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Recognising quality as the key to longevity **P34**

MINING

Empowering the workforce to ensure meaningful change **P42**

African Review

JUNE 2023

of BUSINESS and TECHNOLOGY

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Building partnerships to advance the power sector

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Effective performance whatever the task

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“Green hydrogen is not only a smart economic decision, but it will also empower local communities through jobs and sustainable, long-term business.”

Bruh Ayele Terfie, president, Africa, at Fortescue Future Industries



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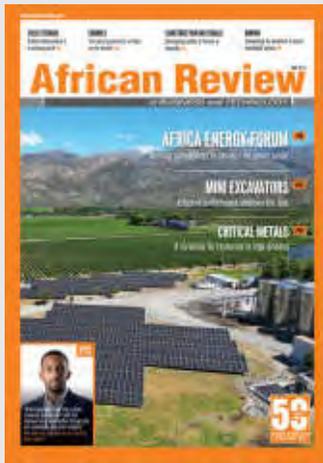
IVECO T-WAY **IVECO S-WAY**

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Cover picture: Solar panels at Du Toitskloof Winery in Rawsonville, South Africa

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Cover Inset: Bruh Ayele Terfie, president, Africa, at Fortescue Future Industries

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Editor: Robert Daniels

Email: robert.daniels@alaincharles.com

Editorial and Design team: Prashanth AP, Fyna Ashwath, Sania Aziz, Miriam Brtkova, Praveen CP, Shivani Dhruv, Matthew Hayhoe, Leah Kelly, Rahul Puthenveedu, Madhuri Ramesh, Madhurima Sengupta, Louise Waters and Minhaj Zia

Publisher: Nick Fordham

Head of Sales: Vinay Nair

Email: vinay.nair@alaincharles.com

Magazine Manager: Jane Wellman

Tel: +44 207 834 7676 Fax: +44 207 973 0076

Email: jane.wellman@alaincharles.com

India **TANMAY MISHRA**
Tel: +91 98800 75908
Email: tanmay.mishra@alaincharles.com

Nigeria **BOLA OLOWO**
Tel: +234 80 34349299
Email: bola.olowo@alaincharles.com

UK **RICHARD ROZELAAR**
Tel: +44 20 7834 7676 Fax: +44 20 7973 0076
Email: richard.rozelaar@alaincharles.com

Head Office: Alain Charles Publishing Ltd, University House, 11-13 Lower Grosvenor Place, London SW1W 0EX, United Kingdom
Tel: +44 (0)20 7834 7676, Fax: +44 (0)20 7973 0076

Middle East Regional Office: Alain Charles Middle East FZ-LLC, Office L2-112, Loft Office 2, Entrance B, PO Box 502207, Dubai Media City, UAE,
Tel: +971 4 448 9260, Fax: +971 4 448 9261

Production: Rinta Denil, Ranjith Ekambaram, Nelly Mendes and Infant Prakash
E-mail: production@alaincharles.com

Chairman: Derek Fordham

Printed by: Buxton Press

Printed in: MARCH 2023

ISSN: 0954 6782

SUBSCRIPTIONS:

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Serving the world of business

Editor's Note

Welcome to the June issue of African Review, complete with up-to-date information and analyses to help you navigate the world of business on the continent.

In this issue, our power section includes a comprehensive report on southern Africa's energy outlook where regional initiatives and partnerships are seeking to alleviate pressures and facilitate industrialisation (page 16). We also feature a detailed insight into a flexible power solution provided by Rolls-Royce for a mining customer (page 23); an exploration of why efficiency is being prioritised for new engines entering the market (page 24); and an overview of the Agogo oilfield development in Angola (page 28). Don't forget to check out our extensive Africa Energy Forum coverage as well, as industry eyes look ahead to the conference arriving in Nairobi (page 18).

In construction, a rise in the use of cheap construction materials has prompted AfriSam's Amit Dawneerangen to explore why choosing quality will bring benefits in the long-term (page 34) and we also reflect on the innovations introduced to enhance mini excavator impact (page 32).

Across our mining section, you will find a collection of interviews with industry leaders covering the topics of energy in mining (page 40), workforce empowerment (page 42) and the critical metals opportunity (page 44).

Amid the waves of global uncertainty plaguing the modern business environment, one thing is assured; African Review will be here to help your company remain afloat and thrive. Be sure to visit our website as well for daily updates and insights.

Robert Daniels, Editor

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The latest additions for a piece of machinery which is becoming increasingly popular across sub-Saharan Africa.

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While there has been a rise in the use of cheaper construction materials such as aggregates and readymix concrete, AfriSam's Amit Dawneerangen explains why it pays to stick with quality.

42 Empowering the workforce
Helder Santos, director of mining and metals for EMEA at dss, takes a detailed look at why it is imperative to engage the workforce when looking to introduce new technology and digital solutions.

46 Tanzania mining
The Government of Tanzania is working hard to achieve its target of mining contributing 10% of the country's GDP by 2025 and has signed key agreements to develop more projects.

Vantage Capital acquires stake in Promamec

Vantage Capital, Africa's largest mezzanine fund manager, has signed an EU€30mn (approx. US\$32mn) equity investment deal to acquire a significant minority stake in Promamec.

This investment will enable Promamec, one of Morocco's leading medical consumables and equipment distributors, to finance its development plan.

The plan includes increasing production capacities, expanding product offerings, and strengthening its presence in sub-Saharan Africa.

The deal also facilitates the exit of the private equity fund AfricInvest from Promamec. The transaction is currently subject to approval from Moroccan competition authorities.

Vantage Capital's investment marks its 34th across four generations of funds and expands its portfolio across eleven African countries. The company sees this deal as an opportunity to support the improvement of Morocco's healthcare system as the country moves towards generalising its health insurance system.

Promamec's CEO, Naoufal Lahlou, expressed enthusiasm about the partnership with Vantage Capital and the alignment of their vision. He commented, "We are delighted to welcome into our shareholding Vantage Capital, a leading pan-African investment firm.

"Vantage Capital will accompany us over the next few years in our strategy to diversify our current product range, increase our production capacity and, above all, expand our geographical presence in sub-Saharan Africa."

The transaction was guided by Derenia Capital as the financial advisor and Clifford Chance as the legal counsel for Vantage Capital. PwC and Webber Wentzel provided tax advice, while PwC, Deloitte, and Strategy & offered financial and commercial advice. Ibis Consulting reviewed its environmental impact. This investment further strengthens Vantage Capital's presence in Morocco, one of its key target markets.



Image Credit: Promamec

The equity will facilitate the exit of AfricInvest and fund growth.

IFC FINANCES BOTTLING INNOVATION AT ECCBC

IFC and the Equatorial Coca-Cola Bottling Company (ECCBC) have agreed terms for a loan to support the beverage maker's ambitious strategy.

Fuelling the Equatorial Coca-Cola Bottling Company's mission to reduce water and energy consumption across its 13-nation operations in North and West Africa, the finance agreement will fund: upgrading/replacing production lines; establishing a polyethylene terephthalate (PET) collection recycling network in Algeria; replacing coolers across its distribution network; installing solar panels at bottling plants; and piloting solar-powered retail coolers in Ghana and Morocco.

Alfonso Bosch, CEO at the Equatorial Coca-Cola Bottling Company, explained, "I am proud to say that Equatorial Coca-Cola has fared well in the face of the rapidly evolving challenges of the last few years and that we have continued making strides in our path towards becoming a more responsible, inclusive, diverse, and sustainable business."

"To achieve this purpose, partnerships like the one with IFC are essential. By working together, we can unify forces to develop more impactful solutions and achieve larger goals, in order to improve the future of Africa."

Henrik Elschner Pedersen, IFC regional industry director in Africa for manufacturing, agribusiness, and services, concluded, "By working with Equatorial Coca-Cola Bottling Company, we aim to help shape the beverage sector's sustainability path and influence industry practices throughout Africa. The project targets reducing the company's water and energy footprint through technological upgrades, solar solutions and piloting recycling programmes. We look forward to working closely with more companies across Africa to help them achieve their climate and sustainability goals."

OOREDOO AGREES LOCAL SUPPORT CONTRACT

International communications company, Ooredoo, has partnered with Axon, a global leader in public safety technologies. Through the partnership, Ooredoo will serve as Axon's preferred connectivity provider in the Middle East and North Africa.

Sheikh Mohammed Bin Abdulla Al Thani, deputy group chief executive officer at Ooredoo Group, commented, "We are proud to associate with Axon, as a world leader in its sector, and first of what we hope will be many partnerships to help us achieve the strategic goal of growing in international IoT managed connectivity market. In partnering with Axon to provide state-of-the-art IoT managed connectivity to leading international players, we clearly demonstrate our commitment to digital transformation, to investment in innovation, and to offering our customers the best products, services and technologies - enabling them to upgrade their worlds."

BRIEFS



Image Credit: Adobe Stock

US\$123mn has been secured to conduct the project.

ACWA obtains US\$123mn package

ACWA Power, a leading Saudi developer, investor, and operator of power generation, water desalination and green hydrogen plants internationally, has confirmed a US\$123mn financing package to develop the 200MW Kom Ombo project.

The 200MW project is a utility-scale power plant in Egypt, less than 20 km from the Benban complex, and will bolster efforts to increase the overall capacity of Egypt's solar output.



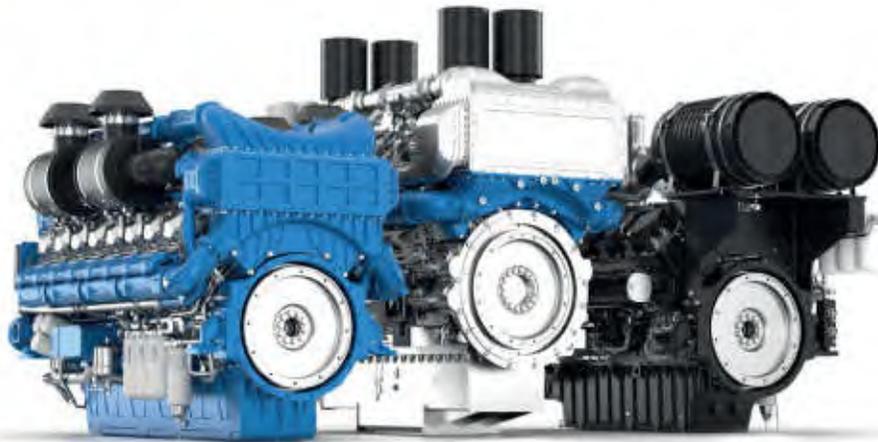
Image Credit: Adobe Stock

Both parties will increase support for decarbonisation projects.

JBIC signs Ministry MoU

The Japan Bank for International Cooperation (JBIC) has signed a memorandum of understanding with the Ministry of International Cooperation of Egypt. Set to strengthen the organisations' strategic partnership, the agreement will cement the already active support for the creation and promotion of opportunities for both parties across multiple sectors, including decarbonisation.

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AW-Energy and Kaoko to develop renewable energy in Namibia

AW-Energy, which specialises in near-shore wave energy technology, has signed a memorandum of understanding (MoU) with Kaoko Green Energy Solutions (Pty) Ltd in Namibia.

The MoU intends to manufacture green hydrogen from renewable energy sources, including wave energy. This most recent project follows the development of WaveRoller technology by AW-Energy.

Phase 1 of the three-phase operation will comprise the construction and installation of a WaveRoller wave farm on the Namibian coast, as well as a thorough site design. It will provide clean energy to help with in-land development and resettlement. Phase 2 will evaluate the potential for wave farms in a number of Namibian locales. In the last phase, wave energy facilities will be expanded to give electricity to the grid and contribute in novel ways to energy provision for desalination and green hydrogen projects.

Christopher Ridgewell, CEO of AW-Energy, said, “With an energetic and consistent wave resource, Namibia is very well positioned to utilise the benefits of wave energy to enable sustainable industries and jobs.

“The partnership with Kaoko is exciting. We’re enjoying working with Kaoko’s innovative team to support Namibia’s sustainability goals and it is an initiative that provides an excellent environment for deploying WaveRoller technology into Namibia’s energy mix. We are looking forward to taking the next steps together and to demonstrate WaveRoller’s value in desalination and green hydrogen production.”

It is an initiative that supports a mutual intention to co-operate and explore knowledge and share opportunities for the development of clean and sustainable ocean energy resources and the assessment phase of wave farm developments in Namibia.

Sacky Nalusha, director for Kaoko Green Energy Solutions, said, “It is an open secret that the energy sector in southern Africa is currently underdeveloped, creating opportunities for innovative solutions and partnerships that can grow the sector. The current energy shortages in the region have paved ways to explore alternative, untapped and sustainable energy sources. Ocean waves have the potential to provide a sustainable solution to our energy needs and demands.”



Image Credit: AW-Energy

WaveRoller is increasingly being favoured as a ‘plug-in’ solution to harness the energy which can be extracted from waves.

CAPE TOWN TO LAUNCH SOLAR PV PLANT

Cape Town will design, build, and operate a US\$62mn solar PV plant with battery storage capable of providing up to a full stage of loadshedding protection. This is one of two projects awarded support from the C40 Cities Finance Facility (CFF), an initiative funded by the German Federal Ministry for Economic Cooperation and Development, the Government of the United Kingdom and the Agence Française de Development (AFD).

“It gives me great pleasure to announce that the City’s Paardevlei ground mounted solar PV and battery storage project just outside Somerset West will yield up to 60MW of renewable energy – enough to protect against one full stage of Eskom’s loadshedding,” commented city mayor, Geordin Hill-Lewis.

The feasibility study for the Paardevlei plant will be complete by the end of 2023, with full commissioning of the plant estimated by August 2026.

The plant is envisaged for the portion of Paardevlei that is not developable for human settlements purposes.

Thomas Schaef, country director GIZ South Africa, Lesotho and eSwatini, said, “The energy and climate projects supported by C40 CFF will not only improve energy security and living conditions, but will also contribute to the South African Government’s commitment to become carbon neutral and resilient.”

Hill-Lewis recently tabled the city’s Building Hope Budget for 23/24, with a R2.3bn (approx. US\$120mn) end loadshedding plan over three years inclusive of funding towards the Paardevlei solar PV plant.

This is the final phase of a three-phase procurement to protect residents from the first four stages of Eskom’s loadshedding within three years.

IPR TO DISTRIBUTE TOYO HEAVY DUTY SLURRY PUMPS IN SOUTHERN AFRICA

Pump and dredging specialist IPR has been appointed by Toyo Pumps Europe (TPE) to market the Toyo heavy duty slurry pump range in southern Africa.

IPR’s established presence and reputation in the market as well as its capacity to support customers was the basis for TPE’s choice of IPR as its official distributor in the region.

Ruaan Venter, rental development manager at IPR, highlighted the benefit to customers of having access to the Toyo range. These heavy duty slurry pumps are engineered to solids that have settled out of fluid suspension, a situation where conventional pumps often fail. The quality of the pumps, Venter added, combined with IPR’s application expertise and maintenance capability, will ensure a winning partnership.

Volvo Trucks announces top dealers in SA



Image Credit: Volvo Trucks

Volvo Trucks has launched a range of extra heavy electric trucks in South Africa.

Volvo Trucks and Buses Johannesburg was named the Mega Dealer of the Year; Magnis Trucks Pretoria East received the honours for Medium Dealer; and Volvo Trucks and Buses Beaufort West was crowned Small Dealer of the Year.

“As part of our promise to provide our customers with the best possible support, it is important that our dealer teams deliver services and solutions that are of the highest quality,” said Waldemar Christensen, MD of Volvo Trucks South Africa.



Image Credit: Tati Software

Bertha Kgokong from Tati Software.

MobileGPT launches in Africa

Developed by Bertha Kgokong from Tati Software, the app MobileGPT allows users to generate documents, create AI images, and interact with a personal AI assistant on WhatsApp. Key features include AI-powered chatbot integration via WhatsApp and seamless image generation. It can also access an AI-powered document generator, apart from having LiveData search functionality, which can generate comprehensive, real-time research reports from the Internet within minutes.



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Zero Nox and Jospong Group to advance clean technology solutions

Zero Nox Inc, a provider of sustainable, off-highway vehicle electrification, has celebrated the launch of its partnership with the Jospong Group of Companies (JGC), with the formal signing of the joint venture agreement to advance clean technology solutions in Africa.

Leaders from the US Legislature and Ghanaian Government joined Jospong executive chairman, Joseph Siaw Agyepong; ZeroNox co-founder and CEO, Vonn Christenson; co-founder and president, Robert Cruess; COO, Jason Eggett; and CTO, Jacob Gotberg, in commemorating this step toward a cleaner future for all, made possible by ZeroNox's industry disrupting technology.

The unveiling of the world's largest fleet retrofit electrification project and the signing of the joint venture agreement between ZeroNox and the Jospong Group mark significant milestones for both companies and leverage Ghana as the gateway to electric vehicle and related technology distribution throughout Africa. Through this agreement, 1,000 refuse trucks from the Jospong Group subsidiary, Zoomlion, will be converted from gas to electric power utilising the ZeroNox Electric Powertrain Platform (ZEPP). A prototype of the all-electric refuse truck made its premier during the event as well.

The electrification of Jospong Group's 1,000 refuse truck fleet by ZeroNox is projected to reduce the amount of CO₂ in the atmosphere by 400,000 metric tons over five years, the equivalent of 18mn mature trees. Estimated savings are US\$323mn over five years, and as a result the Jospong Group will generate a return on their investment in less than three years.

"We are excited to partner with a global leader like the Jospong Group in executing the world's largest fleet retrofit electrification project," said Christenson. "This partnership emerged out of a desire to deliver a better and more sustainable future and one where we can reduce carbon emissions without diminishing vehicle performance."

ZeroNox and Jospong Group were presented with an award by the Ghanaian Government recognising their contributions to global carbon emission reduction and the education of Ghana's youth about green technology solutions.



Joseph Siaw Agyepong and Vonn Christenson signing a MoU for the project takeoff.

DPI TO ACQUIRE MAJORITY OF SOLEVO GROUP

Solevo Group, a leading African distribution platform for specialty chemicals, has announced its acquisition by Development Partners International (DPI), an investment firm focused on Africa, alongside minority co-investors South Suez and European development finance institution, DEG.

The group of investors, led by DPI, are acquiring 100% of the business from Africa-focused investment firm, Helios Investment Partners. All regulatory approvals for the transaction have been approved and the deal has been closed.

Helios, alongside global investor Temasek, acquired Solevo in 2017 through the corporate carve-out of Louis Dreyfus Company's African Inputs business, a leading global commodities merchant. Underpinned by more than 75 years of heritage and brand recognition in Africa, Solevo has established itself as a key enabler in the continent's drive for agricultural self-sufficiency and the stimulation of local industry. With 23 distribution sites, a deep network across eight countries, and a team of leading experts, Solevo is recognised as a trusted distribution partner for customers across the continent. Since founding, and under Helios' ownership, the company has transformed into a leading distributor of specialty chemicals across the most important life sciences and industrial segments.

Solevo offers a one-stop-shop for a range of inputs and chemicals including agriculture, also providing support for small holder farmers, helping them to secure their livelihoods through increased yields and greater crop security, resulting in improved food security and climate resilience across Africa. Other life sciences segments include food and beverages, home and personal care, and industrial segments such as water treatment, mining and energy, construction, and packaging.

SWEDFUND SUPPORTS STUDY ON ALTERNATIVE FUELS FOR LAGOS

Swedfund's Project Accelerator has entered into a grant agreement for a study on the possibilities of introducing alternative fuels for Lagos public transport system, a development aimed at reducing emissions.

Lagos, Nigeria, one of the world's largest cities with a population of more than 20 million people, has a public transport system running on fossil fuels but the Lagos State Government has an ambitious plan to cut down emissions in public transport and its climate footprint.

As a first step, Lagos Metropolitan Area Transport Authority (LAMATA) plans to assess different alternative fuels for public transport and the potential for alternative fuels to form part of the state's public transport in the future. LAMATA's plan is considered a platform that could also create opportunities for new players in Lagos' transport system, including Swedish companies. Swedfund has now agreed to provide grant funding for an alternative fuels study.

