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"We expect off-grid or captive
energy projects to increasingly
support Africa's industries and
businesses' needs."

Fabrice Mpollo, investment manager at
Norfund.

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Editor's Note

Welcome to the June issue of African Review magazine, your trusted source of news and information on all things Africa for almost 60 years.

This month, we've got insights and analyses on all of the region's key industries, including the all-important energy sector. This is an area in flux as the energy transition intensifies the spotlight on renewables and other cleaner alternatives away from traditional thermal-based power. Inside this issue, you can find exclusive interviews with experts as they prepare to attend key industry events such as the Africa Energy Forum, and a bespoke report about how this shift is influencing energy dynamics across southern Africa (page 26).

Again, with the return of in-person events, we look ahead to another highly-anticipated industry get together, Hillhead 2022 (page 40). It will be the first time in four years the UK-based quarrying, construction and recycling event has taken place.

Technology is impacting all of these different business niches, a theme you'll see throughout this issue, even traditional areas such as logistics (page 23). In fact, we're showcasing some of the most exciting entrepreneurs and firms that have made Lagos one of the world's most dynamic tech hotspots (page 18).

Despite so much change in recent years, from disruptive technology through to pandemics, African Review remains the trusted source of business information and news as it has always been since it was founded in 1964.

Martin Clark, Acting Editor

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The small but mighty equipment providing the backbone for complex projects around the continent.

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With modern technology offering tangible benefits to mine operators such as greater visibility and enhanced decision making, the importance of good connectivity is greater than ever.

Masdar signs landmark agreements for green hydrogen plants

Masdar, a leading renewable energy operator, and Hassan Allam Utilities, the investment and development arm of Hassan Allam Holding Group, have confirmed the signing of two MoUs with a number of leading Egyptian state-backed organisations to develop green hydrogen production plants in the Suez Canal Economic Zone and along the Mediterranean Coast.

The two organisations see Egypt as a future hub for green hydrogen production, targeting the bunkering market, export to Europe, and boosting the local economy with the new projects.

The nation's proximity to the expected growth spots for green hydrogen mean robust opportunity for exports is expected.

The Government's efforts to optimise generation costs and increase the renewable share in the energy mix to 42% by 2030 is expected to drive the project, along with the ability for green hydrogen to attract large-scale foreign direct investment.

Mohamed Jameel Al Ramahi, CEO of Masdar, said, "These agreements represent a vital step forward in the development of the green hydrogen economy for both the UAE and Egypt, and will play a significant role in our two nations' decarbonisation efforts. By working with partners such as Hassan Allam Utilities, we can help the green hydrogen market achieve its full potential over the coming years and play its part in supporting the global energy transition."

Masdar is active in more than 40 countries across the world, and has invested in a renewable portfolio with a combined value of more than US\$20bn, totalling capacity of more than 15GW.

Amr Allam, CEO of Hassan Allam Holding, said, "Our drive into the green energy and infrastructure space, including solar and wind power generation, was all about contributing to a more sustainable future. Through this partnership with Masdar we are looking to harness the leading edge of technology to make a difference in Egypt by leveraging the country's abundant sources of green energy."

HE Dr Sultan bin Ahmed Al Jaber, UAE Minister of Industry and Advanced Technology and chairman of Masdar, said, "Today's partnership agreements to explore the development of green hydrogen production demonstrates the strength of the close relationship between the United Arab Emirates and Egypt."



Image Credit: Masdar

The agreement will see a capacity increase of around 4GW across multiple plants.

WÄRTSILÄ TO SUPPLY CAPACITY AND UPGRADES FOR EGYPTIAN PLANT

Wärtsilä is currently delivering new generating equipment to Kahraba in order to add approximately 20MW of output to the existing Borg El Arab plant, located 45 km southwest of Alexandria, Egypt.

Wärtsilä will also handle a number of upgrades to the existing 40MW plant with a latest-generation control system.

The Borg El Arab plant currently operates with four Wärtsilä 34SG engines running on natural gas. Due to rising industrial demand for electricity in the region, additional capacity is needed. A further two 34SG engines were deemed to be the optimal solution when the contract was placed.

"Industrial growth is vital to the region's economic development, and a reliable power supply is essential for driving this growth. We have been extremely satisfied with the efficiency and reliability of the Wärtsilä engines and the approach of Wärtsilä's personnel in serving our needs to optimise our operations. This is why we had no hesitation in selecting Wärtsilä for this plant expansion project," said Magdi El Badry, chairman and managing director of Kahraba.

Egypt, is making increasing use of renewable energy, and the fast-starting and stopping capabilities of Wärtsilä's engines are proving beneficial to balancing the grid in order to compensate for intermittency.

"We have worked very closely with Kahraba in the past and are delighted to be working with them again on this important project. By operating the engines on locally available natural gas, the plant's environmental footprint is lessened. Furthermore, the flexibility of the Wärtsilä engines will enable the system to incorporate increasing levels of energy from renewable sources," commented Marc Thiriet, director, Wärtsilä Energy, Africa West.

DAMIETTA ALLIANCE DEVELOPS NEW TERMINAL

A new terminal is set to be built in the port of Damietta, Egypt, with a joint venture, Damietta Alliance Container Terminal S.A.E., established to conduct it. The three core shareholders involved in the deal include Hapag-Lloyd Damietta GmbH (39%), Eurogate Damietta GmbH (29.5%), and Contship Damietta Srl (29.5%). Two other partners, Middle East Logistics & Consultants Group and Ship & C.R.E.W. Egypt S.A.E., hold 1% in the venture.

The Egyptian Minister of Transport, Lieutenant-General Eng. Kamel Al-Wazir, commented, "This is a very encouraging, well planned partnership of international and Egyptian private sector in order to position Egypt as a global hub for logistics and trade. In this first phase we will establish the port of Damietta as an integrated logistics hub for containers, which will then be followed by the establishment of logistic corridors reaching to different manufacturing areas in Egypt by railway network."

► BRIEFS

Image Credit: Adobe Stock



The project will be the longest offshore pipeline in the world.

Worley awarded pipeline project

Worley, an energy, chemicals and research provider, has been awarded a contract to provide main front-end engineering design (FEED Phase II) services for the Nigeria-Morocco Gas Pipeline (NMPG) project.

The project will span over 7,000 km, across 11 west African countries, linking Nigeria to Morocco and extending to Europe. It will be the longest offshore pipeline in the world and will deliver a reliable and sustainable source for local industries.

Image Credit: Haulotte Africa



Direct services will be available for Tunisian customers.

Matech joins Haulotte Africa

The Haulotte Africa network has confirmed its newest addition, Matech.

Haulotte network has been reinforced with the appointment of Matech as one of the operator's authorised distributors in Tunisia.

The partnership will allow Haulotte Africa to offer an optimal level of service and delivery to customers across the Tunisian territory as the aerial work platform and telehandler manufacturer and distributor expands its continental footprint.



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2020 Attendee Britton Lawson,
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Denmark to improve wastewater treatment in Western Cape

The premier of the Western Cape, Alan Winde, and the Minister of local government, environmental affairs and development planning, Anton Bredell, presided over the signing of a Memorandum of Understanding (MoU) with the Kingdom of Denmark, as represented by the Danish Minister for Development Cooperation, FM Mortensen.

Speaking on the benefits of the MoU, Bredell, said, “A new research paper recently published by the Department of Environmental Affairs and Development Planning, which looked at the impact of the 2015 to 2017 drought on the Berg River Estuary, shows that the Berg River ecological systems are in a worse condition than previously thought.”

The research concluded that to preserve the Berg River’s ecological systems, more freshwater needs to flow through the Estuary to maintain the desired level of ecological health.

This means better monitoring and regulations are needed in terms of water extraction, but there is also a need for better quality water released from wastewater works situated along the Berg River. The research showed that during winter, sufficient water reaches the Estuary, but too little water reaches the Estuary during the summer.

Bredell added that the Danish MoU will play a crucial role in improving the quality of water released back into the Berg River by wastewater works and added that the fact that the Berg River Estuary was recently recognised as a Ramsar site of International importance adds to the urgency to intervene and step-up efforts to return the entire Berg River to a better environmental status.

The Berg River Estuary is also of significant economic value. The estuary is one of the most important systems in the country in terms of estuarine biodiversity, but it also produces goods and services worth at least US\$23.6mn per year, not counting the value of carbon storage to the rest of the world.



Officials present during the signing of the MoU.

Image Credit: Western Cape Government

INFRASTRUCTURE A BIGGER OBSTACLE TO MINING IN SA: DELOITTE

Infrastructure, including the availability of rail capacity, the quality of roads in some cases as well as the price of energy and the reliability of its supply, are now a bigger impediment to mining in South Africa than regulations according to Andrew Lane, energy, resources and industries leader at Deloitte Africa.

Lane was reacting to mineral resources Minister Gwede Mantashe’s address at Investing in African Mining Indaba, which started in Cape Town, SA. Mantashe told the conference that the industry meets in the backdrop of high energy prices, caused in part by the conflict between Russia and Ukraine, on which the minister maintained the Government’s detached, neutral stance.

“The Minister speaks of high energy prices, but he does not speak of the reliability of energy supply,” says Lane who notes that fixing issues such as Transnet’s ability to get exports out through the rail and ports system and Eskom’s persistent load shedding is now more of an imperative than attending to regulations.

Lane notes that the minister has a valid point about the need to attract investments including in exploration, but the continent has to improve competitiveness and perceptions to achieve this. Lane also said that the industry is taking advantage of the increased threshold of 100MW on self-generation, with some actually now planning for more.

Lane added that the situation requires addressing a range of issues around infrastructure, electricity supply, labour productivity, as well as streamlining of permits and licensing, which Mantashe undertook to reduce to less than two months. Lane also pointed out that similar undertakings had previously been made and while there have been advances, there is still room for further improvement.

FUNDING RAISED TO SCALE RENEWABLE ENERGY SERVICES PROVIDER

InfraCo Africa, part of the Private Infrastructure Development Group (PIDG), the Danish Investment Fund for Developing Countries (IFU) and the EU-funded Electrification Financing Initiative (EDFI Electrifi) have together committed US\$15.5mn to enable Africa GreenCo (GreenCo) to scale its innovative offering as Zambia’s first renewable energy buyer and services provider.

The funding raised will provide GreenCo with working capital and the liquidity buffer necessary to support a portfolio of up to 110MW of renewable energy.

GreenCo’s Lusaka-based company, GreenCo Power Services was established in 2020 with support from IFU and InfraCo Africa. GreenCo’s model involves purchasing power from renewable independent power producers (IPPs) and selling that electricity to utilities, and private sector off-takers.

► BRIEFS

Commvault appoints StorVault as partner



Gerhard Fourie, channel lead at Commvault Africa.

Commvault, a global enterprise leader in intelligent data services across on-premises, cloud, and software as a service (SaaS) environments, has appointed StorVault as a managed services provider (MSP) for its Metallic Software-as-a-Service (SaaS) platform in South Africa. Gerhard Fourie, channel lead at Commvault Africa, says that due to StorVault’s long-standing relationship as a Commvault software MSP, it was a natural fit to choose as partner.

Image Credit: Commvault Africa

OADC unveils data centre environment



Image Credit: OADC

This is the first step in a wider rollout of OADC Edge across Africa.

Africa’s edge data centre leader, Open Access Data Centres (OADC), announced the deployment of the continent’s first large-scale, open-access edge data centre environment, OADC Edge, in South Africa.

Integral to OADC’s edge data centre offering is the delivery of new, regional data centres covering major cities. This announcement is the first step in a wider rollout across Africa, with Nigeria expected to be the next country to benefit.

Anglo American unveils prototype of the largest hydrogen-powered mine haul truck

Anglo American plc, a multi-national mining company, has unveiled a prototype of the world's largest hydrogen-powered mine haul truck designed to operate in everyday mining conditions at its Mogalakwena PGMs mine in South Africa.

According to the company, the 2MW hydrogen-battery hybrid truck, generates more power than its diesel predecessor and is capable of carrying a 290-tonne payload, and is part of Anglo American's nuGen Zero Emission Haulage Solution (ZEHS). nuGen provides a fully integrated green hydrogen system, consisting of a production, fuelling and haulage system, with green hydrogen to be produced at the mine site.

Duncan Wanblad, chief executive of Anglo American, said, "nuGen is a tangible demonstration of our FutureSmart Mining programme changing the future of our industry. With diesel emissions from our haul truck fleet accounting for c.10-15% of our total Scope 1 emissions, this is an important step on our pathway to carbon-neutral operations by 2040. The mining industry is playing a considerable role in helping the world decarbonise, both through our own emissions footprint and the metals and minerals that we produce that is critical to low carbon energy and transport systems."

For the nuGen project, Anglo American has worked with some of the world's leading creative engineering and technology companies, such as ENGIE, First Mode, Ballard and NPROXX, to design, build, and test a 1.2MWh battery pack, as the haul truck system uses multiple fuel cells that deliver up to 800kW of power, combining to deliver a total of 2MW of power.

The company has also had to design and implement a software solution to safely manage power and energy between the fuel cells, batteries, and vehicle drivetrain. This also included developing the power management and battery systems from the ground up, enabling to tailor the system to each mine and improve overall efficiency by designing in energy recovery as the haul trucks travel downhill through regenerative braking.

The company also said that it has built a hydrogen production, storage, and refuelling complex at Mogalakwena that incorporates the largest electrolyser in Africa and a solar plant to support the operation of the haul truck.

Tony O'Neill, technical director of Anglo American, commented, "We are incredibly proud of what our team, working with expert partners, has achieved in under three years. This is truly a world-class innovation and bears testament to our technical vision and determination to deliver a cleaner and smarter future for mining."

Natascha Viljoen, CEO of Anglo American Platinum, said, "PGMs play an essential catalytic role in many clean-air technologies, including related to hydrogen production and hydrogen-fuelled transportation. As part of our market development work, we have for some years been working towards establishing the right ecosystem to successfully develop, scale-up and deploy hydrogen-fuelled solutions."



Image Credit: Anglo American

The 2MW hydrogen-battery hybrid truck generates more power than its diesel predecessor and is capable of carrying a 290-tonne payload.

MA'ADEN EXPANDS WITH NEW OFFICE IN SOUTH AFRICA

Saudi Arabian Mining Company (MA'ADEN), has announced the opening of a new regional office in South Africa. The announcement was made at the Investing in African Mining Indaba Conference, which took place from 9-12 May 2022.

In 2019, Ma'aden strengthened its presence in the African market with the acquisition of Mauritius-based fertiliser distributor, Meridian Group, one of the largest fertiliser distributors in Africa.

As a result, today, Ma'aden has a network of operations across eastern and southern Africa, from Malawi to Mozambique, Zimbabwe, and Zambia with a 35-65% market share in the four countries.

Beyond Meridian Group's regional distribution operations, Ma'aden's fertiliser business currently has a direct market share of 48% in East and South Africa combined.

Robert Wilt, chief executive officer of Ma'aden, commented, "We are pleased to expand our international presence with a new regional office in South Africa.

Today's announcement reinforces our commitment to the African agriculture market, as it is a strategic growth area for our fertiliser business, and part of our long-term value creation plan to grow Ma'aden into one of the top miners in the world."

"Africa is one of the world's fastest growing agricultural regions and will generate approximately 30% of global demand for phosphate fertilisers over the next decade."

Our new office will allow us to better service South Africa and its neighbouring countries, offering supply chain solutions for farmers as we expand our phosphate production volume in the near term to support food sustainability programmes in several African countries," Wilt concluded.

BRIEFS

AEG provides grid independency for shopping mall

Image Credit: AEG Power Solutions



The project protects against daily power outages in Paarl.

AEG Power Solutions, a global provider of power supply systems and solutions for all types of critical and demanding applications, has successfully commissioned its Convert SC Flex with 1MW capacity in the Rembrandt Mall project in Paarl, South Africa. The storage converter forms together with solar panels and lithium-ion batteries an island grid - allowing the mall to be independent of the local public power grid during the day.

Bosch Rexroth hosts annual sales meeting



The theme for this year's Meeting was Under the African Sun.

Bosch Rexroth South Africa Group of Companies held its annual Africa Sales Meeting (ASM) on 24 March 2022, bringing together 240 personnel from companies across eight African countries. The virtual event was attended by sales representatives and managers, service and repair specialists, branch managers and support staff. The theme for this year's meeting was Under the African Sun.

Kohler delivers critical power to Nigeria

Kohler Power Systems Nigeria, part of Kohler Power Systems EMEA, has announced the expansion of the genset range for Nigerian customers, through five high-power KDI generators – for mission-critical power across industry, construction, commercial and residential use. They will be supplied from a dedicated Nigerian assembly and testing facility in Lagos.

The KDI generators have an optimal power-to-size ratio and adapted cooling capacity. Robust enough to handle load impacts, the five KDI generators maintain frequency and voltage at all times, to ensure the quality of the electricity they produce.

The new generators join the existing range of Kohler gensets available from the 2179 sq m facility in Ikeja, Lagos as well as John Deere, Doosan, Volvo, Mitsubishi and KD Series engines.

Fully equipped to assemble and test gensets imported from Kohler's production site in Brest, France, the Lagos plant includes more than 700 sq m of storage space for 400 gensets, enabling the quick supply of most generators.

Chassis, alternators, engines and control panels are combined to local specifications and tested to ensure they meet local rules on noise levels. Customers for these gensets then benefit from local customer support, which is in turn supported by Kohler's global services.

Daniel Roudaut, Nigeria national sales manager, Kohler, said, "Our ability to offer our customers in Nigeria a combination of local assembly in Lagos and global partnerships means that they benefit from optimum quality not only in the products they choose but in the services that support them, too."

"Further expansion of generator ranges is planned for the near future – meaning customers in the country – and across the African continent – will have access to an even wider selection of the most efficient and most effective mission-critical power on the market."

With on-site assembly and testing, Kohler is able to deliver excellence for every project and adapt to specific applications and regional considerations within Nigeria.



Image Credit: Kohler Power Systems Nigeria

The Lagos plant is fully equipped to assemble and test gensets imported from Kohler's production site in Brest, France.

VOLTVISION ENHANCES HOUNDÉ MINE OPERATIONS

Voltvision, the high voltage (HV) electrical data analytics business, has announced the successful completion of Phase 1 of a pioneering energy efficiency and operational enhancement project at Endeavour Mining's Houndé Mine in Burkina Faso. Voltvision has been commissioned to roll out the project to all of Endeavour Mining's mines and development projects across West Africa.

This project utilises Voltvision's big data software solution, a programme that has been designed by mining specialists and engineers to optimise energy consumption and improve predictive maintenance on all high voltage equipment on mine sites.

Manoli Yannaghas, co-founder and managing director of Voltvision, commented, "The Phase 1 roll out of this project was intended to provide high resolution data extraction in support of existing data systems presented in mobile and PC-based dashboards. This allowed the mine's technical team to monitor incoming grid power quality and the power quality across the Houndé power system. It has also allowed the accurate recording and logging of power usage as well as the movement from source to point of use again across the whole HV and MV networks."

"Phase 1 of the project commenced in December 2021 when the cube device was remotely installed across Houndé's high voltage electrical network, with assistance from the Endeavour team. The 'plug-and-play' nature of the device allowed the project to commence with minimal hassle and zero downtime in production."

"The encouraging data recorded in this initial phase is a solid foundation for Phase 2 and intended to identify further power savings opportunities; develop early warning mechanisms for grid outages; and extract demonstrable Scope 1 and 2 GHG emission numbers," Yannaghas concluded.

