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"Renewable energy is an increasingly important element in meeting Africa's soaring power demand" Vuyo Ntoi, a South African investment director for AIIM

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Cover picture: Port of Tema The port handles 85 per cent of Ghana's trading activities with global shipping services. © Bolloré Transport & Logistics Cover Inset: Vuyo Ntoi, a South African investment director for AIIM © AIIM

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Editor's Note

elcome to our August issue, featuring our popular annual Construction and Mining Buyers' Guide. Our cover story concerns the major port upgrades happening in the continent, including phase one of the Tema Port expansion project, which will be one of the biggest seaports in the sub-Saharan region, page 24.

With Nigeria, finally agreeing to sign the African Continental Free Trade Agreement, we ask what does this mean for Africa as a whole and will the benefits of tariff reduction be evenly shared among member states? Our economist Moin Siddiqi investigates the challenges and opportunities, page 22.

In our construction section, we consider railway developments across Botswana, page 38, and how a mine has gone back to the same crane firm it used for 30 years to replace machinery for its mining operation, page 40.

And finally, Ghana has overtaken South Africa to be the biggest gold producer in Africa following mining giant AngloGold Ashanti's decision to sell off its remaining assets in South Africa - for more information turn to page 62.

Samantha Payne, Editor

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Vuyo Ntoi, a South African investment director for AIIM, talks to African Review about the firm's strategy to continue being a trusted player in the energy sector.

Business

Nigerian businesses continue to show resilience amid struggling market conditions. Experts are predicting a gross domestic product growth of three per cent in 2019, and it is not just the recovery in higher oil prices sparking the change in the country's fortunes.

Finance

The African Continental Free Trade Area is one of the major priorities of Africa's Agenda 2063 and a flagship project for the continent. But will it work in reality? Our economist Moin Siddigi examines the pros and cons.

Ports

There are a number of major port upgrades underway in Africa that are set to transform many economies, one of which is the Tema Port expansion project. The first phase came into operation in July.

Power

An overview of the numerous renewable projects happening across the continent, including the first utility-scale wind farm in Senegal - the largest wind project in sub-Saharan West Africa.

Construction

How a range of railway projects are being developed in Botswana thanks to the vast coal deposits found in the region.

Mining

Ghana beats South Africa to be the continent's top gold producer.

Egypt's gas renaissance makes headway

Egypt's gas renaissance of recent times continues, fuelling investment in other parts of the Eastern Mediterranean. The region has become one of the world's exploration hotspots of late, with the discovery and development of Eni's giant Zohr gas field and other regional discoveries offshore Cyprus and Israel.

More gas continues to be found. A spate of other discoveries in Egypt – including most recently Eni's giant Nour field, announced this March – has reignited Cairo's gas export ambitions, prompting a raft of new plans, projects and possibilities.

Officials talk eagerly about becoming a gas hub for the whole region, perhaps funnelling resources from domestic and foreign fields for processing and onward sale to Europe and beyond. It is also breathing new life into Egypt's two liquefied natural gas (LNG) plants on the coast.

The rapid development of Eni's giant 30 trillion cubic feet Zohr offshore gas field soon after discovery has almost, on its own, transformed Egypt in the space of three years from a major gas importer to a net exporter. Eni's recent Nour discovery, about 50 km North of the Sinai peninsula, reinforces the trend. The Italian group is now the country's leading producer with equity above 340,000 barrels of oil equivalent per day (boepd) that will further grow in 2019 with the ramp up of the Zohr field to production plateau.

A host of other major projects are together quite literally transforming the gas sector. BP is especially active with its West Nile Delta project and last year launched its Atoll Phase One project in the North Damietta concession in the East Nile Delta. This is now producing 350 million cubic feet of gas a day (mmscfd) and 10,000 bpd of condensate. Gas production is directed to Egypt's national grid.

Significantly, Egypt already has the infrastructure in place to take advantage of this opportunity, both for production, such as flow lines and treatment plants, and for export, such as LNG terminals and pipelines.

Eni chief executive Claudio Descalzi said at a Chatham House event in London this year that the idea of creating an export hub was a realistic possibility.

"If these countries are able to define common strategies and share these existing infrastructures, they will manage to lower the necessary investment levels, reduce costs and speed up the exploitation of available resources, helping them to grow faster," he noted. "This will lead to the creation of a new gas hub, which could boost development and contribute to the stability of the entire region."



EGYPT PLANS NEW PUBLIC FREE ZONES

Mohsen Adel, CEO of the General Authority for Investment and Free Zones (GAFI) has announced that construction has begun on six public free zones in different governorates, set to be completed during the 2019/2020 fiscal year.

These zones will support different industries and will export to markets in the Arab region, Middle East, Africa, and Europe.

The zones will be located in the governorates of Sharqiya, Minya, Giza, Kafr al-Sheikh, South Sinai, and Aswan, according to Adel.

The Board of Directors of the New Urban Communities Authority (NUCA) has approved the establishment of a public free zone in the 10th of Ramadan City, over an area of about 500 acres. The 10th of Ramadan Public Free Zone will be the largest public free zone in Egypt

The Minya Free Zone, which is scheduled to be established in Matahra area, will be specialised for textile and weaving industries. The zone will be the first in the Middle East and Africa to focus on the textile industry.

A free zone will also be established in the Herafieen (Craftsmen) City in Giza, devoted to electronic and electrical products.

The Chairman of GAFI said that a public free zone will also be established in the area of Metobas in Kafr al-Sheikh, which will be specialised in the petrochemical and plastic industries, and is set to be integrated with Kafr al-Sheikh Industries Area.

Adel said that the focus during the current period is towards the establishment of the Nuweiba free zone, linked to the port of Nuweiba in South Sinai, and exports to the markets of Europe, East Africa and the Arab region.

He added that GAFI will begin work on the Aswan public free zone with NUCA during the second half of the year.

BRIEFS



The new branch provides just-intime supply to local customers.

thyssenkrupp Aerospace expands

The Morocco branch of thyssenkrupp Aerospace, established in 2018, has delivered its first order, for processed aluminium plates.

The new materials processing and logistics centre in Casablanca ensures just-in-time supply to the company's local customers, previously supplied from France. In addition to the storage of materials such as aluminum, steel and copper in various forms and alloys, the service portfolio also includes extensive processing services.



USTDA supports infrastructure development, job creation, technology transfer and marketoriented reform in Algeria.

Promoting US-Algeria relations

The US Trade and Development Agency's Worldwide Energy Sector team leader and regional director for East Asia, the Middle East, North Africa, Europe & Eurasia Carl B. Kress visited Algeria in June to build on the economic partnership between USTDA and Algeria. He met with the CEOs of Sonatrach and Sonelgaz to discuss training, technical collaboration and a Sonatrach trade mission to the US, and with the American Chamber of Commerce board in Algiers.

IT FITS, BUT WILL IT DO THE JOB?



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Solar systems to accelerate electricity access rate in Rwanda

NOTS Solar Lamps and the Government of Rwanda have signed a landmark deal to accelerate the provision of electricity to the lowest income families in the country.

The company will invest US\$70mn over five years in a manufacturing facility - the first in Africa - for solar homes systems (SHS). The factory will build

the 'Mutimax' SHS costing



NOTS Solar Lamps will be offered to low income families in Rwanda.

US\$56 - roughly half that of current price of a SHS, which will be affordable for even the lowest income families. In return the Government of Rwanda will purchase 100,000 units valued at US\$5.6mn.

