas and trading licenses that raise compliance cost. The average trade-weighted NTBs for goods and services in Africa amount to 30% (World Bank data). Thus, reducing NTBs benefits consumers of final (household) and intermediate goods (firms). Large cuts in tariffs and NTBs could increase merchandise trade flows between signatories and real per-capita GDP by 15% and 1.25%, respectively, or more if supported by an efficient trade environment, according to the International Monetary Fund (IMF).

AfCFTA also seeks to improve trade facilitation (hard/soft infrastructure) at borders and along corridors between countries. Optimising the AfCFTA framework requires accepting Niamey Declaration “to leverage trade facilitation among AU members to promote efficient and increased trade flows across the continent.”

Overall, with lower trade costs, the unit price of imports falls, which boosts competitiveness of local production (using imported inputs). Concurrently, production shifts to the most competitive sectors, thereby resulting in higher productivity gains and faster economic growth. Trade facilitation to remove operational constraints yields the largest gains. However, differences across countries depend on the initial level of tariffs, NTBs, and border costs. Reducing tariffs are an easier task, but dismantling NTBs is time-consuming.

In addition, AfCFTA’s protocols aim to unify eight regional economic communities (RECs) with overlapping memberships into one market based on the European Union (EU) model, as well as addressing marginal impact of existing subregional

“ The success of AfCFTA hinges on the ability of African firms to understand and capitalise on trade-related opportunities offered by the AfCFTA.”

**PAMELA COKE-HAMILTON, INTERNATIONAL TRADE CENTRE (ITC) EXECUTIVE DIRECTOR**

preferential trade agreements (PTAs) by harmonising rules on competition policy, investment protection, intellectual property rights and tax administration, as well as dispute resolution mechanisms. This, in turn, will create a single legal framework for the continent to facilitate intra-trade and investment.

**Challenges to regional integration**

AfCFTA offers huge opportunities, but also faces significant challenges.

Currently, the proportion of trade among AU members stands at a mere 16-18% – far below other regions. Trade barriers remain high across the continent and average tariffs are about 6%, but with high

variation across countries and sectors (see table). Intra-Africa trade is highly concentrated, with 1% of tariff lines representing 74% of imports in an average African country. Some protectionist tariffs could remain even if countries liberalise most tariff lines. Trade in certain sensitive sectors will only be liberalised over a longer period, and some goods will be excluded from liberalisation.

According to the Institute of Security Studies (ISS), AfCFTA arguably has higher income disparities between members than other continental free trade zones. The big three (Nigeria, South Africa, and Egypt) constitute about half of Africa’s gross domestic product (GDP). Thus, the potential single market combines unequal economies with varying production capacities, which means more advanced countries, cities, and manufacturers will benefit most from liberalised trade.

AfCFTA also suffers from a lack of awareness, as indicated by Centre for the Study of Economies of Africa in Nigeria, which revealed over 60% of Nigeria’s entrepreneurs were unaware of free trade benefits.

“The success of AfCFTA hinges on the ability of African firms to understand and capitalise on trade-related opportunities offered by the AfCFTA,” said Pamela Coke-Hamilton, International Trade Centre (ITC) executive director.

The trade potential of AfCFTA cannot be realised without adequate quality infrastructure systems (particularly road, railways, and power). The challenge is to build solid regional infrastructure to

**Tariff barriers in Selected African Countries**

Country	Most recent year	All Products		Primary Products		Manufactured Products	
		SMT % MRV	WMT % MRV	SMT %	WMT %	SMT %	WMT %
Angola	2020	10.5	9.2	19.8	14.2	9.2	7.3
Botswana	2020	7.7	0.8	4.1	0.9	8.2	0.8
Cameroon	2019	18.6	15.5	22.0	18.4	18.1	13.8
Congo DRC	2020	11.6	8.4	11.8	8.5	11.5	8.4
Cote d'Ivoire	2020	12.1	7.6	15.5	5.9	11.7	8.9
Egypt	2019	14.4	10.4	99.4	19.5	4.9	6.1
Ghana	2020	12.8	10.5	15.9	12.5	12.3	9.9
Kenya	2020	13.7	9.3	17.3	14.5	13.2	7.5
Mauritius	2020	1.2	0.9	1.3	1.0	1.2	0.9
Morocco	2020	4.3	3.6	7.7	7.7	3.9	2.3
Nigeria	2020	12.8	12.4	15.8	11.8	12.3	12.5
Senegal	2020	12.8	9.1	15.4	8.4	12.4	9.4
South Africa	2020	7.1	4.4	4.5	2.6	7.5	5.0
Tanzania	2020	12.2	8.9	18.1	22.8	11.7	6.6
Uganda	2020	13.2	8.1	22.2	13.3	12.0	6.2
Zambia	2020	11.7	4.8	13.0	2.3	11.5	5.4

Source: World Development Indicators, 2022 (World Bank Group).

\*Simple mean tariff (SMT) is the unweighted average of effectively applied rates for all products subject to tariffs calculated for all traded goods.

\*Weighted mean tariff (WMT) is the average of effectively applied rates weighted by the product import shares corresponding to each particular country.

MRV = Measurement, Reporting and Verification.

promote intracontinental trade. A ‘multi-currency’ clearing centre is needed to facilitate cross-border transactions, while mitigating risks from trading in several regional currencies. The Pan-African Payment and Settlement System (PAPSS), a platform that facilitates free trading, was launched in January 2022, with the African Export-Import Bank providing liquidity for the settlements and the technology.

### Making AfCFTA work

Two years after the official launch, the signatories need to agree on strategies and processes to expedite intra-Africa trade and unlock investment for rural and regional connectivity and value chains. Experience of free trade zones indicates success demands treaty administration; trade-related execution support; and smooth transition to a single marketplace, leading to increased investment and jobs.

Simultaneous action is required at both supranational and national levels to reduce all trade costs alongside free capital and labour mobility, plus much-improved cross-border management. Higher logistics costs and trade facilitation bottlenecks hinder intra-Africa trade – hence, the biggest gains would derive by reducing NTBs and implementing a Trade Facilitation Agreement (TFA) (see box).

Digitalisation of customs procedures and ‘one-stop’ border posts can reduce the cost/time of moving goods across borders. Capacity building (training and policy advice) to ministries of trade and specifically customs agencies tasked with enforcing new regulations of which they may have little experience, is equally crucial.

The basis criteria of a vibrant single market are an enhanced rule-based business climate, affordable connectivity, flexible labour markets and economic prudence. Ultimately, it falls upon signatories to effectively implement and administer the AfCFTA charter. Substantive reforms are needed to make Africa competitive with other regions.

More recently, ECOBANK Group,



AfCFTA could create 17.9mn new jobs.

Image Credit: Adobe Stock

the leading Pan-African bank, has launched ‘The Ecobank Single Market Trade Hub’, linking traders within the framework of AfCFTA. More than 300 businesses from 22 countries have already joined the platform for importers and

exporters to showcase their goods/services and connect with buyers and suppliers across Africa.

In sum, a unified market is viewed as a game-changer, whereby 55 fragmented economies are becoming a powerhouse to unleash

a new era of competitiveness. AfCFTA can help diversify exports, attract FDI, and achieve a sustainable growth trajectory – thereby making Africa resilient to global shocks. The U.N. Economic Commission for Africa echoed, “Sub-Saharan Africa is still a continent of enormous potential. Over the medium term, greater integration across sectors means a bigger market for businesses, financial institutions and exporters to build new client relationships across borders.” ■

“ Sub-Saharan Africa is still a continent of enormous potential.”

U.N. ECONOMIC COMMISSION FOR AFRICA

### AFCTFA EXPLAINED

On 21 March 2018, at the 10th Extraordinary AU Summit, a majority of countries pledged to create a ‘Pan-African’ bloc envisaged under the African Continental Free Trade Area (AfCFTA). The agreement became effective on 30 May 2019, after ratification by 22 countries and officially launched on 1 January 2021. AfCFTA, once completed, will become the world’s largest bloc (by participating countries). As of June, 2023, 54 countries had signed the agreement (excluding Eritrea) and it had been ratified by 46, including major economies Nigeria, South Africa, and Kenya.

#### Tariffs on intra-continental trade are reduced progressively in line with AfCFTA modalities:

- 1] In 2020, signatories pledged to eliminate tariffs on 90% of tariff lines over a five-year period from 2020-2025 (10 years for least developed countries, or LDCs). From 2025, tariffs on an additional 7% are scheduled for abolition within five years, ie by 2030 (eight years for LDCs). The remaining 3% of tariff lines (comprising 10% of intra-Africa imports) could be excluded from liberalisation by end-2030 (2033 for LDCs).
- 2] Nontariff barriers on both goods and services are reduced on a most-favoured nation (MFN) basis, whereby all MFN trade partners are treated equally and receive the lowest tariffs, fewest trade barriers and minimum import quotas (or none).
- 3] AfCFTA will be underpinned by measures to boost intra-Africa trade via implementing a trade facilitation agreement (TFA), which covers provisions for expediting the movement, release, and clearance of goods, including goods in transit – hence making cross-border trade easier, faster, and cheaper.

#### Implementing the ‘full provisions’ of AfCFTA by 2035, would:

- Boost Africa’s real income by US\$450bn; two-thirds of which (US\$292bn) originate from streamlining customs procedures, and cutting red tape.
- Increase merchandise exports by US\$560bn, mostly in manufacturing.
- Create 17.9mn new jobs; boost wages for skilled/unskilled workers; and lift around 68mn people out of moderate poverty.

Source: *The World Bank*.

Embracing the use of AI could unlock Africa's potential for economic growth.

# Overcoming challenges, unlocking potential

As AI gains momentum across Africa, a wave of opportunities and challenges emerges. Minhaj Zia reports.

The growth of artificial intelligence (AI) within African businesses has become a notable phenomenon, ushering in a new era of transformation across various industries on the continent. With advancements in technology and increased accessibility, AI has emerged as a versatile tool for optimising operations, elevating decision-making processes, and uncovering untapped opportunities.

African enterprises are harnessing the potential of AI to streamline their workflows, enhance customer experiences, and extract valuable insights from vast troves of data. This surge in AI adoption not only promises to ignite innovation, but also holds the key to driving economic growth and fostering sustainable development in diverse sectors, propelling Africa to the forefront of the global AI revolution.

According to a report by the Newcastle Business School and Northumbria University, approximately 100 AI start-ups have emerged throughout Africa as of 2020, successfully securing more than US\$140mn in seed funding, with a particular emphasis on fintech ventures in Nigeria. Notably, Cellulant has raised an impressive

US\$47.5mn, closely followed by Mines.107 with US\$17.2mn. While Nigeria has garnered the largest share of seed funding, South Africa boasts the highest number of AI start-ups in Africa, with a count of 26. Nigeria follows closely with 20 start-ups, while Kenya maintains a presence with nine. Additionally, Tunisia and Zimbabwe each have six AI start-ups, whereas Egypt and Ghana have five start-ups apiece.

Surprisingly, although Nigeria has attracted the most significant amount of AI seed funding, Kenya, Tunisia, Mauritius, South Africa, and Ghana (in that order) rank higher in terms of government AI readiness on the African continent. It is also worth noting that despite fintech capturing the lion's share of seed funding, the healthcare sector boasts the highest number of AI start-ups, totalling 21. Agriculture follows suit with 14 start-ups, while the manufacturing sector showcases five ventures. These statistics exemplify the diverse and dynamic landscape of AI entrepreneurship in Africa.

## Strategic partnerships

Regarding more recent developments, Digital Industries (DI), operating through its business

unit Industry Software Solutions and Support, announced its recent partnership as an AVEVA Select partner for the East and West Africa regions. This collaboration enables DI to provide customers with AVEVA's comprehensive range of cutting-edge industrial software solutions, facilitating their journey towards greater sustainability and profitability.

The AVEVA Select agreement is strategically designed to fulfil customers' needs for improved operational efficiency, enhanced returns, and increased business sustainability. To achieve these strategic objectives within the continent, a people-centric ecosystem driving digital transformation serves as the key enabler. DI aims to expand its ecosystem of customers and partners who aspire to adopt transformative technologies. Leveraging existing knowledge and skills, as well as cultivating new skill pools, remains the key differentiating factor.

In East Africa, the regional operations will be led by Kenyan operations under the name 'AVEVA Select East Africa', while the Nigerian representative offices will

assume a similar role in West Africa as 'AVEVA Select West Africa'. These entities are making substantial investments in establishing training and demonstration centres aimed at nurturing these skill pools and equipping system integrators, partner companies, and end-users with the necessary expertise to maximise the utilisation of technology and customise the available service offerings.

The highly esteemed designation of 'AVEVA Select Partner' empowers distributors to simplify design processes, optimise production, and maximise overall performance. By leveraging the extensive AVEVA software portfolio, AVEVA Select partners can take advantage of tailored programmes catering to every product and solution specialisation within the engineering and industrial segments. The AVEVA Select programme offers an effective avenue for partners to penetrate new markets, build upon existing solutions, and strengthen local relationships.

The AVEVA Select partnership has significantly accelerated the value proposition that DI can offer, empowering both their customers and partners to optimise

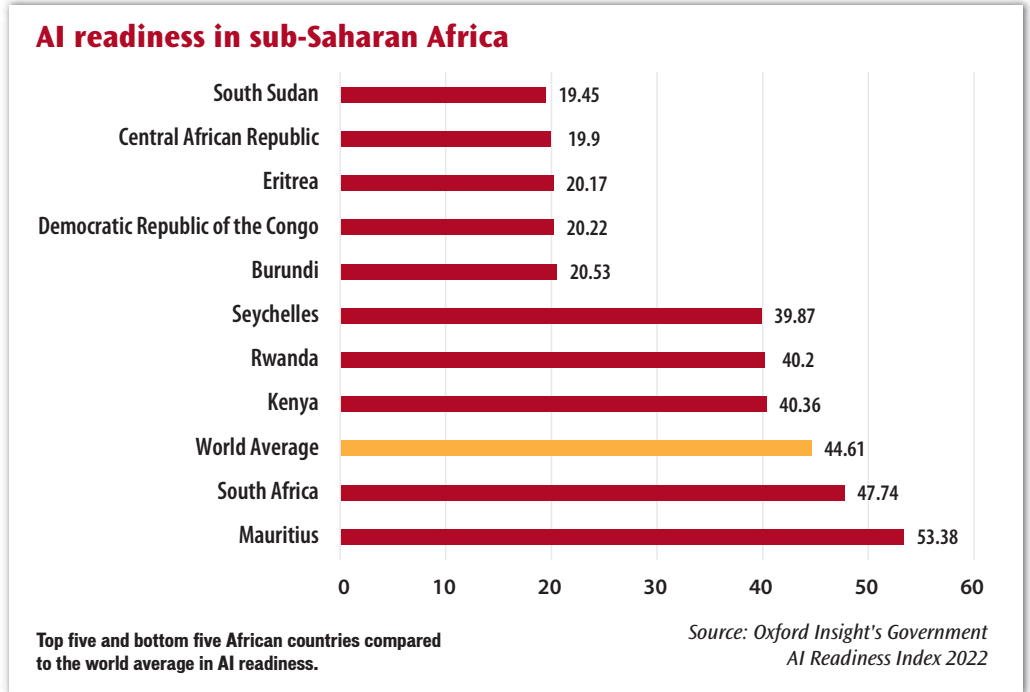
engineering, operations, and asset performance. A unified digital thread, woven across all enterprise pillars, unlocks a new realm of Performance Intelligence by harnessing bedrock technologies such as AI, the Industrial Internet of Things (IIoT), big data, cloud computing, and hybrid solutions.