STARSIGHT SIGNS REFINANCING AGREEMENT

Starsight Energy, a Nigeria-based solar energy provider, has concluded a local currency agreement with Chapel Hill Denham Nigeria Infrastructure Debt Fund (NIDF), for a 10-year, refinancing of US\$20mn of current debt with two development finance institutions (DFIs) invested in the energy sector in Africa.

The new facility – Starsight's second with NIDF – replaces Starsight's current facilities with Norfund (the Norwegian Government Investment Fund for Developing Countries) and Finnfund (the Finnish Fund for Industrial Cooperation Ltd).

Paul van Zijl, Starsight's group chief financial officer, explained, "Norfund and Finnfund were invaluable funders to the company in its early guise and we remain very grateful for their support to date. The logic for refinancing the US dollar debt in local currency was just too compelling to ignore."

Starsight's objectives in securing the Nigerian refinancing are the removal of currency mismatch and associated foreign exchange volatility from its Nigerian business; reduction of its cost of debt in local currency terms; and an increase in its debt tenor with favourable debt covenants.

► BRIEFS

New logistics base to be opened in Cote d'Ivoire

Bolloré Transport & Logistics Cote d'Ivoire will inaugurate a modern logistics base in September 2022, with a total area of 9,000 sq m in the airport area of Abidjan. This



Further developments are planned within the new platform.

new infrastructure is designed to strengthen its offer of services linked to the import and export of goods by air. Further developments are planned within this new platform to facilitate packaging of pharmaceutical products and provide value-added storage for all types of freight.

Image Credit: Bolloré Transport & Logistics

Cashew processing to create jobs in Cote d'Ivoire



Women are expected to fill approximately 80% of the jobs.

Norfund is providing a US\$10mn loan to Valency CIV to build a local processing hub, which includes the construction of a cashew processing plant with a capacity of 45,000 tonnes per year on the outskirts of Abidjan, as part of plans to become a key participant in the cashew value chain. Norfund expects to see the employment of a workforce of more than 2000, with 25% in permanent contracts at the factory and 75% in shorter term contracts.

Image Credit: Valency

GIADEC plans new projects

Ghana Integrated Aluminium Development Corporation (GIADEC) is seeking to partner with strategic investors including local participation across the entire bauxite and aluminium value chain – mining, refinery, smelter, and downstream industries – where GIADEC will hold not less than a 30% stake.

The implementation of Ghana's integrated aluminium industry (IAI) includes the execution of four key projects through joint venture partnerships. They are:

Project 1 – Expansion of existing mine at Awaso, to produce 5mn tonnes of bauxite annually, and building of a refinery with a capacity of approximately 1.6mn tonnes per annum.

Project 2 – Development of a mine at Nyinahin-Mpasaaso and a refinery solution. Rocksure International Limited, the selected partner, is currently on-site and has commenced drilling and Mineral Resource Estimation works at Mpasaaso. Land survey (drone flyover), reconnaissance and mobilisation have been completed.

Project 3 – Development of a mine at Kyebi, a second mine at Nyinahin-Mpasaaso, and building of a refinery. Each mine is expected to produce a minimum of 5mn metric tonnes of bauxite annually.

Project 4 – The modernisation and expansion of the VALCO smelter to improve efficiency and increase capacity to 300,000 metric tonnes a year. Old equipment will be upgraded to new and more efficient technology. This retrofitting will drive the downstream sector which depends on aluminium as its raw material to produce aluminium products.



Image Credit: Adobe Stock

The projects include the development and expansion of bauxite mines.

AIS GROWS GLOBAL TEAM

Global digital services leader Asset Information Services (AIS), a James Fisher company, is expanding its international team through the recruitment of local talent in Indonesia, UAE, Nigeria, and Mexico. These teams will be responsible for developing and extending the client base and managing accounts, providing enhanced digital twin systems for the energy sector.

Sean Huff, AIS director, said, "With the energy industry in flux, there's never been a more pressing need to embrace intelligent change and business evolution driven by data and information management.

"To do this requires having the right people in the right places to support decision-makers in the actions that matter the most. We are thrilled to have our new team members on board."

AIS has also recently announced technology partnerships with global digital twin pioneer APlteq and shutdown and turnaround technology leader Mobideo to further support its international clients.


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ONE SCAN



Bosch Rexroth Africa Development appoints Tanzanian distributor

Expanding its continental footprint with a dedicated distributor, Bosch Rexroth Africa Development has confirmed that Transec Limited has been appointed as the company's in-country distributor.

In line with the distribution agreement, Transec Limited, a general mining equipment supplier with an established countrywide presence, will have access to the full range of components and services offered by the Bosch Rexroth South Africa Group of companies, for the benefit of the mining, cement and sugar sectors.

"As part of our strategy to develop business into Africa, Transec Limited will be a good ambassador for our product range and our brand in the Tanzanian market," explained Louis Potter, business development manager, Bosch Rexroth Africa Development.

Transec Limited is a specialist in providing mining supplies and services, which includes maintenance labour, fire suppression installation, conveyor belt sales and maintenance, process pump and valves supply, as well as the supply of large mobile machine components, undercarriages, pumps hoses and fittings, final drives, gearboxes, machine tracks and more.

"Transec Limited has good relationships with the major mining companies in Tanzania. They hold established maintenance contracts with some of the largest gold mines, with permanent presence on site. In addition, Transec has positioned itself to be the preferred supplier of mobile equipment spare parts to some of the larger mines in the Lake Zone region, Mwanza," continued Potter.



Image Credit: Bosch Rexroth Africa Development

Transec Limited will operate as the dedicated distributor for Tanzania.

IAEA DELIVERS NUCLEAR POWER REPORT TO UGANDA

The International Atomic Energy Agency (IAEA) has delivered the final report of a peer review mission that explored Uganda's nuclear power programme infrastructure development.

The Integrated Nuclear Infrastructure Review (INIR) was conducted between 29 November and 6 December 2021 after an invitation from the Government of Uganda.

The IAEA established a team of experts to review the status of nuclear infrastructure development as outlined in Phase I of the IAEA's Milestone Approach. This comprehensive three-stage approach guides nations to understand the necessary environmental development required to build a nuclear power plant, and enables operators to understand the commitments and obligations associated with developing a safe, secure and sustainable nuclear power framework.

Electricity demand across Uganda and its 43mn population has increased significantly across recent years as the economy has expanded. To diversify its energy mix, which is currently primarily based on hydroelectricity, the nation is taking steps towards introducing nuclear power.

Aline des Cloizeaux, director of the Nuclear Power division of the IAEA Department of Nuclear Energy, said on the delivery of the report, "The INIR mission concluded that the Government of Uganda is committed to developing the required infrastructure for nuclear power in a coordinated approach with all concerned stakeholders."

The INIR mission team made several suggestions to assist the nation in further development, including finalising national policies to support the nuclear power programme and strengthening plans to develop legal frameworks to prepare for the next phase of implementation.

BRITISH INTERNATIONAL INVESTMENT RETURNS TO KENYA

Nick O'Donohoe, CEO of British International Investment (BII), joined Jane Marriott OBE, the British High Commissioner to Kenya, to confirm that BII is set to re-establish its presence in Kenya.

In his address, CEO Nick O'Donohoe, remarked on BII's long history in Kenya, which dates to 1948. "Our history in Kenya shows our appetite to grow and shape markets. We helped establish the Kenya Tea Development Authority in 1964, and we've continued to support the company's growth to become the world's third-largest exporter of tea and Kenya's second-largest source of foreign exchange.

"That is just one example of the productive and transformational relationships that BII has developed with Kenya in the past. We will deploy 30% of our investments toward climate finance and support the growth of renewable energy generation as we have been doing in Malindi and through Greenlight Planet," O'Donohoe continued.

► BRIEFS



Image Credit: Adobe Stock

150 sites will welcome 5G services.

Ethio launches 5G services

Ethio Telecom has expanded on its 97% telecom services coverage across Ethiopia by launching its pre-commercial 5G services in Addis Ababa at six mobile stations.

5G offers the fastest speeds (up to 10 GBs) and low latency (less than 1 ms), with communication capability up to 1mn connections. The services have initially begun in the capital before expanded to up to 150 sites in regional cities across the coming 12 months.



Image Credit: Adobe Stock

FUSO sales in Tanzania will first begin out of two retail locations.

MFTBC begins Tanzanian sales

Mitsubishi Fuso Truck and Bus Corporation (MFTBC) has announced the opening of sales in Tanzania under a new partnership with general distributor Capstone Corporation Ltd., part of the CFAO group.

The partnership will see a wider variety of FUSO vehicles be made available to the Tanzanian market, with the Oragadam and Kawasaki plant exporting to Tanzania as built-up vehicles before selling on to customers.

UEGCL board of directors inspects Karuma HPP's commissioning readiness

The UEGCL board of directors, led by Eng. Proscovia M. Njuki, has inspected the progress of the 600MW Karuma hydropower project to ascertain the project status and commissioning readiness.

Currently, the project's overall progress stands at 99%, and is expected to begin commissioning later this year.

The board was accompanied by members of the UEGCL management, and members from the Ministry of Energy and Mineral Development.

"We are greatly pleased with the level of commitment from the EPCC Sinohydro Corporation Ltd towards closing the identified non-conformances and the completion of the national flagship project which gives us hope that we are indeed on course for commissioning this year," said Njuki.

The board also inspected the progress being made at the Karuma Hydropower Project Community Development Action Program (CDAP) Phase I works at Diima Primary School in the Kiryandongo District, which currently sits at 93% overall progress.

The project has been divided into three lots, including the construction of two classroom blocks with an office, four staff houses, and four stance VIP latrines at three further schools.



Image Credit: UEGCL

The project also includes a comprehensive community development programme.

The community projects are being overseen by UEGCL in collaboration with District Local Government officials from Oyam, Kiryandongo and Nwoya.

In line with the Buy Uganda, Build Uganda policy, geared towards promoting the use of locally-manufactured goods and use of local skills, Beru Investments Ltd, Savannah Engineering Works Ltd and Birime Construction Company Ltd are collaborating on the community development programme.

UEGCL is well on its way to meet its 'Roadmap 1300' objective of delivering 1300MW by 2023 while supporting the third National Development Plan, concerning the availability of reliable electricity.

AFGRI EQUIPMENT PARTNERS WITH WACKER NEUSON

After a number of months of negotiation, AFGRI Equipment has signed a dealer agreement with Wacker Neuson.

The partners confirmed the signing of the dealer agreement, which will see AFGRI Equipment selling and supporting the brand. Wacker Neuson Group is

a leading manufacturer of compact construction machines, with roots in the South African market spanning 40 years. The group's product portfolio includes:

- Wacker Neuson Mini and Compact Excavators, which can be quickly transported to locations with minimal logistical strain and are manoeuvrable on-site or on-farm thanks to compact dimensions and low weights. This allows for a more efficient and versatile application.
- Wacker Neuson Telehandlers, which offer a combination of versatility and performance, with an extensive product range offering loader stacking heights up to 5.7 metres.
- Wacker Neuson Wheeled Loaders, with a choice of new models that help operators manoeuvre under difficult spatial conditions. All-wheel steering increases agility, stability and payloads.



Image Credit: AFGRI Equipment

Wacker Neuson Group's portfolio will be supported by AFGRI Equipment's distribution network.

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Upcoming Events Calendar 2022

JUNE

7-9

ENLIT AFRICA

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

21-23

HILLHEAD

Buxton, UK
<https://www.hillhead.com/>

21-23

POWER & WATER NIGERIA

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

21-24

AFRICA ENERGY FORUM

Brussels, Belgium
<https://www.africa-energy-forum.com/>

JULY

4-7

NOG

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

5-7

6TH NIGERIA BUILD EXPRO

Lagos, Nigeria
<http://www.nigeriabuildexpo.net/>

12-14

HYDROVISION INTERNATIONAL

Denver, USA
<https://www.hydroevent.com/event-information/about-hydrovision>

AUGUST

17-18

INFRASTRUCTURE AFRICA

Virtual
<https://www.infrastructure-africa.com/>

23-24

POWER & ELECTRICITY WORLD AFRICA

Johannesburg, South Africa
<https://www.terrapinn.com/exhibition/power-electricity-world-africa/index.stm>

SEPTEMBER

5-9

ELECTRA MINING AFRICA

Johannesburg, South Africa
<https://www.electramining.co.za/>

20-22

NIGERIA ENERGY

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

20-25

IAA COMMERCIAL VEHICLES

Hanover, Germany
<https://www.iaa-transportation.com/en/visitors/iaa-2022>

AEF 2022: BUILDING ENERGY FOR A JUST TRANSITION

The Africa Energy Forum (aef) 2022 will be held from 21-24 June in Brussels under the theme 'Africa for Africa: Building Energy for the Just Transition', before starting its journey to Nairobi, Kenya, where it will host the 25th Africa Energy Forum.

According to the organiser, "Once again we unite governments, utilities and regulators with development finance institutions, commercial banks, power developers, technology providers, EPCs and professional services."

Over the last 23 years the Forum has earned a reputation as the most meaningful gathering of decision-makers in African energy to form partnerships, identify opportunities and move the industry forward. We hand-pick the most credible organisations in the sector, delivering an intensive networking experience like no other.

Some of the topics and themes to expect at aef 2022 include:

- What does Africa want and need and how can international partners play a part
- How are EU investments being channelled in to Africa's energy projects
- South Africa's Independent Power Producer Procurement Programme – unfolding for the future
- Africa's voice in the global fight against climate change – how is the conversation changing for COP27?
- Implementing practical solutions for Africa's utilities
- Gas – Africa's fuel here to stay – the need to accelerate gas on the continent
- Project preparation – increasing the number of projects reaching financial close
- Is project financing ready to ride the green hydrogen wave?
- Integrating solar and wind into the grid
- Assessing South Africa's 100MW no license liberalisation and its progress
- Industrial and corporate de-carbonisation

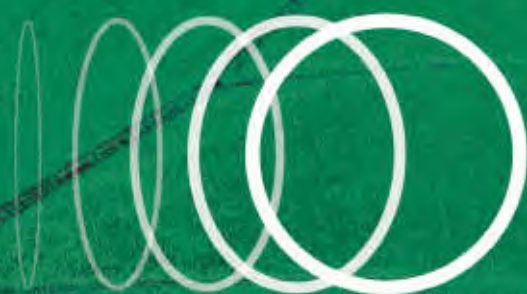
In the words of HE Honourable Dr Mohamed Shaker El-Markabi,



The event will provide latest industry knowledge with keynotes from key players of the sector.

minister of electricity and renewable energy, Egypt, "African Energy Forum 2021 event was very successful and I would like to thank you for all your support. The venue is very well situated, the conference room was perfect and lunch in reception worked very well. From my perspective, the way you managed the aef21 was very great and the event days were exemplary. We will be back with more success, Inshallah, at aef 2022."

<https://www.africa-energy-forum.com/AR>



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RENEWABLE POWER SETS ANOTHER GLOBAL RECORD IN 2022

Image Credit: Adobe Stock



Unprecedented growth in capacity additions is mainly driven by solar PV in China and Europe as renewables demonstrate their energy security benefits amid market turmoil.

New capacity for generating electricity from solar, wind and other renewables has increased to a record level worldwide in 2021 and will grow further this year as governments increasingly seek to take advantage of renewables' energy security and climate benefits, according to the International Energy Agency (IEA).

The world added a record 295GW of new renewable power capacity in 2021, overcoming supply chain challenges, construction delays and high raw material prices, according to the IEA's latest Renewable Energy Market Update. Global capacity additions are expected to rise this year to 320GW – equivalent to an amount that would come close to meeting the entire electricity demand of Germany or matching the European Union's total electricity generation from natural gas. Solar PV is on course to account for 60% of global renewable power growth in 2022, followed by wind and hydropower.

In the European Union, annual additions jumped by almost 30% to 36GW in 2021, finally exceeding the bloc's previous record of 35GW set a decade ago. The additional renewables capacity commissioned for 2022 and 2023 has the potential to significantly reduce the European Union's dependence on Russian gas in the power sector.

BLACKBERRY JOINS HANDS WITH MIDIS GROUP TO DRIVE GROWTH IN AFRICA



Image Credit: Adobe Stock

Midis Group will focus on driving growth for BlackBerry's Cybersecurity business unit.

BlackBerry Limited has entered into a partnership with Midis Group to expand its go-to-market sales motion across Eastern Europe, the Middle East, and Africa.

A leading technology company, with a network of over 170 affiliates and partners across these markets, Midis Group will focus on driving growth for BlackBerry's Cybersecurity business unit. Midis Group will leverage its on-the-ground expertise, market knowledge, and regional infrastructure to establish BlackBerry-branded local offices focused on representing BlackBerry's comprehensive portfolio of unified endpoint management solutions and next-generation, AI-based Cylance cybersecurity products.

"BlackBerry has always stood for security, trust, and innovation," said John Chen, executive chairman and CEO of BlackBerry. "As a leading provider of cybersecurity products and solutions to governments, large enterprises, and small and medium businesses around the world, we are pleased to partner with Midis Group to further expand our business across Eastern Europe, the Middle East, and Africa. In the face of increasingly frequent cyberattack attempts and intensifying regulatory scrutiny, BlackBerry is committed to helping organisations build up their cybersecurity capabilities and prepare for, prevent, detect, and respond to cyber threats."

AFRICAN DEVELOPMENT BANK GROUP CHIEF ENVISIONS STRONG GLOBAL SUPPORT FOR AFRICA



Image Credit: Adobe Stock

The aim is to accelerate regional multilateral development.

African Development Bank Group president Dr Akinwumi Adesina has garnered strong support for a robust 16th replenishment of the African Development Fund, the Bank Group's concessionary lending arm that supports Africa's low-income economies.

Adesina concluded a three-day official visit to Washington DC. Alongside the spring meetings of the International Monetary Fund and World Bank, the visit included several bilateral engagements with stakeholders on African development.

Replenishment efforts continue through October, when partners are expected to make their pledges.

During bilateral meetings, United States assistant treasury secretary, Alexia Latortue, said the African Development Fund was critical to Africa's development landscape. She assured the bank president that the US remains a strong and proud supporter of the Fund, which has strategic focus and delivers impact. Latortue applauded the leadership of Dr Adesina in developing the bank's bold African emergency food production plan to avert the looming food crisis due to the Russian war in Ukraine, and assured him of the strong partnership of the US Treasury Department on the plan.

Adesina highlighted the bank's innovative Technologies for African Agricultural Transformation (TAAT), a programme operating across nine food commodities in more than 30 African countries.

SOLAR POWER FOR FORD SOUTH AFRICA'S SILVERTON PLANT



Image Credit: Ford South Africa

The solar PV array will eliminate the equivalent of 20,072 tons of CO₂ generated per annum.

Ford's Silverton Assembly Plant in Pretoria is now sourcing 35% of its electricity completely emission-free, directly from the sun.

This pioneering project is the result of a long-term power purchase agreement with SolarAfrica, with the installation of solar photovoltaic (PV) carports for 3,610 vehicles at the Silverton plant.

SolarAfrica's innovative, large-scale solar array uses a total of 30,226 solar panels to generate 13.5MW of emissions-free electricity for the Silverton plant. This makes it one of the largest solar carports in the world, and a truly ground-breaking renewable energy project for the domestic automotive industry. It also supports Ford Motor Company's ambitious global targets to use 100% carbon-free electricity across its manufacturing operations by 2035, and achieve carbon neutrality by 2050.

Ockert Berry, VP operations, Ford South Africa, said, "This project proudly puts the Silverton Assembly Plant on the map as part of Ford's commitment to sustainability as we migrate our energy supply from fossil fuels to environmentally-friendly, renewable resources."