NOTS Solar Lamps plans to make and sell 900,000 SHS in Rwanda over the next four years, providing electricity to approximately 4.2 million people. From 2022, the factory will manufacture at least one million additional units per annum for export to the rest of Africa.

"NOTS Solar Lamps will make electricity more affordable, more available and much more reliable than kerosene lamps and phone charging kiosks. That's how we'll solve Rwanda's electricity challenge," says Bart Hartman, NOTS' chief executive and impact entrepreneur. "Subsequently we'll use this blueprint to tackle Africa's electricity crisis which - despite the efforts of governments and NGOs - has hardly improved in the last 10 years."

SHS are recognised by the United Nations and World Bank as an essential technology in the effort to provide rural families with electricity, ending energy poverty and enhancing life opportunities.

NOTS Solar Lamps offers a micro loan credit scheme where families can use a microloan to buy the SHS outright, making 100 equal, weekly payments. The total price therefore including loan interest is US\$60. It is an impact enterprise aims to improve lives and life opportunities for African families through off grid, affordable light and power.

US\$50MN FOR DATA CENTRES IN EAST AFRICA

US-based investment company, First Brick Holdings, has announced that US\$50mn will be ploughed into developing data centres across eastern and southern Africa.

In East Africa, the company is focusing on investments in Ethiopia, Rwanda and Tanzania, with plans to complete its five Tier III data centres in the region within the next three years.

The company says these data centre investments will open up new opportunities for financial services, governments and small to medium enterprises (SMEs) by addressing their mission-critical need for data storage, business continuity and disaster recovery.

Robert Mullins, executive director at First Brick Holdings, said, "Demand for data centre services in Africa is on the rise. This is being driven by improving connectivity levels, rising data traffic volumes and a growing demand for secure, stable operating environments for data traffic."

SOUTH SUDAN JOINS **'ONE AFRICA NETWORK'**

Liquid Telecom will be connecting South Sudan to the 'One Africa' broadband network, covering 70,000km across 13 African countries and the rest of the world.

The network, which is the first to be built in the country, will make affordable internet connectivity available for nearly 13 million citizens as well as thousands of businesses, government institutions and nongovernmental organisations.

This transformative infrastructure will create a foundation for digital innovation and prosperity while supporting the South Sudan Government's positive economic growth forecast over the next decade.

Strive Masiviwa, executive chairman of Econet Global and Liquid Telecom said, "This modern ICT infrastructure will help address the most pressing challenges within South Sudan, including the urgent need for peace and state building, job creation and improved livelihoods."

His Excellency Salva Kiir Mayardit, President of South Sudan, ministers and other national VIPs joined Liquid Telecom to mark the new network during a 'symbolic' fibre digging inauguration ceremony on 1 July.

"The implementation of this critical fibre infrastructure is a landmark step in the delivery of affordable communications access to the people of South Sudan, the business community, government and civil society. By connecting South Sudan to the global internet, this important infrastructure development will help improve social mobility, enable economic diversification and drive inclusive private sector-led growth and productive employment. The agreement is also ideally timed, coinciding with the signing of the Revitalised Agreement on the Resolution of Conflict in the Republic of South Sudan."

Phase one of the network (300km) is due to be completed before the end of 2019.

BRIEFS

Bank of Kigali selects banking firm for digital plan



Bank of Kigali has chosen Temenos, a banking software company to digitalise its services.

Bank of Kigali has selected Temenos, the banking software company, to drive through its digital transformation plan to realise its financial inclusion objectives.

The bank will be able to deliver innovative products and services to underserved segments of the economy. Dr Diane Karusisi, CEO of Bank of Kigali said, "We are excited to expand our relationship with Temenos, which will form the foundation to drive our three-year digital strategy."

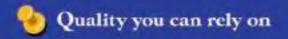


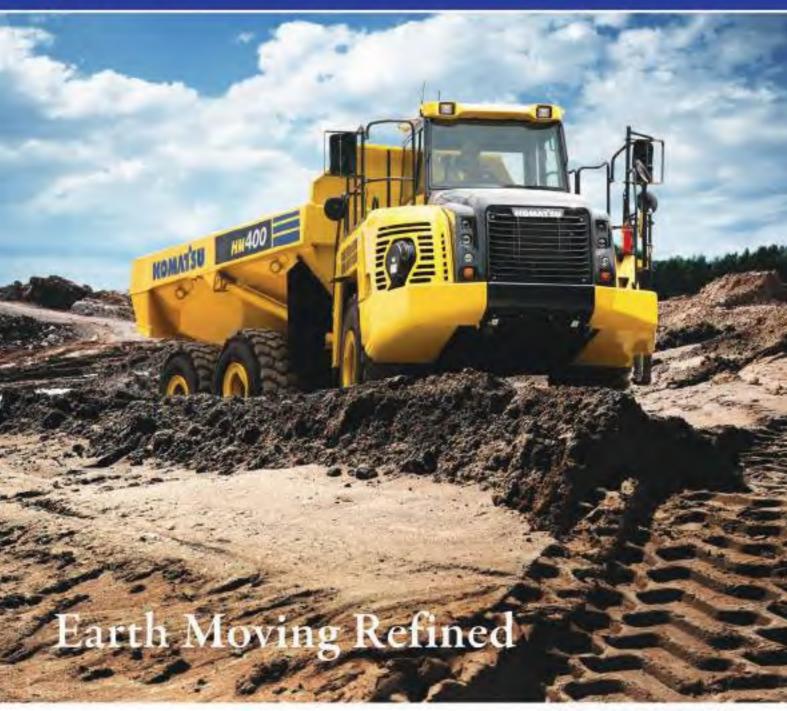
The European Commission for the Facility for Energy Inclusion will fund small-scale renewable projects.

AfDB welcomes FEI funding

The African Development Bank (AfDB) has announced a EUR 40 million investment from the European Commission for the Facility for Energy Inclusion (FEI), a platform for financing smallscale renewables in Africa.

Joao Cunha, manager for Renewable Energy Initiatives at the African Development Bank said. "Through FEI, we aim to increase co-financing and private sector investment in on-grid and off-grid clean energy access solutions.'





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Guinea names Emirati digital expert as government adviser

The President of Guinea, Alpha Condé, has appointed Dr. Ali Mohammed Al Khouri, who also heads the Arab Federation for Digital Economy, as a special advisor to the Government of Guinea, to bring his vast expertise in digital transformation and development.

He spoke highly of Dr. Al Khouri's achievements,who was ranked 23rd among the world's 100 most influential people in digital government and the only Arab figure to appear in the list.

In this connection, President Condé also praised the support of the Arab League and of the UAE, culminating in a joint Arab strategic vision for the digital economy and benefiting development efforts in many African countries.

This was stated during a reception hosted by President Condé in Conakry to a delegation of the Arab League's Economic Unity Council, (EUC), headed by

Dr. Al Khouri, the council's adviser, in the presence of Guinean ministers and senior officials. Condé also commended the impressive progress made by the UAE, under the leadership of President His Highness Sheikh Khalifa bin Zayed Al Nahyan.

A Memorandum of Understanding was signed between the Government of Guinea and the EUC for the implementation of similar projects in Guinea, based on the joint Arab vision for the digital economy. It was signed by Guinean Prime Minister, Ibrahima Kassory and Dr. Al Khouri.