BRIEFS

Ghana benefits from WEC sewage treatment plants



Trickle filter plant installation at Fomena.

WEC Projects has completed the design, engineering and supply of new sewage treatment plants for three different developments in Ghana - two hospitals and an apartment complex. All three projects integrate biological trickle filtration systems. The treatment plants will be installed at the Kumawu District Hospital, the Fomena District Hospital, and a smaller system will be introduced at an apartment complex in the coastal city of Sekondi-Takoradi.

Oxygen generators deliver for Senegal mine



Oxair has delivered on a major contract win for an oxygen tonnage plant built for a gold mining operation in Senegal.

A leading gold mining company operating in Senegal is reducing its reliance on traditional bulk liquid and switching to the latest on-site gas generating technology supplied by Oxair Gas Systems. The equipment brings numerous advantages, not least the 6,000 kg of oxygen the site needs each day which is extracted from the atmosphere. Oxair's technology is cheap to run, robust, can operate in extreme conditions and requires minimum maintenance.

Aterian provides update on operations in Rwanda

Aterian Plc, an exploration and development company advancing its portfolio of African critical and strategic metal assets, has provided an operational update on its work streams in the Republic of Rwanda.



Aterian project locations in Rwanda.

Image Credit: Aterian Plc

Prospective lithium bedrock potential has been confirmed on the HCK project by independent pegmatite fertility analysis of the multi-element geochemistry. A new pegmatite zone has also been discovered. 23 separate target zones have now been discovered on the southern projects and a multi-method geophysical survey has been completed over the HCK-1 target area covering c.2.4 sq km. Four sub-cropping pegmatite bodies were identified from the survey.

The company also announced that the HCK exploration licence was transferred to the 70% Aterian-owned joint venture company, Kinunga Mining Limited.

Charles Bray, chairman of Aterian, said, “The multi-method geophysical survey has successfully delineated several sub-cropping pegmatite dykes and demonstrates its value as an exploration tool in Rwanda. Combined with the geochemical prospectivity/lithium fertility analysis, this work clearly demonstrates that the southern projects represent a strong exploration play with the opportunity for bedrock lithium discovery hosted by the LCT pegmatites.”

FINGO AFRICA TO REVOLUTIONISE FINANCIAL INCLUSION

Ecobank Kenya has launched the Fingo Africa app, set to revolutionise financial inclusion for young people in Kenya and across Africa.

The app was developed in close collaboration between Fingo Africa, a Kenyan Fintech company, and Ecobank. The launch of the app in Kenya will be followed by a roll-out across Ecobank’s pan-African footprint.

Accessing financial services can be a major challenge for young people in Africa today. Opening a bank account can be a lengthy process taking anywhere from two days to two weeks in some countries. Moreover, it may require multiple face-to-face interactions and the submission of physical paper documents. Often, consumers also face a steep fee when sending money to friends, loved ones, or businesses, in addition to other charges just to keep their account active.

Commenting at the app launch, Jeremy Awori, CEO, Ecobank Group, said, “We are proud to support the deployment of the Fingo app, a game-changer in digital finance in Africa that brings many young people into the mainstream financial sector and caters to their needs and preferences. By simplifying access to finance, it overcomes the entrenched issues that have often acted as barriers to entry for young Africans.”

The app empowers Africa’s youth by enabling them to open a bank account via their mobile phone in less than four minutes, send money to other Fingo users for free and to M-Pesa users and paybills via Paybills and Till numbers at subsidised rates.

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Pushing southern Africa's construction industry to new heights

The Big 5 Construct Southern Africa and co-located events will inspire the industry with the latest trends, innovations and opportunities to help spur its recovery, growth and transformation.



Image Credit: dmg events

The co-located events will serve as a hub for the southern African construction industry.

In light of the progress that the southern African construction industry has made in 2022, The Big 5 Construct Southern Africa expo – with co-located events such as the African Smart Cities Summit, the Big 5 Southern Africa Construction Impact Awards and the inaugural Big 5 Southern Africa Construction Leaders' Summit – will take place at the Gallagher Convention Centre in Johannesburg from 27-29 June.

The 10th annual event will offer contractors, engineers, architects, quantity surveyors, designers and property owners a one-stop-shop to identify opportunities and materials to complete projects efficiently.

Tracy-Lee Behr, portfolio director: built environment at dmg events (the organisers), commented, "These events are not only promoting upcoming projects, trends and opportunities in southern Africa's construction market; they are celebrating the great work being done in the industry, inspiring even greater things, and striving towards a future-proofed industry."

"The construction industry has faced challenges, but is in recovery. There are many opportunities and many professionals in the industry with exciting ideas and fresh

perspectives to share. These events will provide the chance to explore opportunities to collectively ensure industry resilience and growth."

The African Smart Cities Summit will run on 28 June as a dedicated conference exploring the benefits of smart cities enabled through economic growth in IoT, technology and creative thinking.

As an invitation-only event, The first Big 5 Southern Africa Construction

Leaders' Summit will take place on 29 June and will unite high-level decision-makers, essential industry stakeholders and premier service providers to converse, deliberate and propel the advancement of infrastructure construction and development within the SACU region.

Finally, The Big 5 Southern Africa Construction Impact Awards on 27 June have been created as a platform to celebrate the achievements and

transformation of the construction industry that goes beyond traditional measures of project delivery.

Uniting the industry

All these events will serve as a hub for the southern African construction industry and will play host to more than 200 exhibitors and 30 associated partners. More than 6,000 products and technologies are expected to be on display across the three days and visitors will also benefit from the 8,500+ construction professionals who will be in attendance.

Behr concluded, "Uniting as an industry to address and solve the current problems and realities allows us to reflect on how far we've come and what we can do together to make the most of the future."

"These events will offer unrivaled networking and deal-making opportunities, combining all facets of construction infrastructure in southern Africa and are not to be missed." ■

Find more information and register to attend The Big 5 Construct Southern Africa and co-located events here at: <https://www.thebig5constructsouthernafrika.com>

“ The construction industry has faced challenges, but is in recovery.”

TRACY-LEE BEHR, PORTFOLIO DIRECTOR: BUILT ENVIRONMENT AT DMG EVENTS



More than 6,000 products and technologies are expected to be on display.

Image Credit: dmg events

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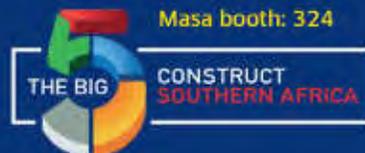
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Upcoming Events Calendar 2023

JUNE

6-8

SECUREX SOUTH AFRICA

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

6-8

PROPAK GHANA

Accra, Ghana
<https://www.propakwestafrica.com/propak-ghana>

6-8

NIGERIA BUILDEXPO

Lagos, Nigeria
<https://www.nigeriabildeexpo.net/>

14-16

DRC MINING WEEK

Lubumbashi, DRC
<https://wearevuka.com/mining/drc-mining-week/>

20-23

AFRICA ENERGY FORUM

Nairobi, Kenya
<https://www.africa-energy-forum.com/>

27-28

AFRICA RAIL

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

27-29

THE BIG 5 CONSTRUCT SOUTHERN AFRICA

Johannesburg, South Africa
<https://www.thebig5constructsouthernafrica.com/>

JULY

9-13

NOG ENERGY WEEK

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

11-13

WATER EXPO NIGERIA

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

11-13

MEGA CLIMA NIGERIA

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

13-15

POWER & ELEC UGANDA

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

24-27

AFRICA INTERNATIONAL HOUSING SHOW

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

Building on DRC's mining success

From 14-16 June 2023, the Grand Karavia Hotel in Lubumbashi will become the central hub for DRC Mining Week, a unique meeting place for mining stakeholders and influential decision makers in the country and wider Copperbelt.

Last year, the expo and conference proved to be a record-breaking success, helping to garner sustained global interest in DRC as a mining investment and resource destination. At the event this year, this is set to continue with at least five country pavilions from China, France, Germany, South Africa and the United Kingdom ready to set up shop.

Across the three days in 2022, DRC Mining Week welcomed more than 5,900 attendees who benefited from the 800+ conference delegates, 200+ sponsors and exhibitors, 32 suppliers, 83 expert speakers, and 113 mining houses and exploration companies in attendance. There were 634 business meetings conducted.

"The success of last year's event is evident from the numbers, with an overall participation of nearly 7,000 mining professionals, and the team is working hard on maintaining and surpassing the same quality and experience for the upcoming edition when we return to Lubumbashi from 14-16 June this year," commented Patricia Kazaka, event manager DRC Mining Week at the VUKA Group, the organisers of the conference for the past 18 years.

The theme of this year's event is 'Recognising DRC mining's triumphs and victories' and will



DRC has been recognised as an important mining country with a huge market.

Image Credit: Adobe Stock

include high-level conference sessions to allow delegates to get up-to-speed on the latest developments in DRC's mining sector with expert speakers from the public and private sectors.

Programme themes will include trade and investment; environmental and climate change; and policies and regulations. Other event highlights will be the Women in Mining session, an empowering network to inspire and support women establishing themselves in the sector; as well as the power and energy-focused sessions, looking into off-grid and sustainable solutions supporting mining activities going forward.

Much of the success of the event can be

attributed to the longstanding support of many mining and industrial sector leaders, including Standard Bank, Ecobank, Glencore, EquityBCDC, AirTel, FBNBank, MES and ARSP. Official industry partners that support the event include DRC Chamber of Mines, FEC and DRC's Ministry of Mines.

At DRC Mining Week this year, the organisers have promised an even bigger exhibitor space and more business connections via a matchmaking platform.

Find out more information about DRC Mining Week at: <https://wearevuka.com/mining/drc-mining-week/>

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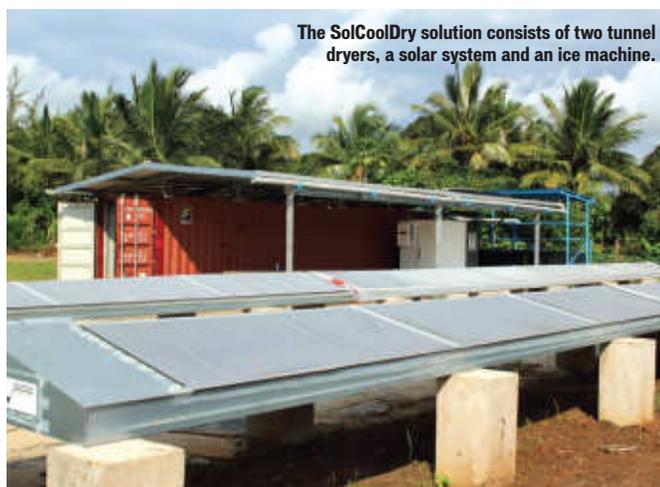
The cold storage initiatives helping to preserve food and medicine across the continent.

In April this year, the UK Government announced that it will commit UK£4mn (approx. US\$5mn) to help developing countries – including a number in sub-Saharan Africa (SSA) – address the lack of cold chain in Africa.

The commitment was made as part of Defra’s Sustainable Cooling and Cold Chain Solutions programme, pursued in light of the damaging effect an inadequacy in this can have to health and food chains as well as the wider economy. For instance, according to the University of Birmingham (which received some of the funding alongside the United Nations Environment Programme, the Government of Rwanda, and fellow project partners) about 37% of all food in SSA is lost between production and consumption, and almost 50% of fruits and vegetables are lost primarily due to improper cold chain management.

In addition, a lack of adequate cold storage and refrigerated transport to support medical supply chains in developing economies is estimated to contribute to more than 1.5mn vaccine-preventable deaths each year.

Toby Peters, professor in cold economy at the University of Birmingham and Heriot-Watt University, said, “Sustainable and equitable cooling and cold-chain is now more than ever critical



The SolCoolDry solution consists of two tunnel dryers, a solar system and an ice machine.

Image Credit: Fraunhofer ISE

infrastructure in a warming world. Food saved is as important as food produced.”

Innovative solutions

Elsewhere, the German Federal Agency for Agriculture and Food, alongside partners, have funded the SolCoolDry project which has developed a system that uses solar thermal photovoltaic energy to generate drying heat and produce ice. With a lack of electricity in rural areas making it difficult for some African fisherman and farmers to preserve their products, the system was developed in close cooperation with Kenyan partners to help mitigate this issue. The system consists of a 15kWp photovoltaic system that feeds electricity into a three-phase, battery-supported

stand-alone grid, which is used to power the ice machine and cold room. A maximum of 1,500 kg of ice can be produced within 24 hours. Excess solar power is fed into batteries with a total storage capacity of 19.2 kilowatt-hours.

The SolCoolDry system also has two solar tunnel dryers in which air is heated and distributed by fans over the dry goods throughout the day. To enable continuous drying throughout the night, one of the tunnel dryers contains heating pipes.

ColdHubs, another closer-to-home company operating in this space across 28 states in Nigeria, has delivered a plug and play module, solar-powered walk-in cold room for 24/7 off-grid storage and preservation of perishable food. Designed to address the problem of post-harvest losses in fruits, vegetables and other perishables, ColdHubs is installed in major food production and consumption centres.

With the solution, farmers can place their produce in clean plastic crates which are stacked inside the cold room to extend the freshness of the goods. The solar powered walk-in cold room is made of 120 mm insulating panels to retain the cold,

and energy from solar panels mounted on the roof-top of the cold room is stored in high capacity batteries. ColdHubs offers farmers a flexible pay-as-you-store subscription model.

2022 impact data revealed that ColdHubs had served more than 6,000 customers and brought an average 50% increase in income for users. It also created more than 80 jobs for women and saved significant CO₂ emissions. In June, the company stated that it is scaling up into a complete logistics cold chain organisation and will be launching a new generation of cold room that has the capacity to store 5,000 crates of perishables on a daily basis.

Another company that is making an increasingly bigger name for itself is Koolboks, which harbours a mission to make refrigeration accessible and affordable to all. Its solar-powered freezers, equipped with pay-as-you-go technology, enable eco-friendly and accessible refrigeration to all that need it.

In 2020, the company launched the Koolhome freezer for domestic and commercial use in off-grid and weak grid communities in Nigeria. Products are available in three different sizes including 158L, 208L and 538L. In addition to the Koolhome freezer, the company also offers the Kareboks vaccine freezer for use in pharmacies and health care facilities to support immunisation programmes as well as the global rollout of Covid-19 vaccinations.

Today, the company’s solutions are available in ten countries including Ghana, Ivory Coast, Liberia, Mali, Nigeria, Papua New Guinea, Senegal, Sierra Leone, Togo, and Uganda. Koolboks has also stated its plans for further geographic expansion into SSA and beyond. ■



Koolboks aims to make refrigeration accessible and affordable to all.

Image Credit: Koolboks

Eni inaugurates LNG project in the Republic of the Congo

Italy's Eni has begun work on its latest liquified natural gas (LNG) project in the Republic of the Congo.

Congo LNG, which is the country's first natural gas liquefaction project, is expected to reach an overall LNG production capacity of 3mn tonnes per year from 2025.

The foundation stone for the project was laid by the country's president, Denis Sassou Nguesso, and CEO of Eni, Claudio Descalzi.

Congo LNG will make use of the enormous gas resources in the nation, supplying new volumes of gas to international markets (with a focus on Europe) and meeting the nation's power generation requirements.

The project, made through an accelerated development schedule and a zero-flaring approach, will see the installation of two floating natural gas liquefaction plants (FLNG) at the Nenè and Litchendjili fields – already in production – and at fields yet to be developed. The first FLNG plant, currently under conversion and with a capacity of 0.6mn tonnes per year (MTPA), will begin production in 2023. The second FLNG plant – already under construction – will become operative in 2025 with a capacity of 2.4 MTPA.

Claudio Descalzi said during the groundbreaking event, "This outcome speaks to the importance of long-term collaboration with



Image Credit: Adobe Stock

Congo LNG is expected to reach an overall LNG production capacity of 3mn tonnes per year from 2025.

our African partners at a time when important strategic choices need to be made in regards to future diversification of supply routes and European energy mixes, in the direction of energy accessibility and availability and progressive decarbonisation."

Congo LNG is part of Eni's Marine XII project, a 571 sq m area on the coast of the Republic

of Congo covering five discovered oil and gas fields. It contains 1.3 gboe of proved and probable (2P) reserves.

Two fields, Nenè and Litchendjili, currently produce 28 kb/d (mainly light and low sulphur) and gas condensate, and 1.7 mcm/d of marketable gas located on the continental shelf of the Republic of Congo.

Kohler power businesses rebrand as Kohler Energy

Now branded under Kohler Energy, the company's power businesses will continue to provide energy resilience to homes, businesses, and communities around the world.

The new company offers solutions across multiple sectors, such as for homes, industries, and powertrains. The company's portfolio also includes Clarke Energy, Kohler Uninterruptible Power, Heila Technologies, and Curtis Instruments. It will also be implementing new Kohler Energy brand elements across its portfolio of businesses in the coming months.

With the help of low-carbon fuels, increased engine efficiency and power density, EV controls, and a growing line of high-tech solutions, Kohler will invest more in the development of new products. Most recently, Kohler became the first manufacturer worldwide to receive certification for all of its diesel engines and generators running on HVO – a fuel with 90% less carbon.

Brian Melka, Kohler Energy group president, said, "Our newly named Kohler Energy celebrates the industry-leading solutions Kohler has been offering for over 100 years and aligns with our ongoing leadership in resiliency, performance, and energy capabilities that delight our customers.

"Our new brand presence better reflects the modern, forward-looking and design-oriented characteristics that Kohler is known for and highlights the solutions we bring to market that provide energy resilience to our customers' homes, businesses, and tools to get jobs done," he added.

Earlier this year, Kohler collaborated with Robert Swan on his successful journey using only renewable energy sources across the Antarctic landmass to the geographic South Pole. The company provided Swan's voyage with a customised Kohler generator that used a Kohler diesel engine powered by HVO and a microgrid system managed by Heila EDGE technology.

"Our collective focus is to help sustain people and communities around the world and build energy resiliency. As we start to design our future to best support our customers, we are investing in clean energy, advanced technologies, and improved production and performance capabilities," said Melka.



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Powering up the South

With southern Africa experiencing a serious power deficit which is taking its toll on economic productivity, multiple initiatives are underway to alleviate the crisis. Nawa Mutumweno reports.



There are multiple initiatives around building energy transmission capacities in the region.

Image Credit: Adobe Stock

The Democratic Republic of Congo (DRC) is seen as a country with massive hydroelectric power potential to mitigate the crisis currently experienced in multiple countries in southern Africa.

Zambian-based Copperbelt Energy Corporation (CEC) has significantly invested in the construction of a second power interconnector line to DRC that will increase transmission capacity from 260MW to 550MW to address electricity challenges in Zambia and the sub region.

CEC had been running the Zambian portion of the Zambia-DRC interconnector (which has been operational since the 1950's) to

supply and distribute power to the mines on the Copperbelt.

“CEC has invested US\$18mn to develop a second double-circuit line so as to increase the carrying capacity. In addition, the second line will allow a flexible maintenance while helping to address the limitations and risks inherent in single circuits,” the company said when initially announcing the investment.

Partnering for progress

African countries should go into partnerships whenever undertaking power projects in order to adopt sustainable solutions and speed up implementation processes.

Zambia is on the right path as it has already embraced the concept of integration as evidenced by the estimated US\$5bn Batoka hydro power project, which is being undertaken in conjunction with Zimbabwe, while other projects in the North of the country are being considered in partnership with DRC.

Construction of the 2,400MW Batoka Gorge Hydro Electric Scheme, which is located downstream of Victoria Falls and upstream of the existing Kariba Dam hydroelectric scheme on the Zambezi River, is underway.

Zambia and Zimbabwe are expected to benefit from this trailblazing transnational project

which has the potential to make both countries the net exporters of power across the Southern African Development Community (SADC) region.