"Through the long-term power purchase agreement with SolarAfrica, this project will also significantly reduce our energy costs, thus improving the efficiency and cost competitiveness of the plant. It is another big step forward in modernising our manufacturing operations."

Pushing back on crisis

Jeff Gable, head of macro and fixed income research at Absa Group, explains how African markets are adopting new trends to get future-ready.

Since the onset of Covid-19, financial markets around the world have been plagued by challenges, and African markets have not been immune to these headwinds. We've seen rising interest rates, growth hampered by slow vaccination roll-out campaigns and volatile commodity prices. Russia's invasion of Ukraine has only intensified these pressures.

In the midst of this, we saw some evidence of deterioration in certain elements of financial market development across the continent. In the context of the 2021 edition of the Absa-OMFIF Africa Financial Markets Index, a majority of the 23 countries surveyed experienced an overall decline across scoring. In general, the parts of the index most impacted by recent conditions were those index pillars that look to measure market depth and transparency, and the capacity of local investors.

Facing the twin challenges of reinvigorating markets and strengthening market infrastructure, Africa is now navigating an extremely tricky economic atmosphere.

The continent at large has not had to weather a full-scale financial crisis, however, individual countries have required debt restructuring and the overall debt environment, as measured by the IMF's debt sustainability framework, highlights rising risks ahead. With a focus on financial market development, many nations are using lemons to make lemonade – absorbing the warning signs thrown up by the shock of a global

pandemic and refocussing their attention on adapting market standards to meet the needs of international investors seeking to diversify risks.

To give themselves the best chance for success, African markets must lean into green finance and digital transformation – two trends that are crucial to securing their futures in the global economy.

ESG: the door to global money pots

ESG assets are the door Africa needs to open to access global money pots. Investors around the world are increasingly pouring their money into certified ESG assets; as such, a collective ESG-focused pivot is necessary.

Fighting Covid-19 has been a priority, however several African nations have recognised the opportunities inherent in ESG-focused development. They have demonstrated a commitment to leading the charge over the past year, and have acknowledged the importance of alleviating climate-related risks to the financial system.

At the time that the index scoring was compiled, 13 out of the 23 indexed countries had some level of ESG regulatory framework in place, with several introducing sustainable finance products. Constructively, further strides have been made by many index countries in the months since that scoring was done.

Digitising Africa: an avenue to improvements

Another important avenue to future-proof Africa's financial markets is digital technology and innovation. For instance, in order to attract investors and issuers, and make capital markets more efficient and competitive, African nations have been upgrading market infrastructure and regulatory support for the development of technology-based tools.

The Johannesburg Stock Exchange is developing a digital private placements platform to raise capital for infrastructure finance and small- and medium-sized enterprises. Another example of this is eSub, developed by the Central Bank of Rwanda. The platform enables people to buy and sell government securities using their mobile devices.

While a crisis may distract investment away from such initiatives, new technologies like digital



Jeff Gable is the head of macro and fixed income research at Absa Group.

currencies and blockchain solutions bring with them the potential to vastly improve market efficiencies – so it's crucial to keep investing during crises.

Digital transformation can also lead to more growth and higher living standards in the long run. Digital transformation can put domestic assets to work by making it simpler for retail investors to participate in local equity and bond markets. In addition, it can make the continent more competitive as it becomes easier for governments to finance themselves.

A future-proof Africa

Against the backdrop of pandemic recovery and the turbulence triggered by the Russia-Ukraine war, Africa's ability to continue to pursue innovation provides a positive outlook for the future.

Policymakers, investors and asset managers must not take their eye off the ball now. They will need to continue monitoring the openness and attractiveness of the African capital markets in which they participate.

As governments continue to face fiscal difficulties, debt pressures and an employment crisis, not to mention devastating climate-related weather events, we remember that African nations have always persisted in pushing forward against strong headwinds.

Fostering budding initiatives in green finance and digitisation will be vital to increasing Africa's resilience to shocks and improving the region's chances of enjoying a sustainable post-pandemic recovery. If adopted more broadly, they hold the potential to deepen domestic markets and to contribute towards healthy financial market development. ■

“To give themselves the best chance for success, African markets must lean into green finance and digital transformation.”

JEFF GABLE, HEAD OF MACRO AND
FIXED INCOME RESEARCH AT ABSA
GROUP

Agricultural trade presents a good opportunity for Africa.

Image Credit: Adobe Stock

Building a bridge between emerging Asia and Africa

Africa-Asia ties are rapidly growing focused on strategic cooperation around trade, investment, education and technology transfer.

During the past decade, sub-Saharan Africa (SSA) has diversified its major export destination markets – reflected in declining sales to Europe and North America, while emerging and developing Asia (led by China and India) has surfaced as a key partner in both intermediate and capital goods trade particularly after 2010, according to the U.N. Comtrade database.

The composition of Africa's exports to Asia is made up of primary commodities such as energy, metals and minerals, and agricultural raw materials. On a positive note, Asian-African trade is gradually tilted towards 'intra-industry' intermediate goods comprising light manufacturing and roughly transformed metal products

(Table 1). Africa has also diversified its sources of imports in recent years. The region's imports from Asia are dominated by machinery and electrical products, which constitute more than one fifth of regional imports from Asian countries.

The rise of Asia-Pacific as a third global market (after the U.S. and western Europe) offers new opportunities for African exporters to diversify from some of the traditional advanced economy trading partners – whose growth is slowing (Table 2) – and from commodity exports – which exhibit high price volatility – towards manufactured goods.

New market frontiers

The share of SSA in Asian trade has

Table 1: Sub-Saharan Africa's Exports to Selected Asian Countries by Product Category, 2017

	(Share of country's imports from SSA %)			
	India	Indonesia	China	South Korea
Machinery & Transport Equipment	0.93	0.57	0.14	7.02
Textiles & Apparels	1.01	7.18	0.72	0.19
Chemicals	2.08	0.94	0.81	4.14
Agricultural Raw Materials	3.17	12.54	4.87	0.38
Ores & Metals	8.56	3.35	25.85	34.74
Food	8.60	8.20	3.86	8.47
Manufactures	11.41	2.72	11.31	17.79
Mineral Fuels, incl. Oil & Refined Products	54.89	71.89	38.49	38.55

Sources: World Integrated Trade Solution data.

Table 2: Asia's Growth Outlook versus Western Europe, North America & Japan

	2021	Projections (%)	
		2022	2023
Emerging & Developing Asia	7.3	5.4	5.6
China	8.1	4.4	5.1
India	8.9	8.2	6.9
ASEAN-5 *	3.4	5.3	5.9
Euro Area	5.3	2.8	2.3
Germany	2.8	2.1	2.7
France	7.0	2.9	1.4
U.S.	5.7	3.7	2.3
Canada	4.6	3.9	2.8
Japan	1.6	2.4	2.3
U.K.	7.4	3.7	1.2

Source: IMF, World Economic Outlook, April 2022.

*The Association of Southeast Asian Nations-5 (Thailand, Malaysia, Indonesia, Singapore & the Philippines). The membership of the regional bloc now includes Brunei, Vietnam, Cambodia, Myanmar (Burma) & Laos. Collectively, ASEAN membership has a population of 650mn and a gross domestic product (GDP) of US\$2.8 trillion.

increased rapidly, and for some African countries their key trading partners are now China, India, and Indonesia. For instance, in 1997, the top four export markets were the U.S., UK, France, and Germany. By 2020, China, India, the U.S. and the Netherlands comprised top export destinations. By contrast, China and India were Africa's eighth- and ninth-largest trading partners in 2000. The expansion of Asian countries in SSA's total exports reflects the intensification of ties with China and India. The latter has overtaken Japan and South Korea as principal markets

for SAA's exports to Asia. Since 2005, India has been ranked the top export destination for Ghana, Nigeria, and Tanzania. Pakistan is the top destination for Kenya's exports (mainly coffee and tea).

Africa-Asia trade links fall under the umbrella of the most favoured nation (MFN) clause. India introduced the Duty-Free Tariff Preference (DFTP) scheme for least developed countries (LDCs) in 2008. It progressively eliminated customs duties imposed by India on LDCs' imports on 85% of India's total tariff lines (4,437 products). Since 2005,

China has provided zero import tariffs and exemptions on more than 180 product-lines from 28 of African LDCs. China also has concluded free trade agreements (FTAs) with some African countries covering trade in goods and services, investment, and economic cooperation. Indonesia has started negotiating preferential trade agreements (PTAs) with a few African countries as well.

Mass market for African businesses

East Asia and South Asia have represented the global growth engine during past few decades. China's economy (in purchasing power parity) now exceeds the U.S. economy; India is the world's third-biggest economy; and Indonesia is on track to become the seventh-largest economy. For Africa, this indicates a significant future shift from traditional export destination and foreign direct investment to newer sources in emerging Asia. Although SSA exports to Asia remain concentrated in resource-intensive products including metal/mineral products and fuels/lubricants, a few African countries such as Ethiopia, Ghana, Kenya and Tanzania have diversified their export portfolios.

The middle class is maturing or even shrinking in advanced economies, but it comprises the fastest-growing consumer segment in the Asian region (Table 3). By 2030, global middle-class consumption could be US\$29 trillion higher than in 2015. Only US\$1 trillion of that will come from increased spending in high-income economies. Whereas,

lower middle-income countries (India, Indonesia, and Vietnam) could boast middle-class markets that are US\$15 trillion bigger. Consumption spending by China's middle class alone surpassed the U.S. in 2020 and is projected to exceed that of European Union by 2027.

Potential sectors where SSA could tap into the booming middle class Asia market are:

Agriculture: China, India and Indonesia are increasingly demanding more food products (meat, dairy products, fresh/processed fruits, oil, fish preserves, sugars, and liquors) – reflecting rising per capita income. The food market in Asia is an opportunity for African countries with favourable arable conditions. Fish consumption in Asia has grown at notable rates. The U.N. Food and Agriculture Organisation (FAO) expects global fish consumption (currently around 140mn tons), should reach roughly 200mn tons by 2030. Limited possibilities for expanding aquaculture in Europe and North America mean that only South Asia, the Pacific, South America and Africa regions can supply markets with additional marine products.

Wood industries: Asia's ongoing urbanisation, rising household incomes and new housing construction continue to drive the global market for wood-based products. East Asia/Pacific is the largest and fastest-growing region for sales of home improvement products. The growth of real estate industry is reflected in the increasing number of office spaces,

Table 4: The Growth of SSA Merchandise Trade versus other Regions

	(Annual % Growth, 2010-20)
European Union	-2.7
U.S.	-4.3
East Asia & Pacific	4.3
China	5.3
South Asia	2.4
India	2.5
Emerging Europe & Central Asia	6.6
Latin America & Caribbean	-4.4
Middle East & North Africa	-6.1
WORLD	-0.5

Source: World Development Indicators 2021, World Bank Group.

commercial complexes, and residential buildings, thus fuelling demand for wooden furniture. Concurrently, the global wooden furniture market was forecast to expand by 4.8% annually between 2018-2022, as reported in Technavio's 'Global Wooden Furniture Market 2018–2022'.

China is the top importer of logs and wood pulp, and second-largest importer of lumber and wood chips. China's five largest African suppliers of hardwood logs are Equatorial Guinea, Mozambique, Cameroon, DRC, and Nigeria – each exporting 3mn cu m to China worth US\$1bn. The wood content of China's primary forest product imports will increase from an estimated 194mn cu m in 2015 to 254mn cu m by 2025 (Technavio).

Tourism and Travel: As a global export category, tourism ranks third after chemicals and fuels and ahead of automotive products. In many low-middle income countries (LMICs), tourism comprises the No.1 export earner. The U.N. World Tourism Organization (UNWTO) predicted tourist arrivals worldwide rising by 3.3% per year from 2010 through 2030. A noticeable trend is the relatively faster rate of growth of arrivals in emerging economies than in advanced economies. The former will add an average of 30mn arrivals per year – more than double the 14mn new arrivals in advanced economies (UNWTO 2017).

SSA countries can tap into this lucrative trade because Africa is a popular destination for Asian tourists, who are among the world's

top tourist spenders. Every US\$1 spent by visitors injects an estimated US\$3.20 to the respective domestic economy, as reported in 'Travel & Tourism as a Driver of Employment Growth,' in Travel & Tourism Competitiveness Report 2013.

A survey by global travel platform Travelzoo finds that the continent was the top destination of choice for Chinese tourists seeking more adventurous holidays in 2018, beating Japan and Australia. Visitors were especially drawn to Morocco, Tunisia, South Africa, Namibia, Madagascar, and Tanzania.

New opportunities

In sum, Africa-Asia trade flows are likely to increase in coming years. A significant focus on industrial, trade, and competition policies coupled with improving corporate and state capabilities in African countries, would deepen trade and integration with Asia-Pacific region. Furthermore, the booming middle class plus buoyant demand from East Asia, along with the shifting structure of GVCs, offer new opportunities for Africa.

The effective participation of African countries in an ever-evolving global trade environment remains pivotal to industrialisation prospects and job creation. SSA's exports and imports of goods and services have risen in the past decade, but total volumes at 3% of global trade in goods and services are low – hence the need for boosting and diversifying foreign trade. ■

Moin Siddiqi, economist.

Table 3: Size of the Global Middle Class*, by Region 2015-30 (Million)

	2015	2020	2030	2020-30 (% chg)
Asia-Pacific	1380	2023	3492	72.6
Europe	724	736	733	-0.4
North America	335	344	354	2.9
Central & South America	285	303	335	10.5
Middle East & North Africa	192	228	285	25.0
Sub-Saharan Africa	114	132	212	60.6
WORLD	3030	3766	5412	43.7
Asia-Pacific % World total	45.5	53.7	64.5	

Source: Kharas, H. 2017: "The Unprecedented Expansion of the Global Middle Class, An Update." Global Economic & Development Working Paper 100, Brookings Institution, Washington DC.

*Middle class is defined as comprising those households with per capita incomes between US\$10-100 per person/day in 2005 purchasing power parity (PPP) term.

Rise to the top

Nigeria's capital city, Lagos, is home to Africa's biggest tech hub and has produced a record number of tech unicorns. Barry Mansfield finds out the secrets to its success.

Nigeria's technology scene keeps hitting the headlines. Twitter founder Jack Dorsey visited the country last summer, and appointed three young Nigerians to the board of his Bitcoin initiative Btrst. Dorsey and US musician Jay-Z have dedicated US\$22mn to revolutionising slow payments systems in emerging economies, with the goal of removing barriers to intra-African trade.

Lagos is known for its accommodating business environment. After all, it spawned Africa's first tech unicorns (companies valued at over US\$1bn). In mid-February, Flutterwave achieved a valuation of US\$3bn following its Series D financing round, and more companies are continually looking to tap into Nigeria's increasingly tech-savvy population.

What's clear is that investment in Africa is no longer an act of charity, but a matter of serious business. In fact, African fintech startup funding rose to a record high of US\$2bn in 2021, with total VC investment quadrupling over the previous year. All four of Africa's unicorns are private fintech companies. Flutterwave is at the front of the pack, with other young companies like OPay, Wave Mobile Money, and Interswitch just behind.

It has taken time, but the ecosystem is maturing. Investors are becoming more averse to 'helicopter investments' and are showing a greater desire to build a strong local presence on the ground, so they can be within physical reach of their entrepreneurs.

Myths or models?

Jumia, the continent's very first unicorn (still valued at US\$1.1bn at the close of 2021), inspired Interswitch with its pacy, aggressive pan-African expansion. Jumia's meteoric rise shows the importance of targeting a wider African audience, even if the company starts out by serving customers on its own doorstep. The marketplace now sells to 600 million people across 11 African countries, and passed 30 million orders in total last year.

There are valuable lessons to be learned from Jumia's diversification strategy, which is both



Wave Mobile Money aims to make Africa the world's first cashless continent.

Image Credit: Wave Mobile Money

vertical and horizontal. It has expanded its inventory, de-emphasising electronics and elevating food, beauty, fashion, travel and consumer goods. It branched out into advertising and logistics last year, splashing out on urban billboards and online influencers, while also investing heavily in gamification, personalisation, and user-friendliness.

"We deliver anywhere, even the rural areas. We've succeeded at cracking the execution of e-commerce in Africa. It's down to the details, which is why local players are so strong and relevant to consumers," said Sacha Poignonnec, co-founder and co-CEO of Jumia.

Payments specialist Interswitch has a similar approach with its horizontal suite of services (including financial inclusion initiatives) and vertical solutions spanning multiple industries. Founded in 2002 by electrical engineering graduate Mitchell Elegbe, Interswitch is the parent company of Quickteller and Kenya's Verve, and maintains more than 11,000 ATMs on its network. In November 2019, Visa took a 20% stake for around US\$200mn.

Elegbe admits that all business cultures become diluted over time, but he attributes the rise of Interswitch to the quality of his team: "We're a very people-centric company," he enthuses. "Always look at the man or woman behind the person, not just the skills."

From fintech to agritech, from insurtech to edutech, from real estate-tech to medtech and even psychtech, technology belongs largely to the youth. Today, Andela founder and ex-Flutterwave MD Iyin Aboyeji plans to support Nigeria's young Tech Bros with a specially-designed charter city, provisionally entitled Talent City Lagos.

Developing a sustainable ecosystem

Prominent figures in the Lagos VC community recognise Nigeria's power to inspire. Satoshi Shinada, general partner in Kepple African Ventures (KAV), reckons that Senegal's leading tech companies will develop in a similar fashion to the Nigerian trailblazers.

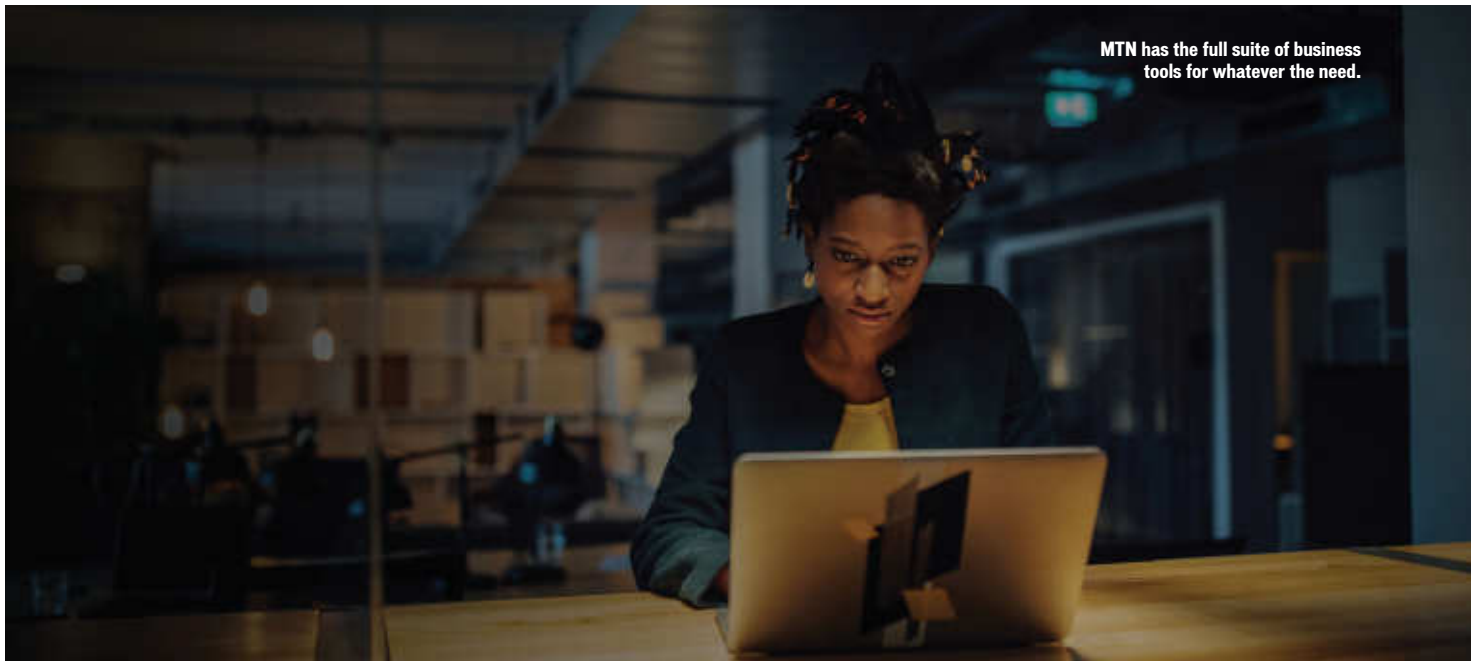
Shinada has backed 90 African portfolio companies in the last three years, with an intensified focus on Francophone markets. KAV's objective, he declares, is to create new industries. Shinada doesn't see his startups as standalone investments: "We try to establish collaboration and synergies among the portfolio companies," he stresses. "We want to create a cluster of business models so that we can nurture them."