“Digital Industries’ customers and partners will continue to get the same dedicated local support, now with the added value of wider access to AVEVA’s complete portfolio of solutions, which enables a new level of Performance Intelligence using technologies such as AI, IIoT, big data and cloud. The AVEVA Select programme helps our distributors to deliver even more value and support their customers’ digital transformation initiatives,” said Kerry Grimes, AVEVA global head of partners. “We are pleased to extend Digital Industries coverage as an AVEVA Select partner and look forward to developing and capitalising on mutually beneficial growth strategies.”

**The troubling trade-offs**

Despite the rapid growth of AI in the continent, it does not come without its apprehensions. The Centre for the Study of the Economies of Africa (CSEA) reports that within the '2022 AI Readiness Index,' sub-Saharan Africa recorded an average score of 29.38 – indicating that many African countries ranked towards the lower end of the spectrum. Regionally, Mauritius claimed the top position with an index score of 53.38, followed by South Africa (47.74) in second place and Kenya (40.36) in third place.

On the other hand, Eritrea, the



Central African Republic, and South Sudan ranked lowest in AI readiness within the sub-Saharan African region, with respective index scores of 20.17, 19.90, and 19.45. It is evident that numerous African countries still face significant challenges, lacking the necessary capacity and foundational pillars to fully embrace the realm of AI.

Africa's lag in AI readiness can be attributed to several factors. Firstly, limited digital infrastructure hinders AI development as internet penetration across the continent remains low, with only 28% estimated in 2019. Insufficient access to electricity and inadequate investment in infrastructure, such as fibre-optic cables and cell towers, contribute to this issue. The World Bank estimates that around 100

million Africans in remote areas lack access to mobile networks, requiring an investment of at least US\$100bn to bridge this gap.

Secondly, the lack of quality data poses a significant challenge. Many African countries are still in the early stages of the data revolution, lacking sufficient data collection mechanisms and governance frameworks to ensure high-quality data. This shortage affects the accuracy and customisation of AI algorithms, impeding the development and implementation of AI solutions tailored to the local context.

Ethical and legal considerations also hinder AI progress in Africa. The absence of clear regulatory frameworks surrounding AI creates uncertainties and limits innovation. Issues related to safety, transparency, informed consent, algorithmic fairness, biases, and data privacy need to be addressed to foster responsible AI development.

Furthermore, the high cost of AI technologies, coupled with a shortage of skilled professionals, poses challenges. The expensive hardware and software components of AI systems make it difficult for many African countries to fully leverage these technologies. There is also a scarcity of AI specialists across

the continent, with a limited number of trained professionals available. More education and training programmes are needed to develop the necessary skills and expertise in AI.

And perhaps the most permeating anxiety surrounding AI is job security; as AI becomes more and more advanced, it increases the likelihood of surpassing humans in terms of efficiency when carrying out certain jobs. Certainly, this explains the level of anxiety and distrust a workforces could have concerning the technology.

The growth of AI in Africa undoubtedly holds promise for transformation, but challenges such as limited infrastructure, data scarcity, ethical concerns, high costs, and skill shortages can hinder its progress. Balancing opportunities and challenges, Africa's journey towards AI readiness offers promise for innovation and development.

As the rest of the world embraces the modernisations AI brings to its industries, Africa has the potential to not only catch up to, but thrive in the global AI revolution. With increasing investment, strategic partnerships, and a focus on a skilled workforce, Africa can overcome these obstacles. ■

“ The AVEVA Select programme helps our distributors to deliver even more value and support to their customers’ digital transformation initiatives.”

KERRY GRIMES, GLOBAL HEAD OF PARTNERS, AVEVA

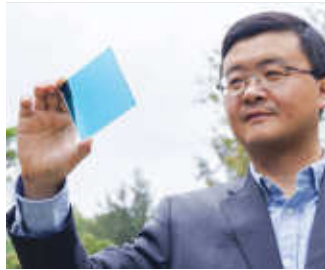
## New technique boosts solar power-conversion efficiency of organic solar cells

Researchers from The Hong Kong Polytechnic University (PolyU) have achieved a breakthrough power-conversion efficiency (PCE) of 19.31% with organic solar cells (OSCs) which will help enhance applications of these advanced solar energy devices.

The PCE is considered a benchmark for the performance of photovoltaics (PVs) in power generation. The improved efficiency of more than 19% that has now been achieved constitutes a record for binary OSCs which have one donor and one acceptor in the photo-active layer. The research team, which was led by PolyU's Li Gang, professor of energy conversion technology, and Sir Sze-Yen Chung, endowed professor in renewable energy, invented a novel OSC morphology-regulating technique by using 1,3,5-trichlorobenzene as a crystallisation regulator. This new technique boosts OSC efficiency and stability.

The team developed a non-monotonic intermediated state manipulation (ISM) strategy to manipulate the bulk-heterojunction (BHJ) OSC morphology and simultaneously optimise the crystallisation dynamics and energy loss of non-fullerene OSCs. Unlike the strategy of using traditional solvent additives, the ISM strategy promotes the formation of more ordered molecular stacking and favourable molecular aggregation. As a result, the PCE was considerably increased and the undesirable non-radiative recombination loss was reduced. Non-radiative recombination lowers the light generation efficiency and increases the heat loss. Gang commented, "Challenges in research came from the existing additive-based benchmark morphology control methods, which suffer from non-radiative recombination loss, thus lowering the open-circuit voltage due to excessive aggregation." The research team took about two years to devise a non-monotonic ISM strategy for increasing the OSC efficiency and lowering the non-radiative recombination loss. The publication of the study – in *Nature Communications* – promises to galvanise OSC research.

"The new finding will make OSC research an exciting field, and this will likely create tremendous opportunities in applications like portable electronics and building-integrated PVs," Gang continued.



Li Gang invented a novel technique to achieve a breakthrough efficiency with organic solar cell.

Image Credit: PolyU

## AFC AND JBIC COLLABORATE TO BOOST ENERGY TRANSITION IN AFRICA

Africa Finance Corporation (AFC), the leading infrastructure solutions provider in Africa, and Japan Bank for International Cooperation (JBIC), Japan's policy-based financial institution, have signed a Memorandum of Understanding (MoU) to collaborate on infrastructure projects that contribute to accelerating energy transition in Africa and promoting economic sustainability on the continent. This agreement was signed on the sidelines of the 58<sup>th</sup> Annual Assembly of the African Development Bank in Egypt.

The collaboration aims to develop and finance infrastructure projects on the continent that contribute to accelerating Africa's path to net-zero in a pragmatic way. Priority projects include renewable energy technologies/systems (including green and blue hydrogen and ammonia), highly energy-efficient powerplants and carbon capture and storage (CCS) technology among others.

AFC plays a crucial role in financing the continent's energy transition by investing in renewable energy projects, supporting the development of energy infrastructure, and providing financing for energy efficiency projects. The corporation recently closed the acquisition of Lekela with Infinity Power, making AFC and its partners the largest renewable energy provider in Africa, with a combined gross capacity of 1.27GW, powering more than 1 million homes and offsetting 2.7 million tons of CO<sub>2</sub> per annum.

"Through this collaboration, we envision a transformative alliance that harnesses the expertise, resources, and innovative financing solutions of both institutions, to drive a greener future for the continent whilst continuing to advocate for African industrialisation," said Sanjeev Gupta, executive director & head of financial services at Africa Finance Corporation.

## CLEAN ENERGY INVESTMENT EXTENDS LEAD OVER FOSSIL FUELS

According to a new IEA report, investment in clean energy technologies is significantly outpacing spending on fossil fuels as affordability and security concerns triggered by the global energy crisis strengthen the momentum behind more sustainable options.

Annual clean energy investment is expected to rise by 24% between 2021 and 2023, driven by renewables and electric vehicles, compared with a 15% rise in fossil fuel investment over the same period. About US\$2.8 trillion is set to be invested globally in energy in 2023, of which more than US\$1.7 trillion is expected to go to clean technologies.

Clean energy investments have been boosted by a variety of factors in recent years, including periods of strong economic growth and volatile fossil fuel prices that raised concerns about energy security. Enhanced policy support through major actions like the US Inflation Reduction Act and initiatives in Europe, Japan, China and elsewhere have also played a role.

## BRIEFS

### AIF presents four renewable projects



The investment roundtable attracted a range of private investors, including venture capital and private equity firms.

The Africa Investment Forum (AIF) presented four renewable energy and sustainability projects worth nearly US\$1.5bn to investors on the sidelines of the African Development Bank Group's 2023 Annual Meetings, held under the theme, 'Mobilising Private Sector Financing for Climate and Green Growth in Africa.' The curated projects, which are drawn from all of Africa's regions, are sourced from the Africa Investment Forum's pipeline.

### The key to a hydrogen future?



Coal could be a suitable place to do geological hydrogen storage.

A team of scientists from Penn State have found that coal may represent a potential way to store hydrogen gas, addressing a major hurdle in developing a clean energy supply chain. "We found that coal can be a geological hydrogen battery," said Shimin Liu, associate professor of energy and mineral engineering at Penn State. Developing hydrogen storage in coal mining communities could bring new economic opportunities to associated regions.

## GDC lauded for helping in Kenya's green energy development

GDC has played host to Rigathi Gachagua, Deputy President of Kenya, as he officiated over a Globeleq 35MW powerplant groundbreaking ceremony at Menengai Geothermal Project.

The Deputy President lauded GDC for its role in helping to develop green energy, promising government's support to enable GDC to competently deliver on its mandate. "We will continue to support GDC to effectively play its role; more importantly, these efforts will help Kenya meet its international obligation on decarbonising the economy on Africa and global front as we push to exploit the full geothermal potential," said Gachagua adding the Government was keen on lowering the cost of power. Affordable power will help spur economic development and reduce the cost of doing business."

The Cabinet Secretary, Davis Chirchir, expressed delight that he will see the fruits of what he initiated 10 years ago. He expressed full confidence in GDC to help the country drive the geothermal agenda. On his part, the GDC board chair, Walter Nyambati, noted that GDC was greatly honoured by the presence of the Deputy President. He assured attendees that GDC, with the Government and financiers' support, will excel.

The event was also graced by other top government officials including Alex Wachira, PS State Department of Energy; Susan Kihika, Governor, Nakuru County; Members of Parliament, and ambassadors.

The event ended on a high note as the GDC representatives presented framed pictures of Menengai to the Deputy President and the outgoing UK Ambassador to Kenya, Jane Marriot.

"This groundbreaking a future of lowered cost of power and more revenues for GDC. I want to assure the GDC staff that our company is great; it has potential and what we need is to all, in one accord, support each other and pull forward together," commented, Paul Ngugi, managing director and CEO of GDC.



Paul Ngugi, managing director and CEO of GDC, cheers as Deputy President Gachagua breaks ground at the Globeleq site for the construction of a 35MW powerplant.

Image Credit: GDC, Kenya

## BBOXX'S NEW SMART SOLAR SYSTEMS

Bboxx, the data-driven super platform announced the launch of its new range of four Solar Home Systems designed to seize the opportunity of new advances in technology to deliver universal energy access in Africa. The new GPS and IoT-enabled range is designed to further Bboxx's mission to transform lives and unlock potential by bringing innovative energy solutions to underserved communities worldwide.

Bboxx already positively impacts the lives of 3.5 million people with clean energy in 10 African markets. The company's new Solar Home Systems were developed for households and small businesses which require a reliable solution for diverse energy needs. From providing enough power to support life-changing lights, cooling appliances, large televisions and radios for communities in Africa to supporting small businesses in urban areas with weak grids, Bboxx's new bPower80-240 range can serve a wide range of energy requirements.

The four new modular systems offer an improved customer experience through an interactive screen, allowing customers to check remaining credit, and feature state-of-the-art lithium batteries and improved tamper protection. The models are plugged into Bboxx Pulse, the company's fully integrated operating system which drives the data-driven super platform, enabling flexible payment plans that adapt to customers' incomes.



Image Credit: Bboxx

## CIP INVESTS IN CWP'S GREEN HYDROGEN BUSINESS

CWP Global and Copenhagen Infrastructure Partners (CIP) have announced the recent completion of CIP's strategic investment in CWP's development portfolio of ultra-large-scale green hydrogen hubs, including projects across Africa, Australia and the US. Under the deal announced today, CIP, through its Energy Transition Fund I, has acquired a 26.67% stake in a development platform within CWP's green hydrogen business, thus seizing the opportunity to invest in the latter's pipeline of green hydrogen hubs under development globally. The investment brings together CWP's leading green hydrogen team and CIP's expertise in financing and developing large-scale green transition infrastructure.

CIP's backing represents a significant vote of confidence in the emerging green hydrogen sector from one of the world's largest renewable energy infrastructure investors.

## BRIEFS

### UMDF funds Namibia solar project

Image Credit: AMDB



The programme will directly benefit around 200,000 people in Windhoek.

The African Development Bank's Urban and Municipal Development Fund (UMDF) has approved US\$485,000 for a solar electricity project in Namibia that will power some 50,000 households in the capital city. The municipal council of Windhoek requested the fund's support to upgrade services in its informal neighborhoods, a key priority under the metropolis' Strategic Plan. With this new project, the UMDF is expanding its support to southern African countries.

### OpenMod4Africa addresses energy poverty challenge

Image Credit: OpenMod4Africa



OpenMod4Africa will focus on the countries included in the West Africa Power Pool and in the East Africa Power Pool.

OpenMod4Africa, an EU project aimed at developing sustainable and reliable energy systems in Africa, is set to make a significant impact on the continent's energy landscape. The project will develop an open modelling toolbox, leveraging state-of-the-art models adapted to the African context and needs. These models will enable comprehensive analyses of long-term energy pathways, tailored to different regions, cities, industries and countries.

# POWER

POWER



## PRO Series

The PRO series is a set of **4-pole brushless alternators** (up to 1500kVA), suitable for the most varied industrial applications. Excellent performance, compactness, mechanical strength and exclusive design are the strengths that always distinguish Linz Electric's products in the power generation market. All products are designed and manufactured in our factories in **Italy**, with cutting-edge technologies and high quality materials.



Image Credit: Mantrac



The market for diesel generators is growing.

## Generating growth

Generators are continuing to play a role as an essential piece of equipment, helping the continent achieve its predicted economic potential.

In today's world, there are few regions which are regarded to have as promising a future as Africa. While this of course encapsulates a wide spectrum of countries and markets, and, indeed, this is not the first time the continent has been projected as a future economic juggernaut, its ability to weather the storm of the pandemic has left more commentators assured of its positive trajectory.