Meanwhile, the US\$110mn Kafue-Muzuma-Victoria Falls region transmission line reinforcement project is aimed at improving the reliability of ZESCO's regional power trade transmission network infrastructure along the Kafue town-Muzuma-Victoria Falls corridor. The project was funded by the World Bank's International Development Association (IDA), Government of the Republic of Zambia (GRZ) and other donors. According to a World Bank report, the development will help

“Adequate and focused planning in the energy sector is the foundation stone in the region’s sustainable development agenda.”

create an alternative transmission route that will enable power to flow between the northern and southern countries of the Southern African Power Pool (SAPP). SAPP member countries include Angola, Botswana, DRC, Lesotho, Mozambique, Malawi, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

“This project will further enhance power trade both through bilateral contracts and in the short-term increase energy market in the pool, and overall security of supply in the SAPP. However, this development would be an interim solution to the problem. A more permanent solution based on the SAPP pool plan study needs to be put in place in the medium to long-term,” the report stated.

SAPP is a cooperation of the national electricity companies in southern Africa under the auspices of the Southern African Development Community (SADC). The members of SAPP have created a common power grid between their countries and a common market for electricity in the region. Its long-term goals include increasing the accessibility of electricity to rural communities and to improve the relationships between the member countries. There is a need to develop sustainable development priorities, and to co-ordinate the planning of electric power.

Along with industrial productivity, electricity generation can assist in poverty alleviation in the region. Lack of electric power creates multiple issues such as impeding people’s access to clean water, limiting the availability of food, and constraining access to

clean, sustainable sanitation.

The SADC Regional Energy Access Strategy and Action Plan is one example of an initiative to alleviate energy poverty. It aimed to combine regional energy resources as a means of ensuring the entire SADC region has access to affordable, sustainable electricity. It was undertaken, in 2010, with the goal of halving the proportion of people without access to electricity within ten years and halve again in successive five year periods until there is universal access for all end users. The initiative is an instance of cooperation to attract private sector participation in investments; build capacity; develop projects, technologies and transfer knowledge to ultimately achieve energy security and enable future economic growth.

Another noteworthy project is the ZIZABONA (comprising Zimbabwe, Zambia, Botswana and Namibia) which seeks to link the power systems of these southern African countries. This transnational investment will support the transfer of up to 600MW arising primarily from existing and future hydropower plants in Zambia and Zimbabwe, thus facilitating power transfer in the region.

Energy is indeed a central piston in the engine of development and needs to be on the top rung of any country’s economic priorities. Adequate and focused planning in the energy sector is the foundation stone in the region’s sustainable development agenda and this focus is opening up exceptional opportunities for local and international players alike. ■

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Building partnerships at Africa Energy Forum

Africa Energy Forum (aef) will help advance the continent's power industry by providing a unique learning and networking platform.

After fostering its reputation as one of the most meaningful gatherings of decision-makers in African energy over the last 24 years, Africa Energy Forum is celebrating its 25th anniversary by hosting on mainland Africa for the first time.

The event is being held in Nairobi, from 20-23 June and promises to unite governments, utilities and regulators with development finance institutions, commercial banks, power developers, technology providers, EPCs and professional services to help drive the industry forward.

In 2022, aef welcomed 13 ministers of energy, 21 utilities, 300 speakers and more than 1,800 participants in Brussels. 63 discussion sessions were also held.

Key highlights of the conference included notable deals being signed. Among them was a partnership between European Investment Bank (EIB) and ENGIE where US\$10mn was confirmed to enhance off-grid solar access across West Africa alongside IFC and EDM agreeing to develop four solar PV and battery storage facilities across Mozambique with an expected total energy production of 50MW. The conference in Brussels was also the year that YES! (Youth Energy Summit) was launched. 50 educators, students, entrepreneurs, early career professionals and sector leaders came together to discuss how the next generation can work better together to accelerate energy projects on the continent and open up opportunities in the industry for youth.

Africa for Africa

Under the theme of this year's conference – 'Africa for Africa' – the 2023 agenda will focus on strategic areas including scaling-up renewables; energy for mining; Africa as a global hydrogen powerhouse; and the role of gas and capital flows and risk mitigation.

These key topics (and more) will be explored through more than 90 sessions where more than 400 speakers will converse and dissect the challenges and opportunities surrounding the continent's energy sector. Specifically, a number of country spotlights will provide ministers and

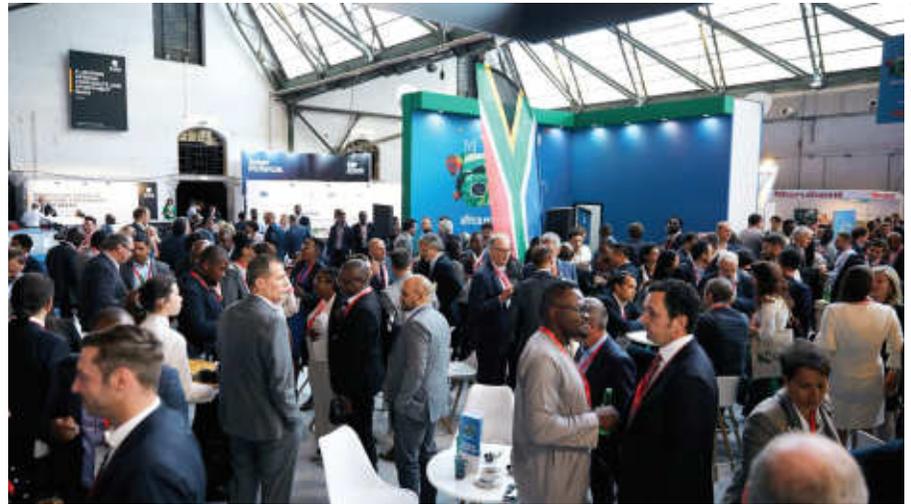


Image Credit: aef

More than 2,000 visitors are expected to attend aef 2023.

heads of utilities the opportunity to announce projects in the pipeline and showcase how investors can get involved.

More than 2,000 attendees from across the industry (representing an expected 82 countries) will benefit from this engaging agenda, alongside the unique networking functions designed to facilitate meaningful connections and the largest aef exhibition hall to date with more than 100 solution providers and professional services from leading companies on display.

YES! will also be reconvening in Nairobi (co-located with aef) as a hub to align entrepreneurs, students and early career professionals with corporate and development communities. EnergyNet, the organisers of aef and YES!, has announced that the programme has now been boosted by the Global Energy Alliance for People and Planet (GEAPP) joining as its first foundational partner. GEAPP is an alliance of philanthropy, governments and partners with a mission to enable low- and medium-income countries to shift to a clean energy, pro-growth model that accelerates universal energy access and inclusive economic growth.

This year, aef is welcoming Sun Africa, a leading utility-scale renewable energy project developer and off-grid solution provider, as its new forum sponsor which is joined by the returning exhibitor sponsor AKSA, global partners IFCS and MIGA, and Africa IPP partner Globeleq as top-line sponsors.

Following the entering of a partnership between the Global Wind Energy Council (GWEC) and EnergyNet, GWEC's Africa WindPower initiative has been made the official lead wind

energy partner for the event. The partnership between the two organisations highlights the role that wind energy will play in spurring Africa's economic development despite only 1% of the globe's wind farms being found on the continent currently. Wangari Muchiri, GWEC's Africa WindPower director, commented, "Wind energy has so much to offer Africa as a driver of sustainable economic growth... We look forward to engaging with public and private sector stakeholders at the Africa Energy Forum in Nairobi to discuss the opportunities that wind energy can bring."

A wide range of key players in Africa and the international energy industry will be represented at aef this year including the likes of Lekela, Red Rocket, Standard Bank, absa, bte renewables, engie, finnfund, Synergy Consulting, Camco, ESB International Grupel, Gridworks, JA Solar, and many more. Find below a snapshot of some of the companies that will be at the conference:

AKSA aims to empower



Image Credit: Aksha Power Generation

Aksha Power Generation manufactures gasoline, diesel, natural gas and marine generating sets as well as lighting towers and generator hardware.

Aksha Power Generation, with its experience of more than 30 years, is working to continue its

production in 178 countries of the world. With offices in countries such as Angola, Algeria, South Africa, Ghana, Kenya and Sudan, the company is constantly increasing its presence in the region.

The company has noted that its offices on the continent reflect its commitment to providing local support and prompt solutions to customers in the region. Akxa Power Generation offers innovative and environmentally-friendly power generation solutions to meet the energy demand in the region and contribute to local economies.

Akxa Power Generation is maintaining its leading position in the sector, benefitting from its years of experience, global reach, perfectionist approach and strong customer focus. Having gained the trust of its customers, it is working to continuously increase its success in the industry and add value to its worldwide customer network. Undoubtedly, aef 2023 will serve as an excellent opportunity for it to do so and expand its footprint on the continent.

AMEA Power to connect with continent's decision makers

Image Credit: AMEA Power



The Mohamed Bin Zayed Solar Power Plant in Togo.

AMEA Power is one of the fastest growing renewable energy companies in the region with a clean energy pipeline of more than 6GW across 20 countries.

Founded in 2016, AMEA Power has assembled a leading team of global industry experts to deliver projects across Africa, the Middle East and other emerging markets. The company has more than 1.2GW of clean energy projects either in operation or under construction in Egypt, Jordan, Morocco and Togo.

To support its growth, AMEA Power is rapidly expanding its investments across Africa in wind, solar, energy storage and green hydrogen, demonstrating its long term commitment to the global energy transition.

At aef, AMEA Power will be connecting with members of government, players from the global supply chain, financial institutions, and electricity offtakers. The company has stated that aef is an ideal platform for gathering the continent's key decision makers to identify opportunities, form partnerships and accelerate the delivery of projects.

Clarke Energy's expanded offering

Image Credit: Clarke Energy



Clarke Energy has offices covering 16 African nations.

Clarke Energy, a Kohler company, is an international specialist in gas-based distributed energy solutions. It is an authorised distributor of INNIO's Jenbacher gas engine range with units from 249-10,000kWe and has offices covering 16 African nations. Clarke Energy has installed more than 900MW of power plants across the African continent including captive power plants for industry, biogas engines for waste and wastewater treatment plants along with cogeneration and trigeneration facilities.

The company's approach is simple – delivering quality installations, backed up by reliable, local aftersales support to maximise the availability of the installations that are supplied.

Clarke Energy is expanding its offerings to incorporate battery energy storage systems in the delivery of resilient microgrids or grid connected energy storage installations.

Trina Solar targets renewable development

Image Credit: Trina Solar



Foxtec-Ikhwezi in East London, South Africa.

As a global leading provider for photovoltaic (PV) module and smart energy solutions, Trina Solar delivers PV products, applications and services to promote global sustainable development. Through constant innovation, the company continues to push the PV industry forward by creating greater grid parity of PV power and popularising renewable energy. Trina Solar's mission is to boost global renewable energy development around Africa and the world. At aef this year it will present its latest solar

technologies and smart energy solutions, catering to the diverse customer needs.

The array of innovative products and solutions the company will showcase will include the Vertex N 605W+ and 695W+ modules, designed for commercial and industrial (C&I) and utility-scale projects, respectively. These modules are part of Trina Solar's n type module portfolio, which is built on the 210 mm product technology platform and n type i-TOPCon cell technology, resulting in superior performance and durability.

Trina Solar will also be presenting the Vertex S+ 445W+ n type dual-glass modules. The new modules are specifically designed for rooftop PV systems, offering a combination of durability, performance, aesthetics, and peace of mind. With a 30-year power warranty, Trina Solar assures that the Vertex S+ series is a reliable and durable solution for residential and commercial rooftop installations.

To date, Trina Solar has delivered more than 140GW of solar modules worldwide. In addition, Trina's downstream business includes solar PV project development, financing, design, construction, operations and management, and one-stop system integration solutions for customers.

MYTILINEOS makes its mark

Image Credit: MYTILINEOS



Combined cycle power plant of 192MW in Takoradi.

MYTILINEOS Energy & Metals is an industrial and energy company covering the energy and metallurgy business sectors. With projects across more than 30 countries, it is positioned at the forefront of energy and is established as a reference point for green metallurgy at European and global level – the company boasts an annual production capacity of over 250,000 tonnes of aluminium and 860,000 tonnes of alumina.

MYTILINEOS is maturing a portfolio of renewable energy sources (RES) exceeding 10GW, and has energy storage projects in Greece and Italy at an early stage of development, with a maximum injection power of c.1.3GW.

It is also active across the development, construction and operation of thermal units and electricity infrastructure projects, retail supply of electricity and natural gas, supply and trading of natural gas and the provision of competitive energy products and services.

In Africa, MYTILINEOS Energy & Metals has a strong presence ensuring access to sustainable, affordable, reliable, and modern energy to all citizens. Examples of recent projects in Africa include:

- EPC and commissioning of a 192MW combined cycle power plant in Takoradi, Ghana, with the capability to operate on both natural gas and light crude oil;
- LPG power plant project in Tema, Ghana, with EPC and commissioning of a 200MW power project capable of being fueled by LPG, natural gas and diesel;
- In Nigeria, MYTILINEOS' off-grid hybrid power project of 7.5MW will electrify four Nigerian universities. The power plant complex consists of one power plant of 3MW, two of 2MW and one of 0.5MW output power;
- In Tunisia, the company undertook a 5.5MWp hybrid power plant, close to the ADAM existing oil concession of Eni Tunisia, consisting of solar power together with a battery energy storage system and an energy management system. The project's target is to reduce fuel gas consumption up to 50% of the generator thanks to Energy from the ADAM hybrid power plant.

BII backs the just transition



BII is committed to supporting Africa's just transition to net zero.

British International Investment (BII) is the UK's development finance institution and impact investor, backed by the UK Government.

It has 75 years' experience of investing in emerging economies, investing US\$1.5bn to US\$2bn per year in green infrastructure, technology and other sectors to support countries in Africa, Asia and the Caribbean.

BII has stated its commitment to supporting Africa's just transition to net zero and building resilient economies.

It has a large and growing energy portfolio, including:

- Globeleq: Africa's leading independent power producer, capable of producing c.520MW of renewables across seven countries;
- Benban Solar Park, Egypt: the largest solar park in Africa, c.1.8GW capacity;
- Gridworks: a US\$300mn platform to invest in sustainable electricity networks, improving the

quality and availability of power in Africa. BII offers patient finance, through a variety of instruments, to partners that will add renewable energy capacity across Africa and contribute to the just transition to net zero.

CET Power's diverse portfolio



CET Powers has a passion for innovation in the electricity and energy markets.

CET Power Projects is an African-founded energy company with a leading position in the captive/embedded power space. It provides reliable power solutions to institutions either for the short-term (EPP) or long-term (IPP), on an outsourced basis. The company's teams have the technical expertise and resources to tailor power plants to clients' specific requirements through power generation and energy sales.

For the last 20 years CET Power's commitment to investing in the latest power generation technologies, and exclusive focus on expansion throughout Africa, has allowed it to successfully deploy more than 100 sites across the continent. At any given time, CET Power has 20-30MW capacity of gas and diesel fire in its yards for adaptable and rapid implementation times.

CET Power aims to deliver a wide range of power, whether that be from natural gas, diesel, HFO, or even integrating renewable energy into hybrid solutions, etc. and is excited to explore these opportunities with attendees at aef 2023.

Siemens sets sights on sustainable change for Africa

Siemens Energy is a company at the forefront of supporting the energy transition in Africa, leveraging its position as one of the world's leading energy technology companies. With a strong presence across the continent, boasting more than 1,000 employees in eight countries, Siemens Energy has the necessary reach, scale, experience, technology, and financial resources to drive sustainable change and socioeconomic development.

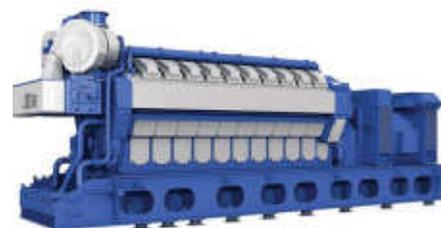
One of the key areas of focus for Siemens Energy in Africa is enhancing local capabilities, skills, and knowledge. The company invests in

training and education programmes to empower local communities and foster the growth of industries related to the energy transition. By building local capacity, Siemens Energy aims to multiply the benefits of renewable energy adoption, such as job creation, improved access to electricity, and reduced carbon emissions.

Siemens Energy also plays a vital role in developing and implementing innovative energy solutions across the continent. The company's portfolio includes a wide range of products and services, including renewable energy technologies, grid infrastructure, and digital solutions for efficient energy management. By leveraging these technologies, Siemens Energy helps African countries transition to a more sustainable energy mix, reducing reliance on fossil fuels and increasing the share of clean and renewable sources.

Moreover, Siemens Energy actively collaborates with governments, utilities, and other stakeholders to support policy and regulatory frameworks that promote renewable energy investment and deployment. Through partnerships and knowledge sharing, the company contributes to the development of sustainable energy strategies that address Africa's unique energy challenges.

Flexible power with Wärtsilä



The Wärtsilä 34SG is a four-stroke, spark-ignited, lean-burn gas engine generating set.

According to Wärtsilä, industrial companies, IPPs and utilities are under increasing pressure to decarbonise operations while still providing reliable and cost-effective power – and are therefore investigating the technologies that will make this possible. In order to make smart investments, accurate modelling and future-proof solutions, it is necessary to avoid stranded assets as technologies change and fossil fuels are phased out.

Wärtsilä offers a wide range of flexible engine power plant solutions that can provide baseload availability or support an optimised transition to renewable energy. The company's flexible engine power plants can already use 100% synthetic and carbon-neutral methane and methanol and are also capable of using hydrogen/natural gas blends containing up to 25% hydrogen – and it is working on a pure hydrogen solution. ■

The Maria Gleta power plant in Benin, capable of running on LNG or liquid fuels in case LNG supply is lacking.

The backbone of the energy transition

Ahead of speaking at Africa Energy Forum, Grigorios Iatropoulos, MAN Energy Solutions' head of business development, MEA region, takes a detailed look at the pivotal role LNG can have in Africa's energy transition.

African Review (AR): How has Africa's LNG market developed over the last few years?

Grigorios Iatropoulos (GI): The perception of LNG on the African energy markets has tremendously changed during the past decade. In mid-2010, the decrease in global gas prices led to a slowdown in new LNG project investments in Africa contributing to the supply constraints in the market. Some projects delayed due to financial stagnation or due to security reasons. But since 2021, the LNG market in Africa has witnessed a U-turn; the recent elevated gas prices are acting as enablers of the LNG market developments on the African continent.

With regards to the African power generation market, LNG's perception has changed from an unexploited low-carbon fossil fuel to be seen as a transitional fuel, to reach net-zero targets as well as the main fuel to increase the electricity accessibility and affordability on the continent.

In the last decade MAN Energy Solutions has already supplied several state-of-the-art engines for gas-to-power projects all over the African continent and we are very optimistic about the further gas utilisation for electricity generation.

AR: How big a role will this resource have as a transitional fuel in the future?

GI: Natural gas has a significant role to play as a transitional fuel in mitigating climate change through its ability to reduce greenhouse gas emissions when substituting coal and oil. It is the fuel that can effectively address the challenges of the energy trilemma (affordability, sustainability and security).

Used in gas-to-power plants, natural gas enables flexible and

efficient power generation that supports a reliable and necessary back-up generation to stabilise power grids, especially in areas without hydro power, nuclear or geothermal assets. Furthermore, it provides peaking power supply and the balancing to build a reliable electricity value chain capable of integrating large quantities of variable renewable resources towards the energy transition era.

Especially looking at the African continent, natural gas can play a major role in delivering a secure and sustainable energy future. Today, Africa has the lowest energy access level in the world. Almost 600 million Africans are living without access to electricity especially in the sub-Saharan region while 1 billion lack access to clean cooking facilities. At the same time, it also has close to one tenth of the world's proven gas reserves.

So, access to modern energy in Africa is imperative for its development and its ability to gradually decarbonise its economies. And natural gas offers the starting point for it. It has the potential to mitigate Africa's energy deficit quickly and affordably, increasing the living standards of hundreds of millions.

AR: How can the development of LNG infrastructure pave a way for carbon neutral fuels?

GI: Natural gas is also a key source of power reliability, flexibility and spinning reserve needed for integrating large amounts of

intermittent renewable energy. By exploiting its gas resources along with renewable technologies, Africa can build energy systems that are prepared for a carbon neutral future and future proof.