KAV recognises weak consumer spending power as an obstacle, but Shinada suggests that it can be improved by tackling the efficiency of supply chains. Consumers are usually small business owners, he points out. "If the small business owners generate more revenue, they have more purchasing power as consumers." As for the VC landscape, it is important "not to focus just on startups. We need to make the ecosystem more sustainable."

Aboyeji believes in solving hard problems in large markets, and Poignonnec shows that Jumia has kept to that philosophy. He wants to convert users to Jumia Pay and drive consumer lifetime value, partly through offline point of sale (PoS) payments, the food offering, and on-demand urban express delivery in 30 minutes. "Building services takes a lot of time and adaptation. But we're very integrated now, and the apps are seamless." ■

Closing the gap between can and do

Whether a start-up or fully-fledged enterprise, MTN Business offers the full suite of tools to support businesses convert intention into action.



MTN has the full suite of business tools for whatever the need.

Image Credit: Getty Images

When it comes to running a business effectively, doing is a game changer. MTN puts the right tools in the hands of 'doers', closing the gap between can and do. After all, doers are everywhere in Africa. They are the people and businesses who dare to take the gap and convert intention into action. Whether a start-up or an enterprise, MTN has the full suite of business tools for whatever need.

MTN offers every possible solution, from network and products, to the platforms required to inspire the doing customers want to achieve today. But what are they actually doing that will help businesses move forward?

MTN has put in place specific business products that are tailored to ensure businesses thrive in this fast-moving digital world.

MTN Business ICT Solutions

This gives a business an evolutionary leap that connects everyone and

everything. MTN Business ICT solutions simplify, automate, and speed up the administrative processes while enhancing networking, connectivity, and collaboration.

MTN's solutions can accelerate a business' progress in ways that will give it the agility to respond to customers, employees, and suppliers in real time. It can provide an organisation with efficient connectivity, integration, infrastructure, and network, using multiple solutions across five categories:

- Managed Networks
- Unified Communications
- Data hosting and Cloud services
- Security-as-a service
- IoT.

MTN Managed Networks

MTN Managed Networks offer African doers fewer servers, and more service. With networks that are better managed, businesses

have access to smarter infrastructure, cost savings, as well as an always on, and always connected system.

MTN Business Unified Communications

Providing a host of enterprise communication tools which will enhance collaboration, enable seamless connectivity, and increase efficiencies, these solutions equip an organisation with everything needed to work from wherever. In a world where work may sometimes be out of the office, it never has to be out of the loop.

MTN Business Data Hosting and Cloud Services

Enhancing a business' digital experience by allowing service to continue, even when servers go down, all while securing data. Just because servers are down, does not mean data has to go down with them.

MTN Business SaaS

MTN Software as a Service with no installation and management of software and hardware enables access to applications via the cloud while providing a secure and protected space for all data.

Organisations do not have to worry about software updates, but can trust MTN to take care of that on their behalf.

MTN Business – Internet of Things

IoT enables an exchange of information between networked devices, allowing them to intelligently respond without human interference. This platform increases business efficiency, improves productivity and maximises human resources, while also reducing costs.

Everything MTN does is inspired by the doers. Its trusted business solutions will support more people to take this step and make progress happen every day. ■

The digital bedrock

Damilola Agbaje, investment director for African Infrastructure Investment Managers (AIIM) explores why an increasing amount of investment into the continent is being dedicated to developing the digital landscape.

In Africa, the digital landscape is changing. While the continent still lags behind in terms of Internet penetration, it also represents the fastest growing rate as well – according to the World Bank the proportion of sub-Saharan Africans with access to the Internet grew from 18.9% to 28.9% between 2016 and 2019.

With a rapidly expanding population and a rise in businesses eager to contend with the international market, digital infrastructure demand is continuing to accelerate and the need for quality service is becoming more acute.

This is one of the tailwinds which have encouraged AIIM, a company which started with a focus on core infrastructure, to broaden its attentions and incorporate digital infrastructure.

As Agbaje explained, “The growing rate of Internet penetration has been driven by the mobile economy; GSM; and the introduction of 2G, 3G, 4G etc. Between 2010 and 2019 more than 300 million Africans gained access to the Internet and we believe, as African infrastructure investors, there is a real opportunity to support the ecosystem and facilitate a higher quality of access to the Internet.”

“With Cloud, big data, AI and IOT consuming a lot of data, it is very important to invest in the infrastructure necessary to facilitate quality Internet access and ensure Africa does not get left behind in today’s digital transformation.”

One of the most fundamental pieces of the digital puzzle is data centres and, unfortunately for the continent, it is one that has been underserved. As Agbaje explained, historically much of the content being delivered into sub-



The Onix 1 data centre is expected to be the largest operational centre in Ghana.

Image Credit: AIIM

Saharan Africa has either been stored in South Africa or other continents, which has meant that the quality of access for African users and consumers has been subject to latency and is, comparative to much of the globe, poorer.

This problem has been exacerbated by applications becoming more advanced and represents an unequal footing for African businesses against international competitors. In order to facilitate a similar quality of access to the Internet and new technologies being developed, servers must be located closer to geographies where the Internet users are actually consuming data, via the introduction of data centres. At this moment in time, Agbaje noted, the continent is at around 250MW of installed capacity but by 2030 it will require around 1200MW.

“There is also an increased focus on data protection and data sovereignty and a lot of African governments have passed data protection laws or are planning to do so. This means there is increasing pressure to locate servers in-country, and that is also creating a demand for data centre capacity for countries across the continent.”

To meet this demand, there is a number of players entering this space, Agbaje noted, “There are a number of different market participants, each with their own strategies.”

“On our end, while we may be opportunistic if the right angle comes along, we are looking beyond some of the well capitalised markets such

as Nigeria, Kenya and South Africa. Our focus is on Tier 1.5 (Ghana for instance is not quite Tier 1 but is on the fringe) and Tier 2 markets. We are looking at nascent markets where we can have a first mover or a near first mover advantage and where we can work with strong local partners with good enterprise links. Ultimately we want to build a regional footprint that can be marketed to international customers as a portfolio of facilities for partnerships in the future.”

Entry into Ghana

AIIM has taken the next step in this pursuit by acquiring a carrier neutral, co-location data centre through the newly incorporated Onix Data Centre platform. The Onix 1 centre is the only Tier IV data centre in Ghana, is located on a one-hectare site, is purpose built with two data halls (expandable to four) and is expected to be the largest operational data centre in the country.

“Because it is the only Tier IV centre in the country we are providing a service that is unique and not really replicated on a like-for-like basis. We have engagements ongoing with key government agencies that are providing important services to the Ghanaian population, and we are providing them with quality data centre capacity that ensures their data is safe, that they maintain uptime and they can deliver a high quality of consistent service to the population.”

“It is very important to invest in the infrastructure necessary to facilitate quality Internet access.”

DAMILOLA AGBAJE, INVESTMENT DIRECTOR FOR AIIM

“One thing we really want to do over our investment period is invest in local Ghanaian stock, upscale the population to be able to deliver world-class Tier IV services, and do all that with locally sourced and trained Ghanaian employees.”

Agbaje added that facilities like the one in Ghana ensures participants in the digital economy are able to deliver world-class levels of service because they are able to communicate through a facility which dramatically reduces latency when content is being consumed. “These are factors which are taken for granted in more developed markets but quick and uninterrupted streaming and being able to access the cloud seamlessly can make palpable improvements in many African countries.”

Power requirements

While it is clear that the continent is in need of more facilities like data centres, in practical terms this is often easier said than done. One daunting challenge, for example, is energy supply, as large data centres can require a substantial amount of power, sometimes representing more than 100MW.

Agbaje explained, “If you break a data centre down into its constituent parts (in simple terms), it is power, cooling and facilitating access to connectivity. All of those have to be completed



Damilola Agbaje joined AIIM in 2013.

with the right level of redundancy to ensure you maintain uptime.”

“On the cooling side, we are focused on energy efficiency through our business-to-business renewable investments. This means being on top of the latest cooling technology to make facilities more efficient, reduce overall consumption and ultimately reduce cost. AIIM has also made significant investments into fibre companies; this experience ensures that we have a good grasp of the connectivity aspect.”

“Finally, when we look at power for data

centres we understand the importance and potential of using renewable generation and implementing battery storage solutions. By doing this, we can keep the need for expensive backup diesel generators to an absolute minimum.”

The Onix 1 centre is served utility power by ECG (11kV), power is augmented by the solar farm which provides 725.67kWp and power and cooling in each module is backed up by here standby generators. On site fuel storage provides 67 hours of continuous power at full capacity and savings are passed onto our customers.

In this regard, AIIM is a significant shareholder in a company called Starsight Energy which is a provider of renewable power solutions. The company has already begun providing power to data centres and is increasingly in discussions to provide power to more and larger facilities of the same type – an indication of the role renewables could have in Africa’s digital landscape of the future.

“As a company we have a good understanding of what it takes to power these data centres and that informs our approach to investing in other facilities. For the future, we want to build a substantial market presence in Ghana and then replicate that position in probably two to three other markets in the next five years,” Agbaje concluded. ■

THE FUTURE OF DATA CENTRE CONNECTIVITY

Significant investments are being put into data centre infrastructure and services, not just around the world but in Africa too, according to a release by Angola Cables. This has been precipitated by the explosive growth in data and demand for cloud and related connectivity services for companies and customers alike, which has been further exacerbated by the rise in remote working practices resulting from the Covid-19 restrictions.

Global Data Interchange (GDI) empowers network service providers to offer a host of managed services across several data centres and Internet exchange points connecting local as well as international digital ecosystems. The network providers can benefit from connecting multiple destinations in Africa, Europe, and the Americas through a single manageable network.

Angola Cables has introduced a Global Data Interconnection (GDI) solution to benefit ISPs, carriers, OTTs, multinationals, gaming entities, corporate and financial sector clients – or any network operators wanting to seamlessly connect to major international data centres and Internet Exchange Points (IXPs) through express, low latency routings.

“With our partnership arrangements with some of the major top tier data centre operators across Africa, the USA, Latin America and Europe, we can offer single or multiple point connections to destinations across the world to access data through either public or private network configurations,” says Angola Cables CEO, Angelo Gama.

Secure, dedicated interchange connections are available through the advanced data centre infrastructure provided by leading companies such



There has been an explosion in data demand from companies and customers.

as Equinix, Interxion, Teraco, Ascenty, Digital Realty and others.

Customers can select their preferred international connectivity options or dedicated links as their business or enterprise requires.

Gama remarks that this solution gives access to content and services for companies who are registered with any of the available data centres through the robust Angola Cables network. “As the GDI service is protected by layered security protocols, customers can be assured that their data remains private and secure in reliable global network.”

Electric mobility flourishes

The 14th edition of the annual Africa Energy Indaba took place in Cape Town in early March, and once more presented Africa's latest energy innovations. Stephen Williams reports.

The Africa Energy Indaba (AEI) exhibition is always a great opportunity to meet people at the cutting edge of securing sustainable energy for the continent. A number of government ministries, including South Africa's Department of Mineral Resources and Energy (whose minister, Gwede Mantasha, gave an opening address) were joined by industry bodies and private enterprises from across Africa to showcase their activities.

Among the AEI exhibitors was Fezile Dhlamini, the founder and chief executive of Green Scooter, the manufacturer of the Zbee, one of Africa's first all-electric vehicles.

Dhlamini is excited about the prospects for electric urban mobility, and traces this passion to when he tried to order a take-away home delivery.

Torrential rain had made that impossible; all the motorcycles that normally made deliveries had canceled as conditions were so dangerous. When he finally got his meal, it was delivered by a four-wheel drive SUV.

That got him thinking about alternative delivery systems and urban transport in general.

"We began our research in late December 2019," Dhlamini says. "We were trying to find the best solution to the first mile, last mile problem, using modern technology."

His research led him to conclude that trikes might be the ideal vehicles. They were light enough to be energy efficient; stable enough to cope with poor roads; and relatively easy and inexpensive to manufacture, own and operate. They cost from ZAR94,000 (about US\$6,500).

Growing demand

Dhlamini is hardly the only entrepreneur to choose to develop the electric vehicles (EVs). World-wide, according to Bloomberg, sales of electric vehicles doubled from 2020 to 2021, rising to a record 6.3mn units. In Europe, with the world's top adoption rate, one-fifth of passenger vehicles sold in 2021 were electric as opposed to internal combustion engines. But, of course, most of these sales were made by the major car companies.

In a milestone for the environment, Europeans purchased more electric cars than those powered by diesel last month. According to recent data, over 20% of new cars sold in the European Union



The Zbee, an all-electric vehicle.

Image Credit: Green Scooter

(EU) and UK on December 2021 were electric. Meanwhile, the sale of diesel vehicles in the EU slipped below 19%.

Yet transport emissions in Africa grew by 84% between 2010 and 2016, researchers have noted, citing data from the Belgium-based Partnership on Sustainable, Low Carbon Transport.

From Kenya to South Africa, where both ownership of private family cars and official public transport is limited, the majority of urban journeys are undertaken using informal private transport - often old and imported second-hand minibus taxis or two- and three-wheeled vehicles.

An example of electric public transport making inroads is in Kampala, Uganda. There, local motorcycle taxis, known as boda bodas, are converting to electric bikes. Drivers can swap their batteries at solar charging stations when they run low on power.

And Kiira Motors has launched locally manufactured electric buses in Uganda. There are also electric bus pilot schemes in Cairo, Addis Ababa and Nairobi.

In Kenya alone there are at least 50 startups working on two- or three-wheeled EVs, according to the UN Environment Programme. Kenya wants 5% of car imports to be EVs by 2025, and is cutting EV import duties in half. In addition, the country's strategy includes having public buildings and new estates incorporate charging stations.

The country's power utility, Kenya Power, has ambitious plans to build charging points across the nation and is pushing for further reductions of import taxes for electric cars.

Ghana, Rwanda, Seychelles, and Mauritius have also rolled back tax on imports. Next year, 2023, Egypt plans to build 20,000 EVs while Namibia wants 10,000 EVs on the roads by 2030; South Africa itself wants to see 2.9mn EVs on the nation's roads by 2050.

There is also the prospect that, as demand for electric vehicles grow, African countries such as the Democratic Republic of the Congo, Zimbabwe, Zambia, Namibia and South Africa can benefit by supplying the raw materials used in their production such as lithium, copper and cobalt.

Clearly, EVs are ideal for short urban and peri-urban journeys, either delivering goods or passengers. And the running costs are attractive: Dhlamini quotes operating expenditure at less than 50c (ZAR) for each kilometer.

At the heart of the Zbee three-wheeler vehicle is a lithium-ion phosphate battery, located beneath the driver's seat for optimum weight distribution. This can be charged to full power in 3.5 hours, and gives a range of up to 80-100km, depending on the way it is driven. It has passed all the impact safety regulations, and, as it has a chassis, does not require occupants to wear a crash helmet.

Acknowledging that South Africa's electricity grid supply is not always as reliable as it should be, Dhlamini says his company is to launch a solar-powered model by the end of the year.

"I hope to create a lot of jobs, because for every retail delivery company that acquires one of our vehicles at least one job is created," Dhlamini says. "We envisage creating 10,000 jobs in the next five years." ■

Africa's logistics sector bounces back

Business is getting back to normal for cargo and logistical firms across Africa, while new technology advances and market moves continue to reshape the sector.



Africa's logistics industry is evolving fast as new technologies reshape how goods are moved, stored and tracked. Digital processes are transforming areas such as warehousing and storage, as well as the shipment of goods by land, sea and air.

There's no doubt that the past couple of years have presented an added challenge, following the outbreak of Covid-19, but there are positive signs too that this is an industry ready to thrive. There's set to be a new look to the market as well, amid the US\$5.7bn sale of Bolloré Africa Logistics to MSC Group. The deal, which comprises all of the Bolloré Group's extensive transport and logistics activities across Africa, is expected to be completed by the end of Q1 2023.

Global shipping giant MSC already has a large footprint across Africa. Its MSC Ghana subsidiary was recently named outstanding shipping company of the year in large part for its supporting role in the country's agricultural exports, including the Cocoa Board of Ghana.

In the 2020-2021 season, Ghana's cocoa production was 1.04mn tons – the highest in 10 years. During 2021, MSC transported 13,000 TEUs of cocoa beans and 4,500 TEUs of other cocoa products. Agriculture accounts for half of Ghana's GDP, and over 40% of export earnings.

With the planned Bolloré acquisition, the company is stepping into an increasingly dynamic market as the sector recovers and other initiatives, like the launch of the African Continental Free Trade Area, promise to grow and expand trade in the years to come.

In its Q1 2022 earnings report, Bolloré reported that total revenues from its transport and logistics segment were up 47% compared to a year earlier. This was driven by a sharp rise in freight forwarding and freight rates, as well as an increase in air traffic volumes.

Bolloré Africa Logistics saw its business expand by 16% in Q1, citing improved performance of key port terminals – notably Congo Terminal, Abidjan Terminal in the Ivory Coast, Owendo Container Terminal in Gabon,

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and Freetown Terminal in Sierra Leone – and the general recovery of logistics and handling activities as economies reawakened after the Covid-19 crisis.

Industry leaders are also being pushed by a new breed of innovative tech-savvy startups across all aspects of the logistics chain. It reflects the ongoing impact of digital and internet-enabled technologies now redefining the industry.

One example is French-Nigerian startup Kwik, a fast-growing provider of SaaS logistics services to social vendors and e-commerce platforms in Africa. It successfully raised fresh funds recently, in part to step up expansion and digitise informal African trade.

Launched in 2019 in Lagos, Kwik has made its mark as a trusted digital platform to secure last-mile delivery services, expanding readily



Image Credit: Kwik

Kwik is one of the new kids on the block in an evolving logistics sector.

from bikes to vans and SUVs, all the way to 20-tons trucks. More than 100,000 merchants have now adopted the Kwik platform.

“Our goal is for Kwik to become the prime app choice for African

social vendors and for traditional merchants going digital – integrating delivery, payment and e-commerce tools seamlessly in one easy-to-use mobile app is a catchy proposition,” said Romain Poirot-Lellig, Kwik’s

founder and chief executive.

He added that a new round of financing will allow the company to expand more rapidly in select geographic areas as it seeks to grow its business beyond Nigeria. ■

CAN WAREHOUSES PLAY A PIVOTAL ROLE IN FOOD SECURITY?