According to the African Development Bank's (AfDB) Africa Economic Outlook 2023, the shocks of the pandemic and war in Europe have weighed on the continent's momentum with growth in real domestic product (GDP) estimated at 3.8% in 2022, down from 4.8% in 2021. However, this growth is still above the global average of 3.4% and all but two countries in Africa posted positive growth rates. The bank noted that, despite significant headwinds, Africa has shown remarkable resilience and its outlook remains positive and stable with a projected rebound to 4% in 2023, up to 4.3% in 2024. As part of this, 18 African countries will experience growth rates surpassing 5% in 2023, and 22 in 2024.

There are many avenues and instruments to be addressed and pursued in order to realise and build on this potential, however at the top of this list is something the continent has – and continues to – struggle with to this day: power. Without a sufficient and reliable supply of electricity, all sectors of a country will struggle to grow and compete in the modern world. This point has been most keenly demonstrated in southern Africa where, according to AfDB, growth has decelerated to 1.6% in 2023. This dip is largely

the result of developments in South Africa where the country is grappling from persistent power outages stifling virtually all industries from retail and services to manufacturing and mining.

With power at the top of list of priorities for countries and companies operating across the continent, a full spectrum of solutions is being deployed, from extensive geothermal engagement in the East, to a renewed interest in solar in the West. While the capacity around such sources is built, however, it is the tried and tested diesel generators – in the face of grid unpredictability – that are providing a lifeline for businesses to function and a platform for the continent to grow.

It is no surprise, therefore, that the market for diesel generators continues to thrive. According to research from MarkNtel Advisors, the continent's diesel generator market is projected to grow at a CAGR of around 5% during the 2022-2027 period, driven primarily from infrastructural development projects and the need to meet daily energy requirements through small-capacity diesel generators. In addition, many of the continent's key industries such as mining, construction and oil & gas cannot function effectively without uninterrupted power supply, and diesel generators provide one the most reliable means of achieving that. Other market commentators, such as Grand View Research, has estimated an increase above 6%, pointing especially at the rise in data centres across the region as a point for high growth.

Indeed, there are no shortages of examples relating to generators being purchased, delivered and installed across the continent. By example, for

an IKEA store in Morocco, HIMOINSA has delivered two new generator sets (one HDW-750 T5 Doosan engine and one HFW-125 T5 Iveco engine) to cope with possible power failures and guarantee a stable power supply. In, Egypt, Kohler celebrated the supply and installation by its partner for four units of 3000KVA PRP 11KV, one KD1100F 400V and one V550 400V at a multipurpose terminal in Alexandria port. The company also supplied and installed two genset 1900KVAs equipped with ISO 40 FT Container with fuel system for a Tier 3 Data centre in the country. Ghaddar Machinery, meanwhile, has delivered the first batch of a project with a total capacity of 14MW for the Ministry of Energy in Sierra Leone. Ghaddar Generators powered by Cummins KTA50-G3 & KTA19-G4 engines and Leroy Somer LSA50.2M6 & TAL0473C alternators will be distributed across seven stations across the country. Zest Weg has also made headlines by agreeing to manufacture and deliver a complete substation E-house with distribution transformers and a diesel generator set to Sasol in Mozambique. The package, to be completed in the last quarter of 2023, will include one 1,250kVA Zest Weg diesel generator set for backup power which will be manufactured at its facility in Cape Town.

### On the ground

Generators Kenya Limited is a company which has been enabling institutions to increase their efficiency and effectiveness by installing high quality generator sets, power backup solutions and maintenance services for more than 20 years. Providing some insight on how it has found the



diesel genset market in recent years, the company actually noted a slight decline in diesel generator sales compared to last year due to a high dollar exchange rate affecting the cost of importing equipment. It noted, however, that of the brands it distributes, Cummins and Perkins generators have been standing out due to their reliability, advanced technology and fuel efficiency – especially important given the current energy crisis. A representative also explained that this year, residential generators ranging from 10-20kVA and commercial generators ranging from 20-200kVA have been the most popular and purchased equipment.

Providing an insight from Nigeria, Mantrac explained how Caterpillar large power generators are playing a key role in meeting the electricity demands as the country strives to improve electricity access across the country. However, to provide energy for their small businesses, residences or farms, many Nigerian entrepreneurs are relying on off-grid Cat small capacity diesel generators which are known to be robust, reliable and low in fuel consumption. The Mantrac representative noted that the growing market is vast in the country, giving rise to competitors from all sorts vying for a share. Therefore, it is in this light that its sister company, Delta Group, has launched a new flagship Perkins dealership in Nigeria to deliver the best aftersales support to all customers using a Perkins-powered generator and has invested millions in a brand new facility that offers a large stock of genuine Perkins parts and engines,



Image Credit: Mantrac

**Mantrac manufactures canopies, attachment, electrical devices, and assembles generators in Nigeria.**

certified technicians and custom made solutions.

Through customer feedback, Mantrac has noted how aftersales support and response time to emergencies is one of the most important priorities that is influencing generator purchase decision making in the country – hence the timely announcement by Perkins and Delta. It was also pointed out that Mantrac has a factory which manufactures canopies, attachment, electrical devices, and assembles generators.

The Mantrac representative added that between premium Caterpillar products from Mantrac (offering lower cost per kVA, lower consumption, and more), Delta Perkins Nigeria (offering well-known, competitive products and a stronger support to a larger market) and CKD/CSD factories (manufacturing products locally to offer large availability and support as fast as possible), it can truly support the growing market demand when it comes to power generation. ■

Image Credit: Generators Kenya Limited



**Generators Kenya Limited explained that Cummins and Perkins generators have been standing out due to their reliability, advanced technology and fuel efficiency.**



Image Credit: Mantrac

**Perkins appointed Delta Industrial Equipment Limited as an authorised Perkins distributor in Nigeria.**

# Africa's energy birthright

Mohamed Ismail Mansour, chairman of Infinity Power, examines Africa's lucrative renewable potential and how his company is helping the continent seize this opportunity.

There are few who refute Africa's potential to play a critical role as an enabler of the energy transition and, thus, become a dominating presence in the future global power mix. According to the International Energy Agency (IEA), Africa is home to 60% of the best solar resources globally, the sub-Saharan region alone has 1,300GW wind energy potential and the continent has the capacity to produce 5,000 megatonnes of hydrogen per year.

With the prospects firmly established, it is now a case of realisation and setting the continent on the right path to live up to these high expectations.

One organisation that is firmly dedicated to this pursuit is Infinity Power, a company which few can match in terms of time spent in the media spotlight across 2023. The joint venture between Infinity and Masdar targets power generation projects through renewable energy sources and has been making significant waves within the African

energy sector market.

Perhaps most notably, in March this year, the company completed the acquisition of Lekela Power – an independent power producer which operates 1GW of wind power projects in South Africa, Egypt and Senegal and boasts a 1.8GW project pipeline in various stages of developments. Funded through equity investment from shareholders and debt from Absa CIB and the Mauritius Commercial Bank, the initiative was part of the company's promise at COP27 to become the fastest-growing renewable energy company in Africa and was described as "a major step forward for Africa's future" by Nayer Fouad, CEO of Infinity Power.

Exploring the acquisition in more detail in an interview with *African Review*, Mohamed Ismail Mansour, chairman of Infinity Power, remarked, "I see this as a very strategic acquisition which complements our core competency base. Infinity Power has been very successful, predominantly in Egypt.



Image Credit: Infinity Power

Mohamed Ismail Mansour is the chairman of Infinity Power.

Lekela brings extensive expertise around wind energy and ticks the box when it comes to market capacity. Adding this to Infinity Power helps us to develop our expertise in-house – it is a perfect fit and I have been very happy with the management team at Lekela.

"This transaction accelerates our mission in Africa which is to provide cheap electricity for communities across the continent. We have a high bar; ideally we would like a presence in all 54 countries and the combined experience of both companies (Infinity Power and Lekela) on the continent will help us to meet this ultimate mission."

Exploring this journey, Mansour noted that the company is projected to develop, install and operate 2GW of projects by 2025 and is looking to

build 10GW of capacity by 2030.

While the chairman conceded these are high targets, he noted that with the dynamics of the market the way they are – and taking into account the onset of new technology and grid evolution on the continent – they are achievable.

"Our two key markets at the moment are Egypt and South Africa. We are looking at Morocco as a possible third but that decision has not been made yet. Through the Lekela acquisition, the company now is firmly established in the Senegal market as well. These are our bases across the continent from which we are looking to build and take on projects as they come."

Mansour explained that while the company is on the lookout for new opportunities to expand their portfolio on the market, the two defining boxes that must be ticked are bankability and grid evacuation capacity at location. "Many of these opportunities come from our company knocking on the door itself. We like to take the initiative and see what can be done in terms of development. However, for all prospects, those are the two conditions that projects need to meet. We try to speak with stakeholder to make sure PPAs are bankable and we are doing this on an almost daily basis. Then, on the other hand, we need to make sure the venture is in a suitable location."

Fortunately, Mansour expressed, Infinity Power holds a competitive advantage that helps to give projects



Parc Eolien Taiba N'Diaye is Senegal's first large scale wind energy project.

Image Credit: Infinity Power

the best possible chance to be developed: its shareholding companies. In Masdar, it has access to a wealth of technical and professional experience in project development; the European Bank for Reconstruction and Development (EBRD) can provide guidelines towards identifying and establishing bankable PPAs; and Africa Finance Corporation (AFC), with its extensive investment projects across the continent, is the first place turned to when grid constraints require additional infrastructure to be established – enhancing the feasibility of possible sites. Of course there is also Infinity adding its experience of planning, designing, executing, testing and integrating a range of projects helping to transform the energy industry in Egypt.

This wealth of talent has also led to the confirmation of an agreement with Egypt's New and Renewable Energy Authority to secure land to build a 10GW capacity onshore wind farm in Egypt. The significant project, led by Masdar, Infinity Power and Hassan Allam Utilities, was originally explored at COP27 last year.

When operational, it is expected to produce 47,790GWh of clean energy per year and reduce around 9% of Egypt's annual carbon emissions by displacing 23.8mn tonnes of carbon dioxide annually. At a project value of more than US\$10bn, it is set to be one of the largest onshore wind farms in the world.

### The European market

The acquisition of Lekela and the confirmation of the Egyptian wind farm were not the only announcements from Infinity Power in recent months as the company has also signed a MoU with Copelouz Group over the

possibility of developing renewable energy projects and provide the Greece-Egypt electrical interconnection (GREGY) with a source of green energy.

GREGY involves the electrical interconnection of Egypt directly with mainland Greece via a submarine cable of 3,000MW capacity and the possibility of bidirectional energy transmission. It will carry 100% green energy from Egypt to Greece and then onwards to Europe, reducing the continent's dependency on fossil fuels.

Such a project is indicative of the leading role Africa could have in the global future energy network, should

economic growth and further energy development. The chairman noted that while this MoU was signed for export from Egypt, there is a real business case for using this model elsewhere on the continent and Infinity Power would be ready to action this elsewhere should the chance present itself.

### Boundless possibilities

With Infinity Power now established as a wind and solar powerhouse and well on its way to becoming a significant green energy supplier in Africa, Mansour was keen to emphasise his company's intention to expand their frontiers ever further.



it sufficiently claim its renewable birthright. Mansour remarked, “What Africa has – and Europe does not – is land. You need this space for renewable energy projects and so we should be capitalising on this land availability to generate more in order to benefit local communities with energy access and to fill the gaps in Europe and elsewhere.”

Once the infrastructure is in place, Mansour continued, the demand for more generation capacity will only increase, stimulating wider

This drive has taken the company to examine the possibilities around green hydrogen, another resource which offers the chance to enhance Africa's prospects. Indeed, there has been mounting interest on the role the continent can play in a green hydrogen future with significant deals emerging in relation to Namibia most notably. At the end of 2022, Infinity Power entered this arena by signing a framework agreement with Egyptian state-backed organisations for the development of a 2GW programme.

The two signed MoUs relate to the development of two green hydrogen production plants in the country, which will help the consortium (Infinity Power, Masdar and Hassan

Allam Utilities) reach their target of a 4GW electrolyser capacity by 2030, with an output of 480,000 tonnes of green hydrogen per year.

At the time, Mansour commented, “The project is expected to facilitate economic growth for the country as well as help position Egypt as a green fuel hub.”

Reflecting some months on, Mansour noted that this is but the start of the company's relationship with hydrogen and that “if a company – perhaps a technology provider – has an advantage to the market and wants to discuss, we will be more than happy to have conversations with them. We are

open to making the best solution and generating the cheapest hydrogen we can.”

Through wind and solar development, Infinity Power is positioning itself into a prime position to drive and profit from the forthcoming energy transition and is doing so with the primary aim of enhancing the communities in which it is operating. Its projects in Egypt are early forerunners of this strategy and the country will no doubt further benefit from taking a leading role in the green hydrogen future that is looming. Indeed, many will no doubt be keeping a close eye on the growing prospects of Infinity Power as a reflection of the boundless opportunities open to the continent. ■

“ We are open to making the best solution and generating the cheapest hydrogen we can.”

MOHAMED ISMAIL MANSOUR, CHAIRMAN OF INFINITY POWER

# Battery storage projects to empower Africa's grid

According to Synergy Consulting, a global financial advisory firm with extensive expertise in advising developers and governments on the deployment of battery storage worldwide, Africa must look to battery storage projects as a way to enhance grid stability and make the most of its renewable energy potential.



Image Credit: Synergy Consulting

Combining renewable energy sources with battery storage helps enable the establishment of microgrids in areas where connection to the main grid is challenging.

**A**frica in recent years has witnessed a rapid increase in the adoption of renewable energy sources such as solar and wind power to meet its growing energy demands. However, the intermittent characteristics of these sources present significant challenges pertaining to maintaining grid stability.

Battery storage projects, with their ability to offer a reliable and efficient solution to harness the potential of renewable energy, have

the potential to be a game-changer and could transform Africa's grid infrastructure in the years to come.

Battery storage projects not only enhance grid stability by mitigating fluctuations caused by intermittent renewable energy sources but also ensure consistent and reliable power supply by storing excess energy in periods of high generation and ensure grid stability by releasing it during low-production times, thus decreasing the likelihood of power outages.

Battery storage projects also help

enable peak shaving and load management, thus optimising electricity utilisation. This optimisation of renewable energy usage not only minimises the reliance on fossil fuel-based power plants but also fosters a cleaner and more sustainable energy mix.

Another significant advantage of battery projects lies in their contribution to Africa's rural electrification efforts. Combining renewable energy sources with battery storage helps enable the

establishment of microgrids in areas where connection to the main grid is challenging, thus bringing reliable and affordable electricity access to off-grid communities, thereby driving economic development and enhancing the quality of life for millions.

Overall, battery storage projects have the potential to revolutionise Africa's grid infrastructure and pave the way for a sustainable and resilient energy future in Africa.