The development of a comprehensive gas infrastructure will provide a long-term backbone for integrating and scaling up low-carbon and zero-carbon gases (carbon-neutral fuels) that African countries will need to achieve their net-zero pledges which for many are beyond 2050.

From the proven low-carbon gas technologies, renewable gas or synthetic methane hold the biggest potential to reduce emissions in existing natural gas networks because it comes with no constraints on blending or combustion.

Gas infrastructure development also enables the gradual blending and integration of green hydrogen within the energy mix. In addition, gas pipelines can also be converted to carry up to 100% hydrogen. This requires a future investment equivalent to around one quarter of the cost of newly build hydrogen pipelines.

AR: What are some of the infrastructural barriers stopping Africa realizing the LNG opportunity?

GI: To unleash Africa's LNG potential requires regional policymakers and industry stakeholders to overcome several local and global barriers.

Especially, there are several

“Natural gas can play a major role in delivering a secure and sustainable energy future.”

GRIGORIOS IATROPOULOS, MAN ENERGY SOLUTIONS HEAD OF BUSINESS DEVELOPMENT, MEA REGION



Grigorios Iatropoulos is the head of business development, MEA region, for MAN ES.

financial challenges. Firstly, the growing debt burden of many African governments lead to increased default risk and limited budgets for infrastructure projects. Secondly, we see a growing international capital withdrawal from funding natural gas projects as they are treating gas similar to other hydrocarbons like coal and oil.

In my view, there are certain solutions to tackle the above financing barriers like future-proofing gas projects can ensure the accessibility to global capital. It must be acknowledged that in contrast to coal and oil, natural gas has a vital role to play in supporting the net-zero transition on the African continent.

AR: What are you looking forward to at AEF in regards to Africa's future LNG market outlook?

GI: As a key global technology provider in the sustainable power generation industry as well as in the Power-to-X ecosystem, we have a strong interest to understand the trends in the African LNG market. In addition, we see the AEF as a great chance to interact with all the power market stakeholders in Africa and provide more insights about all the recent MAN technological developments in these fields. ■

An urgent need for hydrogen

Bruh Ayele Terfie, president, Africa, at Fortescue Future Industries, will be speaking on the topic of hydrogen at Africa Energy Forum (aef) and explores how it has the potential to empower communities across the continent.

African Review (AR): It is repeatedly noted how big the hydrogen opportunity is for Africa, but is this actually believed on the continent?

Bruh Ayele Terfie (BAT): Kenya is creating significant momentum towards establishing itself as a world leader in the production of fertiliser made using green hydrogen and green ammonia.

We are in a climate emergency, and we need real zero now. Fortescue is racing to achieve this and we want others to join us. As a result of the energy crisis it is crystal clear there is an immediate and urgent need for green energy from government and business.

In Kenya the need to replace fertiliser with fertiliser made from green energy is enormous. That is why we are working with the government to develop a 300MW capacity generation green ammonia and green fertiliser facility. The aim is to provide affordable green fertiliser to the domestic market and

address food security, while also negating the need for importing equivalent amounts of fertiliser.

It is no longer acceptable for heavy industry to say that it can't go green. We can and must do it.

AR: Why is the hydrogen opportunity important for local use, not just for positioning Africa as an exporter?

BAT: Green hydrogen is not only a smart economic decision, but it will also empower local communities through jobs and sustainable, long-term business, which will see returns go back into the local community.

Kenya has an opportunity to create a large export industry for green hydrogen, but there is also the opportunity to bring in heavy industries such as that of fertilisers. Green hydrogen and green ammonia puts Kenya on a path to industrial decarbonisation, allowing it to produce its own fertiliser, from green energy and replace the fossil

fuel based imports. This will not only provide Kenya with much needed fertiliser for the agricultural sector but also a chance to localise industry and create jobs.

Fortescue plans to develop a 300MW green ammonia and green fertiliser facility, with the aim to provide affordable green fertiliser to the domestic market and address food security, while also negating the need for importing equivalent amounts of fertiliser. Our immediate focus is an initial project for green fertilisers for domestic consumption, and the team is working to progress the project.

AR: Which countries are leading the hydrogen charge?

BAT: The Inflation Reduction Act in the United States has changed the world for green energy. Africa, Europe, Asia, Australia and the rest of the world have now been playing catch up with the US, because what they have done is game changing for the green hydrogen market globally



Image Credit: Fortescue Future Industries

Bruh Ayele Terfie is the president, Africa, at Fortescue Future Industries.

and a brilliant outcome for our business, and others like it. Other countries must now look very closely at what America has done to supercharge green energy or they will be left behind.

AR: What are some of the key developments you would like to see over the next few years?

BAT: We are in a climate emergency, and we need real zero now. Fortescue is racing to achieve this and we want others to join us. It is no longer acceptable for heavy industry to say that it can't go green. Green energy will create jobs, lower power prices, create energy security and lower emissions.

As projects are built at scale, they become more economic, unlike fossil fuels which will continue to get more expensive. At Fortescue, our focus is razor sharp on project delivery and we have a clear line of sight on projects that will be delivered first. We expect the first five projects to reach Final Investment Decision will come from Australia, America, Brazil, Norway and of course Kenya.

AR: What are you hoping to get out of aef this year?

BAT: It's important to increase the awareness of green hydrogen as a critical component of transitioning the world away from fossil fuels, as well as demonstrate the use of green hydrogen in the African context and its impact on industry and job creation. ■



Image Credit: Fortescue Future Industries

Fortescue's hydrogen electrolyser.

A flexible solution to provide mission critical power

Rolls-Royce provides an insight into a mission critical power solution that was delivered for a mining customer in South Africa last year.

In 2022, Rolls-Royce facilitated the supply, delivery and commissioning of four mtu 20V4000 – 2500kVA 11kV containerised generators in a mine in South Africa to build a 10 MVA prime rated diesel power plant generating power at 6.6kV voltage level. The mtu engines, provided for customers DCS Transformers and Network Reticulation and Sibanye Stillwater K3, were coupled with a generator from Leroy Somer and installed in 12 m containers, equipped with sound insulation and service tanks. One year on from its commissioning, *African Review* reached out to Rolls-Royce to find out more details about this unique project.



The generators were installed in 12 m containers.

Image Credit: Rolls-Royce

African Review (AR): What was the purpose for the new plant on the mine site in South Africa and why was the mtu brand chosen?

Rolls-Royce (RR): Sibanye-Stillwater's K3 Marikana shaft required backup power to power its ventilation systems and winder to enable the extraction of underground workers as a contingency in the case of an emergency. The mine needed a good quality, reliable solution with effective support in South Africa. This prerequisite eliminated a lot of the competition.

Rolls-Royce Solutions South Africa helped the client with challenging engineering calculations (considering harmonics, reactive power, inrush currents, etc.) to confirm that the solution would work. We were able to offer a fully compliant solution at a competitive price and minimal lead time.

AR: A lot of flexibility was required in order to couple the mtu engines with a generator

from Leroy Somer in the containers. How adaptable are the mtu engines and how did the company pull this off?

RR: Yes, this was not an off-the-shelf product. We had to oversize the alternators to account for the previously mentioned challenges. Uniquely, mtu products and specifically mtu engines are very flexible.

With one standard engine, we are able to provide various power variants and adjust optimisation to meet our client's needs. For example, emissions vs fuel consumption can be adjusted. The duty and rating can be re-configured (prime, standby, continuous etc). Furthermore, we can use the most suitable alternator on the engines depending on requirements: whether MV, LV, oversized, undersized etc.

AR: Why is flexibility so important when dealing with Africa?

RR: In power ranges of 2500kVA and up, it is very hard to find one site

which is exactly like another. Different voltage levels, different loads, and different operating philosophies.

For these sizes, one needs to be fairly flexible and be able to adapt to a client's site and requirements and provide a tailor-made solution that is optimised and designed 100% according to the actual and very specific needs instead of altering all kinds of things within the system on-site to adapt to an off-the-shelf generator.

AR: How long did it take to deliver the solution?

RR: The containerised generators were delivered within six months. The installation was executed by a trusted third party and included a permanent resistor bank and static var compensator to absorb the currents from the hoist. The installation also included containerised MV switchgear and control philosophy for fully automated operation.

AR: Has the customer been satisfied with the solution?

RR: Yes, the customer is satisfied and commented that the engines and generator are of good quality and the installation excellent. The winder is performing as expected with the generator power, and they have experienced no issues. This is important from a safety aspect in that if there is a grid power failure, employees can be safely hoisted to the surface. Due to the current situation where there is a lack of reliable grid power in South Africa, the backup genset plant has been operating frequently.

AR: Are you seeing more companies turning to such generator options during the current energy issues?

RR: Yes definitely, diesel generators (although traditional) are still the most simplified way to back up a large load operation, and in the last 6-12 months, we have seen a huge increase in demand for these types of generators. ■

Engine efficiency accelerating

Environmental concerns, a growing energy crisis and an economic slump is driving an engine market where efficiency is key.

After the fallout from Covid-19, many hoped that the global economic environment would recover quickly, leaving much of the uncertainty and heartache of the past few years firmly behind.

While a rebound has been experienced in most sectors, the lingering effects of the virus has stuttered much growth and markets received another setback with the energy crisis causing associated prices to spiral. While Europe remains the centre of this problem, the effect has been global and, as outlined by the IEA, it has had major implications for markets, policies and especially the most vulnerable people and businesses. High fossil fuel prices remain a burden on the world's economies and poses a real threat to many of the continent's heavy industries.

This point was raised last year by Master Builders South Africa which noted with concern the impact the increase in the price of fuel was having on construction projects. Roy Mnisi, executive director of Master Builders South Africa, commented at the time, "The direct impact on ongoing building projects has been an immediate increase in the cost of construction for contractors who are already on sites. Fuel is a big cost component of equipment used in construction and the steep increase in its price that we've experienced in the last 12 months is not absorbable by contractors in fixed-price contracts."

Alongside this trend, there is not one business operating today that is not casting a more detailed eye on its environmental footprint. Under the stress of Covid-19 lockdowns, suspicions that climate concerns would dim proved unfounded and, instead, the desire has burned all the brighter.

Indeed, this has gripped the African continent as well; it is no coincidence that COP27 was held on African soil for the first time last year and will not be far from home when it arrives in Dubai in 2023.

While there are many indicators of these trends, some of the most profound can be found in the design of the latest generation of engines arriving on the market, with manufacturers astutely aware of the need to deliver efficient equipment which allows users to minimise their

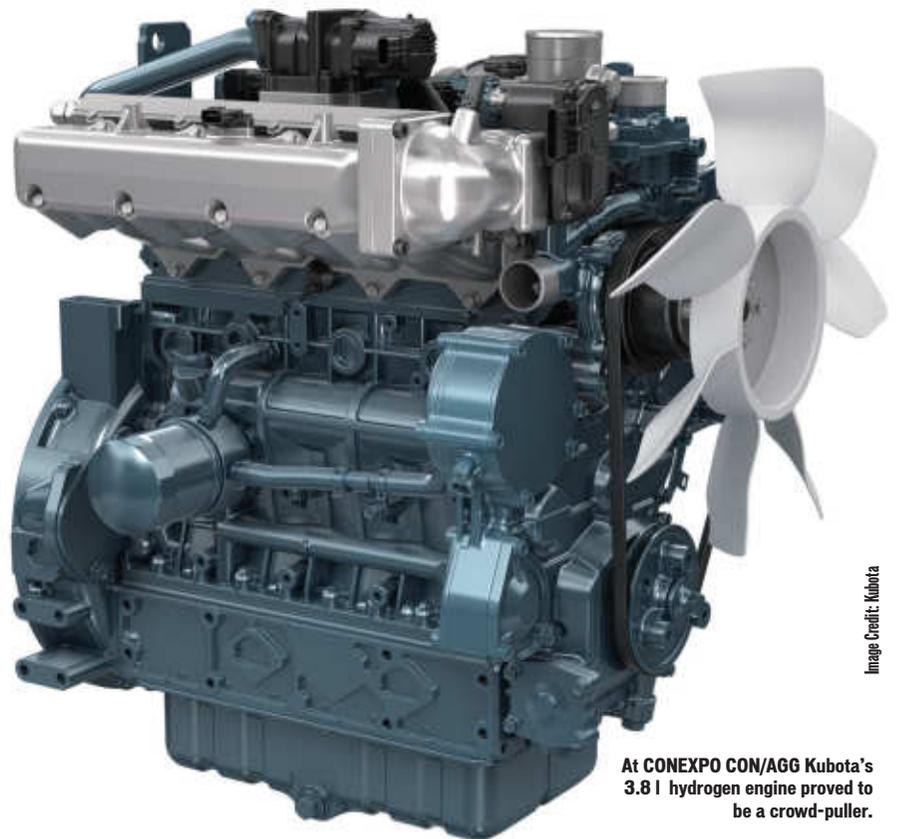


Image Credit: Kubota

At CONEXPO CON/AGG Kubota's 3.8 I hydrogen engine proved to be a crowd-puller.

fuel usage saving time and emissions.

This can be seen in a number of recent announcements from some of the world's key players in this field.

Most notably in recent months, this centred around CONEXPO CON/AGG which provided one of the most formidable platforms in the world for equipment manufacturers to connect with their customers and show off their products. At the conference in Las Vegas, Yanmar showcased two new high-powered industrial diesel engines – the 3TNV80FT and the 4TN86CHT – for the first time.

The company was keen to note that the 4TN86CHT engine offers 14% more power output than previous intercooled turbo models of the same displacement while the 3TNV80FT boasts Yanmar's Eco Governor fuel system – a unique blend of a mechanical fuel injection pump with an electronic governor that's controlled by an ECU.

"The 3TNV80FT and 4TN86CHT diesel engines

from Yanmar represent a significant leap forward in power and efficiency, with a compact design that makes installation a breeze," said Ron Adams, director power solutions, Yanmar America Corporation. "These engines offer higher power output and a proprietary exhaust gas after-treatment system that ensures seamless operation in all work conditions. Whether you're handling light or heavy loads, these engines are always ready to deliver the power and performance you need."

Elsewhere at the show, Kubota showcased its drive towards a carbon-neutral future encompassing a range of recently-launched engines such as new hybrid and hydrogen models alongside the expanding use of more low-carbon alternative fuels.

The company explored its advances with hydrogen engine technology as a carbon-free alternative fuel solution. The Kubota 3.8 I, 85kW four cylinder industrial off-highway hydrogen

engine eliminates carbon dioxide emissions by only using hydrogen as a fuel. Based on the WG3800 engine, the hydrogen alternative has become an attractive choice within the generator set sector and is already attracting interest from manufacturers.

In another example of innovations on display at the show, FPT Industrial presented its full range of 2.8-16 l engines which can be used for a variety of applications from off-road to power generation. The company noted that they can be utilised in a sustainable way since they are compatible with renewable diesel fuels (HVO).

Of particular interest was the unveiling of the F28 Hybrid which guarantees a low level of CO₂ emissions and an integrated package to enable the introduction electrification on construction equipment applications. The engine, which was on show at CONEXPO, delivers a maximum power of 75 hp, with the 48 V electric motor that adds 27 hp of continuous electric power and up to 40 hp in peak power.

FPT is not the only company, however, that is striving to make its engines operable on alternative fuels. MAN Energy Solutions, for instance, has recently announced that its MAN 175D engine has been formally approved for operations on biofuels.

The MAN 175D engine range was developed to supplement and complete its product portfolio in the maritime sector. In three variants of 12, 16 and 20 cylinders, the engine is available with an output from 1,500 to 4,400kw. The announcement relates to all standard biofuels

such as hydrotreated vegetable oils and FAME (fatty acid methyl ester) fuels up to a content of 100%. To use these, the engine itself does not require any technical adjustments.

“MAN Energy Solutions prepares its engines for operation on future and sustainable fuels and the MAN 175D is no exception,” commented Florian Keiler, head of high-speed sales at MAN Energy Solutions.

“Several such units have been running on up to B30 biofuel in commercial, as well as governmental, applications for several years already where our experience has been very good and shown that the 175D does not suffer any loss in performance even when using these fuels. Due to its state-of-the-art design, just a few engine components are subject to slightly higher wear, depending on the amount of biofuel and the duration of operation.”

Sandvik calls for Cat

Caterpillar represents one of the most reliable engine providers and can boast that its unique applications are used for many of the leading original equipment manufacturers across the globe.

With this formidable reputation behind them, it came as no surprise that the company has celebrated a milestone with Sandvik Mining and Rock Solutions which has utilised more than 10,000 Cat engines – from across the power range – for installation into their drilling machines and equipment.

The commercial and industrial equipment



Image Credit: Yanmar

Yanmar's 4TN86CHT vertical water-cooled diesel engine.

supplier is a leading provider of advanced product and services for mining and rock excavation and, across the wide range of its portfolio, it has been using the C2.2, C3.6, C4.4, C7.1, C9.3B, C11, C13, C13B and C15 industrial engines to provide dependable power.

Gary Jones, Caterpillar EAME sales manager, commented, “We have worked closely with Sandvik for many years, to provide dependable, productive and sustainable power for many of their business units.

Where the mining and rock solution part of the business is concerned, we and our dealer Avesco, have built a close working relationship with Sandvik to understand more about their performance requirements for efficiency, productivity, and reliability, and provide the right support, wherever and whenever it's needed.”

Jarno Viitaniemi, product manager for the surface drilling division of Sandvik Mining and Rock Solutions in Finland, added, “There are many reasons why we have installed 10,000 Cat engines in our drilling machines and equipment. From the Cat extended service cycle, to extended warranty packages and availability of parts and service from a global network – all these factors give our customers extra assurance when they purchase our equipment.

“The fact that Cat machines are already present in many of the mines our customers operate is another advantage, as is the successful collaboration with Finnish Cat dealer Avesco and the track record of previous Cat engines used in other Sandvik equipment. We look forward to our continued collaboration.” ■

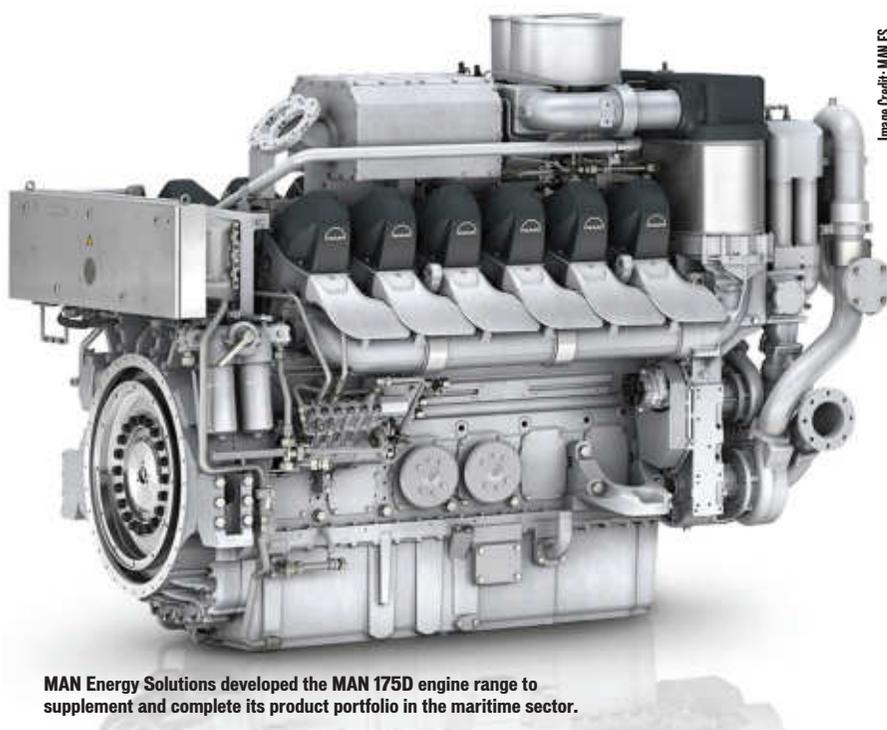


Image Credit: MAN ES

MAN Energy Solutions developed the MAN 175D engine range to supplement and complete its product portfolio in the maritime sector.