Food security is a primary economic and sustainability goal globally, especially for net importers of foodstuffs. So how can warehouses contribute to food security?

Using survey data from across Africa, the Department of International Trade (DIT), identified issues facing the farming and wider agriculture sector, ranging from targets to achieving food security within 20 years and supporting population growth to changing consumer tastes and post-harvest efficiency.

In some territories a staggering 40% of produce can be lost between harvest and plate, but what drives this loss? Poor equipment and inefficient processes certainly contribute, however wastage due to inappropriate storage, spoilage from stock rotation, supply chain delays and chill chain control are all contributing factors.

Increasing investment into food processing capabilities highlights the need to have the right process, equipment and warehouse storage infrastructure in place to cater for processed produce and frozen or chilled products. By implementing an intelligent warehouse design and carefully selecting suitable equipment for warehouse storage for ambient, chilled and frozen areas, growers and



Image Credit: Dexion

Warehouse design can improve performance from harvest to plate.

producers will optimise the available space, ensuring streamlined operations and minimal food wastage.

Warehouse design can improve performance from harvest to plate, but how can lessons learnt in storage assist growers with increased yields when available arable land is in competition with that for grazing, and large areas remain uncultivated as water and fertiliser become premium commodities?

Expertise in storage design and automation can also take food production to a higher level in the form of vertical farming. The space used for growing is optimised, as with storage facilities and renewable energy provides power

for lighting and HVAC. 95% less water is used in cultivation compared to traditional methods and nutrients are measured and controlled, reducing wastage.

Vertical farming offers a high yield of quality produce on a small footprint, easily located within towns and cities to ensure fresh produce is available to the growing population or fodder for livestock, freeing up valuable space for additional cultivation.

SEC Exports has over 20 years’ experience in designing and installing bespoke warehouse and cold storage solutions across Africa using high quality storage equipment such as the European manufactured Dexion range, available through SEC as an official distributor.

Its bespoke designs are based on real operational data, proven to be the most efficient solution for your ambient and cold storage needs. Furthermore they deliver a turnkey service in vertical farming, with full design and orchestration including automation for optimal efficiency using Dexion’s own vertical farming solutions.

SEC Exports: Intelligent warehouses, globally delivered. For more information visit: www.sec-exports.co.uk

Trina Solar hits global module shipments milestone

Trina Solar, one of the leading providers of photovoltaic (PV) modules and smart energy solutions, has reached the milestone of having shipped 100GW modules in the 25 years since the company was founded in 1997.

According to Trina, the modules shipped have an environmental impact equivalent to planting 7.2bn trees collectively, and the 100GW of PV modules can generate about 135 billion kWh of clean-energy power. The amount of modules is expected to have reduced annual global CO₂ emissions by 135mn tons, and standard coal consumption by 54.54mn tons.

"We are very proud to achieve this significant feat at Trina Solar. Marking the 100GW of shipments is the beginning of a new energy era where solar PV is the main driving force. As we mark a quarter of a century, Trina Solar renews its commitment to lead the solar industry in facilitating the conversion to a carbon-free new world," said Gao Jifan, chairman, Trina Solar.

According to the company, it is the only PV producer to score 100% in the Bloomberg New Energy Finance Bankability Survey for six consecutive years as a top bankable module supplier. The company has also achieved excellent test results in the PVEL (PV Evolution Labs) Product Qualification Programme for seven consecutive years. Trina Solar's 100GW of PV modules have now been shipped to more than 100 countries.

Antonio Jimenez, Trina Solar's vice-president and managing director, Middle East and Africa region, commented, "We are extremely happy with this significant achievement which comes at a time when we also celebrate our 25th anniversary.

"With Dubai as the regional hub for clean energy and energy innovation, we will continue to use open technology innovation to enlarge the scope for growth and achieve sustainable development, leading the industry towards the vision of a green and carbon-free economy."



Image Credit: Adobe Stock

Trina Solar's 100GW of PV modules have been shipped to more than 100 countries.

SUN KING RAISES FUNDING TO EXPAND AFFORDABLE SOLAR ENERGY

Sun King, a provider of solar energy products for off-grid homes in Africa and Asia, recently announced it has raised US\$260mn in Series D funding, led by BeyondNetZero, the climate investing venture of General Atlantic, a leading global growth equity firm, along with M&G Investments' Catalyst team and Arch Emerging Markets Partners.

According to Sun King, it has powered the lives of 82mn people across 40 countries. The company's solar home systems power lights, mobile phones, radios, and larger home appliances. Sun King systems are said to be more competitively affordable and sustainable than kerosene or new power lines, allowing customers to leapfrog electrical grids and fossil-fuel energy sources entirely.

The financing includes a US\$100mn in primary investment for Sun King's continued expansion. The company's founders retain voting control of the board.

In addition to the company's plans for continued geographical expansion, the funds will also be allocated towards product-line expansion, including larger solar systems equipped with AC-electricity inverters (capable of powering larger appliances like refrigerators) and new products such as mobile phones.

Sun King also operates the world's largest direct-to-consumer, pay-as-you-go (PAYG) solar distribution network, growing at a rate of 150,000 new clients per month across seven countries.

The company records show that in Kenya, one in five people use Sun King today, with 18mn Kenyans having benefited over a decade of operations.

In Nigeria, the company's user base has tripled in the past year alone. While growing rapidly, the company has remained consistently profitable.

INFRACO AFRICA TO AID IN BBOXX'S GEOGRAPHIC EXPANSION

InfraCo Africa, part of the Private Infrastructure Development Group (PIDG), has signed an agreement to provide US\$15mn in the form of convertible loan notes to Bboxx, a next-generation utility ramping up the provision of clean, reliable, and affordable energy access to underserved communities in Africa.

The agreement with Bboxx marks InfraCo's first investment in the SHS space, in line with the company's desire to broaden access to clean energy across rural areas and communities using alternative models.

With this transaction, Bboxx and InfraCo Africa are aligned in their commitment to contribute to the United Nation's Sustainable Development Goals: Affordable and Clean Energy for all (SDG 7), Gender Equality (SDG 5) and Climate Mitigation (SDG 13) through increasing access to clean and reliable energy.

To date, Bboxx has successfully delivered clean energy solutions for over 2.5mn people globally, with substantial operations in countries including Rwanda, Kenya, Togo, Nigeria, and the DRC.

BRIEFS

Raman analysis proves to be the best alternative



Endress+Hauser Raman probe in a bunker ship.

Endress+Hauser Raman's spectroscopy-based analyser systems have proven to be a reliable and low-maintenance alternative to traditional gas chromatography (GC)/vaporiser systems for liquefied natural gas (LNG) composition and energy content measurement during custody transfer transactions.

This comes as a result of a study by the European Gas Research Group (GERG), representing 33 members from 15 countries across Europe.

Caterpillar acquires Tangent Energy Solutions



Tangent will operate under Caterpillar's Electric Power Division.

Caterpillar has acquired Tangent Energy Solutions, which provides customers with turnkey solutions for reducing energy costs, increasing energy efficiency, reducing emissions, monetising electric grid support and ensuring resiliency for operations. Tangent Energy's proprietary software solutions monitor patterns from grid and client facilities, analyse opportunities in energy markets, and then dispatch resources to maximise return without disrupting normal business operations.

All countries in southern Africa are squaring up to the challenges posed by the energy transition.

Southern Africa navigates energy transition

The southern Africa region is navigating the challenges of the energy transition with a push to renewables and other clean technologies, though natural gas will remain pivotal for the foreseeable future.



Image Credit: Adobe Stock

For decades, southern Africa's power system has been, in large part, underpinned by the security of supply emanating from South Africa, where coal is king.

The economic powerhouse has been integral to the early days formation and evolution of the fledgling Southern African Power Pool (SAPP), which has helped support demand in neighbouring countries since its 1995. How things have changed.

With its home market now facing a crippling supply crunch, Eskom, South Africa's state power utility, is frantically looking to plug gaps while faced with its own huge problems, including a massive debt pile. That's at the same time as mounting environmental concerns, which have thrown doubt over coal use and other traditional thermal energy sources, accelerating the shift to renewables.

While coal remains the mainstay of South Africa's energy system, meeting around 70% of installed power generation capacity, there is a clear move going on to cleaner alternatives.

But it's also a problem that needs to be put into a wider perspective. Africa's power sector overall contributes less than 2% of global CO₂ emissions, and while South Africa accounts for a sizeable proportion of that, it's only a relatively modest impact on a world-scale.

Thermal-based power

For most countries, economic and social development remains the top priority, given that around half of Africa's population still has no access to reliable electricity – though funding options for traditional thermal-based power generation have narrowed.

That's not to say that new large-scale thermal power plants are not being built, but development finance remains as important as ever.

In Mozambique, the 450MW gas-fired Central Termica de Temane power project (CTT) achieved financial close at the end of last year, with debt financing worth US\$652mn from a group of international lenders.

The power project is being developed by Globeleq, a leading independent power company and its partners, Electricidade de Moçambique, E.P. (EDM) and South African fuels giant Sasol.

Located at Temane in Inhambane Province, it will supply power to EDM under a 25-year tolling agreement, and meet about 14% of Mozambique's electricity demand.

Analysts at Rystad Energy

continue to predict a bright future for gas, at least in the medium term, as Africa transitions to other forms of energy in the long run.

Mozambique is one such example, which plans to develop its gas market and infrastructure based on huge offshore resources, to meet both local and international demands.

South Africa too has made substantial offshore gas discoveries in recent times and may well seek to exploit these assets in the future look of its energy industry. In the interim, it is seeking to bring in temporary gas-fired floating power plants from Turkey's Karpowership in a bid to reduce shortages and load shedding.

Another country that has unearthed offshore gas most recently is Namibia, which likewise, will be looking to exploit this precious resource too.

Renewable energy

There can be no doubt though that all countries of the region – and the entire industry – are squaring up to the significant challenges posed by the energy transition. Even oil- and gas-rich Nigeria, Africa's biggest economy, has announced plans to achieve carbon-neutrality by 2060.

Fortunately, the least-cost power sources in much of southern Africa are now also the most environmentally sustainable, though these tend to be smaller-scale alternatives.

Solar and wind energy projects are popping up all over the continent, including across southern Africa, slowly re-drawing the regional power map. These, and geothermal in some countries, have become the cheapest grid-connected sources of electricity, while solar PV also offers an increasingly competitive option for mini-grids and off-grid applications.

Unlike the highly-developed power infrastructure of Europe, Africa presents unique challenges given its historical under-development, lack of infrastructure, and vast empty spaces.

It means the continent is following its own path amid the convergence of climate change concerns, energy transitions and ongoing economic development challenges.

Along with Karpowership, another company awarded a contract last year by South Africa under its so-called Risk Mitigation Independent Power Producer Procurement Programme is ACWA Power, which will build the nation's largest solar plant. It commenced construction on the 100 MW Redstone project last year with the launch of production scheduled for Q4 2023. The concentrated solar power (CSP) plant, located in the Northern Cape, will displace an estimated 440 metric tons of CO₂ emissions per year.

Major investments

At the same time, key regional initiatives such as SAPP remain integral to strategic energy plans, irrespective of what the future brings.

The electricity-sharing body moved into new offices in Harare last year, though electricity trading in southern Africa remains modest – just US\$91.1mn was exchanged on the market in 2020/21, although this was lower than usual because of the impact of Covid-19 lockdowns stifling demand.

That's against a combined installed capacity of more than 80,000MW for all 12 SAPP countries, a bloc that stretches all the way up to the Democratic Republic of Congo (DRC). A further 10,000 MW-plus from all energy sources is being added to the system through the period 2020 to 2023.

As well as thermal-based generation and a plethora of new renewable technologies, South Africa also holds the region's only nuclear power plant, Koeberg, outside Cape Town.

The twin reactors generate about 5% of the country's electricity supply and the Government is keen to extend the life of the plant given the frailty of the national electricity network at present.

Nuclear power remains controversial though, even in South Africa, where it has operated successfully for decades.

Looking ahead, southern Africa seems set to embrace a far more diversified energy mix, one that incorporates elements of all these traditional as well as new and emerging technologies.

The variability of solar and wind energy needs to be complemented by flexible resources such as hydropower, pumped storage and batteries, while some countries are continuing to invest in gas turbines.

It's unlikely that new coal plants will be able to secure access to funding, while nuclear power is deemed largely uneconomic outside of South Africa.

Yet, somehow, all of these strands will start to form a picture of a new-look power network for the southern African region as it navigates the challenges of the energy transition. ■

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Incentivising investment

Vangelis Kamaris, international business development director at MYTILINEOS' Sustainable Engineering Solutions Business Unit, explores how the energy sector can encourage much-needed investment.

African Review: Why are so many African countries subject to load shedding?

Vangelis Kamaris: The first major reason is inadequate power generation capacity. The demand for electricity is rising due to population growth and economic growth, while simultaneously there is a lack of sufficient planning and historic underinvestment in the sector. This is partly due to the mismanagement of debt-ridden utilities in many countries in the region, which means that the gap between supply and demand is widening.

The second major reason is the lack of reliability of the electricity systems. Transmission and distribution problems further hinder the delivery of the generated power to the end users.

Of course, there are also challenges arising from the specific power generation mixes of the countries.

AR: How can DFI financing help overcome these challenges?

VK: Capital is scarce and expensive due to the risks of executing power projects in Africa which makes DFI's role very important in ensuring that the continent has a sufficient and reliable supply of energy.

In many cases, risk perception in

the region is the greater barrier to investment than the terms of the debt financing. DFIs can provide long-term concessional financing, however, this should be coupled up with other tools such as credit guarantees and partial risk guarantees to lower the political, financial and governance risks, therefore directly supporting the implementation of the projects. DFIs also stimulate private sector growth which translates into structural economic changes and helps reform the power sector.

AR: What inhibits investment into the region?

VK: Lack of bankable projects is a major issue that stands in the way of investment. The project development phase is often open-ended and the transition from planning to completion of a project can take many years. Heavily indebted utilities, poor collection rates, unsustainable and non-cost reflective tariffs in a considerable number of African countries puts them beyond the comfort zone of most lenders.

Notwithstanding the significant improvements over the last decade, macro-economic outlook, political instability and weak institutions, on many occasions add up to the low

investment appetite.

Positive measures such as the unbundling of power sectors to create more efficient power markets are already taking place in several countries in the region, however, further reforms need to be introduced by the governments to improve the legal and regulatory frameworks. In addition, the use of tools such as partial risk guarantees need to be improved to mitigate these risks and make the projects more attractive to investors.

AR: How can energy utilities and governments balance sustainable goals with the need for electrification?

VK: Africa has a huge potential to benefit from renewable sources. While this potential is still largely untapped, the recent years have seen the completion of several renewable projects.

We are also witnessing a rapid increase in off-grid technology in the region, which is also good news for Africa. Obviously, a further development of this promising trend is essential to provide power to remote communities without access to the national grid and to increase electrification rates in the region.

African energy utilities will have a crucial role in the energy transition to renewables. However, they require strong political will and proper policies to obtain affordable, cost reflective tariffs, as well as more attractive frameworks for investment in renewable energy. However, this transition will again be challenging since countries with natural resources, which in most cases have an overstretched economy at the same time, will be more reluctant to develop a more renewable oriented generation mix quickly.



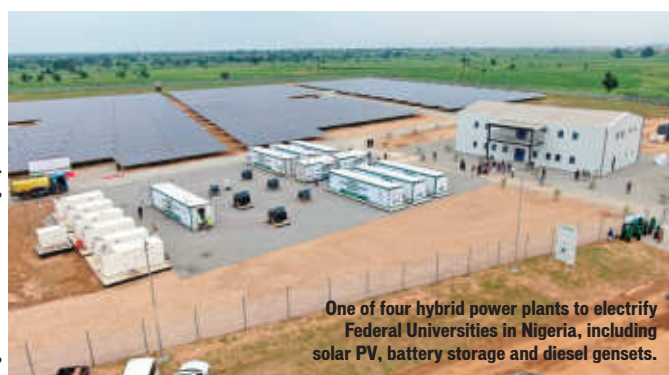
AR: Are there any key lessons which you can offer to help bring more to life?

VK: MYTILINEOS has been very active in Africa, having successfully delivered power projects in Ghana, Nigeria, Uganda, Algeria, Tunisia, and Libya. In a continent of 54 countries, it is critical to undertake the proper market analysis to understand the opportunities and the challenges each individual country presents. This should be followed by an effective mapping of the region to identify the stable countries with promising opportunities and bankable projects.

Physical presence in the selected markets and constant monitoring is another key to making sure you are at the right place at the right time in this volatile region where events change rapidly.

The appropriate selection of technologies and partners, a thorough understanding of local regulatory requirements and strong project management skills can be listed as some of the main success factors in this challenging project delivery environment.

The capacity and flexibility of MYTILINEOS has also played a major role in its success, allowing the company to manage major projects, while being able to respond quickly and effectively to unexpected events which are commonplace in the region. ■



One of four hybrid power plants to electrify Federal Universities in Nigeria, including solar PV, battery storage and diesel gensets.

Camco Clean Energy partners with EPP to expand renewable energy investment in sub-Saharan Africa

Climate and impact fund manager Camco Clean Energy has partnered with Energy Peace Partners (EPP) to manage the Peace Renewable Energy Credit (P-REC) Aggregation Fund to expand renewable energy investment in fragile states in sub-Saharan Africa.

P-RECs are international renewable energy certificates (I-RECs) with a supplementary label from Energy Peace Partners as the issuer certifying the co-benefits associated with the new renewable energy generation in countries that are fragile, climate vulnerable and energy poor. Since 2020, P-REC transactions have unlocked a new stream of private sector capital to support emerging renewable energy projects in the Democratic Republic of the Congo (DRC) and South Sudan.

Trading in P-RECs, the Fund is designed to unlock up front funding for high impact renewable energy projects in countries where political and economic uncertainty is constraining investment and deployment of renewable energy infrastructure, and where lack of access to electricity is hindering sustainable development.

The Fund offers renewable energy developers in fragile states – where access to affordable finance remains a key challenge – a portion of construction capital upfront, helping new projects come online by de-risking them and catalysing financing from other sources.

The Fund is initially targeting countries with high impact potential including DRC, South Sudan, Chad, Somalia and Uganda. In the future, as the P-REC market matures, the Fund will be expanded to include commercial capital and draw in other financing facilities, providing even more financial support to developers and expanding energy access in the



Image Credit: Nuru

1.3MW system in Goma, DRC, by Congolese solar developer Nuru.

regions where it is needed most.

Geoff Sinclair, managing director, Camco Clean Energy, said, “We’re thrilled to be partnering with Energy Peace Partners as the manager of the P-REC Aggregation Fund. This has real potential to help raise standards of living in conflict-affected states, building a brighter future, today.

“EPP’s domain expertise combines well with Camco’s proven track record in trading environmental instruments and renewable energy finance in emerging markets, and I look forward to achieving real impact on this fund while building the market for Peace RECs.”

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Anna Skubikowski Aguilera, Assistant General Counsel, U.S. Trade & Development Agency (USTDA)

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Supporting Africa's energy needs

Fabrice Mpollo, investment manager, Norfund, discusses with *African Review* the prospects of off-grid and renewable energy projects on the continent.

African Review: How important are off-grid energy projects to supporting Africa's various industries?

Fabrice Mpollo: Inefficiencies in most of Africa's centralised power systems (with generation and transmission) lead to load shedding affecting both industries and households. Access to clean and reliable power is fundamental in developing industries such as manufacturing, food processing, financial services, ITC, and others.

We expect off-grid or captive energy projects to increasingly support Africa's industries and businesses' needs. These projects may be quicker to develop and may be able to meet reliability, sustainability, and economic demands of customers better than the existing solutions.