Therefore, it is important that governments, investors, and stakeholders continue to support and promote the deployment of battery storage systems to unlock the full potential of renewable energy and power Africa's growth. ■

**“Battery storage projects, with their ability to offer a reliable and efficient solution to harness the potential of renewable energy, have the potential to be a game-changer and could transform Africa's grid infrastructure in the years to come.”**

*This article is authored by Synergy Consulting IFA. For more information, reach out to: [synergy@synergyconsultingifa.com](mailto:synergy@synergyconsultingifa.com)*

# Nigeria commissions momentous oil refinery

The recently commissioned Dangote Oil Refinery is expected to change the narrative around oil and gas in West Africa.

In a ceremony attended by numerous African heads of state, the 650,000 barrels per day (bpd) Dangote Oil Refinery was finally commissioned after nearly seven years under construction.

The integrated project is said to be the world's largest single-train refinery and the largest oil refinery in Africa. It boasts 1,100 km of pipeline infrastructure capable of handling 3bn standard cubic feet of gas per day and the refinery alone has a 435MW power plant. To deliver it, a roster of international and local firms were brought together to contribute including the likes of Hyundai Heavy Industries, Sulzer Chemtech, SOFEC, Schneider Electric, Man Diesel & Turbo, Wabag, Mammoet, and countless others.

Speaking at the commissioning ceremony, Aliko Dangote, president of Dangote Industries Limited, remarked that the facility marks the beginning of

a new journey in the self-sufficiency in refined petroleum products and exportation. Acknowledging the current fuel crisis that is impacting the nation's economy, Dangote noted that the refinery would serve to change this narrative and would run at the highest effective and efficiency levels for maximum benefit for all Nigerians.

Attending the event, former Nigerian President Muhammadu Buhari said that the feat, at this time in the nation's development, represented a notable milestone for the economy and a game-changer for the downstream petroleum products sector not only for Nigeria but the entire African continent. He said that the Dangote Group has helped transform the economy from heavy import dependence to a net exporter in some critical industries including cement and fertiliser.

Godwin Emefiele, governor of Central Bank of

Nigeria, added, "In September 2013, when Dangote announced his plans for the refinery, it was estimated to cost about US\$9bn, of which US\$3bn was projected as equity investment by the Dangote Group and the balance financed through commercial loans. Due to an array of factors, the project was eventually completed with a total of US\$18.5bn with funding distributed into 50% equity investment and 50% debt finance.

"I am proud to state that the commercial loan component of the project was financed majorly by our domestic banks with the balance sourced from foreign banks. The Central Bank of Nigeria also partnered, as always, with the Dangote Group in ensuring the successful completion of the project... The Dangote Group has started repaying some of the commercial loans even before the commissioning of this facility... I am pleased to inform everyone today that, following extensive repayments, outstanding debt has dropped appreciably from over US\$9bn to US\$3bn."

While the plant began refining in June, uncertainty does still remain over its operational timelines and the supply of crude that the facility requires. However, once fully operational and with a secure supply, Dangote Industries anticipates the facility to create a market of US\$21bn per annum of Nigerian crude.

The long-awaited project has certainly captured the attention of the international oil and gas community (and beyond) and has received goodwill messages from multiple heads of state including from Ghana, Senegal, Niger, Benin, and Chad. With expectations high for the facility's future, only time will tell if it will live up to its substantial potential and change the West African oil & gas landscape as projected. ■



Image Credit: Dangote Industries



Former President Buhari cuts the tape at the commissioning of the Dangote Refinery alongside Aliko Dangote and other esteemed attendees.

Image Credit: Dangote Industries

# Achieving ESG objectives in Nigeria’s growing telecommunications market

Sherisse Alexander, chief business officer at WATT Renewable Corporation, discusses new methods being explored to power the telecommunications industry.

**M**aking a positive impact on the communities that it serves has always been at the very heart of the telecommunications industry. There are many social benefits to increasing connectivity between people – from improved access to health and education, to increased economic opportunities. The need for businesses to think above and beyond business growth and shareholder returns has increased significantly over the last several years, with the importance of environmental, social and governance (ESG) matters rising swiftly on the agenda of many Nigerian companies. Now, 79% of the N100 include ESG or sustainability information as part of their annual report.

There is both a push and a pull at play. ESG metrics are becoming increasingly important to international investors – a recent PwC survey found that four in five institutional investors plan to increase their allocations to ESG products over the next two years. But this increasing importance is also social – with 83% of consumers saying that companies should be actively shaping ESG best practices.

Almost all business leaders believe that they have a responsibility to act on ESG issues, and in Nigeria’s telecommunications industry there have been some highly creative ways of driving socioeconomic impact. MTN Foundation’s Y’ello Doctor Mobile Medical and IHS’s work with Save the Children to improve access to better education in North-Eastern Nigeria are just two excellent examples.



Image Credit: WATT Renewable Corporation

Sherisse Alexander is the chief business officer at WATT Renewable Corporation.

“In Nigeria’s telecommunications industry there have been some highly creative ways of driving socioeconomic impact.”

SHERISSE ALEXANDER, CHIEF BUSINESS OFFICER AT WATT RENEWABLE CORPORATION

## Balancing growth with ESG

However, one of the biggest challenges that business leaders face in achieving ESG impact is how to balance it against growth targets and shareholder expectations. Over recent years, the telecommunications industry has experienced a high level of growth. There are now more than 225 million active mobile phone subscribers in Nigeria according to the Nigerian Communications Commission and the number of telecommunications towers has grown to match.

Over the last five years, the deployment of third and fourth generation towers in Nigeria has grown by 73.2%. Towercos are rapidly making network upgrades and extensions to provide a better service to customers, and to gain market share. With the introduction of 5G last September, this trend will only continue. At present, only 13 cities are covered by 5G, but MTN Nigeria is targeting 40% coverage by 2025 – an increase its competitors are no doubt planning to match.

## Powering communications with solar

While diesel generation was historically the only choice for creating a relatively reliable power supply for towers, a hybrid solar and storage solution is becoming an increasingly popular option. Naturally, a solar solution supports towercos and mobile network operators to meet mandates to reduce carbon emissions. However, it has several additional benefits.

As diesel no longer needs to be bought and transported to site, a significant cost and time saving is

achieved. Further, by applying AI-enabled remote monitoring and automation, the operation and maintenance staff gain insights that keep them ahead of any potentially outage-inducing failures before they happen. Altogether, the business case for solar instead of diesel is compelling. What's more, it has the potential to create even greater socio-economic value by extending a tower's sole purpose beyond sending and receiving signals.

**Reimagining the tower role**

As with almost all tower power solutions, there is an element of redundancy built in to ensure the tower's power demands are always met. The same is true for a hybrid solar and storage solution. Any residual power is first used to charge the tower site's batteries. However, oftentimes, there is further residual power that can be offered to the community at a subsidised rate. What that power is used for will depend on the individual needs of the community.

For some communities this model has brought light to villagers for the first time, while others are benefiting from improved access to education, healthcare, and digital banking. In Kano State, the residual solar power from one of WATT's telecommunications power solutions is being used to electrify a market, supporting a variety of small traders, while at another tower the power is used to offer small device charging. American Towers has a similar ESG initiative that fosters Digital Communities around the base of its towers, supporting people of all ages to benefit from "access to the Internet through digital devices, educator-led instruction, and self-guided kiosks."

**Improved quality of life**

With more than 50,000 towers across Nigeria and counting, the potential ESG impact of this approach is huge. Many towers are in rural or semi-rural areas which typically have the most economically disadvantaged and underserved communities. As such,

subsidised power has the potential to improve the quality of life for hundreds of thousands of people.

Telehealth, for example, has taken off rapidly since Covid-19 – offering a potentially lifesaving service... but only to those that can access it. There was a particularly passionate telecommunications

CEO who established virtual healthcare sessions so that nurses in his home village could connect remotely with doctors. This would not have been possible without both power and connectivity. Imagine if this approach was taken many more times over.

Providing connectivity and power

together will be increasingly important as digital banking becomes more popular in Nigeria. Providing subsidised power to communities to improve digital banking would improve access to finance, giving people more independence to choose how they manage their money and increase opportunities for businesses.

**The financials stack up**

ESG benefits aside, what is particularly compelling about choosing to power telecommunications through a hybrid solar storage solution and then providing subsidised power to the local community is the financials.

Most alternatives, such as nano and microgrids, are not financially viable without their own subsidy in place – whereas the residual power from tower sites is already there. Thousands of towers are being newly constructed, upgraded or replaced across Nigeria in the next few years. That money is already accounted for within the business plan and very little further investment would be needed to make this potential ESG impact a reality.

But why limit this potential to just the residual power? Sustainable development partners could access an exceptionally affordable way of fully electrifying a community to the modern energy minimum by investing in the addition of a few solar panels to an already planned installation. Communities would feel a sense of ownership and an urge to protect the asset from damage and theft – creating a layer of security for tower owners and operators.

Over the next few years, the telecommunications industry will be increasingly pressured to meet both growth and ESG objectives. By reimagining the role of the tower site as a community asset, the industry can drive socioeconomic value across numerous metrics, from healthcare and education to new business ventures and finance – meeting ESG objectives while also increasing network penetration and quality. ■

“ Providing connectivity and power together will be increasingly important as digital banking becomes more popular in Nigeria.”

SHERISSE ALEXANDER, CHIEF BUSINESS OFFICER AT WATT RENEWABLE CORPORATION



Image Credit: Adoba Stock

A solar solution can support towercos and mobile network operators to meet mandates to reduce carbon emissions.

## BONDLYNX CAN MAKE PEROVSKITE SOLAR CELLS MORE EFFICIENT

New research has demonstrated that perovskite solar cells (PSCs) can be made more efficient.

The study, published in sustainable energy research journal *Joule*, demonstrated that PSCs treated with BondLynx can achieve greater efficiency and stability.

Bondlynx is a small-molecule bonding agent manufactured by Canadian chemicals company XlynX Materials.

Compared to conventional silicon solar cells, PSCs are lightweight, flexible, cheap to produce and easy to manufacture.

The results showed that after 200 hours of continuous operations under 1 sun illumination (1KW/sq m), untreated control PSCs exhibited a 35% loss in power conversion efficiency. In comparison, BondLynx-treated PSCs retained nearly 99% of their initial efficiency even after



Image Credit: Adobe Stock

**PSCs are cheap to produce and manufacture.**

1,000 hours of continuous illumination.

Moreover, when exposed to constant heat

(60°C), untreated PSCs demonstrated poor thermal stability, losing 27% efficiency after 600 hours of continuous operation. In comparison, BondLynx-treated PSCs maintained nearly 98% efficiency under the same conditions. Overall, BondLynx-treated PSCs achieved a high certified efficiency of over 24% with long operational stability over 1,000 hours.

According to XlynX, the reason BondLynx is effective is because it forms chemical covalent bonds with the organic components in PSCs to strongly immobilise them, thereby reducing the losses of efficiency, stability, and performance typically seen in PSCs. With no significant reduction in performance over the course of the study, the stability improvements realised by BondLynx are expected to extend far beyond the 1,000 hour mark.

## EST-FLOATTECH RECEIVES CERTIFICATION FOR MARITIME APPLICATIONS

EST-Floattech's Octopus Series Battery System has received Lloyd's Register and Bureau Veritas Type Approval for maritime applications.

According to EST-Floattech, the first projects for this newly designed and assembled marine Energy Storage System are already being delivered.

Both Lloyd's Register and Bureau Veritas witnessed the rigorous tests that EST-Floattech conducted on the Octopus Series Battery System to ensure its compliance with the latest industry standards and regulations.

The large and experienced classification societies approved the tests performed and showed by granting marine Type Approval that the safety and performance of the system meet their standards.

Marine Type Approval for a battery system from neutral third-party organisations such as DNV, Bureau Veritas, and Lloyd's Register is important for shipowners and shipbuilders to ensure that the products they are considering meet the highest standards in the industry.

EST-Floattech, established in 2009, specialises in developing, producing, and installing reliable, sustainable, and safe battery systems for maritime applications. The in-house developed software and hardware is integrated to assure reliable operation of the Octopus Series battery system on board.

More than 200 projects employ EST-Floattech's Green Orca and Octopus Series, which involve ships that have been sailing with their batteries for more than a decade.

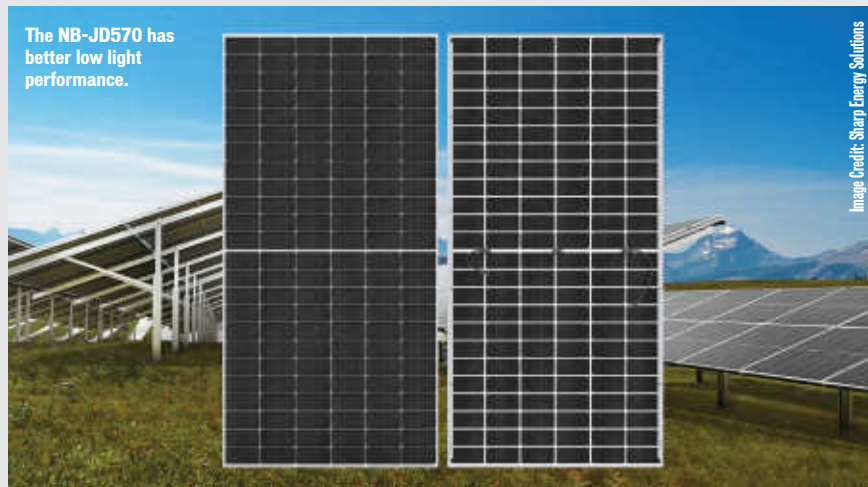
## Sharp Energy Solutions unveils enhanced glass solar panel

Sharp Energy Solutions Europe has announced the launch of its newest Bifacial TOPCon (Tunnel Oxide Passivated Contact) Solar Panel with 570 Watt, called the NB-JD570. It is a Glass solar panel with N-type 144 M10 half-cells featuring 16 busbars. The N-Type TOPCon module bifacial ratio is up to 80% with a module efficiency of 22.07%.

The new solar panel includes several benefits of N-TOPCon technology, including higher power and efficiency, better low light performance and higher bifaciality. The higher power and efficiency of the N-TOPCon technology results in improved energy production, making the panel more cost-effective for users. In addition, the enhanced low-light performance ensures that the panel continues to produce energy even in sub-optimal lighting conditions, increasing its overall efficiency.

It also features a low temperature coefficient of -0.30%/°C for power output, ensuring high performance at elevated environmental temperatures, a factor which is increasing in importance as a result of climate change and the resulting rise in temperatures. It is also LID-free, reducing potential power loss during its lifespan.

The safety, quality and durability of the panel have been recognised and IEC seals have been awarded (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. The module is covered by a 30-year linear guarantee on the nominal power output and a 15-year product guarantee, for those within the EU and various other countries. This guarantee starts from delivery of the panel to the final customer.



The NB-JD570 has better low light performance.

Image Credit: Sharp Energy Solutions



## HD Hyundai Infracore seeks to expand DEVELON brand in MEA

HD Hyundai Infracore has announced that it is targeting the Middle East and Africa (MEA) market with its new brand, DEVELON, formerly known as Doosan Construction Equipment.