Kassory thanked the Arab League and the UAE for their role in developing and promoting the digital economy initiative.

He also thanked H.H. Lt. General Sheikh Saif bin Zayed Al Nahyan, Deputy Prime Minister and Minister of the Interior, for following up the implementation of this strategic project.

LAGOS-BADAGRY EXPRESSWAY GETS UNDERWAY

The construction of the plagued Lagos-Badagry Expressway has resumed a decade after works began. The major 10-lane access route to neighbouring states in the West coast of Africa was due to be completed this year by the China Civil Engineering and Construction Company (CCECC), but it has faced delays caused by various factors from lack of funding from the Lagos State Government to negotiations with the millitary barracks which is located along the road.

The second phase of the construction work will now begin between Maza Maza to Okokomaiko, which is reportedly in a terrible condition. The first section from Marina to Maza Maza has already been completed. The Deputy Governor of the state, Dr Kadri Obafemi Hamzat, reportedly said he would honour all the promises to Lagosians, adding, "We must obey the law, citizens co-operation is critical to what successes we will be able to record during this tenure. We must monitor the project and report progress and

observations to us." Lagos State Governor, Babajide Sanwo-Olu, said, "We started the journey from Orile-Iganmu through Mazamaza, and finally here at the Trade Fair. The road from National Arts Theatre up to Mazamaza has actually been done," and added that a massive build-up of refuse dumped by traders misusing the road had affected the quality of the work in the area.



The Guinea President has appointed Dr Ali Mohammed Al Khouri as special advisor.

AFREXIMBANK ANNOUNCES US\$1BN FACILITY

President of the African Export-Import Bank (Afreximbank), Prof. Benedict Oramah, has announced a series of initiatives to support the implementation of the Agreement for the African Continental Free Trade Area (AfCFTA).

Prof. Oramah told the heads of state at the 12th Extraordinary Summit of African Union (AU), in Niamey, that Afreximbank was instituting a \$1-billion AfCFTA Adjustment Facility to enable countries to adjust in an orderly manner to sudden significant tariff revenue losses as a result of the implementation of the agreement.

"This facility will help countries to accelerate the ratification of the AfCFTA," he said, telling the heads of state that, by starting the operational phase of the AfCFTA, "you have started a movement. You must not look back," continued the President. "This movement is now unstoppable."

He added that, as part of its support for the implementation of the AfCFTA, the bank had provided support to aid the work being done by the African Regional Standards Organisation and the AU in implementing the agreement.

Professor Oramah also informed the summit of the launch of the Pan-African Payment and Settlement System (PAPSS), the first continent-wide payment digital system focused on facilitating payments for goods and services in intra-African trade in African currencies.

"Today we will launch the Africa-wide digital payment infrastructure – the Pan-African Payment and Settlement System (PAPSS) – that we developed in collaboration with the African Union," he said. "It is a platform that will domesticate intra-regional payments, save the continent more than US\$5bn in payment transaction costs per annum, formalise a proportion of the estimated US\$50bn of informal intra-African trade and contribute in boosting intra-African trade."

BRIEFS

Eutelsat to support West Africa Power Pool Project



The WAPP project aims to bring together power grids of 14 countries.

Eutelsat Communications has secured a multi-year contract with Global Technologies for C-band capacity on its EUTELSAT 10A satellite to provide connectivity and communications for the West Africa Power

Pool Project (WAPP). Established in 1999 by ECOWAS, the WAPP project aims to interconnect the power grids

of 14 West African countries. Philippe Oliva, Eutelsat's chief commercial

officer, said, "We're delighted to be working alongside Global Technologies once again."

Ghana govt called to revamp university



UENR needs funds to develop an expand its campus.

The University of Energy and Natural Resources (UENR) has made a plea to the government of Ghana to provide seed capital of US\$9.20mn to address its infrastructural development deficit. The chairman of the Governing Council of the UENR, professor A K Tuah made the request to Ghananian president, saying, "We'd like your government to help us with facilities extended to the University of Health and Allied Sciences (UHAAS) and University of Environment."



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Could artificial intelligence be the future of manufacturing sector in South Africa?

South Africa's manufacturing sector remains under pressure, but one of the main opportunities lies in solutions like AI, says the managing director of a global software company.

The sector contracted by 8.8 per cent quarter-onquarter in the first quarter of 2019, one of the major factors towards the country's GDP shrinking by 3.2 per cent, according to Stats SA.

Against this backdrop Mohamed Cassoojee from IFS South Africa believes it has become more critical for local manufacturers to look at ways to improve efficiencies and productivity through smart automation solutions such as AI and robots.



Mohamed Cassoojee from IFS South Africa predicts more than half of the world's manufacturing companies will use some form of AI by end of 2021.

He said, "Local manufacturers around the world embrace Fourth Industrial Revolution technologies such as advanced robotics, the Industrial Internet of Things (IIoT), 3D printing and artificial intelligence (AI), the local industry needs to look at how it will remain relevant and competitive. One of the major opportunities lies in smart automation solutions like robots, robotic process automation and AI.

"At IFS, we predict that more than half of the world's manufacturing companies will use some form of AI by the end of 2021. AI is poised to change how the supply chain works, giving the leading organisations a significant competitive edge. We are seeing organisations around the world taking a pragmatic, realistic view on AI, hitting the ground running with targeted, project-based AI solutions."

Cassoojee also says manufacturers should not be put off by the cost of implementing AI systems.

He explained, "The problem is that not many manufacturers understand what the term AI really means. Some see AI as a costly, overarching system. And although it isn't, the assumed complexity and cost has frightened off many South African manufacturers, many of which are bogged down with vast legacy systems and barely enough IT budget to keep the lights on. Yet the reality is that AI can be deployed in small, iterative projects with a proven path to return on investment.

"AI technologies demonstrate many behaviours associated with human intelligence, such as planning, learning, reasoning and problem solving. Essentially AI gives us the ability to move beyond our natural limits and make sense of the vast amounts of data that are being continuously generated."

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DEALER APPROVED IN MOZAMBIQUE

Construction machinery firm Wacker Neuson has partnered with dealer Pinto & Cruz to establish a solid foothold in Mozambique and gain access to Africa's east coast.

"Mozambique is a major market for us," notes Dennis Vietze, managing director of Wacker Neuson sub-Saharan Africa. "With numerous growth opportunities presented by mega projects in the Liquified Natural Gas (LNG) sector north of the country in Palma, we are aiming to extend our product and service portfolio to these customers to add value to their equipment fleet."

David César Carvalho, manager of Pinto & Cruz, says that they are proud of their collaboration. He said, "This dealer agreement synergises the collective strengths of the companies to the benefit of our customers who are familiar with the quality of Wacker Neuson equipment. To expand our product offering to our customers we have increased our Wacker Neuson fleet twofold."

GERMANY FUNDS NAMIBIA'S RURAL AREAS

Germany has signed a financial cooperation agreement on interest-subsidised loans to support the Namibia's development of water and transport infrastructure in rural areas.

The KfW Development Bank will fund three projects at a cost of US\$90.1mn.

The first US\$22.5mn will be provided to complete Phase 2 of MR44 Swakopmund – Walvis Bay, which is the continuation of the NDP5 Programme on Road Maintenance and Rehabilitation. The bay project will relieve congestion going inland as well as to countries toward the northern borders.

US\$45mn will be provided to upgrade the water infrastructure of Windhoek city, which will also include the construction of an additional direct portable reclamation plant.