AR: What are the challenges which stand in the way of delivering these?

FM: Like all energy projects, there are numerous challenges. Most of these relate to unclear regulation, as the segment is new and there is a potential impact on the existing power system and its stakeholders.

In our view, regulation should promote development and adoption of new solutions, but this needs to be done while taking into consideration the potential impact of grid deflection.

Utilities have a wider mandate and cannot, for example, be left to serve only the last customer at the end of the grid.

AR: How accessible are renewable solutions for large companies on the continent?

FM: Renewable energy sources used by large companies are mostly accessed through the grid



A solar installation for Miniplast Ltd. in Ghana.

Image Credit: Empower New Energy

depending on the energy mix of a particular country. Though driven by high electricity tariffs, falling solar PV prices and grid unreliability, the C&I market remains at its infancy on the continent with strong potential of growth.

Outside of renewable solutions destined for mining companies, renewable energy captive power solutions are yet to be implemented on a larger scale to demonstrate full operational reliability as a standalone. Also, in the African context, businesses will tend to opt

for a hybrid system to cover potential failure of one source of power.

One solution out of many is to democratise net-metering as it has been done in other markets to serve both commercial as well as grid capacity need.

AR: How can more investment be encouraged on the continent, especially relating to renewables?

FM: A number of ways including:

- Ensuring solvency of the power sector by reducing leakages in



Image Credit: Norfund

Fabrice Mpollo, investment manager at Norfund.

power distribution and widen collection rate.

- At project level, increasing investors' appetite through first loss or non-payment guarantees instruments.
- Transitioning into a regulatory system which is supportive, instead of rigid towards IPP, for example avoiding restrictions on selling electricity to commercial clients even in instances where the government cannot fulfill their obligations. ■

“ We expect off-grid or captive energy projects to increasingly support Africa's industries and businesses' needs.”

FABRICE MPOLLO, INVESTMENT MANAGER, NORFUND

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The time for offshore wind?

David Wotherspoon, head of new geographies at the OWC, suggests that now is the time for Africa to start exploiting its vast offshore wind potential.

Speaking in an exclusive interview with *African Review*, Wotherspoon explained that the reason he will be speaking at the upcoming Enlit Africa is that the offshore renewables sector has permeated every continent in the world with the sole exception of Africa; and it is time to ask why.

“When you look at lots of the publications, data, websites, etc on offshore wind, much of it will note that Africa has incredibly good wind resources — this is now well understood. So the question is; why is offshore wind not part of the energy mix in countries like Morocco, Egypt, South Africa, etc? This is a discussion we are trying to provoke.”

Wotherspoon continued that one of the main inhibitors is a perception on cost, as offshore wind is typically regarded as more expensive than onshore wind and other renewables. He argued that while it does tend to require large upfront capital investment it also offers the opportunity to develop at scale and quickly, once the processes are in place. In addition, the expenditure will bring in a lot of jobs for the local economy, as well as the technology and experience from other parts of the world to

support local content.

“Once the initial cost of early stage development is met the industry will be engaged. This will send the signal that you want wider development and then you can move to different mechanisms which allow the government to benefit from lower and lower costs at scale, leading to cost-effective growth. There are also alternative uses such as the production of green hydrogen which is a massive topic now — it does not just have to be about getting energy to the grid. Think of it, instead, as part of a country’s industrialisation process.”

The first step

With the industry always on the look out for areas where offshore wind could be developed, Wotherspoon remarked that it is essential governments across the continent, where the resource is available, show their interest.

“When governments start looking at planning policies, development policies and supporting mechanisms for example, it shows the market that they are ready to engage and, if this happens, the market will come in. This happened recently in Vietnam and early developers

started putting proposals forward to the government. The state responded by helping to regulate the market and it is really moving now in the country.”

“In the United Kingdom and Europe, the cost of offshore wind energy has come down hugely, because the supply chain has developed around market signals that the governments have given. This creates growth opportunity and people have invested in the supply chain. It also stimulates technology improvements and efficiency improvements.”

Wotherspoon stressed however that the industry will require the support of the international community as many countries will not be able to meet the financial support needed to attract the capital requirements at the start. But, as stressed by COP26, the need to help developing countries move to cleaner forms of energy generation is paramount and offshore wind can be another reliable utensil in their toolbox.

“I am positive offshore wind has a strong future on the continent but realistically it will be some ten years down the line before turbines are spinning offshore. If the backing of



David Wotherspoon is the head of new geographies at the OWC.

governments and financial institutions arrives, then parts of Africa will definitely have offshore wind in their energy mix. Energy security and accessibility in parts of the continent really have to improve and some of that can come from offshore wind.”

Help at hand

The ABL Group has a long history in the maritime sector and the OWC leads the renewables arm as a consultant and advisor to developers and government agencies. ABL has an established presence in Africa. In South Africa our Cape Town office will be supplemented by a new location in the Saldhana Bay Industrial Development Zone, and we aim to combine our international experience with our local presence and knowledge.

“Sometimes we follow the market and sometimes we help to drive the market. In Africa’s case, we see an opportunity to help get this market moving which begins by asking the awkward questions in public and looking at the opportunities differently. There is a lot of awareness on Africa’s offshore wind potential and there have been levels of engagement but I think we need to get the heads above the parapet now and get the ball rolling.

“There are fantastic wind resources available on the continent alongside the fantastic solar resources etc. So let’s have a look and see where it can be applied and add value because, by the time government policies are in place and plans are in place to integrate it, it will be 10 years down the line. So now is the time to start thinking about this.” ■

Offshore wind plants can be developed at scale.



The key to green hydrogen

Green hydrogen is an unavoidable requirement for decarbonisation and Africa is the gatekeeper says Siggie Huegemann, initiator and secretary general of the African Hydrogen Partnership (AHP).

“Green hydrogen is an absolutely must-have requirement when it comes to decarbonising the globe,” comments Huegemann in an exclusive interview with *African Review*. “Our current primary energy consumption is still based on fossil fuels and if we want to completely move away from this we need to come up with something that can realistically replace them.”

Meeting electricity demand without fossil fuels, Huegemann provides as an example, is very difficult due to the intermittent character of renewable energy. For this, there are only two alternatives; battery storage and hydrogen; and the latter has significant advantages through attributes such as its capacity to scale.

“Despite all the negativity around hydrogen over the last few decades the question is, is there anything else that can match its potential? The answer is no and so we always return to it.”

While this potential of green hydrogen is now well understood, Huegemann continues, one of the biggest issues is its cost, as it remains an expensive fuel to produce.

“In simple terms, eventually we need to be able to price fossil fuels out of the market which will be very difficult due to the size of the hydrocarbon industry compared to the underdeveloped hydrogen market. Subsiding green hydrogen is an unhealthy business and will not work in the long term.”

However, fossil fuels are a limited resource and will eventually get more expensive in the long-term. In addition, technological advances continue to drive down the cost of renewables and, ultimately, green hydrogen and this shows no sign of stopping.

Africa in the driving seat

With renewable energy fundamental to the production of green hydrogen, Africa’s staggering potential in this department means it could be the key to unlocking cost-effective hydrogen and ultimately drive this market forward.

Huegemann notes, “What one needs in order to produce a green hydrogen is wind, solar, coastlines with open (arid) spaces and water – ideally, all of that combined. Everyone knows Africa has lots of those windy, sunny coastline regions in addition to geological features such as



A team working on electrolyzers.

Image Credit: RTS African Engineering

deserts. They have that in the northwestern part of Africa, they have that in Namibia, South Africa, the Horn of Africa, Egypt and all of these have the potential to produce low-cost, price competitive green hydrogen. Another alternative is natural hydrogen, from the ground, which countries like Mali are blessed with as well.”

The domestic bedrock

While technology around green hydrogen is continually being developed, to take the step and implement a project in Africa would require a lot of capital which presents a big risk, especially with the lack of infrastructure and market demand.

“Currently there are no futures and forwards markets for green hydrogen, green ammonia etc. So it requires somebody to take the risk and hope the market will have developed in five years time or so. This is a lot of risk to take on as the market is just at the beginning.

“However, there is already a cash market available which relates to the agricultural sector. If we can sell ammonia as green fertilisers, we can combine it with the production of green fuel. In the Horn of Africa, for example, there is strong solar radiation and strong winds. There are harbours, coastlines and everything needed to produce green hydrogen

and eventually distribute. In Ethiopia, which has a population of around 110 million people, the base of the hydrogen economy could be built on selling green fertilisers to the farms in the region. There are already activities going on in Kenya with the development of green fertiliser factories using geothermal energy in association with solar and others and now there is a lot of attention around the export side of this as well.”

“We see great opportunities for developing the domestic demand in African economies that can bring in foreign direct investment for this economy. Outside of agriculture, you can also look at the mining industry – which is desperately trying to decarbonise – as production sites can be built next to mines and provide low-cost green hydrogen for them.”

It is these foundations, Huegemann believes, which make Africa an attractive business case, which have the potential to prop up Africa’s hydrogen economy, ready to supply green hydrogen to the international market.

The AHP secretary general also highlights what an unprecedented opportunity this is for the continent by drawing a parallel with the Middle East. “When we think about Saudi Arabia and the Middle East, the exploration of fossil fuels has

brought tremendous wealth. Green fuels could have a similar very positive impact for African nations,” Huegemann remarks.

The AHP commitment

The AHP is dedicated to green and natural hydrogen as well as achieving the targets of the Paris Agreement and UN Sustainable Development Goals. Huegemann believes that Africa is critical in this.

“In Germany, for example, to meet energy demands via renewables you would have to plaster half of the country with PV cells and turbines and this cannot happen as you need to protect the forests, the meadows, etc. This is where Africa comes in as you can minimise the impact on the bio-habitat by building in more barren areas such as deserts, plus the intensity of solar for example is much greater,” Huegemann explains.

“We need to decarbonise the planet and we need to do that in a sustainable way. That automatically points us to Africa. It has 1.2 billion people and growing, it has significant renewable resources but it does not have a lot of



Image Credit: AHP

Sigi Huegemann is the initiator and secretary general of the AHP.

capital available. Europe or the USA cannot decarbonise the globe on their own, so, in order to achieve our green ambitions, we have to form the strongest possible alliances and bring Africa to the attention of companies and associations looking into green hydrogen.

“We opened up the African Hydrogen Partnership for new members in February last year, with the aim to attract the first 10 to 15 organisations and we achieved that quickly. Now we work very closely with leading hydrogen and related associations worldwide such as Hydrogen Europe, the MENA Hydrogen Alliance, the Commonwealth Enterprise and Investment Council, and more.

“We aim to drive economically and commercially feasible activities but it is important that we talk to the governments and bring them and businesses together. That is what we are working with already in various regions of Africa.”

Huegemann concludes, “There is no way around green hydrogen and Africa is absolutely essential here. If we want to decarbonise the planet, we need to work with Africa. It is that simple.” ■

ROLLS-ROYCE MTU GENSETS APPROVED FOR SUSTAINABLE HVO FUEL

Following successful trials on the test bench and in the field, Rolls-Royce business unit Power Systems has approved its Series 1600 and Series 4000 generator sets for use with EN15940 synthetic diesel fuels.

In addition to Gas to Liquid (GtL) and Coal to Liquid (CtL), these fuels include also the sustainable fuels Biomass to Liquid (BtL), Hydrotreated Vegetable Oil (HVO) and Power to Liquid (PtL) such as e-diesel.

Tobias Ostermaier, president stationary power solutions at Rolls-Royce Power Systems, commented, “There is already a lot of interest in HVO in particular from many customers in the energy industry and data centre business who want to improve their carbon footprint. The results from pilot customers show a significant reduction in greenhouse gases, nitrogen oxide and particulate emissions by using HVO instead of fossil diesel in their gensets.”

Waste vegetable and animal fats and used cooking oils can be used as base materials for HVO, which are converted into hydrocarbons by means of a catalytic reaction with the addition of hydrogen. Through this process, the fats and vegetable oils can supplement diesel fuel as an admixture or replace it completely. HVO

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Series 1600 and Series 4000 are released for the EN15940 fuels GtL, CtL, BtL, HVO, PtL

- ✓ up to 90% CO₂ reduction (well-to-wheel; depending on the manufacturing process and feedstock)
- ✓ up to 80% less particulate emissions
- ✓ average of 8% NO_x reduction

Image Credit: Rolls-Royce

Mtu engines perform equally excellent when using HVO.

achieve clean combustion with a reduction in particulate emissions of up to 80%, nitrogen oxide emissions by an average of 8% and (depending on the manufacturing process and feedstock) CO₂ emissions by up to 90% compared to fossil diesel.

Mtu engines perform equally excellent when using HVO in terms of maximum power, load acceptance and fuel consumption and there are no adaptations needed to the diesel plant infrastructure, hardware or software for its use. In addition, the storage stability of this synthetic fuel is significantly better than that of

biodiesel, making it even more attractive to emergency power system operators.

Last year, as part of its sustainability programme, Rolls-Royce announced that it would realign its product portfolio so that by 2030, new fuels and mtu technologies can save 35% greenhouse gas emissions compared to 2019 levels. The company is now already successfully operating an mtu fuel cell system, has established a clear roadmap for the introduction of hydrogen engines, and is now progressively releasing further engines in more applications to run on sustainable fuels.

Smart solutions for sustainable growth

Fayez Al Nobani, channel sales director and mechatronics engineer (Middle East and Africa) at Fluke, discusses the role of smart technology in the energy landscape.

African Review: How important are smart solutions and new innovations to reducing our carbon footprint?

Fayez Al Nobani: Smart solutions that enable the fast and accurate detection and measurement of our critical wasted resources will play a vital role in deciding the successful execution of company and/or country-wide strategic initiatives related to waste reduction and sustainable energy use.

Innovative products, such as the compact and professional test and measurement solutions from Fluke, provide several advantages by making it easier and more efficient for teams to carry out preventative maintenance programs that will help teams achieve broader goals relating to sustainable power management and the reduction of our carbon footprint.

AR: What other benefits can also be gained from them?

FAN: Fluke's innovative solutions comply with highest safety standards, which provides significant benefits to customers. As an example, maintenance teams must be able to detect compressed air and gas leaks quickly and accurately in critical systems, which can be difficult to access even under normal circumstances. There are many critical processes that involve other extremes, such as high temperatures or hazardous zones. Fluke's ii910 Precision Acoustic Imager offers greater

sensitivity and long-range leak detection of up to 100 metres, enabling maintenance personnel to identify and report on defects from within or outside of a plant's perimeter. The tool's ease of use and rapid identification of compressed air or gas leaks can lead to time savings of up to 80% compared to traditional methods of detecting leaks in these types of production environments.

As well as the safety aspects, the rapid detection of leaks is important to ensure plants maintain critical operation. Fluke's range of specialist acoustic imaging tools have proven to deliver energy savings between 30-40%.

We serve a wide range of sectors in the region from energy through to chemical processing, oil and gas, pharmaceuticals, food and beverage, and manufacturing.

Our company's power quality and calibration tools also work on preventing the disruptions and outages in power grids. These products and solutions are essential to industries that apply electronic installations, maintenance and services, precision measurement and quality control.

AR: What is the market for these products in Africa?

FAN: Some of the world's largest solar and renewable projects in the world are in the MEA region. As a leading global manufacturer of compact, professional electronic test and measurement tools and software, Fluke offers



Image Credit: Fluke

Fayez Al Nobani is the channel sales director and mechatronics engineer (MEA) at Fluke.

innovative and reliable solutions for maintenance teams, making their jobs safer and more efficient. With recent challenges in supply chain and components, we are experiencing growing concern from our customers and partners to reduce their energy costs and have more efficient systems. Many of our customers have clear KPI's in place to make sure carbon footprints are significantly reduced. Fluke will continue to develop tools that will enable our clients to reach their goals, such as the ii910 Precision Acoustic Imager to save energy by detecting leaks and the 1770 series for power quality measurement and troubleshooting.

AR: What sustainable undertakings are Fluke pursuing internally to help environmental efforts?

FAN: We publish annual reports to communicate the ways in which our focus on sustainability is building a future that is stronger, safer, and smarter – for customers, employees, suppliers, communities, and the planet.

Our own 2020 emissions profile reflects a significant reduction of 9.1% in emissions. Some portion of that reduction is attributable to the sudden and widespread shift to remote work and significant step down in building utility use as a result. Other reductions are derived from energy efficiency initiatives and utility-provisioned renewable energy. ■



Image Credit: Fluke

Power quality and calibration tools can prevent the disruptions and outages in power grids.

Keestrack bolsters African presence

Keestrack has strengthened its sales team by hiring Giovanni Bartoli as area sales manager for Africa and the Middle East region and is further expanding and professionalising its support to its dealer network.

Bartoli arrives in the role with 15 years of experience within the construction equipment industry and has identified his main goal to establish reliable and sustainable relations with new dealers.

"Keestrack already established some good dealerships in this region but there is still a lot of ground to cover," commented Bartoli. "At first Keestrack wants to target the markets of the North-West Africa region, South Africa and in Middle East countries like Israel, Saudi Arabia, United Arab Emirates and Qatar. We're basically looking to expand our dealer network with A-rated, reliable and organised international and local dealers, to be involved as our importers and distributors." This plan highlights Keestrack's aspirations of expansion to become a worldwide player.

"Besides growing the market in these regions Keestrack will keep growing their product range in width and depth in the coming years," Bartoli continued. "To support the dealers with the right service and training is a challenge for me in these markets. Keestrack wants to support their dealers also with a good financial plan by offering floorplans, to keep machines locally on stock."

Bartoli explained that the interest for mobile crushing and screening products in West African countries is mainly due to the request for mobile quarry applications with easy maintenance, and which are user-friendly, when production demand is not very high.

Keestrack was one of the first manufacturers on the market with electric driven equipment and has recently introduced the tracked engine/generator units. These can supply connected Keestrack e-drive crushers, screeners and stackers directly with electricity in case there is no plug in connection from the grid available. One step further is the ZERO range, Keestrack mobile crushers and screens which are sold without an engine unit. They can be powered by the grid or via any external generator.



Keestrack will keep growing their product range in width and depth in the coming years.

EU BACKING FOR BELABO-NGAOUNDERE RAILWAY UPGRADE

The European Union will provide approximately US\$129mn to support the upgrading of the 330 km Belabo-Ngaoundere railway line in Cameroon.

The grant was confirmed in Yaoundé at a ceremony attended by Prime Minister Joseph Ngute; Thomas Ostros, vice president of the European Investment Bank; Philippe Van Damme, ambassador of the EU to Cameroon; and other executives.

The project will enable faster and more reliable freight and passenger rail transport between central and northern Cameroon; enhance connections between the port of Douala, Chad and the Central African Republic; and provide a sustainable alternative to road transport.

Ngute said, "Upgrading Cameroon's national transport network is crucial to improve lives and create new opportunities for our people. I welcome the European Investment Bank's support for the Belabo-Ngaoundere railway. The EIB's largest ever investment in Cameroon is a flagship of sustainable transport for our country and for Africa."

Ostros added, "Investing in sustainable transport is crucial to unlock economic opportunities, connect communities and reduce carbon emissions. The excellent cooperation between Cameroonian and EIB transport, technical and financial experts will enable the project to benefit from international best-practice and benefit future generations of Cameroonians."

Once upgrading work is completed in 2028 more than one million passengers a year are expected to benefit from the improved service. The project includes upgrading rail tracks and engineering work, improving station facilities and improving rail crossing safety. Once complete the lines are expected to enable passenger trains to travel at 90 km an hour and freight trains at 70 km an hour.