The company recorded revenue of US\$330mn last year in the MEA region, which is a sharp increase of 116% compared to US\$150mn in 2020.

The number of machines sold has also exceeded 2,400 units, marking a 60% increase over that in 2020, mainly due to the company's focus on securing large scale customers with new advanced technology equipped machine launches and customised services.



Image Credit: HD Hyundai Infracore

DEVELON wheel loader to exported to Angola.

The construction equipment market volume in MEA increased from 16,720 units in 2020 to 32,786 units in 2022, which shows that the market is experiencing a steep growth with a 96% increase over the past three years.

HD Hyundai Infracore has recently established a new African office in Accra, Ghana, to expand its network and secure more customers in western and central Africa where the market is growing. As a result, the company has signed supply contracts for a total of 29 new machines in the Republic of Angola which include 20 excavators and nine wheel loaders.

This is the largest contract for the company since starting business in Angola and takes up around 8% of the country's total market when considering its average market volume is around 370 units per year. The machines will be supplied to one of the largest construction companies in Angola and used for building hydroelectric power dams.

With the launch of its new brand, DEVELON, HD Hyundai Infracore also hosted its '2023 MEA Dealer Conference' in Cairo, Egypt, to discuss sales strategies. The dealer conference will be the first regional meeting since launching DEVELON, where over 90 key stakeholders and 26 MEA dealers attended.

Seunghyun Oh, HD Hyundai Infracore president, commented, "Along with the new brand launch, we will work on developing different next generation technologies and strengthen the current line up to maximise our sales capacity in order to reach our goal of becoming a Global Top 5 player by 2025."

## CATERPILLAR EXPANDS ITS RECLAIMER LINE

Caterpillar has unveiled its new RM600 and RM800 reclaimer/stabiliser product line. The RM600 has up to 17% greater power than the RM500B due to its powerful turbocharged Cat C18 engine. The RM800 produces up to 23% and 42% more power than the RM600 and RM500B, respectively.

For consistent cutting and mixing, these reclaimer/stabiliser models use critical rotor system components from Cat cold planers. The machine can flush-cut on the right side thanks to its belt-driven rotor drive mechanism. The new System K rotor provides higher material quality on a variety of applications by utilising the same cold planer fastener-free, dual-taper toolholder, and base block components. Exit and return-to-cut functions make use easier, take up less time, and guarantee that the machine keeps the same depth of cut. Apart from this, the new models contain standard and optional cameras, which augment performance and safety.

## BENTLEY SYSTEMS ANNOUNCES PROGRAMME TO DEVELOP IOT INNOVATIONS FOR STARTUPS

Bentley Systems Inc. has announced the launch of iTwin Activate, a 20 week co-development programme designed to accelerate early-stage startups in infrastructure engineering software.

The programme is organised in cohorts aligned to industry sectors and is managed by Bentley iTwin Ventures, a US\$100mn corporate venture capital fund that fosters innovation by co-investing in startups and emerging companies. By collaborating with Bentley technology, the iTwin Activate programme assists startups in identifying and developing market-relevant solutions. This is done by providing financing for programme, assistance, and access to Bentley executives for commercial insights.

The first cohort included four startups: Spatial Data.AI, Virtual Technology Simplified, Rebase Energy, and SurPlus Maps. Spatial Data AI's solution automates the processing of LiDAR data from point clouds into ready-to-use vector formats, including SPIDAcad models and various other CAD formats. This project focused on building a connector to Bentley's pole analysis solution (SPIDAcad).

iTwin Activate's second cohort will focus on solutions for Infrastructure Internet of Things (IIoT) use cases and is open for all interested parties to apply. Cory Baldwin, Bentley's vice-president of Infrastructure IoT, described his goals for this cohort. "We are particularly interested in working with teams focused on creating predictive analytics or deriving insights from the sensor data federated in the iTwin Platform, as well as those creating novel sensors or sensing technologies that can be brought into our digital twin ecosystem as part of a software-led motion."

## BRIEFS



Image Credit: Yanmar



Yanmar's José Cuadrado.

### Yanmar gets new MD

José Cuadrado has been appointed managing director of Yanmar Compact Equipment's Europe, Middle East and Africa (EMEA) organisation. In his new role Cuadrado is responsible for further developing the regional capabilities, as well as driving customer success. Cuadrado brings with him a wealth of relevant construction, industrial and automotive experience. A Spanish national, Cuadrado holds a master's degree in Business & Economics from University of Valladolid (Spain).

### RHEINZINK to reduce carbon footprint by 50%

Image Credit: RHEINZINK



Low carbon zinc ingots will be produced using renewable energy.

Zinc manufacturer RHEINZINK said its latest product line prePATINA will reduce the company's carbon footprint by 50%. The electric energy for producing low carbon zinc ingots is generated without CO<sub>2</sub>, from resources such as water and wind power. The new products called ECO ZINC, help build up a patina, protecting the material making it long-lasting for generations. These products will be perfect for roofing and facade cladding.

# Strengthening railways with steel sleepers

Steel sleepers are being introduced to upgrade a railway line at a bauxite mine in Guinea.

Earlier this year, British Steel, a leading steel manufacturer, announced that it had won its largest ever order for rail sleepers with a major export deal in West Africa.

This entailed a contract to deliver 20,000 tonnes of its 436 profile steel sleepers to the Guinea Bauxite Company (CBG) to upgrade a railway line at a mine. With the country estimated to possess more than a quarter of the world's supply of bauxite, the deal will help upgrade its existing freight lines in order to meet increased export capacity.

To fulfil the contract, the UK manufacturer has partnered with Trackwork, which processes the rolled sleeper into its finished form alongside Pandrol, which is providing the railway fastenings to secure the sleepers.

Upon being selected, British Steel's export sales manager, rail, Jérôme Bonef, exclaimed it was a great achievement given the high level of competition faced to secure the contract and added that the company's steel sleepers are the "perfect technical solution" to the challenges facing rail operators in the region.

Providing more detail to *African Review*, Bonef explained that the company's steel sleepers have a number of advantages that set them apart from the competition and similar products made of different material. For instance, they are far stronger and more durable than wooden sleepers that are traditionally used in African regions and they are lighter and easier to stack than concrete equivalents, making transportation much more efficient. Indeed, according to British Steel, road vehicles can carry three times more steel sleepers than concrete sleepers, meaning lower logistics costs, and they require less ballast than traditional



Image Credit: British Steel

Steel sleepers have tangible advantages over alternatives such as wood and concrete.

concrete sleepers as the body of ballast within the sleeper provides the necessary support to distribute the load.

Bonef was also keen to highlight the environmental benefits, noting that the steel sleepers are 100% recyclable, making it easier for companies to hit their sustainability targets.

He added, "When combined with our technical solution, commercial offering and logistic track record, it led to a clear value choice for the Guinea Bauxite Company to partner with British Steel."

Giving an insight into the specifics of the agreement, Bonef remarked, "The sleepers will be provided throughout 2023 and into the first half of 2024. The steel sleeper plate

will be manufactured at British Steel in Scunthorpe, UK, before being pressed into shape by Trackwork. The Pandrol components come from the UK and Australia. All products will be delivered into Guinea via the customer's specific logistics centre in Belgium. All components have been designed to comply with the customer specifications for train speed, axle weight and life cycle benefits."

## Further opportunities

Concluding, Bonef highlighted that the contract is continuing the company's long history of supplying rail and sleeper components. He said, "We have a specific trading relationship with the Guinea Bauxite Company and were monitoring timings for this mine expansion. The

supply chain is working very efficiently and the project deliveries are on time and budget. We feel that this will lead to new opportunities for steel sleeper and rail supply within Africa and across other international mining communities."

The company's steel sleepers have enabled railways around the world to transport heavier loads with reduced maintenance costs and a lower carbon footprint. As the worldwide demand for bauxite continues to rise (primarily due to its use in the production of aluminium), by enhancing its infrastructure in a similar way, Guinea is looking to corner more of the market and capitalise on this opportunity to encourage further development. ■

# Bridging the infrastructure gap

Across the continent, a number of bridge projects are being pursued in order to reduce the infrastructure deficit.

**A** lack of key infrastructure such as bridges is a well-known issue which persists in checking African business development, limiting trade and increasing traffic congestion. Indeed, a report by Wilson Center has indicated that weak infrastructure can add 30-40% to the costs of goods traded among African countries and constrain economic growth by 2% every year across the continent. In addition, weak infrastructure can serve as a deterrent to attracting foreign investors.

However, efforts to make up this deficit are determined and few days go by without a story surfacing on bridge building endeavours. Currently, there are a range of remarkable projects – in varying scope and sizes – aiming to revitalise local transportation networks. These projects bring hopes of renewed economic prosperity and offer opportunities to the range of contractors, equipment suppliers, consultants, and more that are required to deliver them.

## Here and there

One of the most noteworthy stories in recent months has emerged from Tanzania where the Government is reportedly planning to build a bridge connecting the Dar es Salaam with the islands of Zanzibar.

The proposed landmark bridge project would span approximately 50 km and cost an estimated US\$2.7bn to deliver (which would be delivered through a public-private partnership). Talks are reportedly underway between the government and a Chinese contractor. While it would certainly promote trade and provide a safe, fast way of transporting people and goods between Dar es Salaam and Zanzibar, reservations about the economic viability remain.

In Lagos, Nigeria, momentum



The Pont de l'Enfance bridge in Cameroon.

Image Credit: BESIX

continues to build for the Fourth Mainland Bridge project, a proposed 37 km structure connecting Lagos island by way of Lekki, Langbasa and Baiyeku towns and across Lagos Lagoon to Itamaga in Ikorodu. Featuring an expected three toll plazas, nine interchanges and an eco-friendly environment, CCECC-CRCCIG Consortium emerged as the preferred bidder for the project last year with Mota-Engil, CCCC & CRBC consortium, as the reserved bidder. When presiding at the inauguration of the newly-upgraded Oba Sekumade Road, Lagos State Governor, Babajide Sanwo-Olu, expressed that in the coming months the groundbreaking for the Fourth Mainland Bridge would be undertaken and the Government is committed to delivering this project to completely open Ikorodu to the world.

International construction group Besix had reason to celebrate in Gabon after a consortium led by the company signed a provisional agreement for the design and build of two flyovers and four pedestrian bridges in Libreville as well as a new Ebel-Abanga steel bridge. The consortium – made up of Besix, Matiere and MBB – will, once finalising is complete, begin the

construction work which is expected to last for up to 36 months. BESIX will be in charge of all civil works and Matiere, through its Belgian subsidiary, MBB, will be in charge of the supply of all the steel structures. Besix and Matiere have previously partnered for the construction of the Pont de l'Enfance bridge and the Mungo bridge in Cameroon.

A Besix representative reported to *African Review* that while there have been no major developments since the announcement, both parties are working on financing and impact studies are ongoing.

Elsewhere, in Sierra Leone, President Julius Maada Bio turned

the sod for the construction of the Garwama, Gendema Bridge, connecting the Simbaru and Wandor Chiefdoms in the Kenema District. The ceremony was conducted after the Government signed a US\$30mn grant contract with Sino-Hydro Bureau 9 JV Construction Company to replace the 50-year-old ferry service as the only means of transportation linking Gendema with other communities. The President expressed that when completed, the transport link would ease the burden of movement on school pupils, farmers, business people and connect them with the rest of the country. ■



Sod turning for the construction of the Gendema bridge in Sierra Leone.

Image Credit: Sierra Leone State House

# A new age for bridge planning

Nemetschek Group has outlined why there needs to be a digital revolution in bridge planning.

Image Credit: Adobe Stock



According to Kaufmann, the solution to efficient bridge construction lies in more digitalisation.

**W**riting in a blog contribution, Stefan Kaufmann, product manager BIM strategy & new technologies at ALLPLAN, a Nemetschek company, outlined how the delivery of bridges is often anything but collaborative, with planning data often coming in from different sources and in various formats from different participants. This can mean that individual bridge models (geometric, static, structural and detailed models for tension cables for example) do not match exactly and multiple models are worked on in parallel, by globally distributed teams.

Bridges, however, are very complex structures and any modification process can be time-consuming while possible inconsistencies and misinformation can run through the planning phases. This can ultimately delay construction, inflate costs and enlarge the carbon footprint of the project.

## A new kind of bridge construction

To overcome these challenges, Kaufmann wrote, a digital revolution in bridge planning is required. According to the product manager, the challenge with bridges lies in their structure; geometrically complex and the design must be adapted to the alignment and ground. With traditional 2D tools, planning changes had to be repeatedly updated manually in hundreds of drawings and calculations, resulting in planning errors and inconsistencies. Therefore, many industrialised countries began making use of building information modelling (BIM) mandatory. However, there were initially no BIM-enabled design tools suitable for bridge construction.

It is time, expressed Kaufmann, to usher in a new phase of bridge construction. This requires an end-to-end, model-based planning

solution that does not rely on thinking in silos and two-dimensional plans, but on collaboration and 3D models. This not only ensures quality, deadlines and cost targets are met, but can also be used to reduce material consumption and thus lower CO<sub>2</sub> emissions. An optimal solution is therefore based on a common, detailed, and fully parametric 4D model that not only represents the geometry of the bridge in 3D, but also supplements it with the construction sequence and the structural analysis and verification. Furthermore, it should combine all the information in such a way that changes to the planning model can also be implemented quickly, consistently, and intuitively at any time. This means that multiple models or versions do not have to be created, calculations can be derived directly from the model, and planning errors can thus be avoided.

Parametric design solutions, Kaufmann continued, are revolutionising bridge construction by relying on communication and collaboration instead of silo thinking and fragmentation. This not only enables cost savings, but also a massive reduction in planning times. More projects can be completed in less time with the same number of employees. In view of the shortage of skilled workers, innovative IT solutions make an important contribution to accelerating the processing of the investment backlog in infrastructure construction.

Kaufmann concluded that the solution in bridge construction, not only in terms of construction methods or materials, lies in more digitalisation – in model-based, collaborative planning and in innovation. The digital transformation of bridge planning is the key to a new kind of bridge construction. ■

# Breaking the mould

A roundup of the latest excavator innovations enhancing the performance of a staple piece of construction and mining machinery.

**W**hen selecting an excavator for construction and engineering projects on the continent, it is paramount to pick a machine that will be able to get the job done, do so efficiently, and at the right price. While, due to the relentless effort given by talented engineers, in today's world most machines arriving on the market are more than capable to meet these requirements, there remains space for improvement and manufacturers remain steadfast in their pursuit of maximising excavator performance.

Recently, Goscor Earthmoving Equipment outlined why the SANY range of 20-ton excavators represent some of the most powerful and durable machines on the market. The SANY SY210C and the SANY SY215C models, with operating weights of around 20,000 kg, are designed for a range of construction and excavation tasks.