CERES, LINDE AND BOSCH COLLABORATE ON LAUNCHING SOEC TECHNOLOGY

Ceres Power Holdings plc, specialising in fuel cell and electrochemical technology, has signed contracts with Linde Engineering and Robert Bosch GmbH to start a collaboration to validate the performance, cost and operational functionality of its SOEC technology. The companies plan to prepare a two-year demonstration of a one megawatt SOEC system, starting in 2024. Its aim is to showcase that the technology provides a highly efficient pathway to low-cost green hydrogen.

Ceres' first 100kW electrolyser module is currently on test and initial results are providing confidence that this technology can deliver green hydrogen at <40kWh/kg, around 25% more efficiently than incumbent lower temperature technologies.

Linde Engineering is especially capable in

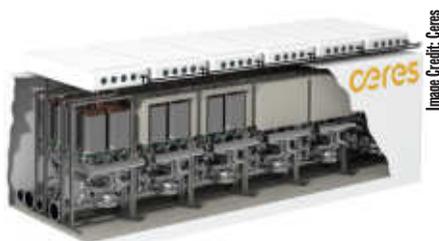


Image Credit: Ceres

Ceres' first 100kW electrolyser module is currently on test and initial results are positive.

industrial process engineering of chemical plants and a global footprint in industrial facilities. Coupled with Bosch's significant expertise in product industrialisation and mass manufacturing, the companies are aiming to evaluate and qualify SOEC technology for large scale industrial applications.

The SOEC programme builds on Bosch's experience of Ceres' solid oxide fuel technology (SOFC) and the technology shares the same material sets, manufacturing process, equipment, and stack design.

Phil Caldwell, CEO, Ceres, commented, "The vision for our partnership with Linde Engineering and Bosch is to set a new industry standard for solid oxide electrolysers, leading to widespread adoption in industrial applications.

"By combining Ceres' unique technology, Bosch's strength in scaled manufacturing and Linde Engineering's solid expertise hydrogen production, processing, distribution and storage, we will establish a partnership that can make our technology even more competitive and prepare it for mass market adoption at scale," Caldwell added.

AVEVA PREDICTIVE ANALYTICS SIMPLIFIES INDUSTRIAL OPERATIONS

AVEVA has announced the launch of its latest AVEVA Predictive Analytics software, purpose-built for predictive monitoring of industrial assets in oil and gas, power, chemicals, mining and minerals, and manufacturing. The software helps operators achieve high levels of reliability and performance of industrial assets while improving sustainability and increasing productivity.

The software release makes it significantly easier to deploy, validate, maintain, and clearly interpret the results of predictive models, enabling asset stakeholders to make better, more timely and informed decisions to improve profitability. It features automated model building, enabling users to autonomously deploy new predictive models in a single action.

Indrepreet Shoker, director of research at ARC Advisory Group, said, "With rising market pressures industrial organisations must find ways to facilitate agile, resilient, and profitable operations. The predictive analytics market continues to evolve as the technology has advanced to a point where the data can be leveraged in such a way that asset stakeholders can easily operationalise predictive monitoring of their assets at scale enabling rapid improvements in asset reliability and performance.

"Key for success is connecting data, systems and processes, enabling people throughout operations and maintenance to make, and act upon, decisions confidently. Scalability of predictive maintenance efforts for maximum return on investment will definitely be seen as a must have for many industries going forward," she said.

Siemens Gamesa new model stands on sustainable steel

Siemens Gamesa has announced the GreenerTower, a wind turbine tower made of highly sustainable steel. Towers consist of approximately 80% steel plates. The new GreenerTower will ensure a CO₂ reduction of at least 63% in the tower steel plates compared to conventional steel. Siemens Gamesa's new thorough qualification process will verify that only a maximum of 0.7 tons of CO₂-equivalent emissions are permitted per ton of steel, while maintaining the same steel properties and quality.

Maximilian Schnipper, head of sustainability at Siemens Gamesa, commented, "Wind power is one of the cornerstones of the green energy transition. With more than 600GW of new capacity to be installed worldwide in the next five years, it is important for the wind industry to reduce its carbon footprint.

"Our project to address emissions with greener steel is one such solution. With the launch of the GreenerTower, Siemens Gamesa leads the efforts to further push wind circularity and net-zero emissions."

Today, tower production accounts for more than one-third of all wind-turbine-related CO₂ emissions. If all towers installed by the company in one year were exchanged with GreenerTowers, it would be the same as removing more than 466,000 cars from the roads in Europe for a year. This new CO₂-reduced tower will be available as an option for both onshore and offshore wind turbines for projects to be installed from 2024 onward.

The GreenerTower has already closed its first order. RWE and Siemens Gamesa have agreed to introduce 36 GreenerTowers at the 1,000MW Thor offshore wind power project in Denmark.



The GreenerTower will ensure a CO₂ reduction of at least 63% in the tower steel plates.

Image Credit: Adobe Stock

GOLDHOFER CABLE DRUMS OFFER THIRD-GENERATION TRANSPORTATION SOLUTION

Goldhofer's brand-new portfolio, which has already been tested in the field, enables cable drums of any size to be transported more efficiently than ever before.

"Goldhofer has always seen itself as a pioneer for innovative and sustainable transportation solutions, as in the case of the revolutionary FTV 300 wind turbine blade carrier. In the meantime, the FTV 850 represents the third generation of this efficient transportation solution. Tower adapters and the BLADES steerable trailing dolly round off Goldhofer's specialised portfolio for the transportation of wind turbine components," said Robert Steinhauser, vice president-sales and service transport technology at Goldhofer.

With focus shifting to downstream processes, new transmission lines and grids need to be built. The energy generated is being fed into increasingly intelligent networks for transmission to the end consumer. The construction of these smart grids is a major feat of logistics. The backbone of the new electricity highways is often in the form of cables approximately 150 mm in diameter and up to 2 km long. They are transported to the site for laying between the transmission joint bays on huge cable drums which can be



Image Credit: Goldhofer

three to five metres in diameter and weigh between 30 and 50 tons.

In cooperation with Energieanlagen Ramonat GmbH, Goldhofer has developed a broad portfolio of solutions for transporting cable drums of different weights and sizes. "We have collaborated with Ramonat, who have so much experience of the market, to develop a system that not only consistently meets the needs of our customers with regard to transportation but also takes into account the special challenges of the unreeling process," said Steinhauser.

Generac unveils zero-emissions BESS

Generac Industrial Power, a large supplier of power generation equipment and part of Generac Power Systems, has unveiled its all-new, zero-emissions SBE series of stationary battery energy storage systems (BESS).

The SBE series pairs with Generac's line of gas and diesel generators for full-facility resilience during long-duration blackouts and pairs with on-site solar to help reduce both carbon footprint and energy costs. Available in energy capacities ranging from 200kWh to 1,000kWh, the new stationary battery energy storage systems enable commercial and industrial customers to save on energy costs by reducing peak charges and taking advantage of utility time-of-use rates. The products can also provide site resilience during brownouts or power quality issues, and back up critical loads during shorter duration blackouts. Customers also have an opportunity to earn additional revenue by monetising the energy storage asset to support grid resilience. Generac's SBE series is the latest addition to a portfolio of products and technologies aimed at helping commercial and industrial customers meet their current and future energy goals.

"Energy management today increasingly means balancing a combination of carbon reduction, energy savings and energy resilience goals," said Erik Wilde, executive vice president of Industrial – Americas at Generac. "Our SBE series demonstrates advanced energy technology from a leading company with more than 60 years of experience providing energy solutions."

The SBE series will be offered as standalone energy storage products, as well as paired with Generac's existing lineup of generators and power-enabling products and technologies including transfer switches, breakers, remote connectivity solutions and the Concerto distributed energy resource management system.



Image Credit: Generac Industrial Power

Available in energy capacities ranging from 200kWh to 1,000kWh, the systems enable customers to save on energy costs.

ENVOREM GREENTECH OPTIMISES SLUDGE REMOVAL PROCESS

Envorem, a UK-based technology business, has developed an innovative new Greentech that uses a little-known property of water to rapidly and inexpensively process oil production sludges. The technology uses very little energy to disassemble sludges, clean the solids and recover the entrained oil for recycling – all without using chemicals or generating emissions.

Crude and fuel oils contain contaminants comprising sediments and water that create an oily sludge. Every day, the equivalent of more than one million barrels of crude oil are discarded by the oil and maritime industries as hazardous waste at a huge environmental and financial cost.

"Today there are thousands of square kilometres of land polluted with crude oil sludge," said Mark Batt-Rawden CEO of Envorem. "The issue until recently has not attracted the public's attention but that is changing as the environmental impact of ongoing oil production and legacy pollution is increasingly appreciated."

Envorem's core technology combines established techniques with hydraulic shock and cavitation, where bubbles are created by the vapourisation of water. Cavitation can be generated ultrasonically, electrically, or physically and is widely known as a parasitic effect that destroys propellers on ships and the impellers of pumps.

"Dumping these wastes into open pits is really just procrastinating the problem as the sludge will not go away. It will eventually have to be incinerated generating colossal quantities of CO₂," commented Batt-Rawden.

Agogo oilfield gets the go ahead

Angola is set to witness a major oil and gas development for the country as project Agogo moves forward. Minhaj Zia reports.



Saipem's FDS2 field development vessel.

Azule Energy has recently announced that it has awarded contracts worth a staggering US\$7.8bn for the development of the Agogo oilfield, situated off the coast of Angola. The contracts, issued via its wholly-owned subsidiary Eni Angola SPA, have been granted to a consortium of several international companies with expertise in the energy sector.

Included in this deal are Yinson for the supply of the Floating Production Storage and Offloading (FPSO); Baker Hughes for the supply of subsea production system and aftermarket services; Aker Solutions for the supply of the umbilical system; Saipem for the supply of rigid flowlines and subsea structure transportation and installation; Subsea7 for risers, flowlines and subsea structures transportation and installation; and TechnipFMC for the supply of risers and flowlines.

This investment marks a significant milestone in the

exploration and extraction of oil and gas resources in the region, and the impact of this move is expected to be felt across the global energy landscape. The Agogo oilfield is projected to hold significant reserves of oil, making it a highly valuable asset for the companies involved in the development.

The coalition has pledged to employ cutting-edge technologies to extract and process the resources in a sustainable and efficient manner. This will be done while adhering to the highest standards of environmental stewardship, and ensuring that the local community benefits from the

“The signing of these contracts marks the start of a new wave of major investment in the deep water of Angola.”

ADRIANO MONGINI, CEO, AZULE ENERGY

development of the oilfield.

The awarding of these contracts is a testament to the commitment of Azule Energy and its partners to the development of sustainable and innovative solutions for the energy industry. The potential benefits of this project are far-reaching and will contribute to the growth and development of the energy sector, both in Angola and beyond.

The venture encompasses 36 new wells, consisting of 21 producers and 15 injectors. An FPSO, having been repurposed, will serve as the primary vessel, harbouring the potential to produce a 120,000

barrels of oil per day. Furthermore, it has the capacity to inject 230 million standard cubic feet of gas per day. The operation entails the installation of roughly 100 km of rigid and flexible flowlines, in conjunction with 100 km of umbilicals, to ensure optimal function and distribution throughout the infrastructure.

The Agogo and Ndungu fields will be utilised for the production of hydrocarbons through the existing Ngoma FPSO and the new Agogo FPSO, which is set to start operating in mid-2026.

The project is expected to reach a peak production of 175,000 barrels per day and will maximise the use of existing infrastructures in the western area of block 15/06, aiming to optimise the project schedule and reduce costs.

Adriano Mongini, Azule Energy CEO, commented “The signing of these contracts marks the start of a new wave of major investment in

the deep water of Angola and it will deliver a significant value of activities for the country oil and gas industry. This project will also represent an important contribution towards the increase of the country's oil production.

Mongini added, "The support provided by Angola's Ministry of Mineral Resources and Petroleum and the National Concessionaire (ANPG) has been essential in finalising this new integrated development project."

Subsea7

Subsea7's contract with Azule Energy entails the transportation and installation of approximately 98 km of flexible pipes, 30 km of umbilicals, and associated subsea structures in water depths of around 1,700 m.

The project management and engineering activities have already commenced and will be handled from Subsea7's offices in Angola, France, the UK, and Portugal. Fabrication will be carried out at the Sonamet yard in Lobito. Offshore operations are scheduled to take place between Q4 2024 and Q4 2025.

Franck Louvety, Africa, Middle East & Caspian vice president, said, "We are pleased to have our first contract with Azule Energy and to continue supporting the

development of the Angolan offshore energy industry. Subsea7 has been working for over 40 years in Angola and has an important track record in-country. We look forward to reinforcing our relationship with Azule and to delivering the project safely and as planned."

Yinson

Securing the largest contract, awarded by Eni Angola, Yinson's deal of about US\$5.3bn to provide and maintain an FPSO for Azule Energy has a firm period of 15 years from the date of the final FPSO's acceptance, with the option of a five-year extension by Azule Energy.

The upcoming FPSO Agogo represents Yinson's eighth FPSO project in the West African region

and marks its debut offshore production venture in Angola.

Saipem

Saipem has been awarded a contract with Azule Energy comprising the engineering, procurement, construction and installation of rigid pipe-in-pipe flowlines with associated subsea structures. Saipem will mobilise its state-of-the-art offshore installation vessel, FDS2.

Aker Solutions

Aker Solutions' contract encompasses the complete engineering, manufacturing, and delivery of an extensive umbilical system comprising both dynamic and static subsea production control umbilicals, along with their corresponding spares and additional

equipment, with the total length of the umbilicals measuring approximately 36 km. This comprehensive undertaking takes place at Aker Solutions' facility in Moss, Norway, having already commenced and is scheduled for completion in the second quarter of 2024.

Baker Hughes

Baker Hughes' responsibilities focus on the provision of 23 typical subsea trees, 11 Aptara manifolds, SemStar5 fibre optic controls, and the associated system scope of delivery. The company will also offer services and post-purchase assistance for the Agogo integrated west hub subsea production system.

"Our local manufacturing capabilities, deep water development equipment, and innovative subsea control system technology enable us to provide exceptional support to Azule Energy in their efforts to increase oil production in Angola," said Maria Claudia Borrás, executive vice president of Oilfield Services and Equipment at Baker Hughes.

TechnipFMC

TechnipFMC's contract, valued somewhere between US\$250mn to US\$500mn covers the engineering, procurement, and supply of jumpers, flowlines, risers, and all accompanying ancillary equipment. The flexible pipe will connect the new Agogo facility to the subsea production systems.

Azule Energy's US\$7.8bn contracts for the Agogo oilfield development off the coast of Angola mark a significant investment in the region's oil and gas sector. The project, led by an international consortium, is set to extract valuable reserves using cutting-edge technologies while prioritising sustainability and local community benefits. This milestone development is expected to have a profound impact on Angola's energy landscape, optimising production, reducing costs, and driving growth in the country's oil and gas industry. ■

“Our local manufacturing capabilities, deep water development equipment, and innovative subsea control system technology enable us to provide exceptional support to Azule Energy.”

MARIA CLAUDIA BORRAS, EXECUTIVE VP, BAKER HUGHES



Image Credit: Adobe Stock

The project involves the installation of subsea infrastructure.

John Deere’s Motor Grader Range designed to handle the toughest grading jobs

AFGRI Equipment Construction and Forestry has declared its pride at being able to offer the John Deere Motor Grader Range to its construction clients.

The John Deere Motor Grader range is built to deliver the power and precision needed to handle the toughest grading jobs.

One of the favourite models in the John Deere Motor Grader Range is the John Deere 620G. This motor grader is built with a powerful six-cylinder engine that delivers up to 200 hp and features an advanced hydraulic system that provides precise control and smooth operation. The 620G also features a comfortable and spacious cab that is designed to reduce operator fatigue and improve productivity.

For larger jobs that require even more power and performance, the John Deere 670G and 770G are the models to choose from. The 672G features a 249 hp engine and a six-wheel-drive system that provides exceptional traction and stability on even the most challenging terrain.

Meanwhile, the 770G boasts an impressive 300 hp engine and a heavy-duty



Image Credit: AFGRI Equipment Construction and Forestry

The John Deere Motor Grader Range is ideal for customers looking for a powerful motor grader.

blade that can handle even the toughest grading tasks with ease.

The John Deere 870G Motor Grader is a powerful and versatile machine designed to handle the toughest grading tasks. With a six-cylinder engine that delivers up to 270 hp, the 870G can handle even the most challenging terrain with ease. Its advanced hydraulic system provides precise control and smooth

operation, while the spacious cab is designed for maximum operator comfort and productivity.

The 870G also features a heavy-duty blade that can handle a wide range of materials, from dirt and gravel to hard-packed clay. A perfect fit for large projects and maintenance of haulage roads on mines.

Since 1967, John Deere has been at the forefront of motor grader innovation. In addition, there is a wide variety of precision technology available like Smartgrade, Grade control, and JD LINK telematics to assist operators and owners to extract the very best out of their equipment.

According to AFGRI Equipment, the John Deere Motor Grader Range therefore represents the ideal choice for anyone looking for a powerful and reliable motor grader that can handle even the toughest grading jobs. Whether requiring a compact motor grader like the John Deere 620G, a heavy-duty model like the John Deere 670G or 770G, or a six-wheel drive solution, John Deere can be counted on to provide quality and high performance standards.

Keeping heavy machinery operational with Blumaq’s quality components

Gaskets and seals are critical components within heavy machinery as they help prevent fluid and gas leaks, protect bearings and internal components, and ensure smooth and safe machine operation. Blumaq lists some of the

main characteristics of these components and how to choose the right ones for machinery.

Gaskets: components used to seal two surfaces that are in contact to prevent fluid leakage. Gaskets are manufactured in a variety of materials, such as rubber, silicone, neoprene and PTFE, and can come in different shapes and sizes to suit the specific needs of the machine.

Seals: components used to seal between two moving parts, such as a shaft and housing, and prevent leakage of lubricants and other fluids. Seals are made of materials such as rubber, Viton and PTFE, and can be manufactured in different shapes and sizes to suit different applications.

According to Blumaq, gaskets and seals are critical components within machines and it is important to choose the right ones for each specific application. When choosing these components, it is essential to consider factors such as temperature, pressure, the type of fluid to be sealed and the chemical resistance of the



Image Credit: Blumaq

All the parts are manufactured with the highest level of durability and endurance.

gasket or seal material. With the right choice of gaskets and seals, Blumaq can ensure proper operation of major systems, avoiding costly repairs due to poor maintenance.

Blumaq is fully aware of the importance of good quality gaskets and seals to avoid possible internal damages in machines. Contact the company for more information on its offering of the highest-quality components or visit the website at: <https://www.blumaq.com/en/>



Image Credit: Blumaq

It is important to choose the right gasket or seal for each specific application.

HD Hyundai Infracore looks to expand DEVELON brand in MEA

HD Hyundai Infracore is targeting the Middle Eastern and African (MEA) market with its new brand DEVELON, formerly known as Doosan Construction Equipment.

HD Hyundai Infracore gained a revenue of US\$330mn last year in the MEA region, which is a sharp increase of 116% compared to US\$150mn in 2020. According to a global market research agency, Research and Markets, the MEA construction equipment market is growing annually by 4% and is expected to grow to US\$6.4bn in 2028 from its current volume, which is at US\$4.26bn.

HD Hyundai Infracore has been paying great attention to strengthening its presence in the Middle East through its office in Dubai and is fighting for first place in Saudi Arabia, being ahead of other global competitors after winning large-scale construction projects in UAE. This year, it aims to sell 1,200 units which is an increase from 1,000 units sold last year.

With Saudi Arabia planning the world's largest project, Neom City, which is expected to exceed US\$500bn in volume, HD Hyundai Infracore anticipates that this will result in more construction equipment demand in the near future.