Another US\$22mn will be provided as long-term financing to NamPost in support of lending to small enterprises and low income households via its subsidiary NamPost Financial Brokers (PostFin). This will contribute to increase the financial inclusion in rural areas, due to NamPost's countrywide presence via its 144 branches and offices.

It also will enhance entrepreneurship among the poorer and disadvantaged population.

His Excellency Christian Matthias Schlaga, the German ambassador to Namibia, underlined that the bilateral development cooperation is a central component of the special relations between the two countries.

He said, "Since Namibia's independence in 1990, Germany has continuously supported the Namibian Government in strengthening the country's social and economic growth. To date, German development cooperation with Namibia amounts to more than US\$1.2bn."

Hon Calle Schlettwein, Minister of Finance, said, "The targeted uptake of loans does not constitute additional borrowing, but means funding for budgeted projects."

Zambia mulls law to increase local firms' participation

BRIEFS

Trade expo to support growth in Botswana



Taking place alongside Electra Mining Botswana is the recently launched A-OSH Expo Botswana.

Electra Mining Botswana is taking place at the Gaborone Fairgrounds from 10-12 September. This niche trade show is designed to support business growth in Botswana.

Visitors to the show can expect to see local and international companies showcasing the latest technologies, and solutions related to mining, industrial and power generation.

"All stakeholders benefit at Electra Mining Botswana," says event director Charlene Hefer.

Image Credit: Addie Stock

Zambia is reviewing a law to increase participation of local suppliers and contractors.

Zambia is considering a law to increase local procurement in the mining sector. Mining Minister Richard Musukwa said only 10 per cent of a US\$4bn annual spend by mining firms went to procuring goods and services locally. "This is a mismatch and must not be entertained. Mining investors have been a darling of foreign contractors," Musukwa told suppliers, labour unions and other officials. Zambia is the secondlargest copper producer in Africa.





27 – 29 NOV '19 Sandton Convention Centre, Johannesburg

ENGINEERING AN AFRICA FOR THE FUTURE

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South African Institute of Bectrical Engineers (SAIEE) are hosting the 1st SAIEE National Conference 2019 as a future-thinking gathering of the electrical and electronic engineering fratemity with a vision of Engineering an Africa for the Future. The Conference will facilitate future-thinking engagement on the latest technology and trends, innovation, challenges facing the sector, policy, skills development and social enterprises. It's about driving meaningful change from a sector that has the influence to make a difference.

PROGRAMME OVERVIEW

The programme is track driven and focuses on the following themes:

TRACK 1: BUILD Building a Smart Future

TRACK 2: POWER-UP Powering a Future Africa

TRACK 3: AUTOMATE Driving a Future Africa though Automation TRACK 4: CONNECT Connectivity and Communication for a Future Airlos

TRACK 5: EMPOWER Capacity Development for a Future Africa

TRACK 6: CHANGE Celebrating Alrica's Change Makers

EARLY REGISTRATION CLOSES 31 JULY 2019

saiee-conference.co.za

Registration: conference@salee.org.zii | Corporate Partnerships: mirro@salee.org.za Sponsorship + Exhibition: salee@idna.co.za | Speaker Opportunities: mary@idna.co.za

Upcoming Events Calendar 2019/2020

AUGUST

27 - 28

AGROBUSINESS SUMMIT

www.agroinvestmentsummit.com/agribusinesss ummit

SEPTEMBER

9 - 11

BIG 5 CONSTRUCT NIGERIA

Lagos, Nigeria www.thebig5constructnigeria.com

9 - 12

WORLD ENERGY CONGRESS Abu Dhabi, UAE www.wec24.org

10 - 12

ELECTRA MINING BOTSWANA Botswana, South Africa www.electramining.co.bw

11

CYBERSECURITY: SECURING AFRICAN BUSINESSES

London, UK investafrica.com/event/cybersecurity-securingafricas-businesses-3/

12 - 22

IAA CARS Frankfurt, Germany www.iaa.de/en/

17 - 19

PROPAK WEST AFRICA Lagos, Nigeria www.propakwestafrica.com

OCTOBER

15 - 16 NIGERIA MINING WEEK Abuja, Nigeria www.nigeriaminingweek.com

NOVEMBER

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Big 5 Construct Nigeria: The country's largest construction event is set to debut in Lagos

Excitement is growing for the launch of The Big 5 Construct Nigeria – the country's largest construction event, organisers say.

The Nigerian Institute of Architects, the Nigerian Society of Engineers, the Surveyors Council of Nigeria, the African Association of Interior Designers, the OSHA (Occupational Safety and Health Association), and the African Sustainable Energy Association (AFSEA) are among the many organisations that have already announced their support for the event next month.

Part of The Big 5 portfolio of events, the largest in the Middle East, Asia and Africa, The Big 5 Construct Nigeria, organised by DMG Events, will run from 9 to 11 September 2019 at the Landmark Centre in Lagos.

"The extremely positive feedback we are receiving from industry stakeholders proves just how important it is for Nigeria to host an international construction event like The Big 5 Construct Nigeria today," says Muhammed Kazi, portfolio event director at dmg events.

"At a time when the country is pursuing an unprecedented infrastructure development, the event will finally bring together influential



decision-makers, innovators and suppliers from around the globe for three days of business and networking opportunities in Lagos.

"The Big 5 Construct Nigeria is going to be a turning point in the advancement of the West African construction sector," he adds.

More than 100 exhibiting companies and more than 5,000 industry professionals are expected to attend the launch edition of the show. Confirmed brands include regional and global leaders like KELM, ABB, Philips, Crane, Eurotray, Tata, Hilti, and Magna Tyres.

"We are extremely proud to announce that

next to Nigerian exhibitors, renowned companies from France, Germany, Italy, South Africa, Turkey and the UAE, among other countries, will take part in the event, making it a truly international show," Kazi says.

Beyond showcasing hundreds of solutions for the construction environment, The Big 5 Construct Nigeria will also bring a wealth of free education to the Nigerian construction community. Across the three days of the show, visitors will receive Continuing Professional Development certifications at 20 workshops to increase their technical expertise and advance their careers.Presented by renowned industry experts, the workshops will explore the latest construction trends and will offer crucial intelligence to advance the Nigerian building and infrastructure sectors.

"From technology and sustainability, affordable housing and architecture to project management, The Big 5 Construct Nigeria's education agenda will promote best practices while providing a unique opportunity for professionals to meet, learn and play an active role in the development of Africa's largest economy," Kazi explains.

Some of the confirmed speakers include Taiwo Aiyepe, senior architect at the Lagos State Ministry of Works and Infrastructure, Dr. Erimona Edorodion Oye, honourable commissioner at the Ministry of Physical Planning and Urban Development of the Edo State, Debo Adejana, CEO at Realty Point and vice chairman at the Nigeria-British Chamber of Commerce Construction, and Dr. Taibat Lawanson, associate professor of Urban Planning at the University of Lagos.

Lookman Oshodi, project director at Arctic Infrastructure and also a speaker at the event, comments, "The Big 5 brand has successfully created a reputable platform in bringing together construction and infrastructure players



in different cities.

"Its success story in Nairobi is a landmark in stakeholders' engagement and construction educational advancement. The hosting of the first Big 5 Construct Nigeria in Lagos will provide a convergence point for government, professionals, academics, manufacturers and other major industry players to network, see emerging trends and embedded opportunities in the sector."