VINCI CONSTRUCTION TO RESTORE COASTAL ROAD IN CÔTE D'IVOIRE

Through its subsidiary Sogea-Satom, VINCI Construction has been selected by the Côte d'Ivoire Ministry of Equipment and Road Maintenance to renovate a stretch of the coastal road between Dabou and Grand Lahou.

The project scope includes restoring around 93 km of the road, widening the road in a 10 km section ahead of Dabou, and improving the drainage and wastewater network to reduce the risk of flooding. Eventually, the wells drilled as part of the project will be connected to the public water system that serves the town of Toupah.

The project will last 15 months and is worth approximately US\$100mn. It will involve around 450 people with 50% of these being employed from the local region. It will help connect the country's two main port cities of Abidjan and San Pedro.

Image Credit: PURA

Masterplan to supervise new PURA headquarters

The Gambia Public Utilities Regulatory Authority (PURA) have assigned Masterplan Company Limited, a local consulting company, for the recruitment and supervision of



Presentation of the contract document.

the contractor for the construction of the new PURA headquarters. "It would be a huge achievement for all of us when this is completed to be able to house our staff and improve our image and working environment considering that we are expanding with additional mandates," said Yusupha Jobe, director general of PURA.

HİDROMEK K4 Series wins design awards

HİDROMEK's new K4 Series backhoe loader has won two prestigious design awards with for its distinctive design.

Image Credit: HİDROMEK



HİDROMEK's K4 Series backhoe loader.

The K4 Series won the 'Winner' award at Red Dot Design Award 2022 and the 'Product Design' award at IF Design Award 2022. HİDROMEK design studio manager, Hakan Telşık, said, "We are happy and proud that our new K4 Series which was designed with a completely user-oriented design process approach, won such valuable awards."

ADHI advances housing project in Rwanda

The ADHI Corporate Group, dedicated to innovation, sustainability and empowerment, has been making steady progress in their affordable housing project in Kigali, Rwanda.

ADHI's sustainable construction method is a patented system that uses light steel frames for faster and more affordable construction.

In response to a dire need for high quality and affordable homes in Kigali, ADHI Corporate established ADHI Rwanda Ltd to use their innovative construction solution to build several thousand affordable homes in Kigali for 10 years. High construction costs combined with a challenging natural terrain and climate have proven to be formidable obstacles to producing quality homes at a reasonable price in the past.

ADHI's patented construction method and innovative materials circumvents these obstacles and thereby offers a unique solution to the housing shortage problem in Rwanda. The method of using light steel frames greatly reduces total costs and project duration while producing durable and climate-resistant houses. Utilising geosynthetic retaining walls, ADHI can also build homes on sloped terrain in an environmentally-friendly manner.

In November 2020, the Government of Rwanda signed an agreement with ADHI Rwanda Ltd after a positive evaluation of the project proposal and projected advantages for Rwanda. The project will be delivered in five phases.

Phase 1 of the Bwiza Riverside community is currently under construction. Upon completion of all five phases, ADHI Rwanda Ltd will have built 2,400 durable homes in Karama.



ADHI's system uses light steel frames for faster and more affordable construction.

Image Credit: The Office of the President Paul Kagame

KASI BEGINS DATA CENTRE CONSTRUCTION

Kasi Cloud, a next generation interconnection and data centre platform for hyperscale and enterprise cloud, has held a groundbreaking ceremony in Lagos for the construction of its first data centre planned in Nigeria.

For the centre, Kasi has acquired approximately four hectares of land in the Maiyegun Area of Lekki, Lagos, the fastest growing deployment zone for commercial and upscale residential facilities in Nigeria.

The ceremony was attended by Babajide Sanwo-Olu, the executive governor of Lagos State and Uche Orji, the CEO of Nigerian Sovereign Investment Authority (NSIA).

Orji stated, "We congratulate Kasi on this momentous milestone. NSIA believes in the potential of digital infrastructure to serve as an enabler and accelerator for innovation. We expect that the transformative impact of this infrastructure on the domestic tech space will reposition Nigeria. The board and management of the authority is proud to be associated with this development."

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Nairobi Expressway opens ahead of schedule

The construction of the Nairobi Expressway is drawing to a close as the impressive piece of African infrastructure was made open to the public in a trial phase.



Image Credit: KeNHA

The project was conducted by the China Road and Bridge Corporation (CRBC) who, upon starting in April 2020, originally planned for it to be completed in three years.

The Chinese firm, who will operate the highway under a public-private partnership, has made rapid progress on the partially elevated 27 km highway which runs from Mlolongo to James Gichuru Junction. As a result, the road was opened up for public use on a trial basis on 14 May.

According to information provided by the Kenya National Highways Authority (KeNHA), who had keenly reported the swift

progress as it came, the structure features a total of 11 entry and exit points and boasts no less than 639 supporting piers. It was delivered from an investment of around KES68bn (approximately US\$580mn).

Around 11,000 Kenya road users have already reportedly registered for the trial, although this number is expected to reach nearly 50,000 very

soon. Those doing so have the option to pay electronically via Manual Toll Collection or Electronic Toll Collection methods – a feature which KeNHA suggests makes it one of the most advanced roads in Africa – or cash.

The road runs via the Jomo Kenyatta International Airport and will bring much needed relief to traffic congestion across the city.

KeNHA suggested that the time taken to travel from the airport to Westlands will be reduced from two hours to just fifteen minutes.

James Macharia, the Government's Cabinet Secretary for Transport, was present at the opening of the highway and expressed his pride that "one of the best pieces of infrastructure ever done in Africa" has opened.

With preliminary reports already emerging from commuters who are happy their travel time has been significantly reduced, it seems the expressway is a welcome addition to the city's infrastructure, an achievement made all the more impressive by its swift delivery. ■

“The structure features 11 entry and exit points and boasts no less than 639 supporting piers.”



Image Credit: KeNHA

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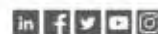
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Hillhead 2022: see the industry in action

After a break of four years, the Hillhead event returns in June to showcase the very best and latest technology from the worlds of construction, quarrying and recycling.

Expect to see all the latest technology and machinery on display in the construction, quarrying and recycling fields as industry-leading event, Hillhead, returns after a long absence on 21-23 June 2022.

The showcase event – which takes place at Hillhead Quarry, Buxton in the UK – is a must-attend for all industry specialists keen to stay up to date with the latest machinery and trends.

After a gap of four years, it is time to take a fresh look and discover all the latest developments across some of Africa's key industry sectors – choose from 600 exhibitors, watch more than 60 live demonstrations, and network face-to-face with up to 20,000 quarrying, construction, and recycling professionals.

Ahead of the event, two sections of the quarry face have been drilled and blasted to produce around 30,000 tonnes of run-of-quarry stone for equipment demonstration purposes.

For visitors and buyers from across Africa – North, South, East and West – there's no better place to see the latest machines and equipment in action from all of the top brands.

Among them will be the Wirtgen Group, which will be focusing on sustainable and cost-effective solutions for earthworks, road construction and materials processing.

The Kleemann MOBICAT MC 110(i) EVO2 jaw crusher, the MOBICONE MCO 90(i) EVO2 cone crusher and the MOBISCREEN MSS 802(i) EVO screening plant for coarse elements will be celebrating their show premiere in the UK.

The show will also see the world premiere of the W 100 Fi one-metre class milling machine from Wirtgen's new range of compact



The Rokbak articulated haulers set new benchmarks in durability, productivity and fuel economy.

milling machines.

The group's quintet of machine premieres will be rounded off by the John Deere 672 GP motor grader.

Rokbak will present its RA30 and RA40 articulated haulers at Hillhead 2022, alongside its UK dealer Molson Group – the UK's largest independent new and used equipment specialist.

As well as having vehicles on its exhibitions stands, there will also be a Rokbak articulated hauler in the working demonstration area.

"The Rokbak RA30 and RA40 articulated haulers set new benchmarks in durability, productivity and fuel economy – so

we're proud to be able to show the crowds at Hillhead what these machines are capable of," says Paul Douglas, Rokbak's managing director.

The 38 tonne RA40 is a heavy-duty hauler that makes light work of large-scale quarry, mine and construction jobs.

The 28 tonne RA30 hauler is made for the toughest jobs and roughest sites, from quarries and infrastructure developments to commercial construction projects.

All of the company's articulated haulers are known for being robust, reliable, easy to operate and maintain.



The appearance of the Wirtgen W 100 Fi at the show is simultaneously the world premiere of the new compact milling machine.

Further Hillhead highlights

Bobcat will present several new products for the first time at this year's show, including models from its new R-Series telehandler range, R2-Series of mini-excavators, and the L85, the first model in the company's compact wheel loader range – all developed as part of Bobcat's innovative 'Next is Now' programme. The Bobcat stand will also feature the company's E10e, the world's first battery-powered 1-tonne mini-excavator.

Anaconda Equipment, a McLanahan company, plans to introduce its new crushing line by exhibiting the J12 jaw crusher for the first time in Europe. The Anaconda J12 is a mid-sized machine designed predominately for quarrying and mining applications.

The Doosan stand will display a wide range of new-generation machines and equipment, including the latest versions of its large crawler excavators from 36 to 53 tonnes, the next-generation of Doosan mini-excavators, the brand-new 10-tonne DX100W-7 wheeled excavator, and a new range of compact wheel loaders.

Barrus will be showcasing the latest engines from Yanmar. The feature-packed engines offer an ideal power solution for quarrying and construction applications, screening equipment, gensets, pumps, and hydraulic power packs.

Kohler Engines will showcase its Stage V KDI3404TCR-SCR engine (power pack version), which represents the top of its KDI engine line. The fuel-efficient unit is designed to be widely used in construction, industrial and agricultural applications, and will be exhibited alongside Kohler's hybrid, diesel, gasoline, and gaseous-fuelled engine products. ■

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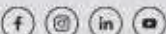
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Mini excavators making a major impact

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80 Bobcat 4.5 tonne mini excavators will be supplied for the Decent Life Initiative.

Image Credit: Bobcat

In Egypt mini excavators are set to make their mark in a big way as part of the 'Decent Life' initiative which was launched by President Abdel Fattah El-Sisi. This project is focused on eradicating poverty in the country by transforming slums and poor villages into thriving communities with modern infrastructure. 4,500 villages throughout the country will benefit from the initiative in a project which is set to affect 58% of the population.

As part of the project, Otrac Heavy Equipment, the authorised dealer for Bobcat in Egypt, has secured the largest-ever order in the Middle East and Africa (MEA) region for new Bobcat mini excavators. The dealer will supply the Egyptian Government with 80 Bobcat 4.5 tonne mini excavators and 49 Bobcat skid-steer loaders.

A spokesperson for the Decent Life initiative remarked, "High-performing compact machinery such

as the Bobcat mini excavators and skid-steer loaders will be vital in the work involved in the project. We chose the Bobcat brand based on the excellent experience we have had running Bobcat skid-steer loaders, backed by the superb aftermarket service provided by Otrac."

More than 20 ministries and entities as well as 23 civil society organisations are collaborating in order to implement this enormous project which is aimed at improving life for all citizens, especially vulnerable groups.

The Ministry of Communications and Information Technology (MCIT)

is playing a significant role in implementing some of the initiative's pillars. This will include developing the telecommunications infrastructure through installing a fibre optic cable network and covering targeted villages with mobile phone network services; developing post offices to serve citizens; and promoting human development. Bobcat excavators and loaders will play a vital role in these endeavours.

Hatem Ouda, chairman of Otrac Heavy Equipment, commented, "We are delighted to keep the high level of trust allowing us to win this

major order for both mini excavators and skid-steer loaders from Bobcat for the Decent Life project. The Egyptian authorities and Otrac have a successful, long standing relationship, involving the purchase of many machines based on Otrac's performance and professionalism."

Gaby Rhayem, regional director Middle East and Africa at Doosan Bobcat EMEA, remarked, "We are very pleased that Otrac Heavy Equipment has secured our largest ever order for Bobcat mini excavators in MEA. It is a fitting tribute to the great attention and expertise Otrac always offers their customers in Egypt."

New additions for MB Crusher

To enhance its offering within its mini and midi excavators range, MB Crusher has presented two new shaft screening buckets.

“High-performing compact machinery such as the Bobcat mini excavators will be vital in the work involved in the project.”

DECENT LIFE INITIATIVE SPOKESPERSON

Small but efficient, practical and productive, the two new shaft screener models are the MB-HDS207 and the MB-HDS212. The two shaft screeners were created to simplify tasks on all job sites such as aerating packed soil when preparing a garden; separating dirt from demolition debris, stones or roots; or screening materials to cover pipes and trenches.

The MB-HDS207 weighs 98kg and is compatible with a mini excavator with operating weight from 1.3 to 2.8 tons. The MB-HDS212 weighs in at 480kg and can be installed on midi excavators and backhoe loaders between 8 and 9 tons as well as skid loaders from 4 to 5 tons.

Suitable for complex job sites within the gardening, landscaping and urban construction industries, the attachments combine efficiency with versatility. As the coupler connection is lower than the rest of the unit more control is available during the loading and processing

phases making it easier to get the job done. In addition, the buckets' shape increases productivity. MB Crusher has also paid particular attention to making maintenance simpler by ensuring greasing is centralised and can take place at the job site.

Both shaft screeners have a sealed cover designed to withstand long-term use and to shield the internal parts from materials such as dirt and sand. This same cover protects the bolts and side casings to guarantee minimal downtime and the ability to continually work. Similar to other HDS models, both units have shafts that are easily replaced on the job site.

Customers can install a capacity increase kit to the MB-HDS207 to increase the unit's capacity from 50l to 60l. These new additions by MB Crusher promote versatility, usability, and productivity to ensure their mini machines continue to make a major impact. ■



The MB-HDS207 is compatible with a mini excavator with operating weight from 1.3 to 2.8 tons.

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ROTOTILT UNVEILS TILTROTATOR INNOVATION

At Hillhead 2022, Rototilt will be showcasing its latest tiltrotator innovation – the RC9, a substantial tiltrotator for excavators weighing up to 43 tonnes.

“With the RC9, we want to bring the customer benefits of the tiltrotator to even more users and large machines,” said Per Våppling, sales and marketing manager at Rototilt.

The tiltrotator manufacturer Rototilt is based in Vindeln, Sweden, and conducts operations in its own companies in a total of seven countries. In conjunction with the Vei og Anlegg 2022 trade fair in Norway, they are showcasing the latest in a long line of technical developments for the first time – the RC9 tiltrotator for excavators weighing between 32-43 tonnes. This allows users with large machines to switch between excavating and jobs that require greater



Image Credit: Rototilt

The new tiltrotator is Rototilt's most powerful to date, designed for excavators with breakout forces up to 280 kN.

precision, and reduces the number of machines and machine trailing required for an assignment.

“We want to improve the day-to-day working life of the excavator operator and with the RC9, our aim is to bring the customer benefits of the tiltrotator to even more users and even larger excavators,” stated Våppling.

“Our product development team has managed to take things even further than that, with new features that will further improve the end-user's operability and flexibility.”

The new tiltrotator is Rototilt's most powerful to date, designed for excavators with breakout forces of up to 280 kN.

New, pressure-compensated hydraulics mean that the tiltrotator functions can work independently of each other. This allows the user to tilt and rotate at the same time independently of each other.

K56L: THE TOP CHOICE FOR LARGE-SCALE JOBS

The K56L, a new concrete truck pump by CIFA, is a concentrate of smart solutions for better ease-of-use, robustness yet also lightness.

CIFA sought to exceed the great reliability of the 55-metre model that is now the industry standard, introducing an even sturdier and easy-to-maintain model, whilst keeping the equipment's total cost of ownership down.

The K56L pump is the heavy-duty and versatile machine par excellence, the first choice for working on large-scale construction sites. Available with three different pumping units (the open-circuit HP1606H plus the closed-circuit HP1608EC and HP1808ECX), it can be fitted on a classic 10x4 truck (for the European market) or an 8x4, common in markets with less stringent regulations.

The Steeltech K56L is equipped with a five-section boom with RZ configuration. This solution is ideal for fully exploiting all 55.1 metres of the full vertical extension – without complicating handling during the positioning phase. In addition to the piping being external for easy maintenance, the new turret ensures the boom closes more compactly, so as not to protrude beyond the pumping unit or above the cabin.

The stabilisation system is X-shaped: the front outriggers have a dual extension, which reduces the opening times and the encumbrance on the ground. The swing-out rear outriggers house the two plastic tanks (600 litres) for water and diesel. The revised and simplified design combined with smart electronic systems reduce positioning times whilst ensuring the utmost safety during operation, improving performance in turn.

McCloskey introduces the C2C cone crusher

McCloskey International will unveil the new C2C as the latest entry into McCloskey's cone crusher line, with the powerful MC200 cone on display at stand L1 at Hillhead 2022.

The C2C brings the power of a 200Hp cone to a compact footprint offering high manoeuvrability, with an exciting line-up of features aimed at boosting productivity.

The C2C delivers high production from material feed to end product stockpile due to its innovative material flow features. A low feed height, large 6.2 cu m capacity Hardox lined hopper allows for stop function, while the unrestricted feed opening improves intake capability and reduces the risk of blockage.

As the material enters the cone chamber, features including a long stroke and high speed contribute to the high productivity, while ensuring the highest quality of end product with variable speed. Multi-layer crushing delivers great capacity, better reduction and shape combined with less liner wear.

As with all McCloskey equipment, safety is paramount, and the C2C is equipped with a number of features to ensure the workplace and the operator are secure. Engine safety shutdown systems, start-up alarms, full safety guarding, external maintenance access and a tagout capability on the isolator all contribute to the safe operation and maintenance of the equipment.

The C2C is another example of McCloskey designing and delivering on what our customers are asking for,” said Toni Laaksonen, senior vice-president, McCloskey International. “We listened to producers who needed the power of a full size cone, but also the ability to move their equipment easily on and around their sites. There has been no compromise in power or productivity with the C2C, and it is a perfect example of leveraging the best features from our existing cone crushers, and adding mobility based on how our customers use the equipment every day.”



Image Credit: McCloskey

The C2C delivers high production from material feed to end product stockpile due to its innovative material flow features.

GENIE EXPANDS HYBRID OPTIONS

Genie is expanding its boom offerings to include a hybrid telescopic boom, and a light-weight, electric, telescopic boom lift in the 20 m height class.

“Modern jobsites demand rugged, reliable, high-performance equipment that is also

quiet, clean, efficient. The new S-60 DC and S-60 FE telescopic boom lifts meet those needs with a versatile boom that has a best-in-class jib length and delivers the quality, reliability and lower total cost of ownership that equipment owners are looking for,” said Corrado Gentile, product manager for Genie, EMEARI region.

There is an increasing demand on large jobsites for clean, quiet, versatile equipment that can work indoors and outdoors, including on rough terrain. The DC and FE versions of Genie’s tried-and-true S-60 telescopic boom solve this problem with a machine that can operate in rough terrain and has clean emissions.

The S-60 DC model offers a low weight of 7,983 kg and quiet operation for end users. The FE version weighs 8,051 kg, ideal for applications where floor loading must be managed.



The Genie S-60 FE telescopic boom.

Image Credit: Genie

MANITOWOC LAUNCHES LARGEST POTAIN TOPLESS CRANE FOR IMPORTANT ASIA-PACIFIC MARKETS

Customers in Asia-Pacific and emerging markets have a new high-capacity topless tower crane available, the Potain MCT 805.

The new model offers strong performance and complies with international standards and requirements. The new model, which is similar to the MDT 809, is available in 32 t and 40 t capacity configurations, with an 80 m jib and a height under hook of 84 m.