The company has also recently established a new African office in Accra, Ghana, to expand its network and secure more customers in



Image Credit: HD Hyundai Infracore

A HD Hyundai Infracore excavator to be exported to Angola.

western and central Africa where the market is growing. As a result, HD Hyundai Infracore has signed supply contracts for a total of 29 machines in the Republic of Angola which include 20 excavators and nine wheel loaders. This is the largest contract for the company since starting business in Angola. The machines will be supplied to one of the largest construction companies in Angola and used when building hydroelectric power dams.

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

BÜSCHER BUILDS HOUSE OUT OF RECYCLED WASTE

In 1961, Büscher made concrete like everybody else; from gravel, sand, cement and water. Today, they have changed the recipe to 100% construction and demolition (C&D) waste to replace the sand and gravel completely and produce prefab load-bearing and non-load-bearing interior wall elements.

Due to their container service, the company Büscher received a lot of C&D waste which they normally recycled into aggregates for road construction. As this material was difficult to sell and available in high stock quantities, the brothers Wolfgang & Hans-Jürgen Büscher started to look how this material could be re-used and came to the idea to use it as raw material for prefab concrete and concrete elements.

"By now all scientific research has been done and it shows exactly what is possible with the 100% recycled prefab concrete and concrete elements. The new material functions perfect and the recipe has changed at Büscher," said Hans-Jürgen Büscher.

The main advantage of this certified production process is the efficiency in resources. They are using local, highly available cheap C&D material and producing a sustainable, climate neutral product with less CO₂ emissions, saving on transport costs as well as the material at hand can be used.

It took the company eight years to prove it is possible to sustainably build a house from fully recycled material, even at lower costs. But it took it only four months to build a complete three-family house, built with paint-ready prefab elements. Now, the first house is built out of 100% recycled natural mineral substitutes in the load-bearing and non-load-bearing interior wall elements. When it is time to demolish it, it will be recycled into new concrete using the Büscher method.

Büscher is pursuing this project as part of its efforts to minimise its ecological footprint and is looking to close the material cycle for the circular economy. This is also the reason their factory and recycling site is powered by solar panels and the choice to use Keestrack crushing and screening equipment is also driven by this idea.



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CONDRA V-045218

Up to the task

The fierce competition between manufacturers is ensuring that robust, versatile and reliable mini excavators are available for construction sites across the continent.

Digging, backfilling, drilling, trenching, landscaping, handling materials, farming; there are few tasks that mini excavators are not able to handle across the various heavy industries of the continent.

While traditionally Africa has not served as the strongest base for the mini excavator market, this versatile piece of machinery is becoming increasingly popular and is being deployed to great effect on a range of construction sites from inner-city housing development to more remote infrastructure improvement.

Although South Africa dominates much of the sub-Saharan market, the wider region is continuing to carve out a bigger piece of the global market which, according to the latest market estimate from Straits Research, was valued at nearly US\$9bn in 2022 and is projected to reach US\$14.5bn by 2031.

To greater heights

Lining up to ensure that the continent is well served for all its mini excavator needs are a number of major players, the stiff competition between which ensures that only the most effective machinery is brought to the market. Key companies here include the likes of Hitachi, Komatsu, Hyundai CE, XCMG, Kobelco, and more.

One of the leading players for this piece of machinery, as it is for most, is Caterpillar. Recently, the company has reassured clients that it is persistently striving to optimise its offering whenever possible by announcing new attachments available for backhoe loaders and mini excavators. With the goal of increasing application versatility for the machines, the new models span the range of demolition and sorting grapples, vibratory compactor plates



Cat G206 Multi-purpose Grapple on Cat 305 Mini Excavator.

Image Credit: Caterpillar

and cold planers.

The company has also released the first hydraulic attachment expansion for the Cat Tiltrotator (TRS) product family. The new Cat G206 and G208 Multi-Purpose Grapples expand the grapple technology in combination with the TRS6 and TRS8 models for 5- to 10-ton mini hydraulic excavators. These models allow maximum manoeuvrability with TRS attachments, and an integrated bracket provides minimal offset to optimise performance of grapple functionality.

With the G206 sized for 5- to 6-ton excavators and the G208 for 7- to 10-ton models, these multi-purpose grapples deliver 14.5-kN and 18.4-kN maximum closing force respectively. An integrated cylinder load-holding valve maintains grapple closing pressure with no leakage, while the hard-mounted piston accumulator maintains grapple arm closing forces with shifting loads.

The grapple design is matched to the tilt rotate system, and the rotation of the TRS allows for quick and easy material engagement. To avoid any bending torques in radial direction, these grapples feature a

welded box structure. With grapple arms and arm edges built with AR450 steel, the arm offers high abrasion resistance for longer wear in extreme conditions.

Another giant of the construction world celebrated its own mini excavator milestone at the end of 2022. JCB announced with pride that it had produced the 1,000th machine of the all-electric mini excavator, the 19C-1E. This achievement was made all the more impressive knowing that JCB only when into full production of the model in 2019.

Since then, it has proven a hit with customers who appreciate the low output of emissions and noise compared to its diesel counterpart. While the mini excavator has proven most successful in North America and Europe, as Africa continues to moisten its appetite for electric machinery, there is little doubt that construction sites across the continent will be featuring the 19C-1E in the near future.

JCB, however, is not the only company making waves with its electric solution for the mini

excavator market as Wacker Neuson South Africa has made its own foray by unveiling its all-electric mini excavator, the EZ17e.

The company has assured that the EZ17e works just as flexibly as its combustion engine counterparts but at the cost of no direct exhaust emissions and also boasts particularly low noise levels. The excavator is reported to feature outstanding ergonomics, ease of handling and cost efficiency and has the same power as conventional machinery – a fact tested by Wacker Neuson at a city construction site in Stuttgart, Germany.

According to media reports, the EZ17e has already been successfully tested in South Africa by distribution partners AFGRI Equipment and Maucal Mining and Minerals with both organisations reporting extreme satisfaction with the excavator's overall performance. The introduction is part of Wacker Neuson's wider rollout of battery-powered equipment and customers should therefore expect to see more environmentally-friendly solutions entering the market from the company soon. ■

DUCTILE IRON PILES

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Ductile iron piles are made of spun cast iron with spigot and socket ends for fast and reliable connections. Piles can be used as end bearing piles and with annulus grout body as friction piles depending on soil condition and site requirement.

High corrosion resistance, low equipment cost, flexible installation depth, great installation progress and many other advantages make ductile iron piles the perfect choice for a wide range of civil engineering works.



Quality is key

Amid a rise in the use of cheaper construction alternatives, Amit Dawneerangen, AfriSam construction materials general manager: sales and product technical, explores why it makes a difference to stick with quality material.



African Review (AR): It has been noted that some contractors are substituting quality construction material for cheaper alternatives. Is this a trend you have seen accelerating in recent years?

Amit Dawneerangen (AD): Yes, buying 'down' on material is definitely a trend we have seen accelerating in recent years.

The South African construction materials market has endured a protracted downturn in recent years. Having experienced a decade of growth and success, particularly at the height of considerable infrastructure spending in the run up to the 2010 Soccer World Cup, construction materials suppliers have grappled with a depressed

market in the past five years.

Affordability issues are not only affecting construction material suppliers, but the industry at large, including civil engineering contractors. As a result, contractors are buying down on quality for both aggregates and readymix concrete.

AR: Why are shortcuts like this so damaging for Africa's infrastructure in the long term?

AD: Using the right quality materials in accordance with the design brief avoids the need for future unscheduled remedial works, which can result in substantial additional costs, depending on the nature of the project.

Key to successful roadbuilding is

the creation of a sub-base, base, and wearing course that can withstand considerable load pressures from traffic, especially with large trucks causing increased dynamic loading on the road these days. Good aggregates are vital for constructing both a solid foundation and a resilient crust. The final layer must resist wearing from the wheels and provide a safe friction coefficient, especially in wet conditions. It must also withstand ultra-violet and infra-red rays so that it ameliorates against deterioration over time.

Different types of rock, such as dolerite and quartzite, are crushed to create aggregate and each has its own qualities to contribute. The mix

design must carefully match these qualities to the requirements of the application.

AR: Why is the understanding of these shortfalls not understood and how could this be changed?

AD: Many contractors and other stakeholders understand these shortfalls however choose to operate and construct in this manner due to the many challenges facing the construction industry currently. Knowledge transfer and information sharing on the detrimental effects on quality amongst the key role-players in the industry will certainly assist in improving the situation. Industry bodies should facilitate workshops to drive this.

AR: How can clients be assured of the quality of AfriSam's products for their construction needs?

AD: In terms of our aggregate quarries, there are various elements of AfriSam's quality assurance and quality control imperative. As part of our quality assurance programme, we annually conduct a battery of tests at various frequencies to confirm the quality of our short term reserves. We then follow up with process control and final product quality tests to ensure compliance to specification. As a member of the Aggregate and Sand Producers Association of Southern Africa (ASPASA), all our operations are audited for health, safety, environmental and other processes. Along with this accreditation, we have also won numerous ASPASA awards for our high levels of quality performance.

In addition to this, we are



Good aggregates are vital for constructing both a solid foundation and a resilient crust.

probably the only construction materials supplier with ISO 9001-2015 accreditation, auditing all our operations every second year, while our management and centralised

support functions are audited every year. The South African Bureau of Standards is the authentication body that conducts our audits.

The laboratory at our Centre of

Image Credit: AfriSam

Product Excellence is one of the few that is accredited by the South African National Accreditation System (SANAS). The final assurance is that we do carry product liability insurance.

AR: Will you remain committed to avoiding these shortcuts?

AD: Yes, producing quality products will always remain at the top of AfriSam's agenda. By ensuring that high quality construction materials are used in infrastructure, South Africa is investing for a stronger future.

With the company's history going back 88 years, AfriSam has sustained a significant focus on quality which today pays dividends in terms of the structures relied upon by our people and our economy. By putting the best quality materials, expertise and technology into its products, AfriSam paves the way to a brighter and more reliable future. ■

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NIELLA TANARO PLANT STARTS PRODUCTION OF GROVE ROUGH-TERRAIN CRANES

The Manitowoc plant in Niella Tanaro, Italy, has further expanded its manufacturing capability to include the production of Grove GRT8120 and GRT8100-1 rough-terrain cranes. The plant specialises in building Grove rough-terrain and Potain self-erecting cranes.

With a wider range of Grove RT cranes now being offered from Niella Tanaro, customers in EMEA can benefit from locally-produced cranes from a facility that embraces lean manufacturing.

Grove RT cranes produced at the factory share multiple common components to simplify parts support for customers and owners, while making use of locally-sourced materials delivers additional efficiencies.

The 120 t capacity Grove GRT8120 offers some of the most impressive characteristics of any



Image Credit: Manitowoc

The Manitowoc plant is expanding production, adding the Grove GRT8120 rough-terrain crane to its manufacturing line.

two-axle rough-terrain crane on the market. In addition to a massive lifting capacity, the crane features a seven-section, 60 m MEGAFORM boom

with a tip height of 80.8 m when used with the optional jib. It also offers the option of the MAXbase asymmetrical outrigger system, allowing greater flexibility on congested jobsites. A wider, full-vision cab with 20° tilt maximises operator comfort and visibility, and the operator further benefits from Manitowoc's Crane Control System (CCS) that includes the Boom Configurator mode for simpler set-up and on-board lift planning.

The other new RT crane rolling off the production line at Niella Tanaro is the GRT8100-1, which replaces the older GRT8100 in the company's production offering. Both the GRT8120 and the GRT8100-1 produced at Niella Tanaro are backed by a two-year warranty, reflecting Manitowoc's confidence in the reliability of its products.

NEW VR SOLUTION FOR 3D CONSTRUCTION PRINTING

COBOD, a leading global manufacturer of 3D construction printers, has announced the launch of its unique Virtual Reality (VR) solution for 3D construction printing.

This solution allows potential customers to experience live 3D construction printing in real-time, right in front of their eyes. With COBOD's new VR solution, individuals can watch many of the company's real printed buildings being constructed in a virtual residential area, complete with trees, cars, and other objects, for an even more realistic experience.

With the help of technology, people get into the heart of an already well-known and widely used programme, the COBOD Configurator. VR helps people experience the real size of a 3D concrete printer in different configurations. Individuals can also witness a close up of the gantry printer work and see how the house is created layer by layer.

"This technology enables clients to truly understand the scale and potential of our printers, empowering them to envision a more innovative and sustainable future for the construction industry," commented chief innovation officer at COBOD, Michael Holm.

Marchant Van Den Heever, CTO of HTL.tech, said, "Virtual reality is an incredibly powerful tool for visualising complex 3D models, and using it to showcase 3D construction printing projects can help clients understand the process in a more immersive and engaging way. We see this tool as an exciting way the get clients, designers, and contractors up to speed on the inner workings of how a 3D construction printing project actually works."

Cat Rotary Cutters offer precise breaking

The new CAT Rotary Cutters from Caterpillar offer precise, controlled breaking for trenching, tunneling and demolition applications. With controlled breaking and high precision, rotary cutters are ideal for working in confined or urban areas, and can be used in sensitive areas such as neighborhoods or hospitals, since they produce a lower decibel of sound compared to other breaking tools.

New Cat RC20 and RC30 models are available to be used with pin-on, S-type, Cat pin grabber, or CW couplers. Rotary cutters are compatible with Cat hydro-mechanical work tool brackets, which allow operators to move more smoothly from one task to the next. For space constricting jobs, the rotary cutter can be manually turned either 90 or 270 degrees. Adding an optional hydraulic lines kit, the rotary cutter can be turned up to 180 degrees for cleaning narrow trenches or working away from the machine to help get increased productivity. Ideal for dredging applications, the rotary cutter can be submerged in water without making any modifications to the tool.

The direct drive motor offers high torque, production and performance to help operators get the job done faster. With less space between the drums, operators can build narrower trenches while also burning less fuel. Rotary cutter picks are easily replaced with a simple tool and can be switched out quickly. Maintenance panels offer quick and easy access, and mechanical seals help to lock in grease and keep dust out to go longer between servicing.

Operators can track their entire fleet of attachments and machines from one source as attachments with asset tracking can be viewed within VisionLink alongside Product Link subscribed equipment. Attachments with an asset tracker send an alert if they leave an easy-to-setup site boundary to help keep tools more secure.

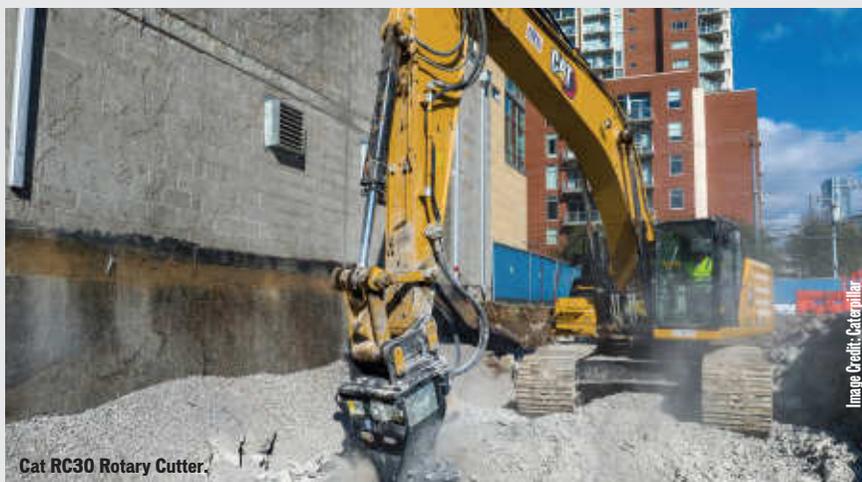


Image Credit: Caterpillar

Cat RC30 Rotary Cutter.

LIEBHERR PRESENTS LR 1700-1.0W



Liebherr's designers have placed a special focus on maximising the performance of the new LR 1700-1.0W's drive train.

Image Credit: Liebherr

Liebherr has unveiled the successor to its 600-tonne LR 1600/2-W narrow track crawler crane. With more power and greater lifting height, the LR 1700-1.0W offers the best prerequisites for efficient assembly of modern wind turbines in wind farms.

To meet the challenging demands for driving and steering, Liebherr has equipped the crane's new narrow track travel gear with components from its next larger crane class.

Volvo unveils R60 Rigid Hauler to move more for less

The all-new E-generation Volvo R60 Rigid Hauler has been revealed as a perfect partner for quarrying and mining.

Based on the R100E model, the R60 packs a higher payload than the D-generation model it replaces, along with a durable design and new comfort and safety-enhancing features – enabling it to move more for less with every cycle.

Contributing to speedy cycle times, the drivetrain combines high torque capability and high drive axle multiplication to deliver the traction force needed to take on the steepest site gradients.

Not only is it productive, but the Volvo R60 is also fuel efficient. Thanks to Volvo Dynamic Shift Control, gear selection is automatic to adapt to varying conditions, while ECO mode enables the hauler to default to the most efficient gear shifting schedule. In addition, auto engine-idle shut-down eliminates unnecessary fuel consumption and engine wear. The rigid hauler is available with CareTrack telematics system to enable remote machine monitoring and help boost efficiency even further.

Customers can gain recommendations on the optimum fleet configuration and site set-up from their Volvo dealer, with the support of Volvo Site Simulation. Designed to deliver high uptime and low operating costs, the R60 is built to last with a 60,000-hour life frame and a list of features that contribute to long-lasting performance and component life. Servicing of the R60 is required every 500 hours and can be completed swiftly thanks to a straightforward machine design. Moreover, ergonomically positioned displays, responsive fingertip controls and low-effort steering, combine to make operation effortless.



The Volvo R60 is productive and fuel-efficient.

Image Credit: Volvo CE



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SCAN FOR MORE INFORMATION



Epiroc highlights innovations making operations safer

Epiroc, a leading productivity and sustainability partner for the mining and infrastructure industries, has issued three awards highlighting successful cooperation with a customer to create the world's largest single autonomous mine, safety-enhancing software products, and battery-electric vehicles for the construction market.

The United in Performance Award honours exceptional customer collaboration. It is presented to a team that is collaborating closely with customer Roy Hill and Epiroc's

automation partner ASI Mining. The award is for the work to convert Roy Hill's mixed fleet of almost a hundred haul trucks to driverless operation. The ongoing work will create the world's largest single autonomous mine, boosting safety and productivity.

The Inspired by Innovation Award honours Epiroc's most innovative technical development that has had a proven commercial success. It is presented to a team at the digital solutions division that has developed a new software solutions offering that increases safety and productivity in both tunnelling and surface mining.

The Dare to Think New Award gets its name from Epiroc's vision. It is presented to a team that enabled Epiroc to sell battery-electric vehicles (BEVs) into the construction market. The market so far for Epiroc's BEVs has mainly been mining, but this order shows that the emissions-free machines can play a vital role also for construction.

"Congratulations to the winners, who all represent Epiroc's core values of innovation, commitment and collaboration," commented Helena Hedblom, Epiroc's president and CEO.

"I'm proud of all the ground-breaking work produced by the organisation that makes our customers' operations safer and more productive, and accelerates the transformation toward a more sustainable society," Hedblom added.



An Epiroc minetruck MT42 battery.

Image Credit: Epiroc

VISIONV2X ENHANCES SAFETY UNDERGROUND

Maptek, an international company operating at the forefront of mining technology, has launched VisionV2X at Austmine 2023.

VisionV2X gives all mine personnel vision underground, enabling them to make better decisions for ensuring people and equipment stay safe. Maptek engineers applied their software smarts, and combined their knowledge of mining with input from ergonomics and human experience experts to design a simple interface. VisionV2X is now operating underground at one of the world's largest copper mines.

Maptek CEO Eduardo Coloma, said, "Our latest product is firmly in touch with the Austmine theme 'Transforming our Future' and in line with our industry imperative to bring everyone home at the end of a shift underground. The numbers around underground mines globally are staggering. Hundreds of kilometres of tunnels across multiple shafts, operating kilometres below the surface. And of course thousands of people operating heavy and light machinery in Wi-Fi and GPS denied environments.

"The Maptek proximity awareness system has underground safety as the key objective. It can be fitted to any vehicle across a mixed manufacturer fleet that is commonly deployed in underground mines."