Specifications of the machines include bucket capacity ranging from 0.9-1.2 cu/m, a maximum digging depth range from 5.9-6.5 m, and a boom and arm length from 5.5-6.5 m. Powered by a Cummins or Isuzu engine, which provide high power and torque for efficient digging and loading operations, they benefit from advanced

fuel injection technology, ensuring fuel efficiency, reduced emissions and minimal noise

Image Credit: Hitachi Construction Machinery



**The EX5600-7 ultra-large hydraulic backhoe excavator.**

Proof of concept tests for Komatsu's new hydrogen excavator began in May 2023.



Image Credit: Komatsu

pollution. Furthermore, the excavators are designed with easy access to key components for maintenance while the operator's cab has been delivered complete with air conditioning, adjustable seats and a high-resolution display screen.

Goscor has highlighted their pride in distributing these machines to their customers and recognises SANY as a strong choice for those prioritising comfort, safety and high-performance. Indeed, the excavators that the brand continues to make available put it as a reliable and efficient choice for those in need of such a machine.

## Hitachi strengthens offering

Looking to enhance the durability of its machinery, Hitachi Construction Machinery has announced the development of an enhanced boom and arm for its range of ultra-large hydraulic excavators.

According to the company, the durability has been improved by expanding the applicability of steel castings to the boom and arm connecting part and is applicable to backhoe front excavators. Serviceability has also been improved by equipping the boom with an access hole that can be opened and closed with a bolt for easier inspection and welding strength and part of the thickness of the boom and arm has also been reinforced. This results in reduced repair downtime of the equipment, lower maintenance costs and an extension of the service life by up to 1.5 times compared to previous models.

The newly designed boom and arm will be applied as standard equipment to the EX5600-7 backhoe excavator from March 2025 before being expanded to other applicable models. In the meantime, tests will be carried out from August 2023 under actual operation loads at Rio Tinto iron ore mine in Australia.

The initiative is partly being driven by the company's ambition to minimise its impact on the climate. Hitachi has noted that the difficulty

of remanufacturing the booms and arms of ultra-large hydraulic excavators and the need to repair cracks when they have materialised has caused bottleneck in reducing CO<sub>2</sub> emissions and extending the service life of machines. With the improvement to durability, this bottleneck should be eliminated at no expense to operating performance.

## A new Komatsu concept

In a demonstration of its own commitment to minimising the environmental impression of its business – for which it is targeting a 50% reduction in CO<sub>2</sub> emissions from use of its products and production by 2030 – Komatsu has developed a new concept medium-sized hydraulic excavator.

The model is unique in that it combines a hydrogen fuel cell and Komatsu-developed key components to achieve carbon neutrality at construction sites. The company is advancing proof of concept tests started in May 2023 in an attempt to accelerate its efforts to embark on the commercial production of medium-sized and large construction equipment powered by hydrogen fuel cells in the near future.

For the new concept machine, Komatsu adopted a hydrogen fuel cell system and hydrogen tank, which were produced by Toyota Motor Corporation, on Komatsu's medium-sized hydraulic excavator. In addition to Komatsu's comprehensive control technology, the combination of Toyota's hydrogen fuel cell system and Komatsu key components, Komatsu is working towards zero exhaust emissions and a significant reduction in noise and vibration, while delivering the same digging performance and high operability as engine-driven excavators.

While it may be some time before the Komatsu hydrogen-powered excavator becomes a familiar sight, it does provide an insight into the kind of machines that may be making their mark across the continent in years to come. ■

# Rethinking construction machinery

According to sector consultants from abcg, a business consulting and services company, the race to electrify construction equipment is just the first step in a longer campaign to redefine how machines are designed, look, and operate.

The Volvo DD25 Electric asphalt compactor made its debut at CONEXPO-CON/AGG earlier this year.



Image Credit: Volvo CE

Writing in a detailed opinion piece, abcg consultants Alan Berger and Carl-Gustaf Goransson proposed that the universal competence of machinery is posing a problem to leading manufacturers and their ambitions to maintain their premium positions over 'lesser' brands.

"Construction equipment has been on a path towards commoditisation for many years, simultaneously increasing the importance of the dealer-customer relationship and challenging the

premium positioned OEMs to find new ways to demonstrate their value to customers.

"Indeed, we have commented on this topic several times in recent

years, noting that the difference in performance and fuel efficiency between different brand and model machines has been declining. With only a few exceptions, increments in

these key buying criteria now tend to be small, and price competition has been intense when supply is in balance with demand."

Now, change is afoot and one of the most obvious developments is the incorporation of alternative energy sources to power products. By the consultant's count, there are more than 20 different potential energy sources that could make up the global portfolio and electric products in their various forms will represent a large part of the change.

"So, why are we talking about

“Construction equipment has been on a path towards commoditisation for many years.”

ABCG CONSULTANTS

electric products and commoditisation at the same time? We believe that electric machines bring the potential to forestall the complete commoditisation of the bulk of the construction equipment market for at least a decade.

“The overall commoditisation effect that we see in the traditional diesel products is the result of 70+ years of refinement of the same basic technologies – diesel engines applying power through mechanical geartrains and hydraulics. After seven decades of refinement of this package, even with the advent of software control, it is increasingly

difficult to come up with something that the competition has also not thought of. It’s not just the powertrain, even the fundamental shape of machines is dictated by the physical constraints that these technologies bring.”

**Outside the box**

For example, the abcg representatives considered the backhoe loader, a machine where the loader is wrapped around the engine that sticks of the front of the machine, leaving the rear the only logical place to put the backhoe loader.



Image Credit: Case Construction

Case Construction unveiled the 580 EV, fully-electric backhoe loader at the end of 2020.

“The tractor part itself is constrained by the need to fit an engine, transmission, and axle to drive the machine, while leaving a comfortable place for the operator to sit. So, what happens when you remove the diesel engine and its need to have a relatively straight line to the axle, which needs a straight line to the wheels? While mechanical energy needs to route through rigid gears and shafts and hydraulics through relatively stiff hoses, electrical energy is transmitted through wires that can bend around corners. Perhaps even more importantly, there are countless ways to control these electric systems through software.”

Currently, electrified machines are still in their infancy and most simply substitute the diesel engine for a battery and some motors. As a result, there has been little thought put into redesigning the fundamental structure of these machines and exploit the

performance potential that a more software-controlled machine could offer. In addition, the pair explained, battery electric componentry is quite immature and the opportunity to optimise this creates potential for a new race to develop the best machine for each application.

Berger and Goransson concluded that electric’s relative simplicity compared to ICE combined with the consequent lower investment required means that barriers are falling. Although, the largest OEMs are aiming at gaining first mover advantage and trying to maintain or improve their current position in the new hierarchy.

What is also clear is that Chinese OEMs hold a significant lead in electrification and while they have not been able to make significant progress penetrating certain regions, the rewriting of the machinery rulebook could be the opportunity for them to gain a significant market share foothold. ■

Image Credit: JCB



In 2019, JCB launched its first-ever fully-electric mini excavator, the 19C-1E.

Image Credit: Bobcat



At its recent Demo Days, Bobcat showcased the all-electric S7X compact track loader.

## BOBCAT DISPLAYS BROAD PORTFOLIO

At this year's Bobcat Demo Days, customers, dealers and press from across Europe, the Middle East and Africa (EMEA) witnessed the latest solutions that Bobcat has to offer. The wheel loaders were just some of a number of innovations on display, that represented the significant growth the company has achieved in the past five years.

Demo Days 2023 provided a unique opportunity to try out the full range of Bobcat wheeled and tracked loaders, mini-excavators, telehandlers, light compaction products and attachments in working conditions. In addition to this lineup, the company also showed how the recently acquired Doosan industrial Vehicle forklifts and Doosan Portable Power products will look in Bobcat white and orange branding.

Front and centre of the event was the smaller



Image Credit: Bobcat

The L35 and L40 wheel loader concepts.

and larger sized wheel loader models, developed in line with Bobcat's commitment to become a compact wheel loader full liner in the near future.

The new L95 compact wheel loader will be the next addition to the Bobcat wheel loader lineup, following on from the L85 machine launched in 2021. The L95 is powered by a Bobcat 75 HP engine and offers a top speed of 40 km/h and an increased lift capacity.

Bobcat took the opportunity to test market interest with two new wheel loader concepts in the form of the L40 and L35. The former weighs less than 2.5 tonnes and is designed as a powerful load and carry, application-focused machine. The L40 is designed for heavy duty applications such as road maintenance and construction. The L35 represents a new small articulated loader concept machine that is an extension of the existing portfolio to cover the market segment for high performance machines which are easy to transport on a trailer.

"With the new L95 loader and the smaller wheeled loader concepts, we are once again demonstrating our commitment to offer the most complete loader portfolio in the world," said Jaroslav Fiser, product line director loaders for Doosan Bobcat EMEA.

## JOHN DEERE EXPANDS P-TIER WHEEL LOADER LINEUP

Addressing the needs of customers looking for compact solutions that provide enhanced maneuverability, stability and power, John Deere has expanded its Performance Tiering offerings with the shift from L-Series to P-Tier for the 244, 324 and 344 Compact Wheel Loader models.

The new P-Tier compact wheel loaders will carry over all L-Series features and will introduce new productivity-enhancing qualities, including standard ride control in base models and optional factory-installed features, including an auto-reversing fan option. Additional optional features include attachment assist controls, which include integrated electrical (three-pin) controls for attachments and combined creep control and throttle lock.

"As we continue to make the shift from past generation machines to our current generation of Performance Tiering models, we aim to keep the same features our customers know and trust on the L-Series models, with the added benefits of new productivity enhancements only available on the P-Tier machines," said Luke Gribble, solutions marketing manager, John Deere.

Previously offered as an optional upgrade on L-Series models, ride control is now standard on all P-Tier compact wheel loaders.

Ideal for customers moving materials over long distances, or on hard surfaces, ride control cushions boom movements during transport, acting like a shock absorber to help minimise material spillage. Increasing operator comfort and productivity, this feature is applied with a flip of a switch in the cab and can be set to automatically engage and disengage at a predetermined speed.

## Greater flexibility with Parker's 85CE-PDP Crimper

Parker Polymer Hose Division Europe, a division of Parker Hannifin, a global leader in motion and control technologies, has launched a flexible crimper power unit (85CE-PDP).

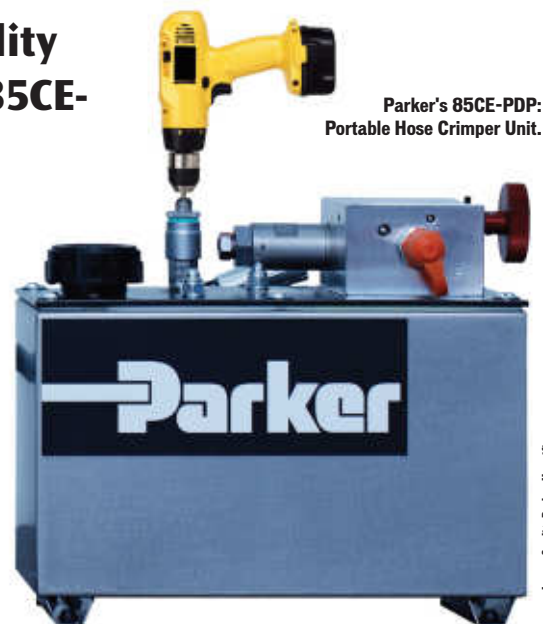
The new unit joins the wide array of portable crimper power units from Parker, to increase productivity and versatility for smaller hose assembly needs, with more flexible options for customers.

Parker's new 85CE-PDP crimper power unit offers an efficient and flexible way of crimping hose anywhere, independent of power and air supplies. This will make hose crimping far more productive, as it will be possible to crimp hose electrically rather than manually.

The 85CE-PDP works with any commercially available cordless screwdriver. This makes it flexible in use, especially in agriculture, forestry, construction and mobile hydraulic applications. It can be used anywhere, without the need for special power units, other power sources or air supply. Together with existing crimping tools from Parker, Karrykrimp 1 and 2, it provides even more flexible and productive options for crimping hose fittings.

The 85CE-PDP crimper power unit offers a flow rate of up to 2.2 (0.68) l/min and a nominal pressure of 70 MPa (700 bar). The pressure can be measured with the integrated pressure test point. It has a pre-set pressure relief valve at 700 bar, which is manually adjustable, and a Hex SW 13 mm drive shaft. The 85CE-PDP can be operated in a temperature range from +10°C to +35°C. With an oil volume of 2.5 l, the unit has a weight of 9 kg, meaning it can be carried easily with the integrated shoulder strap.

"With our enhanced portfolio of crimper power units, Parker Polymer Hose Division Europe can service all kinds of crimping demands. Together with the Karrykrimp 1 and 2, our offer includes tools to maximise productivity and flexibly crimp hose wherever needed," said Thomas Troeller, product manager fittings, Parker Polymer Hose Division Europe.



Parker's 85CE-PDP: Portable Hose Crimper Unit.

Image Credit: Parker Hannifin



## TRELLEBORG UNVEILS NEW MFS NEXUS MECHANICAL FACE SEAL

Trelleborg Sealing Solutions has unveiled the MFS Nexus mechanical face seal for improved performance and increased service life.

Light and flexible, the new MFS Nexus seal is ideal for drive systems, gearboxes, and undercarriages in construction and agriculture applications where excavators operate at low rotational speeds and the risk of wear and ingress of contaminants is high. The seal is also capable of protecting the bearings of machines used for other heavy-duty work, including tunnel boring and mining.

Nicolo Olivetti, product manager at Trelleborg Sealing Solutions, said, “The MFS Nexus mechanical face seal delivers exceptional performance under some of the most aggressive working conditions. Our team of engineers has worked closely with customers to determine where points of failure most often occur and what can be done to eliminate unexpected downtime.

“By using the new MFS Nexus mechanical face seal, excavators and other machinery can continue working without risk of damage or contaminant ingress, issues that can not only delay projects but can also cost businesses more



Image Credit: Trelleborg

**Effective sealing for low-speed rotating applications in construction and tunnelling equipment.**

in servicing and repairs over time. Offering this level of durability represents a step-change for heavy industry.”

The simplified design of the MFS Nexus seal incorporates two spring steel rings mounted face-to-face on a lapped seal face within specially designed housings, as well as two elastomeric O-Rings to center the metal rings within the housings. The seal protects the inner shaft and other important components from debris while also preventing inner lubricants from escaping.

The unique light and flexible spring steel material used for the housings is an alternative to traditional bearing steel and cast-iron rings,

providing flexibility against mud compression which over time can degrade components and shorten an asset’s expected working life. It also has increased sealing performance for applications where peripheral speed is limited.

In-house testing of Trelleborg’s MFS Nexus seal has demonstrated exceptional performance in tough conditions. After 2,000 hours submerged in mud at rotational speeds of one meter per second, the seal continued to work effectively without any sign of failure. Further testing also revealed minimal contamination to the machine’s oil lubricant, with the presence of iron, lead and other impurities well within acceptable limits.