This high working height comes courtesy of the reinforced K-mast system with newly developed installation bases. In particular, customers will find that the 8 m cross-shaped base offers performance characteristics more commonly associated with a 10 m chassis.

With a counter-jib no longer than 27.3 m enabling an impressive 7.5 t capacity at 80 m reach, the tip load of the M32 and M40 configurations is ideally suited to meet the growing need for lifting heavier loads within confined job sites. The maximum 32 t load capacity of the M32 version is available to distances of well over 22 m, while on the M40 version the 40 t maximum load can be handled out beyond 18.5 m.

While other 40 t capacity cranes can typically require up to 14 containers for transport, the rotating section of the MCT 805 can be moved in either 10 or 11 loads depending on how the crane is being transported. All jib sections fit inside a standard container, making it a compact transport solution. This is possible thanks to a jib measuring just 1.55 m wide and under 2.5 m high.

With best-in-class transport and erection requirements for a crane of 800 mt (on par with 450 mt cranes), the Potain can set up twice as fast and requires less space than conventional 40 t cranes. With its full 80 m jib, the crane can be assembled to a 50 m working height in less than three days.

“The advantages of fast assembly and compact design is really driving the growth in demand for topless cranes, but the growing popularity of modular construction methods is also creating greater need for higher-capacity models,” said Thibaut Le Besnerais, vice-president, brand and product management for tower cranes at Potain Manitowoc.



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SCAN FOR MORE INFORMATION



Epiroc's Scooptram ST14 Battery Loader is part of a large order for battery-electric mining equipment by Assmang for the Black Rock mine.

Image Credit: Epiroc

The shift to electric

Mounting concerns for the climate has led to a growing focus on electric vehicles, a trend which has permeated the mining industry.

As demonstrated by the overarching theme 'Evolution of African Mining: Investing in the Energy Transition, ESG, and the Economies' of this year's Investing in African Mining Indaba 2022, the mining industry is really starting to place climate at the heart of business.

Companies across the continent are manifesting this through a variety of means such as renewable power on-site, pioneering hydrogen-powered equipment (a leading story from Anglo American at Mining Indaba) and, of course, incorporating electric vehicles in their projects.

To understand this phenomenon, *African Review* spoke to Wayne Sterley, regional general manager, southern Africa, at Epiroc.

African Review: Are you seeing a growing market for electric trucks in mining in Africa?

Wayne Sterley: Yes, we are definitely seeing a growing interest for all battery-electric machines

(such as trucks, loaders and drill rigs) in Africa and around the world. The recent order by Assmang in South Africa is one specific example, and this was also a repeat order for battery machines by Assmang at the Black Rock mine.

AR: What is driving this interest?

WS: Customers are increasingly realising the significant benefits that come with battery machines instead of diesel, especially for underground mines.

Years ago, it was difficult for battery technology to be effective for the heavy mining machines that

often must travel up very steep ramps, but the battery cell technology has advanced a lot in the past few years and the technology is here now and works really well.

Epiroc's 'Batteries as a Service' option, which lets customers lease the batteries instead of buying them, is also driving the interest as it requires less capital investment by the customer.

AR: What are the benefits of EVs?

WS: One significant benefit is a healthier work environment for the operators with no diesel fumes and less noise and vibration compared

to diesel machines.

In addition, battery machines help reduce costs for underground mines as ventilation typically is a major investment. However, with battery machines the need for ventilation is significantly reduced.

All major mining companies want to become more sustainable and improve their carbon footprint, and the battery machines can play an important role there.

AR: Do you have plans for further expansion or products in this space and in Africa?

WS: We are offering battery-electric loaders, trucks and drill rigs. We can also increasingly help out with the underlying electrification infrastructure that may be needed on site to charge the machines.

Our aim is to offer all our underground machines in battery version by 2025, and all our surface machines in battery version by 2030.

We see great potential in Africa and around the world. ■

“Customers are increasingly realising the significant benefits that come with battery machines instead of diesel.”

WAYNE STERLEY, REGIONAL GENERAL MANAGER, SOUTHERN AFRICA, AT EPIROC

Condra wins crane and hoist order for Mupani Mine

Condra has won the crane and hoist order for the Mupani Mine, one of several Zimplats operations in the mineral rich Hartley Geographical Complex, Zimbabwe.

Situated southwest of Harare, the capital city, Mupani is undergoing an upgrade to replace production at Rukodzi and Ngwarati mines, and part of Mupfuti Mine. These are projected to deplete over the next six years.

The order for the lifting equipment was placed on Condra by Australian consulting and project management company Worley. It comprises thirteen machines for installation underground:

two workshop-duty double-girder electric overhead travelling cranes, a jib crane for ore transfer, and ten short-headroom hoists for miscellaneous functions.

All units have been designed for ease of transportation within the confines of a two kilometre-long underground access route. When manufacture is complete, only the short-headroom hoists will ship without being dismantled. The five-tonne jib crane, 10-tonne overhead crane and a sister 30-tonne machine will first be disassembled to enable mine tunnel navigation. Crane girders will be separated from end carriages and crabs, while the crabs themselves will ship minus their hoists for the same reason.

After delivery, underground installation on gantries supplied by the mine will be executed by Worley's technical teams using chain-blocks attached to rock bolts reinforcing the hanging walls.

Industry observers point to Condra's competitive pricing and a willingness to adapt the design to customer-specified dimensions as factors likely to have helped close the Worley order. Crane adaptation is often more difficult and more expensive for rival firms because of the need to import parts.



A typical Condra jib crane.

ICMM PUBLISHES SOCIAL AND ECONOMIC REPORTING FRAMEWORK

The International Council on Mining and Metals (ICMM) has published a new Social and Economic Reporting Framework which commits members to report against a set of social and economic indicators, empowering stakeholders such as communities, governments, and investors to assess the contribution of mining to social and economic development more easily.

ICMM members, representing around a third of the industry, have committed to report on eight key indicators which includes country by country tax reporting on revenues, payment and tax, workforce composition, pay equality, wage level, training provided, local procurement, education and skills programmes, and capacity building.

This will also help companies to enhance the delivery of their social and economic contribution programmes, thus bolstering economic growth and employment.

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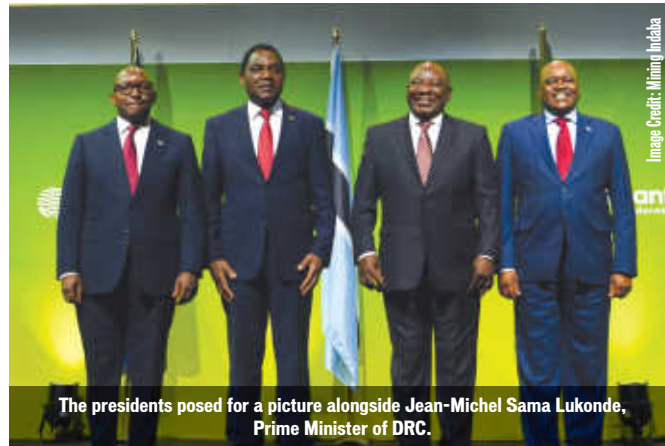
Investing in African Mining Indaba returned to Cape Town for a full week of discussion, networking and expert insight.

One of the flagship attractions of this year's edition was the impressive ministerial presence as no less than three presidents graced the main stage in the opening days.

The first head of state to take the stage was Hakainde Hichilema, President of Zambia, who noted that with climate concerns continuing to gain momentum the theme of this year's edition – Evolution of African Mining: Investing in the Energy Transition, ESG and the Economies – could not have come at a more opportune time. While he stressed the importance of the mining industry to take heed of this issue, he noted that it also presented a golden opportunity for the continent as resources – such as copper which Zambia has in abundance – is critical to much of the technology important in the energy transition. The President added that these resources must be exploited properly and strategically in order to improve the lives of citizens and get more of the population out of poverty and that fostering peace and stability will be key to this.

"We believe in its [mining] potential to be a great contributor to our economy. We welcome pragmatic collaboration with the mining industry and other players and are committed to building a resilient and sustainable mining industry. Zambia is open for business."

In a similar vein, Mokgweetsi Eric Keabetswe Masisi, President of Botswana, noted the immense role mining has played in the economic progression of his country. He further highlighted the investment opportunities available in Africa, describing the significant amount of resources the continent holds as well as those not yet discovered –



The presidents posed for a picture alongside Jean-Michel Sama Lukonde, Prime Minister of DRC.

something his Government is tackling by mounting an investment into pre-composition data.

"The Government has gone to great lengths to create an environment conducive for investment. We want to extend to all an invitation to visit Botswana and invest in the vast amount of mineral resources," the President concluded.

Last to grace the stage was South African President Cyril Ramaphosa who described how Africa's mining industry must manage the risks and potential benefits of technological change, shifting market demands, climate change and geo-political uncertainty. The President remarked that the industry had shown its resiliency over the last few years of disruption but must now adapt to new circumstances and be prepared to seize new opportunities as Covid-19 restrictions ease.

Speaking honestly, Ramaphosa lamented that his country had fallen into the bottom ten of the Fraser Institute's Investment Attractiveness Index rankings but added that his Government was working to remedy this through a variety of initiatives such as fixing regulatory and administrative problems; clearing the backlog of mining and prospecting rights and mineral

rights transfer applications; implementing an effective exploration strategy; and ensuring a secure and reliable supply of affordable electricity is available.

"We are firmly committed to fulfilling our responsibilities and to remove all impediments to the growth, sustainability, and prosperity of the mining industry. We are firmly committed to ensuring that mining occupies its rightful place as an industry of the future," the President announced.

Across the four days visitors were also treated to a wide range of speeches, debates and presentations from the full spectrum of industry experts in attendance.

Duncan Wanblad, chief executive of Anglo American, remarked that never before has there been such an obvious demand for what the mining industry does and what it can make possible, explaining that the minerals the industry produces are instrumental in spurring on human progress and development. Now, this progress is centred on the drive towards net-zero.

"The world cannot decarbonise without the products of mining."

Focusing elsewhere, Sinead Kaufman, chief executive of minerals at Rio Tinto, took the

opportunity to provide an honest look at her company and the inequalities that still prevail within the industry as a whole.

"For too long people have felt unseen and unsupported... We want to use this opportunity to say that discrimination of any kind is not acceptable."

The factory floor

Of course, the beating heart of Investing in African Mining Indaba 2022 was the exhibition floor which showcased a wide variety of solution providers for every facet in the industry; prospective investors; national stands; mining companies from junior to large-cap; service providers and more.

To name a few that caught the eye: Anglo American's prominent stand was manned by enthusiastic members keen to discuss the large hydrogen-powered mine haul truck which was unveiled at the Mogalakwena PGMs mine; Orica's stand boasted a variety of solutions on display including their Nitrate Risk Reduction Framework to ensure blasting processes are carried out to a level of best practice where all potential nitrate pathways are effectively managed; and Liebherr demonstrated their formidable offering with information on equipment such as the R 9400 Mining Excavator built to outperform all competitors in the medium class mining market.

Relinquishing the chance to network face to face once again and learn from the considerable collective knowledge on display, the live-return of Investing in African Mining Indaba was met with widespread enthusiasm from those in attendance and no doubt many are already beginning the countdown until they can return to Cape Town for the next edition. ■

Intelligent mining: the power of connectivity

Mining worldwide has become increasingly complex and sophisticated work, an industry that's now driven by technology for performance, safety and efficiency - as such, the future of mines depends on connectivity.



Mining is one of Africa's primary, strategic industries, an essential part of its economy, producing gold, uranium, gemstones and a host of other metals and minerals for the world.

Some of Africa's newest and largest mines are among the most sophisticated anywhere, embedding technology in all aspects of work to help operators gain greater visibility and aid decision-making.

The treasure trove of data captured through sensors, computers and other technology can ultimately help to improve safety and boost profitability. As an example, this data allows users to build in predictive maintenance models that may help to minimise downtime, thereby raising overall efficiency and productivity.

But the success of any such system hinges on good connectivity, a point recognised by leading industry players, such as SES, an expert in digital mining solutions.

It recognises that technology, such as the industrial Internet of Things (IoT) and virtual reality, is transforming safety, productivity and profitability in the natural resources sector and extractive

industries – yet, none of these work without connectivity.

O3b mPOWER, the newest MEO satellite constellation in its multi-orbit ecosystem, launched this year, enables clients to design a digital strategy without the limitations of capacity, speed and reach. It means multiple mines can be managed from a flexible pool of bandwidth.

The high-throughput network provides Internet and private network connectivity, from aggregated data rates of up to 2Gbps and beyond, directly to any mining site or other installation.

SES works with various technology partners, ranging from satellite manufacturers and software companies to telecoms giants like Orange to deliver its cloud-scale connectivity services.

The potential across Africa alone is huge, especially those areas where communications infrastructure is less well developed – a common problem for remote mine sites.

With this infrastructure in place, intelligent mining then accelerates innovations such as real-time data visualisation, analytics, automation and virtual or augmented reality.

Most recently, SES and InterSAT, a

leading African Internet provider, renewed a partnership agreement to accelerate digital inclusion.

Caroline Kamaitha, vice president sales Africa at SES, said the partnership has enabled the company to pave the way for abundant digital opportunities across Africa by connecting the unconnected in some of the region's most underserved locations.

"The renewal of our partnership accelerates Africa's digital inclusion – and we are humbled to be part of the solution," she said.

The digital access its services provide is allowing innovative solutions in key industries to address some of the continent's greatest challenges, she added.

In a paper last year by another global telecoms giant, Peter Malebye, managing executive for IoT at Vodacom Business, agreed that "connectivity will be key" and to expect more focus on this and other areas. While the Covid-19 pandemic exposed the often-siloed nature of mining companies, he believes it also highlighted the need for more integrated operations, accelerating the adoption of digital technologies such as 5G and IoT.

"It's clear that the future of mining will depend on a robust, reliable, low latency communication system – and premium grade connectivity – to ensure productive and safe operations, all of which 5G was designed to support."

Vodafone has forged a partnership with IoT.nxt to trial some of these ideas specifically for the mining sector.

That includes running a 5G connected mining vehicle trial with South Africa's Aard Mining Equipment, a manufacturer of underground trackless mobile machines.

Together with IoT.nxt, the goal was to resolve some of the biggest issues facing the industry when it comes to connected vehicles. The partnership team installed an intelligent edge gateway, known as Raptor, on one of Aard Mining's new mining vehicles. Raptor was developed to transform an ecosystem into a multilingual hub of innovation and communication.

In addition, it provides real-time alarm notifications on IoT.nxt's cloud-based platform – all underpinned by guaranteed Vodacom 5G mobile connectivity. ■

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Unlocking Africa's manufacturing potential through engineering

Wariara Waireri, senior manager - Africa Programmes at the Royal Academy of Engineering, explains how increased support for Africa's manufacturing industry could unleash its boundless potential.

The potential of manufacturing to drive development in Africa and transform the continent into a serious global contender is still largely untapped. Most African countries rely on imported manufactured goods and during the Covid-19 lockdowns, felt the impact of this reliance on international products. While several small-scale African manufacturers are emerging, more needs to be done to encourage growth in the sector.

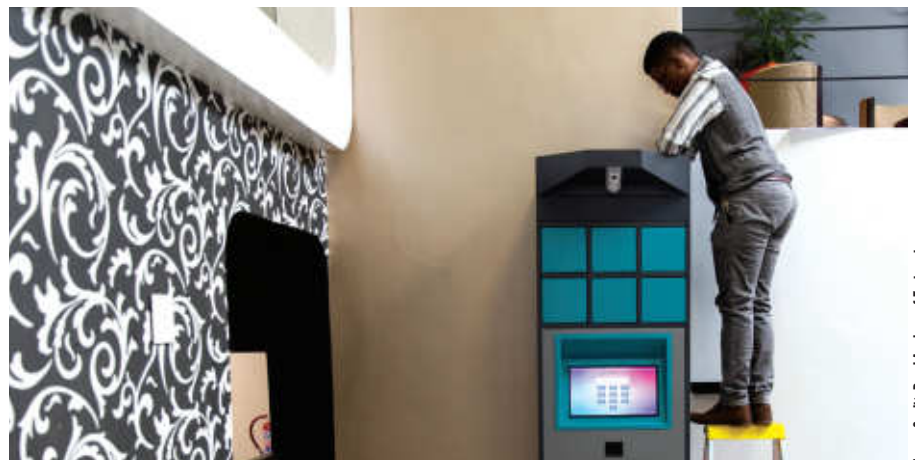
Manufacturing is a driver of economic development and social stability. Manufacturing has transformed some of the world's wealthiest nations – Germany, Japan, the UK, the US, and China. However, Africa is a vast continent with diverse challenges, which call for unique solutions to grow manufacturing capabilities, rather than a copy-paste approach. The most sustainable solutions to challenges facing countries come from those who live there.

Manufacturing is an excellent way to diversify economies that rely heavily on the mining of finite resources, and these are being mobilised by a range of programmes to increase Africa's competitiveness with the rest of the world.

However, a lot still needs to be done. Africa manufactures a meagre 2% of global output despite representing nearly a fifth (17%) of the population, according to a 2020 report by the United Nations Industrial Development Organisation (UNIDO). Growth in manufacturing sector has been very slow, at only 0.7% per year between 2012 and 2019, compared to a global average of 2.1%.

On the ground, challenges such as absent or inconsistent electricity supply, difficulties in accessing and affording machinery and skilled workers, and lack of government support hamper development. Product sustainability and resource efficiency must also be addressed, as markets now require this.

A drive to improve the quality of products produced by African nations – potentially through incentives, certifications and better access to industrial components – will bolster domestic perception and support, but also improve



Neo Hutiri and his Pelebox smart locker system.

competitiveness on the global stage, unlocking enormous profits.

Transforming communities

Crucial to the development of manufacturing is engineering. Several alumni of the Royal Academy of Engineering's Africa Prize for Engineering Innovation are actively working to grow manufacturing in their respective countries. The Africa Prize has supported entrepreneurs that have gone on to achieve success and transform their communities in 17 countries. They create technology which disrupts traditional development pathways, contributing to the economy and society.

Fatou Juka Darboe's company, Make3D Medical in The Gambia, uses 3D printing to create customised orthopaedic equipment such as prosthetics. Most medical products in The Gambia are imported. Make3D Medical solves this, developing the components and teaching medical professionals to make their own, allowing hospitals and clinics to respond to needs in real-time.

As the only 3D printing company in The Gambia, Darboe's team had to educate the government on the process before they could obtain local certifications, and still has to import raw materials.

Also in the health sector is Zambia's Safe Motherhood Alliance, a social enterprise founded

by Muzalema Mwanza. Mwanza's team develops affordable baby delivery kits which include maternity pads that she manufactures from the peels of locally grown bananas. Mwanza also 3D prints umbilical cord clamps and wants to add low-cost cotton-processing machinery to her enterprise soon. She hopes to ultimately manufacture at least 70% of the eight items in the kit and wants to start mass producing them.

In South Africa, Neo Hutiri's Pelebox smart locker system helps public healthcare facilities dispense chronic medication to regular patients. Manufactured locally, local suppliers have been unskilled to ensure the quality of components. For Hutiri, local manufacturing is essential as it benefits local communities, and the personal connection to suppliers has been advantageous during tough times.

Based on this glimpse into the manufacturing activities of Africa Prize alumni, there is no doubt that the continent contains the talent necessary to drive manufacturing in various industries.

Incentivisation of manufacturing and tangible commitments by governments to support the sector and improve its quality will drive growth and help African nations take their rightful place among other manufacturing titans.

Applications for the Africa Prize for Engineering Innovation 2023 are now open. ■

Image Credit: Royal Academy of Engineering

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