At the heart of VisionV2X is an ergonomic touchscreen interface installed in heavy vehicle cabs that operators can rely on for visible and audible feedback around the proximity of at-risk personnel and vehicles. The system continuously runs automated checks in the background to ensure it is operating correctly. Detailed proximity data is logged onboard the vehicle and sent back to a central server for analysis and reporting, helping to deliver continual improvement in risk management and worker safety.

MANAGEM ACQUIRES MINING ASSETS IN SENEGAL

Managem Group has closed the acquisition of several mining assets in Senegal including 90% of the Boto under construction gold mine (the remaining 10% being owned by the Government of Senegal); 100% of the exploration properties of Boto West, Senala West, Daorala; as well as an interest in the Senala exploration license as part of an option agreement with Oriole - EMC.

These acquisitions represent a total consideration of US\$197mn, including a deferred payment of approximately US\$30mn.

"The acquisition in Senegal strengthens our footprint in West Africa and gives Managem meaningful near-term production growth. It also strengthens our position as a leading regional gold producer. We welcome the team based in Senegal to Managem Group and look forward to driving these projects forward alongside our stakeholders with shared success," said Imad Toumi, chairman and CEO of Managem.

► BRIEFS

Walkabout embraces ESG standard



Walkabout hopes to position itself as a responsible investment opportunity and graphite supplier of choice.

As Lindi Jumbo progresses towards commissioning, Walkabout Resources has compared its ESG performance with a widely recognised set of criteria and utilised Socialsuite's ESG technology platform to establish its initial ESG baseline in the first quarterly ESG dashboard. The company's aim is to build robust and legitimate ESG credentials that will allow Lindi Jumbo to be product preferred to premium European and North American markets.

ILiA welcomes Atlantic Lithium

Atlantic Lithium Limited, an African-focussed lithium exploration and development company aiming to deliver Ghana's first lithium mine, has become an associate member of the International Lithium Association (ILiA), the global trade association for the lithium industry.

Run by and for its members, ILiA facilitates greater dialogue within the industry and helps its members efficiently and effectively address challenges across the sector.



More than 85% of the lithium industry is part of ILiA.

SRK Consulting to enlighten DRC Mining Week with industry insights

SRK Consulting will be sponsoring and participating at this year's DRC Mining Week, running from 14-16 June in Lubumbashi, which promises to be the unparalleled meeting place for mining stakeholders and influential decision makers in the DRC and the Copperbelt.

According to Susa Maleba, country manager for SRK DRC, the event is always a valuable opportunity to reaffirm SRK's presence in the country and engage with clients, peers, government and other industry stakeholders.

"In addition to sponsoring the event and learning more about mining companies' plans and broader trends in the country's exciting mining sector, we will also be sharing knowledge and insights with clients," commented Maleba. "This will be done through workshops that we have planned on the side lines of DRC Mining Week, to assist clients in dealing with some of the challenging issues that we identify in our ongoing work."

Among the topics under the spotlight in these workshops will be: mine closure planning and related social transitioning aspects; water management and water stewardship; and environmental, social and governance (ESG) issues and sustainability.

Principal environmental scientist and SRK DRC director, Wouter Jordaan, emphasised that the company has been working with clients in the DRC to move beyond just complying with legal regulations – and to work towards adopting world class reporting and sustainable mining practices.

Jordaan noted, "The mining sector globally has progressed significantly in raising responsible mining standards. Companies in the DRC are moving in this direction as well, and we are leveraging our international experience in working with the local industry to apply these guidelines and standards."



Image Credit: SRK Consulting

SRK has been working with clients in the DRC to move beyond just complying with legal regulations.

KOMBAT MINE YIELDS NEW MINERALISATION

Trigon Metals has announced results from the drilling of new mineralisation targets at its Kombat Mine in Namibia with key highlights from the drilling campaign. The results, from the Kavango North area, imply a favourable confirmation of the Kombat trend mineralisation.

The holes are from drilling testing gaps in the known mineralisation previously thought to be barren. Kavango North is an area of mineralisation discovered by the team in January.

The reported drilling confirms its continuity. It has been incorporated into the company's resource and mine plan, adding more high grade ore and reducing the overall strip ratio.

Jed Richardson, Trigon's president and CEO, commented, "The team has now completed the mine plan and the mine contractor is preparing to start mining, finishing work on the tailings facility. All of the necessary equipment is in place for the start of mining."



Contact in Africa:

+27 11 966 5092 **Johannesburg**
 +26 096 0923 962 **Kitwe**
 +264 81 291 7539 **Windhoek**
john.beukes@blumaq.com

Central Offices:

+34 902 118 000 **Headquarters**
blumaq@blumaq.com

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Mining is a power-intensive industry.

Image Credit: Adobe Stock

Meeting mining's power requirements

Amith Singh, head of energy at Nedbank CIB, describes how selecting the right partner can allow mining companies to realise their green ambitions.



Image Credit: Nedbank CIB

Amith Singh is the head of energy at Nedbank CIB.

Mining companies in Africa are facing the challenge of remaining competitive by delivering ever-higher levels of performance, despite volatile commodity prices, increasing stakeholder pressure, and the need to integrate environmental, social, and governance (ESG) considerations. In response to this situation, financial institutions are reducing their support towards mining operations, considering them no longer aligned with their strategic, sustainable objectives. However, Nedbank CIB sees the opposite as true and views the current environment as an opportunity for mining to become a significant contributor to a more sustainable future for Africa while enhancing productivity.

Nedbank CIB, a key participant in landmark power transactions across the continent for the past two decades, is open to partnering with mining companies, particularly with respect to their sustainable development and growth aspirations. Its energy finance team is responsible for initiating, executing, and managing transactions, including providing project finance, acquisition finance, embedded-energy finance, letters of credit and working-capital facilities, structured financial products, and

preference-share funding to support equity investments.

A sustainability commitment

In an exclusive interview with *African Review*, Amith Singh, head of energy at Nedbank CIB, described their specialised team “consisting of approximately 20 professionals who primarily focus on renewable energy projects in Africa.” Singh emphasised that “while mining companies recognised the significance of transitioning to cleaner energy sources, the actual implementation took some time. However, sustainability is now an important strategy and with commitment from these mining companies, we are seeing significant progress in the last few years.”

The current energy crisis is heightening the need for environmental sustainability, as loadshedding in countries like South Africa and the cost of diesel, which most mining operations rely on, are accelerating the energy transition journey. This trend was apparent at this year's Mining Indaba, where the industry saw renewables as a least cost producer and can be commissioned the quickest.

However, Singh highlighted that mining companies face challenges in realising their green ambitions and adopting renewable projects.

“The procurement process currently takes a considerable amount of time as mining companies carefully select an Independent Power Producer (IPP) partner. Additionally, settling power purchase agreements (PPAs) proves to be difficult because mines are not accustomed to the commercial terms typically associated with standard PPAs. These terms include signing a 20-year Power Purchase Agreement and providing the required security to demonstrate their commitment to purchasing and paying for renewable energy power on a take-or-pay basis. These factors make the settlement process challenging for mining companies.”

A crucial aspect of banking Private Power Purchase Agreements (PPAs) in the mining sector involves finding a partner who has expertise in funding Independent Power Producers (IPPs) and a good understanding of the mining industry. Nedbank CIB specialises in this area by combining their mining and energy finance teams to conduct thorough assessments of these transactions.

Their team focuses on debt financing and maintains relationships with IPPs involved in renewable energy projects. By collaborating closely with the mining team, they assess various

risks, including operational, corporate, resource, and mine life considerations. Together, they facilitate private-sector PPAs in mining, where IPPs sell renewable power to mines.

The team also handles short-term facilities for these projects. Singh highlights the importance of tailoring structures to meet the diverse requirements of different mines, considering factors such as mine life, jurisdiction, and risk diversification.

Singh concluded that Nedbank CIB's commitment to sustainable mining practices in Africa through its funding of renewable energy initiatives has the potential to contribute significantly to the region's economic development while reducing the impact of loadshedding and carbon emissions. By supporting mining operations in their transition to more sustainable practices, Nedbank CIB is positively contributing to society and Africa's future. ■

A new partnership for growth

At the 5th South Africa Investment Conference 2023 a panel of experts discussed the investment opportunities that the country has to offer the world.

Under the theme ‘Mining: A New Partnership for Growth’, the panellists highlighted the challenges and opportunities which are shaping mining – an industry which has been earmarked as one of the most promising sectors for investment in coming years. The session focused on the three themes of high uncertainty investments, probable investments, and challenges and solutions.

Glen Nwaila, Wits Mining Institute director, moderated the panel discussion at the conference and remarked, “Despite the global economic challenges, South Africa has become more attractive to investors due to the surge in demand for raw materials, as witnessed by the eight-fold increase in South Africa’s coal exports to Europe in the first half of 2022 and the rise in gold prices to US\$2,000 per ounce.”

Kumba Iron Ore CEO, Mpumi Zikalala, took the opportunity to explore the need for the industry to become more environmentally sustainable while maintaining profitability and competitiveness. She also highlighted the importance of logistics and infrastructure for the mining ecosystem and the opportunities for large-scale mining companies to work with junior miners.

Dispelling fears that electric vehicles would kill the platinum sector, HyPlat CEO, Sharon Blair, explained that the hydrogen economy heavily relies on platinum as a catalyst in fuel cell technology. She also stated that several new economies rely on the platinum group metal industry as part of their decarbonisation strategy.

Gwede Mantashe, Minister of Mineral Resources and Energy of South Africa, addressed the



The panellists encouraged collaboration and partnerships between the Government, mining companies, and investors to achieve a sustainable mining ecosystem.

challenges in attracting high certainty investments and the Government’s role in promoting a mining ecosystem that fosters innovation and growth in the sector. The Minister also addressed the changes in the South African Mining Charter and the Government’s commitments to deliver measurable goals, such as continuous power supply, addressing illegal mining issues, promoting artisanal and small-scale miners, and ensuring policy certainty.

The panellists also acknowledged the current confusion on ESG frameworks that pose a challenge for mines in complying with moving targets and goals. However, a single international body will soon be established to govern ESG targets, similar to the Committee for Mineral Reserves International Reporting Standards.

On the topic, Mike Teke, CEO Seriti Resources, highlighted the strides his company has made towards a sustainable energy transition, citing the acquisition of Windlab Africa as example of its long-term commitment.

While dedicated to decarbonisation research, Teke emphasised the importance of the responsible energy transition that does not negatively impact local communities and the South African economy. This highlights the need for a just transition to renewable energy, where the needs and interests of all stakeholders are considered.

Developing skills

The panellists also took the opportunity to address the challenges in creating local downstream industries and the need for scarce skills to create jobs. As part of this, they explored the issues of attracting and retaining talent, promoting diversity and inclusion in the sector, and the role of mining companies in promoting local economic development.

Nwaila commented, “Universities, such as Wits, are key avenues to channel this innovation – which aims to improve the health and safety of mine workers using advanced technology; enhance the efficiency of mining and mineral

processing by using people-centred technology; reduce energy consumption and minimise waste and equip mining professionals with the 21st century skills to build resilient mines – into industry.”

He continued that officials have cautioned against relying solely on buying technology and innovation from other countries, as this does not always work for South Africa’s export-oriented economy. “By investing in local research and development, the country can promote the growth of its own innovative industries and create a sustainable ecosystem for long-term economic success,” Nwaila noted.

This emphasis on promoting local innovation is in line with South Africa’s commitment to building a more inclusive and diverse economy, where all stakeholders can benefit from opportunities for growth and development.

Nwaila concluded the session by encouraging collaboration and partnerships between the Government, mining companies, and investors to achieve a sustainable mining ecosystem that benefits all stakeholders. ■

Safety, operational efficiency and sustainability represent some of the most pressing targets for African mining companies.

Image Credit: Adobe Stock

Empowering the workforce: the key to meaningful change

Helder Santos, director of mining and metals for EMEA at dss⁺, explains why empowering the workforce is imperative to realising the benefits new technology and digital solutions can bring.

dss⁺, an operations management consulting company, works to build and implement customised strategies for customer advancement, advising on ways for organisations around the world to work safer, smarter and with more operational effectiveness. In serving its customer base across multiple industries in 38 countries, the company is privy to and works towards a wide array of concerns and priorities that are driving business decisions across the globe. Within the mining segment, according to Santos, most clients have approached dss⁺ to enact change in relation to three main topics: safety, operational efficiency, and sustainability.

“The first is around employee and process safety,” he commented. “A lot of companies talk about safety culture but struggle to realise it. What we are bringing to the industry is integrating risk into a safety culture. So zero harm is possible – and that is the goal – but companies need to be aware that risk is always present. Even if a safety culture is

highly mature, it does not mean something cannot go wrong. This is where ensuring your technical risk is under control and there are clear controls in place to follow up on these, is important. So, we try and help organisations integrate these into operating models to reduce injuries and fatalities across workforces.

“The second is around operational efficiencies and we help to advise on improving throughputs, optimisation of cost, etc. However, I would point out that we do this from an integrated perspective, without compromising safety for the sake of short-term efficiencies.

When a company has established routines to enhance safety performance in an effective way, operational efficiencies become much easier to implement as the right mindsets and behaviours have already been entrenched.

“The final element is clients approaching us to help move from stated ambition to measurable impact in terms of ESG and sustainability. There are many targets flying around at the moment ranging from net-zero to circular economy goals, but companies need help on understanding how to embed that ambition throughout the company – in its operating

“Mining companies really need to understand what value each new technological innovation or digital solution is going to bring.”

HELDER SANTOS, DIRECTOR OF MINING AND METALS FOR EMEA AT DSS⁺



Image Credit: dss+

Helder Santos is the director of mining and metals for EMEA at dss⁺.

model and business culture – to make meaningful difference.”

Embracing the new

Typically, key in these transformations is engagement with new technologies and digital solutions, the adoption of which can offer the chance to realise a range of targets from waste recycling to optimising water usage. Indeed, according to Santos, this message is not one lost on the continent’s mining community, which understands and is generally pursuing the opportunities that can come from a more proactive stance on modern innovations. The problem, however, comes in implementation.

“The reality is that change happens at the point of execution and those carrying this out need to feel empowered.”

HELDER SANTOS, DIRECTOR OF MINING AND METALS FOR EMEA AT DSS*

Santos explained, “The question is really about how to truly select the technology and digital solutions that will generate value and support what the company needs in terms of its transformation. We have seen different approaches. Some pursue a cut and paste option; observing a change working for someone else, they try to recreate it in their own operation. However, this is usually not effective, as each organisation is unique and what works for one might function less effectively for another. On the other hand, we see some attempting to throw anything digital into operating models without really understanding it beforehand. This can have equally disappointing results.

“Before starting on these journeys, mining companies really need to understand what value each new technological innovation or digital solution is going to bring to support and deliver on expectations towards a more sustainable or efficient mining model. We believe there is a need to assess their readiness for implementation. Are

companies really prepared to include these new solutions? Do they understand how they will affect operating models? Is there an awareness of how it will alter the risk profile?”

Changing the culture

Santos was eager to point out that, while change usually begins in the boardroom, it is the wider workforce that will be interacting with the new way of working and, as such, it is vital for leadership to ensure employees are engaged from the beginning.

“These changes are top down; they are set by the boardroom,” Santos noted. “However, the key to making them successful is engaging the workforce. The reality is that change happens at the point of execution – at the pit or processing plant – and those carrying this out need to feel empowered. They need to truly understand the new ways of working and not feel that the new solutions are a threat to their role but rather an opportunity to upskill to do more valuable activities.”

“Leadership needs to be the role



Image Credit: Adobe Stock

According to Santos, empowering the workforce is key to ensuring new technology and digital solutions function effectively.

models in these journeys. Managers and executives cannot just talk the talk, they need to walk it as well and demonstrate the value. Ensuring top down alignment on the message and the way to behave is fundamental and, therefore, effective leadership is essential to delivering expected outcomes.”

This is what dss* normally addresses first and foremost when advising on an integrated transformation programme for clients. Typically, this entails on-site expertise and coaching to develop the people at the point of execution.

Santos remarked, “With these various change agendas – be them safety, operational or ESG – what you are trying to do is transform a culture and embed new habits into the way of working. You do that by coaching, training and being repetitive. People will progress from, initially, mechanically complying to a new routine because someone is asking them to do it, to the point where they want to do it as they understand how the new process/tool/system is making their life easier. It is here that people can empower themselves and the benefits start to be seen.

“This journey takes time. People do not change in a couple of weeks after a few training sessions, but instead from the cultural shift. This does not really have much to do with the size of the company, it is

more about the culture and, once again, this starts from the top. So the first thing we often ask is ‘how often does your leadership walk the floor?’ This is an important indicator as it shows whether they are walking the talk at the point of execution.”

Ignoring these considerations can prevent change within an organisation. As Santos explained, “I remember one company which invested in a preventative maintenance digital management system but, when implemented, they were not getting the value they predicted. When we assessed the situation, we realised there had been a massive gap in engaging the workforce.

“Because they had not been probably engaged, most employees saw it as a threat to their job and so the adoption and utilisation of the technology was not there.

“Examples like this demonstrate that engagement and empowerment are fundamental and they need to be done continuously. Ultimately, this is bottom up as well as top down. So while decisions are made in the boardroom and managers should be leading by example, if you get to a point where the workforce is part of finding the solution and is volunteering changes, that is where you can unlock the full potential of your workforce, these new solutions and, ultimately, your organisation as a whole,” Santos concluded. ■

Image Credit: dss*



Santos spoke on a session about how to activate the journey towards sustainable mining of the future at this year's Mining Indaba.

A critical moment for Africa

The scramble for metals critical to the energy transition and modern technology is presenting a golden opportunity for Africa's mining sector.

Africa is regularly spoken of as the next frontier. From its vast solar resources around the Sahara to the potential of southern Africa as the green hydrogen bread bin for the globe, the natural assets of the continent (not to mention its ever-expanding, ambitious population) make it perhaps the most strategically important region for the future.

Perhaps nothing, however, highlights this as clearly than in the array of critical mineral and metals that lay ready to be exploited under its vast landmass. These assets are “essential for responding to the shift towards the green economy, low carbon energy, digitisation, among others,” according to the IEA. They are commonly used in a wide array of modern appliances and technologies from electronics (such as smart phones and laptops) to renewable energy applications (such as wind turbines and solar panels) and even for national defence capabilities (such as fighter jets and satellites).

As the energy transition continues to heat up over the coming decades, the demand for critical metals and minerals is set to dramatically increase – the Mo Ibrahim Foundation suggests lithium, cobalt and graphite production will need to be increased by nearly 500% by 2050 for example. This is leading to a tug-of-war between global players to control these vital assets. Currently, China is dominating the market, with estimates suggesting it controls up to 90% of the midstream of the supply chain and the Government systematically supporting further efforts to maintain its grip. In the face of this, other global players are recognising the importance of carving out a piece of this market and are



Image Credit: Critical Metals

Critical Metal's Mololu Project is forecast to produce an initial 10,000 tonnes of copper oxide ore per month.

“Africa’s mineral wealth is essential for the energy transition.”

scrambling to form ties with African nations who hold these resources.

As a result of these geopolitical developments, the potential for Africa is vast. According to the Mo Ibrahim Foundation, the continent holds 30% of the world's mineral reserves, many of which fall into the critical category. According to the Natural Resource Governance Institute, Africa's mineral wealth is essential for the energy transition – a boast not many other regions can claim – and exploiting this will be economically and environmentally important for Africa, especially if nations are able to develop their processing and manufacturing capacity.

Seizing the moment

One company that understands this market opportunity well is Critical Metals plc, an investment company established to target opportunities in the critical and strategic metals sector. Made up of a board with more than 100 years of experience in mining and natural resources development, financing, and corporate management, it focuses on strategic metals defined by the US and EU.

The company sees a significant opportunity in the high value critical metal space as demand escalates and constraints are accentuated. As such, it is actively evaluating in a

range of brownfield mining opportunities across its primary geographic of southern Africa and the Americas (although projects outside of these regions are considered if deemed appropriate).