The MFS Nexus mechanical face seal is easy to install and does not require any specialist tools due to its conventional geometry. It operates at speeds of up to 1.5 meters per second at temperatures up to +200 °C/+392 °F and up to 3 bar as differential pressure. External diameters range from 50 to 460 millimeters. Elastomeric O-Rings are available in a range of material types including Nitrile Butadiene Rubber (NBR), Hydrogenated Nitrile Butadiene Rubber (HNBR), Silicone (VMQ), and Fluoroelastomer (FKM).

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## Komatsu and Toyota to develop autonomous light vehicle

Komatsu Ltd and Toyota Motor Corporation have announced the launch of a joint project to develop an autonomous light vehicle that will run on Komatsu's Autonomous Haulage System. To realise further safety and productivity improvements in mines by running autonomous haul trucks and automated ALV controlled by AHS, Komatsu and Toyota are launching an effort to jointly develop new technologies. Both companies are currently testing a concept ALV at their proving grounds, and plan to have a proof of concept at a customer site by around January 2024.



**Komatsu autonomous haul truck and Toyota concept ALV.**

Minerals and energy resources are essential in daily lives and industries. Autonomy offers the opportunity to remove people from harm's way and enhance safety. It can allow our mining customers the ability to continue the hard work of providing critical minerals despite the ongoing challenge of labour shortages in the mining industry. It can also provide additional safety measures to mine sites on which multiple pieces of equipment are operated, in an effort to reduce accidents due to human error.

Since the launch of the world's first commercial application of an AHS in 2008, Komatsu has established proven performance in various mine environments and has earned a reputation for safety and productivity.

Currently, when AHS-enabled autonomous haul trucks and manual light vehicles used for maintenance or transport are running on haulage roads at the same time, autonomous haul trucks may decrease their speed or stop when passing light vehicles to avoid possible collisions caused by human error. On the other hand, customer demand for improved productivity in mine operations when it comes to autonomous haul truck operating efficiency remains an issue.

In light of those circumstances and in an effort to solve those issues quickly, Komatsu and Toyota have joined together to accelerate autonomy in mines. Komatsu will develop a new management program for ALVs on its AHS supervisory system, and Toyota will develop ALVs running automatically under AHS control. Komatsu and Toyota share a vision for developing an affluent and sustainable society to pass on the next generation.

## THE ERA OF REINVENTION

According to PwC's 26th Annual Global CEO Survey, 41% of mining CEOs believe that their companies will not remain economically viable in ten years if they continue on their current path.

This highlights the urgent need for mining companies to find a new formula for success in the era of critical minerals. It is the most momentous change the industry has witnessed in decades, necessitating a reinvention of strategies and practices. The fiercely competitive and dynamic landscape demands a departure from yesterday's portfolios and practices to create value. The era of critical minerals presents a transformative opportunity for mining companies to adapt, innovate, and thrive in this new and challenging environment.

One shift that demands a response is the emergence of an important new player in the critical minerals market: government. After seeing rapid demand growth and risky levels of supply chain concentration, governments have formed alliances, instituted new policies and mobilised funding to secure access to critical minerals. The inflow of public funds, for example, means that miners must rethink the rates of return they can expect on mining or supply chain assets.

Then there's the urgent task of decarbonisation. Miners will have to ramp up production to meet rising demand for the critical minerals and other commodities that are required for the energy transition. But they also know they must reduce their carbon emissions. More than one-third of mining CEOs see their company as highly or extremely exposed to climate-related risks.

There is an increasing number of miners boosting efficiency with low-carbon technologies and methods, partnering with processors to produce the green metals that customers increasingly want.

## SINGIDA GOLD MINE ACHIEVES COMMERCIAL PRODUCTION

Shanta Gold, the East Africa-focused gold producer, developer and explorer has announced that its Singida Gold Mine in Tanzania has achieved commercial production.

Eric Zurrin, chief executive officer of Shanta Gold, commented, "I am delighted to announce that commercial production has been declared at Singida following what has been a rapid ramp-up period after first gold pour. The mine delivered steady results against production KPIs including consistent gold production and higher than expected gold recoveries, culminating in several successful gold shipments.

"I would like to acknowledge the hard work and dedication of our team, which has successfully designed and delivered the project over the past two years from construction through to commercial production," Zurrin remarked.

## BRIEFS

### Motheo Mine successfully produces first concentrate



**The processing plant is expected to be commissioned in September quarter of FY2024.**

Sandfire Resources Limited has successfully produced first copper concentrate at its Motheo Copper Mine in Botswana. Construction of the Motheo Copper Mine is nearing completion, with equipment commissioning activities over 92% complete for the initial 3.2 Mtpa processing capacity. The Motheo team will now focus on completing commissioning activities and ramping-up the processing plant to its initial 3.2 Mtpa processing capacity.

### Lindi Jumbo Graphite Mine progress update



**Installation of previously delivered mechanical equipment is progressing well.**

As part of the operational readiness planning for Lindi Jumbo, Walkabout resources has optimised the initial three-year mine plan to generate sufficient waste for TSF walls, while creating sufficient grade ore stockpiles for blending and commissioning. Improvements to the approach has led to a substantial reduction in operational waste rock mining and total tonnes mined, potentially resulting in cost savings.

# Keeping up with crushing

New equipment and ambitious expansion policies are indicating a strong market for Africa's mining industry with crushing particularly excelling.



A Lokotrack mobile train consisting of crushers and scalping screens for lithium mining in Namibia.

Image Credit: Pilot Crushtec

A positive outlook for Africa's mining sector and increased activity after Covid-19 is painting a healthy picture for those providing the industry with the wide variety of machinery, software, services and more that is required to help a site function effectively on the continent.

At least, this is a narrative that is envisioned when looking specifically at the crushing segment which has been typified by an array of optimistic news in recent months.

South African-based Pilot Crushtec, for instance, has fed into this portrayal by indicating that it has seen, in recent years, export demand grow to almost match the value of its local market.

According to sales manager Wayne Warren, when a company requires a crushing solution, there is no time to lose, and manufacturing lead times alongside logistical delays can prove incredibly frustrating for customers. By ensuring they respond to customer's requirements as rapidly as possible, therefore, Pilot Crushtec has ensured continued expansion on the continent.

"A recent contract in Zambia

showed the value that we bring to customers' operations by being quick off the mark with the right equipment," said Warren. "A customer contacted us to discuss their urgent need for a crushing solution, and within a month they could push the button on site and begin operations with a Pilot Crushtec plant."

The company was able to achieve this feat within the timeframe – which included the equipment taking two weeks on the road to reach the site – due to its strategy of prioritising its large stockholding.

Such has been the success of its solutions on the continent, that the company is growing in popularity in other regions. In Asia, for instance, there has been a significant uptake of Pilot Crushtec crushing solutions, where its equipment quality, uptime, spares availability, service backup and warranty is proving its worth.

Returning to the continent, Warren noted that a Namibian customer had recently leveraged the longevity of their Metso Outotec crushing equipment when converting from mobile to modular plants. "They simply moved the

Metso Outotec equipment from the previous mobile configuration, and installed it on the new modular plant. This augmented the additional Metso Outotec crusher that was purchased for the new plant, saving considerably on capex while not compromising reliability."

Pilot Crushtec has also noticed, in line with an evolving market landscape, a growing preference for larger mobile crushing units and an increased uptake for dual-powered solutions in southern Africa.

Francois Marais, sales and marketing director at Pilot Crushtec, made the observation and explained that in the past three to four years, there has been a noticeable inclination for bigger mobile crushers such as Metso Outotec's Lokotrack LT120 jaw crusher and the Lokotrack LT300HP cone crusher.

"At the centre of this trend is the changing face of the contracting sector. Instead of the traditional three to five year contracts, most of the projects coming to market are barely longer than six months," Marais remarked.

He continued by noting that contractors are therefore turning to

larger mobile crushers to enable them to execute shorter contracts quickly and then move onto the next project – allowing them to increase the volume of work within a short space of time. Large equipment, he added, allows contractors to minimise the number of machines they have to mobilise on site, reducing transport costs and the time spent setting up.

At the same time, Marais surmised, many contractors in southern Africa are increasingly seeing the value in dual-powered crushing solutions which can provide customers with significant fuel savings and a marked reduction in carbon emissions.

## Expanding portfolios

Pilot Crushtec is not the only company revelling in the auspicious crushing segment as FLSmidth has sought to enhance its line-up of crushing, screening and milling products. When approached by *African Review* to explore how the company had been faring in recent years, media representatives pointed to the acquisition of thyssenkrupp's Mining business (TK

Mining), which has helped add to its status as a full flowsheet technology and service supplier.

FLSmidth regional product line manager – crushing and screening, Demetri Kokoroyanis, said that with the announcement, the company’s combined crushing technologies are distinguishing it from the competition. Indicating this, he pointed at the Top Service Gyratory Crushers, which are advanced in both their ultra, heavy-duty design and the way they facilitate safe and efficient servicing. He also pointed at the company’s Eccentric Roll Crusher ERC which fits between the jaw and gyratory crushers in the range. The ERC has a built-in static grizzly screen before the crushing zone to allow removal of the fine material. Large rocks are fractured at the opening of the jaw to increase throughput and reduce the power consumption.

The wide range of crushing offerings feeds into FLSmidth’s role as a provider of semi-mobile in-pit crushing plants – of which there are over 285 installations worldwide.

“Our plants can be designed for direct feed – usually from gyratory crushers – and also for indirect feed, which can be accomplished with an apron feeder before a gyratory, ERC, jaw crusher, double



Image Credit: FLSmidth

With FLSmidth’s top service range of gyratory crusher models, 95% of the servicing can be conducted from the top.

roll crusher or double roll sizer,” remarked Kokoroyanis. “We can take care of everything from the truck tip to the discharge conveyor, and the plant comes complete with auxiliary equipment for a smooth operation. The plants can be relocated to a new position in the pit with the use of transport crawlers with minimum disassembly required as mining progresses.”

**Mounting interest**

Earlier in the year, Terex MPS had its own reason to celebrate after registering a successful week at CONEXPO-CON-AGG 2023. At the international trade show, the company showcased the New Cedarapids CRC1350S Portable Cone Crusher Plant and the New Simplicity ESX “Extra Clearance” Series Horizontal Screen.

The Cedarapids CRC 1350S

Portable Plant is designed for high production at lower costs per ton. It features the enhanced TC1300X cone crusher with 400hp and high efficiency roller bearings to not only increase the power overall, but increase the stroke from 45 mm to 70 mm. This configuration results in an increase thru put and improved quality product shape.

This plant, paired with the TSV7203P, 7’ wide - 3 deck Horizontal Screen, delivers peak productivity in an easily portable structure. The TSV screen overall increases production and handles applications not possible with traditional horizontal screens. Featuring a variable slope operation resulting in increased capabilities, higher production, enhanced durability, and ease of maintenance.

The CR1350S was designed after a series of interviews with key distributors and has been developed to meet customer demands to yield higher production capacity, lower cost per ton, while remaining highly portable.

After the event, the Terex team noted that the equipment received very positive feedback from passionate voices from around the world and had already secured several orders. ■

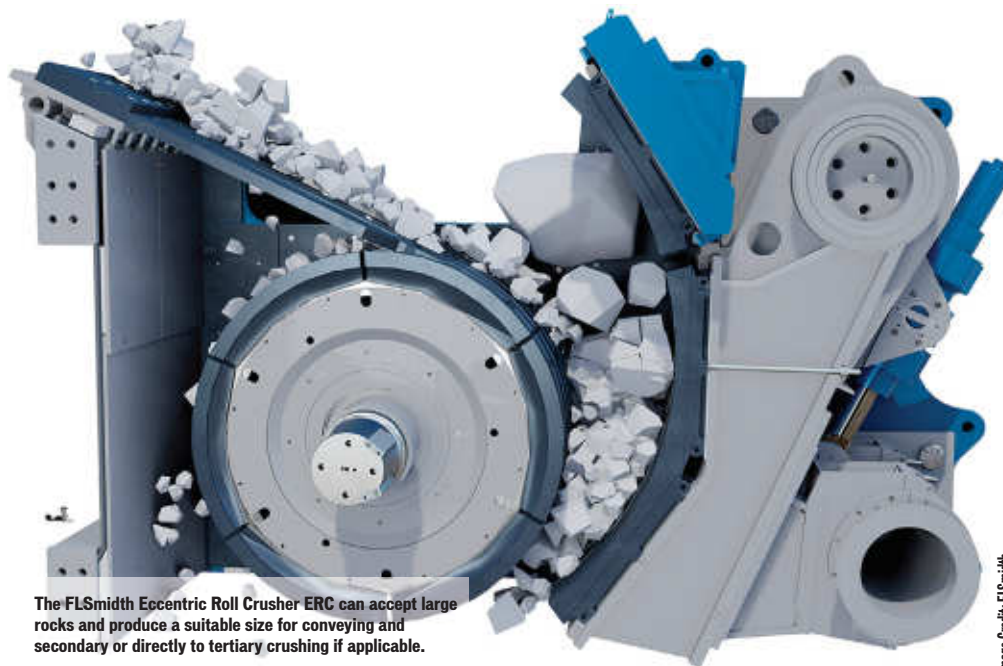


Image Credit: FLSmidth

The FLSmidth Eccentric Roll Crusher ERC can accept large rocks and produce a suitable size for conveying and secondary or directly to tertiary crushing if applicable.



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# Mining firms driving demand for power solutions

Mining firms across Africa are stepping up demand for power solutions, exploring new technologies in a bid to secure dependable energy in the face of poor grid supply. Martin Clark reports.



Mine operators are taking matters into their own hands to combat the erratic electricity network.

Securing dependable power is a prerequisite in commercial mining, an energy-intensive industry, but in Africa that is sometimes half the challenge. An uneven, erratic electricity network has long prompted mine operators to take matters into their own hands, deploying on-site diesel generating sets (gensets) as back-up, or in remote areas where no grid connection exists.

In recent years, mining power stations have also begun to embrace renewable technologies, alongside traditional thermal-based plants. But the absence of reliable electricity and availability to Africa's mining sector is becoming more of a concern – and a potential block to new project development. This could threaten broader global strategic initiatives like net zero, if mine project development is not keeping pace

with future energy transition demand. Wood Mackenzie suggests that in order to reach the Paris Agreement targets of zero carbon by 2050, copper and aluminium production must double, nickel output needs to rise three-fold and the world will require nine times the amount of lithium produced today.

Not all of that will come from Africa, of course, but a lot of it will, placing even greater strain on already limited power supplies.

## South Africa

Many African countries, including big economies such as Nigeria and South

Africa, are already struggling to meet demand, squeezing industry and households. South African President, Cyril Ramaphosa, has acknowledged that the nation's electricity crisis is severely hurting its mining sector, a key pillar of the economy.

According to the Minerals Council South Africa, total mining volumes were down by around 6%, or US\$1.8bn, last year, in large because of electricity shortages.

In a bid to rapidly expand generation capacity, the Department of Mineral Resources and Energy this year removed requirements for independent power producers to

hold generation licences to produce electricity up to a threshold of 100MW, boosting demand for diesel gensets and other power solutions.

## Genset demand

The fragile state of the nation's grid-based supply has left South African mining firms with little option but to take action for themselves.