Adejana adds, "I am very excited about the launch edition of The Big 5 Construct Nigeria in

Lagos, as it will further open Nigeria's built industry to the world, and the world to our industry here in a unique way.

"I expect new partnerships, continental alliances and the beauty of the forces of demand and supply to thrust the local industry forward and further," he concludes.

The Big 5 Construct Nigeria is free to attend for all construction professionals. To know more about the event, visit www.thebig5constructnigeria.com.



GOLD FIELDS COMMISSIONS RECONSTRUCTED 33KM TARKWA-DAMANG ROAD



The Tarkwa-Damang road is expected to ease transportation of people, goods and services as well as boost economic activities in the area.

Gold Fields Ghana has officially commissioned the reconstructed 33km Tarkwa-Damang road in the western region of the country.

The asphalt road, which costs more than US\$27mn and has a life span of more than 20 years, links Tarkwa and Damang, two communities that host Gold Fields' mines.

The road serves several communities in the Tarkwa-Nsuaem and Prestea Huni-Valley municipalities. It is the largest-ever public infrastructure project funded by the global Gold Fields Group.

A baseline study conducted by Gold Fields in 2017 found that communities along the corridor, such as Abosso, Bompieso, Amoanda, Huni-Valley, Kyekyewere, Nyamebekyere, Damang and others will be positively impacted by the reconstructed road.

The road is expected to ease transportation of people, goods and services as well as boost economic activities in the area. Other anticipated socio-economic impacts include improved road safety, availability of pedestrian facilities such as bus stops, as well as a reduction in dust pollution.

MOODY'S: ETHIOPIA'S ECONOMY IS GROWING BUT POLITICAL RISKS INTENSIFY



Prime Minister Abiy Ahmed is implementing a wide range of reform activities to improve critical infrastructure of the country.

Ethiopia's economy and wealth levels have been growing strongly at nine per cent per annum on average for the past five years, however, underlying political tensions risk derailing economic activity, according to Moody's Investors Service. At the same time, volatile export earnings have intensified pressures on its external position. Moody's Investors Service report has addressed a number of investor questions on these trends and their likely impact, if any, on the sovereign credit profile.

Commenting on the areas of reforms, the report said that the reform efforts have been focused on increasing private sector involvement in the economy, improving infrastructure, increasing efficiencies in goods and services markets and easing the burden on the government balance sheet.

"At this stage, it will take time for benefits to be realised, and they carry a plethora of implementation risks. Much of the reform's success will depend on the buy-in of the Ethiopian People Revolution Democratic Front (EPRDF) coalition, of which some members appear sceptical about the prime minister's market-oriented focus," according to the report.

IMF APPROVES POLICY COORDINATION INSTRUMENT WITH THE REPUBLIC OF CABO VERDE



The new PCI will support the authorities' efforts to enhance macroeconomic stability as they implement their Strategic Plan for Sustainable Development (PEDS).

The International Monetary Fund (IMF) has approved an 18-month policy coordination instrument (PCI) with the Republic of Cabo Verde to bolster macroeconomic reforms to support medium-term fiscal and debt sustainability.

The fiscal programme will be anchored by improvement in the primary balance and the elimination, over time, of support from the budget to loss-making SOEs as reforms in the sector advance. Programme reviews will take place on a semi-annual fixed schedule.

While the PCI does not involve the use of IMF financial resources, successful completion of programme reviews will help signal the Republic of Cabo Verde's commitment to continued strong macroeconomic policies and structural reforms that are needed to address the country's economic challenges.

Mitsuhiro Furusawa, deputy managing director and acting chair, IMF, said, "Economic recovery has gained momentum in the last three years, with output growth rising from one per cent in 2015 to above five per cent per cent in 2018, supported by industry and services sectors, as well as strong domestic demand. Inflation has been subdued despite a spike in 2018 due to higher food and fuel prices. The external current account deficit narrowed in 2018, mostly reflecting strong export performance and higher remittances."

"The new PCI will support the authorities' efforts to enhance macroeconomic stability as they implement their Strategic Plan for Sustainable Development (PEDS)," Furusawa added.

SCHNEIDER ELECTRIC SIGNS MOU WITH NIGERIA'S EM-ONE ENERGY SOLUTIONS



Paul-Franois Cattier (right) signs MoU with Mir Islam, CEO at EM-ONE Energy Solutions.

Schneider Electric, one of the leading solution providers in digital transformation of energy management and automation, has signed a MoU with EM-ONE Energy Solutions, Nigerian sustainable energy engineering company, for better energy management and automation.

This is in line with Schneider Electric's initiative to create an African mini-grid industry, which involve decentralised electricity generation and distribution networks based on renewable energy.

Africa is facing a serious problem of energy access. Nigeria is a country comprising 36 states, only one of which has an electricity network. According to the International Renewable Energy Agency (IRENA), West Africa's energy consumption could quadruple by 2030 to reach 219 TWh a year, less than half of the 478 TWh already consumed in France in 2018.

Part of the solution will come from mini-grids, decentralised networks powered by photovoltaic energy. As the demand is high, an estimated 200,000 mini-grids are required to power the continent and reach the United Nations Sustainable Development Goal 7 ("Ensure access to affordable, reliable, sustainable and modern energy for all").

"Rather than importing mini-grids produced in Europe, Asia or North America, we want to create an African mini-grid industry with operators, integrators, investors and local jobs," commented Paul-François Cattier, Schneider Electric's vice-president for business development in Africa and the Middle East.

"In 2050, Africa will account for 30 per cent of the global population, according to the United Nations, and could be one of the world's top five economic powers by 2050," explained Cattier.

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Investing in renewables

Vuyo Ntoi, a South African investment director for African Infrastructure Investment Managers (AIIM), overseeing its renewable energy investments in the SADC region and a portfolio manager for the IDEAS fund, talks to *African Review* on the opportunities ahead.

Thanks for taking your time to talk with *African Review*, please tell us more about your role as an investment director for AIIM*.

My role is as one of the two portfolio managers of the Infrastructural, Developmental and Environmental Assets (IDEAS) Fund. This entails the day-to-day management of the fund, including looking for new investment opportunities, analysing their potential, and then if we decide to go ahead, implementing the investments and monitoring and influencing their post-investment performance. Currently, we have 33 investments in the fund, including seven projects which are still under construction.

What distinguishes the IDEAS fund from the company's other flagship fund, AIIF3?

The IDEAS Fund is one of South Africa's largest domestic infrastructure equity funds and invests in economic infrastructure (roads and railways), social infrastructure (housing and public private partnerships) and renewable energy infrastructure (solar and wind projects) in the Southern African Development Community (SADC) region.

The fund differs from AIIF3 in three main ways. First is its tenor, second is currency and the third is geographic focus. The IDEAs fund is open ended, a perpetual investment vehicle that remains open to new commitments. In contrast, AIIF3 runs to a fixed lifespan, and is now closed to new commitments. The IDEAS Fund is rand denominated, while AIIF3 is a US dollar-denominated fund. IDEAS is restricted to investment in the SADC region, while AIIF3 has a pan-African mandate.

Which renewable energy investments in the SADC region are you working on? Are any due to reach financial close this year or have already closed that you can speak about?