Critical Metal's first investment, the Mololu Project in the DRC, started production in January 2023 and is forecast to produce an initial 10,000 tonnes of copper oxide ore per month on a steady-state production rate. The company has made it clear that all copper material extracted from the mine will be sent to local processing plants – there are four in the Likasi and Lubumbashi areas expressing interest in purchasing Mololu copper ore. The company is also discussing various strategies to optimise and increase monthly copper ore production further.

With the first project under its belt, the company is already moving towards securing further assets. *African Review* sat down with Russell Fryer, executive director of Critical Metals, to hear more about his company and his views on the market.

“The idea for our company came from the desire to capitalise on these metals that are required to run economies. We looked at this problem and explored where these deposits are, and most of them are in Africa. The Mololu Project was acquired in May 2021 and has now started production at the beginning of this year.

“We want to expand into other African countries and, ideally, have five different producing mines. Preferably, we will have three more acquisitions by the end of the year (if not closed). In doing so, this gives us the chance to smoothen out our EBITDA as, if something happens in one country, there is cash flow coming from the other countries to

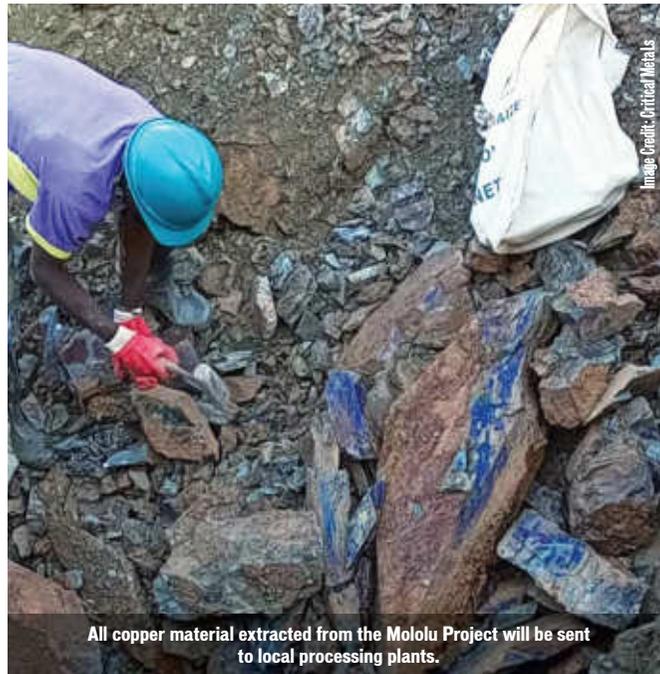
offset any turbulence.

“This year, I have been travelling from one country to the next. I have been in Zimbabwe, South Africa, DRC, Rwanda, and Tanzania and there are large shareholder value-enhancing opportunities in every single one of these.”

Much of these have been backed up by promising interactions with the mining ministries of the countries, which greatly enhance the potential of the projects in their countries. Now, the job for Fryer and Critical Metals is sifting through the targets and, to do so, there are three main boxes to be ticked:

“One, deposits we look at must be polymetallic. Two, we want to be able to have these mines up and running within 12 months of acquisition to avoid two sigma events (such as Covid-19). Three, we are not paying more than one times EBITDA for transaction. I am happy to say there are plenty of projects that fit these three boxes.”

Important for Fryer and the company is that the development of these resources would not just benefit the company, but indeed the local communities and the countries. As Fryer explained, “We went from zero employees to about 35 within six months or so. All those employees but two are local. Being a London-listed company with a DNA



All copper material extracted from the Mololu Project will be sent to local processing plants.

of transparency, we are as well more than happy to pay taxes in countries, as that means we are

making profits, the governments will be happy (and can be excellent partners) and people will be more

“ I have been in Zimbabwe, South Africa, DRC, Rwanda, and Tanzania and there are large shareholder value-enhancing opportunities in every single one of these.”

RUSSELL FRYER, EXECUTIVE DIRECTOR OF CRITICAL METALS

open to us for expansion phases. Let them actually benefit from us being a guest in the country which is working with a finite reserve. As this is the case, it is important that all parties involved benefit.

“We also subscribe to the thesis of in-country beneficiation in that you cannot just export ores anymore; you have to do some kind of secondary upgrade so that you are exporting a value-added product. Many countries are now taking pains to ensure this such as Zimbabwe banning the export of Lithium ore. This will not only help countries and communities capture some of the capital on these metals and minerals, but will also develop skill sets in countries further, and there are some great engineers, geologists and other professions coming out of these countries now.”

Concluding, Fryer spoke once more of the urgency to capitalise on the critical metals market now, before it is too late. “I think what happens is people see these trends and fads but don’t realise what it really takes in order to deliver. One of my recommendations to the UK Parliament has been to set up a government entity to finance companies such as ours and others to ensure a supply of these metals and minerals, otherwise they will end up elsewhere.” ■

Image Credit: Critical Metals



Road rehabilitation at the Mololu Project.



Excavating the pit at the Mololu Project.

Image Credit: Critical Metals

Tanzania targets mining development

To help make the most of its mining resources, the Government of Tanzania has signed key agreements to develop projects throughout the country.

The Government of Tanzania is clearly working hard to achieve its projection of mining contributing 10% of the country's GDP by 2025 – according to its Tanzania Development Vision 2025 – and has signed agreements with Evolution Energy Minerals, EcoGraf and Peak Rare Earths to develop mining projects in the country.

Epanko Graphite Project

Representing the first of these, EcoGraf signed a framework agreement with the Government of Tanzania. The diversified battery anode material company confirmed the agreement for the development and operation of the Epanko Graphite Project in the country, marking a milestone in the company's plans to develop a new world-class operation.

A new joint venture entity, Duma TanzGraphite, has now been incorporated to develop and operate the Epanko project. EcoGraf will hold an 84% interest in the company while the Government will hold a 16% free-carried interest. In order to meet a key requirement for project financiers, a new Epanko life-of-mine special mining licence will be issued to Duma TanzaGraphite. The Tanzanian Government and EcoGraf will cooperate to secure financing for the development of Epanko.

Chilalo Graphite Project

Evolution followed suit by announcing it had signed a framework agreement and shareholders agreement for the Chilalo Graphite Project. These relate to the arrangements for the ownership, development and management of the project.

A spokesperson from Evolution



The signing of the framework agreement between the Government of Tanzania and EcoGraf.

Image Credit: EcoGraf

explained that Chilalo is a development-ready project that has commenced the implementation phase with the commencement of detailed design and the start of the Relocation Action Plan.

These activities are being undertaken in parallel with the financing strategy that is underway, in order for the project delivery timetable to stay on track. In March, the company announced an Updated DFS for Chilalo, incorporating

updated costs as well as project enhancement initiatives that were identified by the project team.

The project has a post-tax NPV8 of US\$338mn and IRR of 32%. The capital cost is a modest US\$120mn (including contingencies), with low operating costs producing a solid operating margin of 52%.

It will deliver both coarse flake, suitable for use in expandable graphite, as well as fine flake that is suitable for use as a battery anode

in EV batteries. The project economics are based upon the delivery of graphite concentrate, however the company aims to become a vertically integrated producer, with studies to produce both graphite foil and battery anode precursor materials underway.

A key feature of the Chilalo development is the high degree of emphasis given to environmental, social and governance (ESG) programmes associated with it. With the support of major shareholders, the ARCH Sustainable Resources Fund, the company has achieved an ESG rating of BBB by leading independent ESG platform, Digbee.

The company is confident that the project will continue well beyond the initial mine plan of 17 years, with exploration identifying shallow graphite mineralisation that is not included in the mine plan.

“Alignment with the Government on the key principles underpinning the development of Chilalo is critically important.”

PHIL HOSKINS, MANAGING DIRECTOR OF EVOLUTION ENERGY MINERALS

Phil Hoskins, Evolution's managing director, commented, "Alignment with the Government on the key principles underpinning the development of Chilalo is critically important. With these agreements now in place, we look forward to working together with the Government of Tanzania to establish a commercial scale graphite mine that delivers meaningful benefits to all stakeholders."

Ngualla Rare Earth Project

Finally, Peak Rare Earths has announced that it has signed a binding formwork agreement with the Government in regards to the Ngualla Rare Earth Project. This sets out the basis for the Government's agreement for the licencing, development, economic benefit sharing and the formation of a joint venture between it and Peak for development and operation.

The project, located approximately 147 km from Mbeya, is one of the largest, highest grade and lowest cost Neodymium and Praseodymium rare earth projects in the world. It has large and high-grade ore reserves and mineral reserves.

Mamba Minerals Corporation has been created to own and operate the Ngualla Project while Mamba



The Chilalo Graphite Project will deliver coarse flake and fine flake graphite.

Image Credit: Evolution

“The project will position Tanzania as a major player in the international rare earths sector and enable us to play an important role in supporting global decarbonisation initiatives.”

DOTO BITEKO, MINISTER FOR MINERALS OF TANZANIA

Refinery Corporation has been launched to own and operate any future Tanzanian refining and downstream operations. Both entities are owned 84% by Peak with the Government holding the

remaining 16% interest.

As part of a staged development strategy, the project will initially be developed to produce a high-grade concentrate for export to third-party refiners and Peak has signed a non-

binding strategic and concentrate offtake MoU with its largest shareholder, Shenghe Resources.

The project entails the development of a mine, mill, beneficiation facilities, concentrator, community projects and associated infrastructure. It is estimated to create around 600 direct jobs and 3,000 indirect jobs during construction as well as around 220 direct and 1,000 indirect jobs during operations.

Doto Biteko, Minister for Minerals of Tanzania, remarked, "The signing of the Ngualla Rare Earth framework agreement marks a major milestone for the Government of Tanzania and Peak Rare Earths. The project will position Tanzania as a major player in the international rare earths sector and enable us to play an important role in supporting global decarbonisation initiatives. It will also support the delivery of employment, investment in social and regional infrastructure as well as a substantial source of revenue for the Government in the form of dividends, royalties and taxes."

Russell Scrimshaw, executive chair of Peak, added, "Development of the Ngualla Project will deliver direct foreign investment of more than US\$320mn into the Tanzanian economy, generate hundreds of direct and thousands of indirect jobs for Tanzanians and position Tanzania as one of the major rare earth producers outside of China. It represents an opportunity to deliver multi-generational opportunities to the people of Tanzania." ■



A key feature of the Chilalo development is the emphasis on ESG.

Image Credit: Evolution

FIRST MODE AND ABB COLLABORATE ON MINING HAUL TRUCK BATTERY SYSTEMS

Global carbon reduction company First Mode and ABB have announced a purchase order for ABB to supply First Mode with 80 BORDLINE ESS lithium-ion battery systems. The batteries, which total 2.6MWh, will help power the next several zero-emission mining haul trucks being developed by First Mode.

“The successful testing and operation of First Mode’s proof-of-concept truck proved that a combination of batteries and fuel cells to power heavy-duty vehicles is a viable alternative to diesel,” said Julian Soles, CEO of First Mode. “We are thrilled to continue our partnership with ABB, which played an instrumental role in the proof-of-concept commissioning, as we scale production of our proprietary nuGen Haulage Solution and bring additional cost savings to our customers, all while maintaining an industry-leading safety programme.”

The BORDLINE ESS batteries will be assembled into larger battery packs and used in the construction of hybrid hydrogen and battery



The batteries will help power the next zero-emission mining haul trucks being developed by First Mode.

powerplants to power ultra-class haul trucks. The batteries will be used both to increase the peak power output available to the truck when ascending a grade, and to recover energy through regenerative braking when descending.

“The mining environment presents a unique combination of high-power charge and discharge, continuous operation, and significant

thermal management challenges that are not found in many other applications,” said Krupal Desai, First Mode’s director of electrical engineering. “Lithium titanate oxide based cells are an ideal fit for this application, with excellent power performance and inherent safety that meets our operational needs.”

The next-generation powerplants, refueling systems, and other infrastructure are being built and tested at First Mode’s engineering and development facilities in Seattle, USA, which include a 45,000 sq ft manufacturing facility slated to come online later this year. The systems will be demonstrated at First Mode’s proving grounds starting in early 2024.

“We are grateful for the continued partnership with First Mode in advancing clean energy solutions for the mining industry. ABB’s BORDLINE energy storage systems play a crucial role in enabling sustainable, diesel-free operations in many transport industries,” said Edgar Keller, president of ABB’s Traction Division.

The ideal tyres for quarries and mineral transport

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

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

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

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

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

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

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



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

operating sites like extraction quarries with very demanding usage conditions, are no obstacle. Excellent traction and great resistance also for transport conditions on long hauls are guaranteed for all available versions.

Keeping in touch

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

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

Watch the BKT Story about Cufica at: <https://www.bkt-network.com/bkt-stories/bkt-conoce-cufica>

CAT R2900 XE UNDERGROUND LOADER DELIVERS EFFICIENCY AND POWER

The first diesel electric underground load-haul-dump (LHD) loader from Caterpillar, the new Cat R2900 XE LHD meets the underground mining industry's needs for bigger payloads, faster loading and reduced emissions. Built on the platform of Caterpillar's most popular underground loader, this new LHD features optimised lift arm and component geometry plus load-sensing hydraulics to improve breakout force by 35% over the Cat R2900G.

The R2900 XE works faster in tough conditions, delivering 52% quicker acceleration and improved machine response over the R2900G. It accelerates from 0-24 km/h in 6.4 seconds and achieves a 7% higher speed on grade. Variable piston pumps



Image Credit: Caterpillar

The loader's redesigned buckets are available in four sizes to match material density needs.

deliver higher flow rates for faster hydraulic cylinder cycle times and powerful lift forces.

Boasting a higher, 18.5-tonne payload for faster load times, the new LHD model offers a 3-

to 4-pass match to the Cat AD63 truck for greater efficiency. Combined, these features deliver a 20% increase in productivity for the R2900 XE.

The loader's redesigned buckets are available in four sizes with capacities ranging from 7.4 to 9.8 cu/m to match material density needs for a variety of loading, hauling and dumping conditions. Offering an optimised balance between productivity and bucket life, the full range of Cat ground engaging tools (GET) includes Modular Weld-on, Bolt-on Half Arrow and Durilock mechanically attached shrouds. To further protect the bucket, a range of heel shrouds, wear plates and bars are available in weld-on or mechanically attached designs.

Sandvik unveils AutoMine flexible safety zone

Sandvik Mining and Rock Solutions has unveiled AutoMine Flexible Safety Zone, a new feature for its AutoMine underground system for autonomous mining operations.

The new capability is designed to improve productivity and increase flexibility by enabling alternating safety zone states between autonomous and manual operation.

With the AutoMine Flexible Safety Zone, autonomous mining equipment can operate continuously in the automated area while allowing for intersections with manual equipment. This capability makes it possible for manual equipment to cross automated equipment routes and share dump or load points. In addition, AutoMine access barriers are equipped with state-of-the-art technology that informs operators of the shared area status with visual and audible state indications.

"Our new technology will increase the flexibility between manual and automated equipment by

allowing manual operators to request access to a shared area," said Jouni Koppanen, product line manager automation, Sandvik Mining and Rock Solutions. "This request is designed to prevent automated equipment from entering the shared area while manual equipment occupies it. In addition, this flexibility will further enhance customer productivity and allow for continuous operation of both automated and manual equipment."



Image Credit: Sandvik Mining and Rock Solutions

The new capability is designed to improve productivity and increase flexibility.

CLEAR GEAR LUBRICANT SETS NEW STANDARD FOR MINING RELIABILITY

When using Bel-Ray Clear Gear lubricant, mines can save significantly on their yearly mill cleaning costs, electricity consumption can be reduced by up to 12% and lubricant consumption lowered up by up to 60%.

Clear Gear is a high viscosity lubricant, providing a highly tenacious nine-micron hydrodynamic layer between intermeshing gear sets. It has been specifically formulated by Bel-Ray tribologists and mining specialists to provide superior lubrication for open gear drive systems used in mills, kilns, driers and similar equipment. It is available in five grades, namely light, medium, standard, heavy and extra heavy.

"Clear Gear sets a benchmark for reliability and efficiency in the mining industry," said Craig FitzGerald from ISO-Reliability Partners.

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Negotiating the gathering storms of disruption

Jyoti Lalchandani, group vice president & regional managing director (META) at IDC, looks at the headwinds pushing back on growth in 2023.



Jyoti Lalchandani is the group vice president & regional managing director (META) at IDC.

IDC forecasts that IT spending in the Middle East, Turkey and Africa (META) region will grow 4.3% year-on-year in 2023 to reach US\$99.9bn. Growth is anticipated to continue over the next few years to exceed US\$113.5bn in 2026. The research firm also expects ICT spending to reach US\$233.8bn in 2023 with an increase of 3.9% over 2022 and this growth will likely also continue over the coming years, reaching US\$259bn by 2026.

This growth reflects the organisation's understanding of the value of IT and ICT investment in driving revenue growth, embedding resilience and building sustainable business foundations, especially against the current backdrop of economic uncertainty, inflation, and the ongoing fear of a global recession.

According to Lalchandani, successfully navigating the gathering storms of this disruption asks that CIOs focus on strengthening the digital resiliency of their organisations so that they are better positioned to not only survive but thrive in new market environments.

Lalchandani said, "Process automation, re-engineering, and productivity improvements will be key priorities in this regard, plus a sharpened focus on creating new

digital business models and revenue streams through the establishment of industry ecosystem partnerships."

Research from IDC has highlighted that 95% of organisations worldwide are implementing digital-first strategies to support new digital revenue streams. With companies increasingly looking to squeeze out a greater share of revenues from digital products, services, channels and platforms, CIOs will need to focus on delivering insights at scale. This requires that they build capabilities in data and enterprise intelligence while investing in solutions that will allow them to facilitate long-term hybrid working models.

"The CIO is under mounting pressure to facilitate hybrid working and to support the organisation's growing commitment to environmental, social and corporate governance (ESG) goals through digital investments," added Lalchandani. "In addition, there is a growing need to focus on improving the customer experience. Organisations need to map all elements of their customer journeys, identify critical customer touchpoints and create optimal experiences across all channels and devices."

The digital economy

With the rise of the digital economy a leading trend in 2023, organisations have to adapt their business models to the changing characteristics and demands of their customer. They also have to improve coordination across key functions that impact the overall customer experience across marketing, sales, IT, operations, HR and customer service.

"The customer and ESG – these are the leading issues across the META region," stated Lalchandani. "While it is still in the early stages, we are seeing an increasing number of companies implementing programmes aimed at reducing the energy consumption of their IT infrastructure, extending the lifecycles of their IT equipment and centralising datacentres to reduce their environmental footprint. With the UAE set to host the COP28 climate conference in 2023, the focus on sustainability-related initiatives will likely gain momentum as the year progresses."

Another wave of disruption that has seen significant traction is the metaverse, although not quite in this region. Only 5% of enterprise-grade organisations in META currently have commercial use for

the metaverse, but there is considerable interest among CIOs tapping into this rapidly emerging space over the next 12-24 months. Lalchandani added, "We're seeing an increasing number of organisations looking to establish a brand presence in the metaverse and current use cases include interactive customer experiences, immersive shopping, and interactive learning spaces for training and onboarding. We expect to see more widespread adoption of the metaverse in the enterprise and industrial environments over the coming years."

Looking ahead, CIOs will also need to find solid footing in the upcoming tech ecosystem shake-up as technology firms increasingly move away from linear channel structures so they can develop more interconnected ecosystems of traditional and non-traditional partners.

"We can expect these ecosystems to kickstart an explosion of co-creation and co-innovation between partners, vendors and customers," concluded Lalchandani. "The future is certainly disruptive and dynamic, so for the CIO and the organisation, stability relies on tech investments that will support growth, scale and sustainability." ■

A LONG WAY TOGETHER



EARTHMAX SR 41

No matter how challenging your needs, EARTHMAX SR 41 is your best ally when it comes to operations that require extraordinary traction. Thanks to its All Steel radial structure and the special block pattern, EARTHMAX SR 41 provides excellent resistance against punctures and an extended service life. In addition to long working hours without downtime, the tyre ensures extraordinary comfort.

EARTHMAX SR 41 is BKT's response to withstand the toughest operating conditions in haulage, loading and dozing applications.



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V O L V O



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