Goldplat is the latest to invest in a fleet of new gensets to bolster its South African business. The company reported that power shortages in South Africa had cost it 28% of hours available during the first two months of its Q4 period, compared to 20% in Q3.

As a result, it is investing £750,000 (US\$944,000) in diesel generators, set to arrive in September this year, which it says will be able to sustain operations during electricity cuts.

“Many African countries, including big economies such as Nigeria and South Africa, are already struggling to meet demand.”

“The diesel generators will not just reduce the impact of electricity cuts, but also give control back to operational teams to improve efficiencies and maximise gold production,” said Goldplat CEO, Werner Klingenberg.

He also said it would provide “a sense of normality” at its mine sites “which we believe is important for the morale of our employees.”

Crucially, the economics of the diesel genset energy project stack up. The company said it will recover the full capital cost of the gensets in two years, based on 25% of available hours expected to be lost over the next 24 months – suggesting that it expects to see no real improvement in the country’s grid power supply.

Goldplat also said that it will continue to explore other options to secure reliable supply, for example additional connections to the local municipality grid, or a new direct connection to Eskom – though it noted timelines for these options remain “uncertain and unclear”.

### Hybrid power

Among the crowded and thriving marketplace supplying engines, technology and electricity to mine sites across Africa are the likes of Wartsila, Red Rocket, Altaaqa and Pele Green Energy.

Enernet, which acquired KPS Power Africa in 2021, is firmly behind the hybrid model, with various projects blending solar power, battery energy storage systems, diesel, dual fuel thermal

and even liquefied natural gas (LNG) dotted across the continent. That includes supplying an iron ore mine in South Africa, a gold mine in Senegal, and a uranium mine in Niger, a contract it landed in 2022.

The Dasa project – located 105 km south of the established Niger uranium mining town of Arlit, and operated by Global Atomic Corporation – is currently under development. Once operating, the mine will require 12MW of consistent power with Enernet delivering a hybrid solution including 16MW solar, 15MW battery energy storage, a 16 MW back-up diesel generation plant, plus advanced controls integrated with grid power provided by state utility Sonichar. The system will provide approximately 35% of power requirements from renewables, making Dasa one of the greenest mining operations in Africa, abating some 27,000 tonnes of CO<sub>2</sub> per annum.

### Scaling ambitions

Other mining firms are looking to go a step further rolling out much larger, fully renewable projects.

Sibanye-Stillwater – a leading producer of platinum, palladium and gold – recently achieved financial close for an 89MW wind energy project in South Africa.

This clean energy will be generated by the Castle Wind Farm, near the town of De Aar in the Northern Cape, and will supply the mining firm’s local operations via a wheeling agreement with state

“ Diesel generators will not just reduce the impact of electricity cuts, but also give control back to operational teams to improve efficiencies and maximise gold production.”

WERNER KLINGENBERG, GOLDPLAT CEO

utility Eskom.

It will be the largest private wind farm constructed in South Africa to date. Construction is expected to commence in June with commercial operation set for early 2025.

“This marks our first major step in delivering over 550MW of our renewable project portfolio and is a significant milestone in our journey to carbon neutrality by 2040,” said Neal Froneman, the CEO of the mining group.

“The project will not only play a pivotal role in reducing carbon emissions and mitigating climate change but also results in cost savings on electricity and provides energy security benefits for Sibanye-Stillwater’s SA operations. Additionally, it will also contribute to addressing the electricity challenges in South Africa.”

### Climate impact

As well as generating much-needed power, such projects also carry a huge climate positive too, an increasingly prominent concern among both mining firms and energy suppliers.

Gold miner Pan African Resources

is likewise investing in clean energy to support its operations. It recently signed an engineering, procurement and construction (EPC) agreement with JUWI Renewable Energies for the construction of an 8.75MW solar plant for Barberton Mines’ Fairview operation in South Africa.

The company also concluded a power purchase agreement with Sturdee Energy for a 40MW wheeled renewable energy solution, with generation capacity to be made available to any of the group’s operations. In 2022, it was the first South African mining firm to successfully commission a utility-scale, grid-tied solar PV plant with Evander Mines’ 10MW solar PV renewable energy facility, with EPC works also completed by JUWI.

Pan African is currently conducting feasibility work on various other sites and projects, which could result in approximately 28% of its total power generation requirements coming from renewable energy. It estimates that this will bring a cumulative estimated reduction of 137,000t in CO<sub>2</sub> emissions annually. ■



South Africa’s total mining volumes were down 6% from 2022, largely in part to the electricity shortages.

Image Credit: Adobe Stock

## CAT D10 DOZER PRIORITISES PRODUCTIVITY AND DURABILITY

Infused with industry-leading technology, the durable Cat D10 Dozer burns less fuel, increases productivity and improves uptime. Featuring a stator clutch torque converter and load-sensing hydraulics, the new design is up to 6% more efficient than the Cat D10T2. Its combination of improved technology, longer component life, extended oil changes and increased serviceability reduces maintenance and repair costs up to 8%, helping the new D10 deliver industry-leading low cost of ownership.

The new D10 is powered by the Cat C27 engine, which offers after treatment solutions to meet U.S. EPA Tier 4 Final/EU Stage V as well as Tier 2 equivalent emissions standards for meeting the needs of the global market. Maximising material moved per litre of fuel, the C27 switches power settings based on travel direction to offer up to



Image Credit: Caterpillar

**Next-gen Cat D10 Dozer with boosted productivity, efficiency and durability.**

20% more power in reverse, reducing cycle times. In addition to delivering productivity gains of up to 3%, the new D10 offers up to a 4% fuel consumption advantage over the D10T2 and up to 10% over the D10T.

The dozer's new torque converter design with stator clutch automatically frees up the stator when torque multiplication is not required, improving drivetrain efficiency for reduced fuel consumption.

### Industry-leading technology

The new cab for the D10 not only creates a comfortable operating environment that lowers noise, vibration, stress and fatigue, it is an integrated electronic platform designed to maximise productivity. The operator's new multicolor touchscreen display monitors machine performance and allows machine parameters to be quickly tailored to the application.

Today's innovative D10 leverages a range of onboard technologies and is future-ready to integrate tomorrow's technology advancements.

## WORLD'S FIRST CORROSION-RESISTANT FLAMEPROOF JUNCTION BOX

Pratley, the renowned manufacturer of innovative electrical termination products, has developed and launched a ground-breaking new product, the Flameproof Ex d Envirobox. This is the world's first polymeric, corrosion-resistant, direct-entry, flameproof junction box.

Flameproof equipment is designed to prevent internal ignition within a flammable atmosphere from transmitting outside the protective enclosure. However, all traditional direct-entry flameproof junction boxes made from steel, cast iron or aluminium materials can be prone to corrosion over time and when used in very harsh environments. Special attention needs to be given not just to the overall climatic conditions of the area where the enclosures are installed, but also to the material and design of the equipment.

Pratley's new Flameproof Ex d Envirobox junction box, made from a specially formulated, robust engineering polymer, is designed to withstand severe environmental conditions. This makes it ideal for use in areas with a high risk of corrosion, such as offshore oil platforms, underground mines, and petrochemical plants.

"The need for a lightweight and corrosion-resistant flameproof junction box is evident with the current, ever-changing mining environment," commented Sven Breedt, electrical research & development manager, Pratley. "Over a decade's worth of research and development went into the design and development of this junction box."

The robust engineering polymer is unique to Pratley. It has exceptional mechanical properties such as strength, stiffness, creep dimensional stability, and more.

## Savox invents industrial-grade Noise-COM 500 hearing protector

Savox Communications has launched robust Savox Noise-COM 500 hearing protector for heavy industrial use.

The new Savox Noise-COM 500 products are top-of-the-line bluetooth hearing protectors specifically designed for use in extremely harsh, noisy operations. They are suitable, for example, for use in construction, mining, or other heavy industries where using hearing protectors is vital, and the ability to communicate with clarity is of equally high importance. These robust and durable hearing protectors combine excellent ambient sound quality with an outstanding noise-cancelling microphone for clear speech.

As the Savox Noise-COM 500 can be connected to various Bluetooth two-way radios or mobile phones, users can comfortably listen to audio as well as make and receive phone calls. Additionally, the ambient sound feature allows users to clearly hear surrounding sounds, such as speech or warning signals while blocking high-level, harmful noises out. There is also an easily accessible rotary button for push-to-talk and ambient sound volume adjustment. With the Savox Noise-COM 500XP model, there is an added possibility to define ambient sound audio profiles for different occasions, enabling the best possible audio for every operational situation.

"It is essential to protect the hearing of professionals in heavy industry operations without compromising on safety, nor on the quality and clarity of communications with fellow workers. With the Savox Noise-COM 500, there is no danger of missing out on important surrounding sounds or urgent alarms," commented Jerry Kettunen, CEO at Savox Communications.



**Savox Noise-COM 500 is designed for use in harsh, noisy environments, such as construction, mining, and heavy industries.**

Image Credit: Savox Communications



## LARGE ZERO-EMISSION HAUL TRUCK TRIUMPHS



The zero-emission mining truck excels in all benchmarks.

The world's largest zero-emission haul truck, designed and built by First Mode in partnership with Anglo American, has successfully completed its mission to demonstrate the potential of zero emission haulage after one full year of operational trials. The proof-of-concept mining truck is a critical technology in heavy industry efforts to reduce its reliance on diesel and other fossil fuels.

"In May 2022, First Mode achieved what many thought impossible with the world's first and world's largest hydrogen-fueled haul truck," said Julian Soles, CEO of First Mode. "The truck's tremendous success is

undisputed, having exceeded performance on all significant tests, including travel speed and payload. We are also extremely proud to report zero safety incidents or downtime associated with the programme. Our proof-of-concept demonstrates not only the feasibility, but also the urgent need to scale our nuGen Haulage Solution to help the mining industry reduce its reliance on diesel."

In 2019, First Mode partnered with Anglo American to study potential pathways to decarbonising the mining company's existing fleet of ultra-class haul trucks. The resulting

nuGen Haulage Solution replaces all diesel components of the haulage ecosystem, including vehicle powerplant, refueling system, fuel storage infrastructure, and fuel production. The proof-of-concept truck made its debut in May 2022 at Anglo American's Platinum Group Metals (PGMs) mine site in Mogalakwena, South Africa.

Natascha Viljoen, CEO of Anglo American's PGMs business, commented, "We are proud to have played host to this world-first technology. We recognise that replacing our diesel haul trucks with a zero-emission alternative is central to our ability to deliver carbon neutral mining, with the

potential to also offer broader operating performance benefits. We look forward to seeing the next generation model in action."

First Mode is now focused on scaling and commercialising the nuGen Haulage Solution. Next generation powerplants, refueling systems, and infrastructure are being built and tested at First Mode's engineering and development facilities in Seattle, which include a 45,000-square-foot manufacturing facility slated to come online later this year. These systems will be demonstrated on Komatsu 930E and 830E platforms at First Mode's Proving Grounds starting in early 2024.

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# Realising Africa's potential through digital borders

Jeremy Springall, senior vice president, SITA at Borders, explains how digital border management technology can help Africa live up to its economic potential.

**A**frica's immense potential to become a global powerhouse is undeniable. It has all of the ingredients including a market of 1.2bn consumers (rising to 1.7bn by 2030) and a combined GDP worth US\$2.5 trillion. So what is holding it back?

The African Union's (AU) members have all indicated their support for and recognition of the benefits of the Africa Continental Free Trade Area, the Single Africa Air Transport Market and the Free Movement of Persons Protocol. All of them are intended to unlock free trade, tourism, economic opportunities and promote widespread prosperity across the continent.

At the SITA Borders Management Africa Summit in Nairobi, speakers and delegates from governments across the continent identified and discussed solutions to resolving the biggest Hindrance to these AU flagship programmes realising their full potential, i.e. efficient borders to enable the frictionless flows of people and goods.

In our deliberations, we were continually reminded that it is easier and faster to transport mobile phones from China to Africa than to move a few bags of maize across an African border post. At the root of this are inconsistencies in the criteria and processes applied by immigration and customs authorities for issuing visas, travel authorisations, goods import and transit permits, the use of unsuitable and often incompatible

equipment and the vulnerability to agile international organised crime and terrorism. All of these have to be tackled with shrinking budgets and diminishing resources.

Therein lies the rub: for economies to grow and a free trade area to work, governments need to balance protecting their countries from trafficking, terrorism, pandemics, and crime while making it easier to move people and goods across their borders and at the same time respecting personal data privacy and its underpinning legislation.

The good news is that proven digital border management technology and emerging digital identities put Africa in pole position to lead the way. A key advantage for Africa is that it faces fewer legacy challenges in the digital space and in many ways, it can move faster. The digital transformation of borders will be inevitable if the continent is to achieve its ambition.

## Recognised benefits

Airlines and airports understand the potential of digitalising border processes. At the coal face of international travel, the industry has long recognised the need for digital immigration processes. The challenges of Covid-19 accelerated this trend. For example, SITA's 2022 Air Transport IT Insights showed that 75% of airline executives will invest in passenger biometric identity solutions by 2025. This means passengers will be identified by a simple facial scan, making the identification process fast and secure.

However, it cannot be done by one industry in isolation. It needs government and broader industry support.

## Leading the way

SITA, the global air transport industry-owned IT and solutions provider, is leading this push. Over the past 30 years, SITA has helped 70 governments – including South Africa and Egypt – make their border crossings faster and more secure. We pioneered what is now the global standard for Advance Passenger Information processing and we are helping governments digitalise key immigration processes so that they can be completed ahead of travel. This helps governments to effectively extend their borders



Image Credit: SITA

Jeremy Springall is the senior vice president at SITA at Borders.

and assess who enters their country long before they arrive. Travelers, on the other hand, only have to complete a simple check on arrival.

The benefit of this approach has been shown to work time and again, particularly at big sporting events such as the football World Cup. We helped South Africa in 2010, Brazil in 2014, and Qatar in 2022 to manage the vast influx of visitors.

Digital identities will take this to a new level. Driven by the UN's International Civil Aviation Organization, which sets global passport standards, the industry is shaping a new digital identity that will replace physical documents such as identity cards or passports.

A key driver is that holders will choose what data they would like to share with whom. It is privacy by design. These digital identities can be used at the airport but also at land and sea borders or other touchpoints, such as hotels or major events. All that is needed is a simple scan of your face a biometric touchpoint or on your mobile phone. We see these digital identities being extended to goods and services. Together, these technologies will reshape how borders are managed.

The technology exists today to make an African free trade area a reality. It allows the balancing of protectionist measures to keep national borders safe with a more welcoming face to visitors. It is scalable. And it is inclusive, allowing all elements of public life to be managed from a single identity.

With the right support from governments across Africa, we can pull many levers to unlock free trade and tourism across the continent. Policy and intergovernmental co-operation are the two most obvious, but digitalisation must surely be essential among them. ■

“With the right support from governments across Africa, we can pull many levers to unlock free trade and tourism across the continent.”

JEREMY SPRINGALL, SENIOR VICE PRESIDENT, SITA AT BORDERS

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