While we can't talk about specific projects before they have been closed, we remain the largest equity



investor in the renewable energy space in the SADC region and continue to look for new projects. The IDEAS fund currently has more than US\$500mn invested in renewables. We are keenly watching opportunities in South Africa, Namibia, Botswana, Zambia and other countries in the region.

What are your career highlights to date?

Some of my significant career highlights have included being part of a team involved in some pioneering project finance work in

Ntoi was part of a team which helped provide project financing for the Azura-Edo power plant.

> the thermal power sector in West Africa, specifically Azura Power in Nigeria, Cenpower in Ghana and Albatros Energy in Mali. These were some of the first private infrastructure investments of their type and scale in these countries and the region. Another career highlight was working on the then fledgling private toll road programme in South Africa in the early 2000s, including working on the refinancing of the projects.

What the roads and the power projects held in common was the fact that they were among the earliest private sector funded infrastructure projects to be rolled out on the continent; and, in the process, AIIM learnt some very useful lessons that we were then able to apply successfully to projects in other sectors.

How important is renewable energy in meeting the soaring demand for power in Africa?

Renewable energy is an increasingly important element in meeting Africa's soaring power demand. It is



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relatively quick to deploy, scalable in the sense that projects can be as small as they need to be to work as part of off-grid solutions or as energy contributors to national grids.

Then there's the falling costs of renewables that make them attractive alternatives to fossil fuels. In South Africa, solar costs are almost a fifth of where they were six to seven years ago and are likely to continue falling as the technology improves. Large solar projects can be built and producing power in a year or less, while large thermal plants can take upwards of three years or more to build. In fact, at current prices, renewables are cheaper than new thermal power stations.

Is it a truly scalable and viable alternative to fossil fuels?

There will probably be a need for some non-renewable energy generation to balance national grids for the foreseeable future. Yes, renewables are scalable, but for the time being thermal power will be part of a country's energy generation mix because of the intermittent nature of renewable sources. Over time, as storage technology improves and costs decline, it might be possible that all power needs will be fulfilled by renewables. Further to this, hydro power is a form of renewables that can provide the required baseload profile to balance the intermittence of wind and solar generation.

What other major trends do you see emerging in the future as technology improves and battery storage potentially becomes more widespread and cheaper?

Battery storage and power generation from batteries are both emerging trends. One very interesting technology is Redox fuel cells. These produce electricity by oxidising fuels and are a fastemerging technology. Redox has the benefits of low emission levels, which are vital for sustainability, as well as low production costs and high power efficiency. While the technology is still experimental and



in the testing phase in South Africa, we see it as a potentially attractive option, especially in countries that produce the vanadium that is used in redox batteries.

We remain the largest equity investor in the renewable energy space in the SADC region " VUYO NTOI, A SOUTH AFRICAN INVESTMENT DIRECTOR FOR AIIM.

Another trend that is taking hold is the proliferation of distributed power and off-grid generation. This trend has largely come about due to it being uneconomical to connect rural populations to the national grid, in some instances.

Is distributed generation one of the main trends to continue to watch out for in the power sector in Africa?

Yes, and the main reason is that national grids in some African countries are struggling to meet present demand when fully loaded and, unless there is more investment, will not meet the expected demand that accompanies rising African populations and increasing urbanisation. This is why mini-grids and distributed energy are major trends and part of the solution.

Do you think there need to be more competitors in the marketplace to help solve the power crisis?

We currently have a lot of competition in the marketplace and this is driving down energy tariffs. In a recent project in Zambia, tariffs were as low as US\$0.04 per kilowatt hour. In fact, we expect even more competitors to enter the market in sub-Saharan Africa.

The real challenge is a lack of investible projects. This problem is typically due to lack of capacity on the government side, underresourced and inexperienced project developers, and the dearth of well-designed procurement processes.

In your opinion, what are the major challenges facing the power sector in South Africa compared to the rest of the continent? Is it the existing regulatory constraints?

In South Africa, but also right across Africa, many of the national energy utilities are struggling to service the costs of debt and required capital expenditure, as a result of their tariffs typically not being costreflective. This has an impact on credit quality across the broader electricity sector, and tends to introduce the requirement for national treasuries and multilateral institutions to provide credit enhancements. We are strong supporters of independent electricity regulatory arrangements, which entail that tariff decisions are not subject to political interference and are based on a set of predictable objective principles. This makes for a more stable environment for investment in the electricity sector and leads to sector cost reflectivity.

What is AIIM's strategy in the coming years ahead in supporting the power sector in Africa?

We will continue to pursue our current strategy as a trusted player in the energy sector, and a reliable partner to all stakeholders, including governments and local utilities. In markets where there is a strong opportunity set, we will maintain a strong focus on renewables and will be looking to participate further in projects that assist the development of distributed power solutions – notably, solar home systems.

*AIIM develops and manages private equity infrastructure funds to invest long-term institutional unlisted equity in African infrastructure projects.

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Nigeria: businesses showing resilience despite economic woes

Nigerian businesses have shown remarkable resilience in the face of the country's tepid economic growth but, at last, there are now signs of a revival.

N igeria continues to haul itself out of a recession that dates back, in large part, to the fall of energy prices years earlier.

It sets the tone for renewed momentum in the business and industrial sector, where activity remains vibrant regardless.

Africa's top oil producer has not had the easiest of times since crude prices slipped dramatically from alltime-highs several years ago.

Its energy sector remains vast and critically important to the economy as a whole.

Still, Nigeria's economy grew in 2018 at its fastest pace since the recession two years earlier, reaching 1.93 per cent last year, up from 0.82 per cent in 2017, according to the National Bureau of Statistics.

Godwin Emefiele, Nigeria's central bank governor, expects more to come, forecasting gross domestic product growth of three per cent for 2019.

Higher oil prices have no doubt helped the gradual recovery since the third quarter of 2016, when the recession bottomed out.

But a flurry of projects across other key sectors, like power and construction, suggests that the recovery is more broad-based and underlines the grit of local investors.

Dangote Cement

That includes the powerful Dangote Group, which unveiled plans recently to open terminals in Lagos and Port Harcourt to export clinker to its grinding plants across West Africa.

Chairman Aliko Dangote made the announcement at the company's annual general meeting, stating that the terminals would rake in about US\$700mn in foreign exchange



L-R: Group executive director, Strategy, Capital Projects & Portfolio Development, Dangote Industries Limited, Devakumar Edwin; former Prime Minister of Ethiopia, Hailemariam Desalegn; and president/CE, Dangote Industries Limited, Aliko Dangote; during the former Prime Minister's visit to the Dangote Refinery and Fertiliser Projects in Lekki, Lagos on April 26, 2019.

annually through cement sales to other countries.

His words do not sound like a man deterred by Nigeria's economic uncertainties.

"We have a lot of ongoing projects aimed at increasing capacity, and by next year, we will not only export one million tonnes as we normally do now, but we will also be servicing both the domestic and other African countries from Nigeria," he told the AGM.

The company recorded an increase in cement sales of 7.4 per cent in 2018 to reach a total of 23.5 million tonnes.

The new export facilities are due to

open later this year, Dangote added. "Not only will these generate

useful foreign currency for Dangote Cement to support other expansion projects outside of Nigeria, but they will also help to increase the output of our Nigerian plants. They will also help to improve job creation and increase prosperity in Nigeria, something of which all stakeholders can be proud of."

Capital market

The rallying call of Aliko Dangote, Africa's richest man, is not the only note of positivity though.

In July, the Nigerian Stock Exchange (NSE) received a timely boost with the listing of Airtel Africa, the second largest mobile operator in Africa, in a flotation that valued it at 1.364 trillion naira, making it the bourse's third-largest stock by market capitalisation.

India's Bharti Airtel offered shares in its African unit shortly before the Nigeria listing via a London IPO (initial public offering) and said it would dual list in Nigeria, its biggest market in Africa.

Airtel Africa's chief executive, Raghunath Mandava, welcomed the "strong response" of investors to the IPO, which was oversubscribed, and that it would help the company deliver "growth opportunities across

By next year, we will not only export one million tonnes, but we will be servicing domestic and other African countries "

ALIKO DANGOTE

our markets in voice, data and mobile money".

It is likewise a major boost for the Nigerian capital market, reckons NSE chief executive Oscar N. Onyema. The deal takes total market capitalisation up to around 25.20 trillion naira, he said.

"This listing serves to deepen the telecoms and technology sector for investors and provides an opportunity for a wider group of Nigerians to be part of the African telecoms growth story."

Mega projects

On the ground, there is visible evidence that investors remain committed to Nigeria's future, with the roll-out of numerous major new road and real estate projects. Perhaps the grandest of them all is another Dangote venture, the US\$15bn oil refinery near Lagos, that aims to end the nation's misery of queuing for imported fuels.

The facility will process 650,000 barrels of crude per day and produce a mix of fuels, mainly diesel and gasoline, both for domestic consumption and export.

Dangote hopes the refinery will start production next year, although energy analysts Wood Mackenzie believe it could follow later, with start-up around 2022.

Another of Nigeria's mega projects is the US\$12bn Train 7 expansion of the Nigerian Liquefied Natural Gas (NLNG) export plant on Bonny Island.

Already one of the country's most successful industrial projects, the expansion will lift capacity by 35 per cent from 22 million tons per annum (MTPA) to 30 MTPA.

The NLNG consortium, which includes major oil companies such as Shell and the state-owned Nigerian National Petroleum Corporation (NNPC), is expected to take a final investment decision on the project later this year.

The much-awaited green light will no doubt have been influenced by Nigeria's economic woes of recent years and uncertainty in the energy markets.

The long delay in appointing a cabinet, months after the May 29 inauguration of President Muhammadu Buhari, may not have helped either when it comes to huge investment decisions.

Economic boost

But projects like the Lagos refinery and the NLNG expansion underscore the level of activity, investment and forward planning still taking place in Nigeria – all major elements to sustaining growth and momentum.

The gas export project expansion will be truly a monumental undertaking: work is expected to involve more than 10,000 people during peak construction stage.

It shows that, while the clouds have yet to fully clear on Nigeria's much-reported economic troubles of recent years, there is plenty to be excited about too.

Indeed, high profile industry events such as Big 5 Construct Nigeria, which takes place in Lagos on 9-11 September, will showcase these and other opportunities.

With Nigeria already Africa's most populous state, with around 191 million people, and numbers expected to double to 402 million by 2050, there is all to play for.

Savvy businesses and investors are already on the ground making things happen.

By Martin Clark





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Creating the world's biggest single trading bloc: reality or myth?

Economist Moin Siddigi examines the opportunities and challenges ahead to make the African **Continental Free Trade Agreement a success.**

he African Continental Free Trade Agreement (AfCFTA) is the most ambitious initiative yet to kick-start regional trade and economic integration. In 2018, the African Union (AU) membercountries laid the foundation for what could be the largest free-trade zone by number of participating countries (54), covering an integrated market of 1.3 billion consumers, worth more than US\$2.5trn. The AfCFTA (if operational) will constitute the most important free-trade deal since the establishment of the World Trade Organisation (WTO) in 1995

As of July 2019, 23 countries ratified the agreement, including Nigeria, Africa's biggest economy. The main goals of AfCFTA are deepening economic integration in accordance with the AU Agenda 2063; creating a continental customs union; liberalising intra-African trade in goods and services; resolving

Stages	Completed	Remaining components	Target Dates
Phase-1	Main framework; Customs cooperation; Trade facilitation; Dispute settlement; Trade remedies; Technical barriers; Non-tariff barrier elimination mechanism; Sanitary/ phytosanitary measures.	Tariff reduction commitments; Rules of origin criteria; Services market access commitment; Non-tariff reduction pledges.	Jan-19
Phase-2		Intellectual property; Investment; Competition policy.	Jan-20
Future goals		Continental customs union; Continental single market.	Undefined

For trade in goods, the AfCFTA aims to abolish tariffs on 90 per cent of product categories.

Countries can implement tariff reductions over a longer period for sensitive goods or maintain existing tariffs (where the products are excluded) for remainder 10 per cent of product categories (tariff lines).

challenges of multiple/overlapping memberships in regional economic communities (RECs); enhancing competitiveness; promoting free mobility of capital and labour and facilitating investment; achieving sustainable/inclusive development and structural transformation: and

South

South

promoting industrialisation. Ultimately, AfCFTA aspires to emulate the European Union (EU) integration model operating under a single currency (see Table One).

Intra-African trade has risen steadily over the past two decades and a few trade hubs have emerged, notably South Africa, Kenya and Côte d'Ivoire. South Africa is the source of one-third of all intraregional imports. In 2017, 17 per cent of Africa's total trade was reported within the continent, up

from nine per cent in 2000, according to the International Monetary Fund, as several regional economic communities (RECs) expanded their trade in sub-regions. However, intra-regional trade in Asia and Europe was more than 50 per cent. AfCFTA seeks to unify eight blocs into a single market, but questions are being asked how RECs will be integrated into the AfCFTA?

Anticipated effects

The AfCFTA liberalisation agenda is

			America	Asia
Level of infrastructure				
Container port traffic per capita	0.09	0.31	0.12	0.09
Air transport passengers per capita	0.23	1.36	1.43	0.1
Quality of port infra (1=low to 7=high)	3.64	4.34	3.65	3.51
Infra efficiency score (1=low to 5=high)	2.32	2.59	2.56	2.45
Customs efficiency score (1=low to 5=high)	2.35	2.44	2.52	2.42
Int' shipments efficiency score (1=low to 5=high)	2.52	2.81	2.76	2.68
Overall logistics efficiency score (1=low to 5=high)	2.49	2.71	2.77	2.62

*MENA: Middle East and North Africa

Sources: Logistics Performance Database and World Development Indicators.

Table Two: International comparison of infrastructure gaps, 2012-16

Africa

MENA*

	Intra-African exports	Exports to rest of the world
Machinery & transport equipment	10.1	7.6
Chemicals & other manufactured goods	25.9	16.3
Oil, metals, minerals & other crude materials	17.9	60.6
Food, beverages & tobacco	38.1	12.3
Other unspecified goods	8.0	3.2
Source: United Nations Comtrade Database.		

Table Three: Composition of Africa's exports (in per cent)

During 2000-17, in contrast to exports to the rest of the world dominated by primary products, intra-regional exports are more diversified - containing higher valued-added goods.

Table Four: Trade-related transaction US\$ costs (regional averages)							
	SSA*	MENA/	South America	East Asia & Pacific	South Asia		
Cost to Export: Border compliance (US\$)	605.8	442.4	529.8	382.2	347.2		
Time to Export: Documentary compliance (hours)	72.8	67.9	52.5	57.6	74.1		
Cost to Import: Border compliance (US\$)	684.3	536.0	647.2	415.8	504.6		
Time to Import: Documentary compliance (hours)	97.7	75.5	79.1	57.0	100.8		

*SSA: sub-Saharan Africa; /MENA: Middle East & North Africa. Source: Doing Business Report 2019, World Bank.

far-reaching and if properly implemented, trade governance, customs administration and rulesbased trade should benefit. In the post-AfCFTA era, bilateral arrangements, including those with major trading partners outside African borders should also benefit, and Africa could become a highly prospective investment destination for global investors.

Simon Mizrahi, director of African Development Bank (AfDB) said, "This (AfCFTA) is important because Africa will struggle to be competitive at the global scale, if it continues to operate as 54 fragmented economies."

Once fully operative, the AfCFTA could boost regional GDP and intratrade by US\$70bn and 40 per cent, respectively, by 2040, stated the UN Economic Commission for Africa. The IMF estimated that a 90 per cent tariff reduction would increase regional trade by US\$16bn over time, mainly for extractive, agriculture and manufacturing sectors.

The AfCFTA effectiveness and its spillovers upon Africa depend on how quickly tariffs on goods are reduced, services trade liberalised, and rules of origin determined. If these issues are correctly shaped, the final agreement holds potential for a new wave of even deeper integration, thus fulfilling its objectives of nurturing a 'continentwide' free-trade zone - like the EU. Subsequently, it will provide openings for traders, producers and consumers of goods/services through lower trade costs and elimination of various barriers to trade.

The AfCFTA will also increase the need for interconnectivity, creating new opportunities to invest in transportation, energy and information technology. Infrastructure connectivity is critical to facilitate trade on continental and sub-regional levels. Around US\$130-170bn worth of annual investment is needed to close Africa's colossal infrastructure gap, the AfDB estimated.

Trade integration measures

In 2018, Africa's total merchandise trade totalled around US\$998bn, of which intra-regional trade represented 16 per cent or US\$159bn, according to African Export-Import Bank (Afreximbank). The continent's share of global trade was marginal at 2.6 per cent. A major reason why regional trade remains the lowest globally is high 'non-tariff barriers' or bottlenecks (NTBs) in Africa compared to peer developing regions.

NTBs can be classified in three broad categories: (i) non-tariff trade measures, such as technical and phytosanitary barriers; (ii) poor trade facilitation services, including logistics, border processes and customs practices; and (iii) other trade-related transaction costs, such as quotas, licenses and low credit to create businesses. According to the AfDB, banks devoted one-fifth of trade finance to intra-African trade through loans, letters of credit. factoring, export credit and insurance. Large infrastructure deficits and high trade-related transaction costs serve as barriers to trade in Africa (see Tables Two and Four).

The AfCFTA can generate huge

momentum – assuming existing NTBs are properly addressed. According to various studies, abolishing import/tax rates could increase intra-African trade by 15-25 per cent over the medium-term. Whereas reducing NTBs through improving logistical services and connectivity as well access to electricity could prove four times more effective in expanding regional trade than just reducing tariffs.

The effect is strong in 15 landlocked African countries where poor logistics reduce the effectiveness of lower tariffs in promoting trade with neighbours.

An efficient financial infrastructure helps reduce transaction costs associated with foreign currency clearing, settlements, currency risks and remittance transfers. The AfCFTA requires a multi-currency clearing centre to facilitate cross-border transactions and to militate risks from trading in several different regional currencies.

Cautious optimism

Prof. Benedict Oramah, president of Afreximbank, said, "It is vital that Africa grasps the economic growth opportunities flowing from the AfCFTA, growing domestic demand and population, and our ever-closer investment and trading links with emerging partners in the south.."

However, the AfCFTA must be ratified by all signatory national parliaments alongside policies to address NTBs before it becomes a reality. Much-improved logistics holds greatest potential to enhance regional integration. Deeper trade networks attract more foreign direct investment, while developing regional supply chains, which led to the economic transformation of East Asia. Strong 'political will' is vital to resolve challenges facing eight RECs. President Paul Kagame of Rwanda puts it succinctly, "AfCFTA does not solve problems, people have to make it work".

The IMF cautioned that improving trade logistics, developing infrastructure and a friendlier business climate are prerequisites for the AfCFTA's success.

Table Five: Intra-regional trade by subregional economic communities, 2017



AMU= Arab Maghreb Union COMESA= Common Market for Eastern & Southern Africa EAC= East Africa Community ECOWAS= Economic Community of West African States

SADC= Southern African Development Community

In 2017, three-quarters of intra-regional trade took place within the main RECs, several of which apply near-zero preferential tariffs on trade within the community. SADC and the EAC have the highest levels of intra-union trade (more than 20 per cent of total trade), compared to other sub-regions.

Source: United Nations Conference on Trade & Development (UNCTAD).

Tanger Med is a cargo and passenger port located 40km east of Tangier, Morocco.

Major port upgrades transform economies

Maritime shipping is the lifeblood of Africa, with more than 90 per cent of goods traded by sea. Samantha Payne reports.

ith port expansion projects worth at least US\$22bn, underway, the future looks promising for the shipping industry in Africa.

But it would be naive to say there are not challenges along the way, the industry needs to address

to bring projects to financial close. Restraints vary from limited road infrastructure to access ports, poor custom requirements and a lack of investment, as well as legal wranglings over the ownership of ports. We have seen the latter with DP World hitting the headlines over Djibouti Port. The Djibouti government took control of Doraleh Port from DP World



onger Med 2 Pol

after accusing the Dubai port operator of underusing the port in favour of other ports in the Red Sea, allegations the operator denies. Sultan Ahmed bin Sulayem, DP World chairman and chief executive, said in a report by the Financial Times, "We will take every action to protect the rights of the shareholders."

Then there is the looming threat facing Kenya from China if they default on a 2bn euro loan from China's Exim Bank for the construction of the giant Standard Gauge Railway project. The Chinese say it would seize control of assets such as Mombasa Port to pay back the debt. According to reports, a controversial clause in the 2014 SGR agreement states, "neither the borrower (Kenya) nor any of its assets is entitled to any right of immunity on the grounds of sovereignty, with respect to its obligations".

Tanzania

Over in Tanzania things are intense following the government's decision to suspend the construction of the US\$10bn Bagamoyo Port. President John Magufuli asserted his position to the media, calling the "tough conditions"

PORT EXPANSION PROJECTS IN AFRICA

Salahana Port

DOTE

"They told us once they build the port, there should be no other port to be built all the way from Tanga to Mtwara south. They want us to give them a guarantee of 33

set by Chinese financiers "can only

be accepted by mad people,"

years and a lease of 99 years, and we should not question whoever comes to invest there

> once the port is operational. They want to take the land as their own but we have to compensate them for

drilling construction of that port," the president said to a delegation of business people at State House in Dar es Salaam on 14 June, according to Engineering News-Record.

The completion date of the US\$10bn Tanzania project is due in 2028 and, if it still goes ahead will increase the capacity of its main port to 28 million tonnes per year by 2020.

Ghana

Despite apparent setbacks with some ports, last month saw the opening of two major expanded ports

in Africa; the Tema Port in Ghana and the Tanger Med 2 Port near Tangier in Morocco. Tema Port will

REPORTS | PORTS <

be one of the biggest seaports in the sub-Saharan region and will be a competing force against rival ports in Côte d'Ivoire, Nigeria and Togo.

The first phase of the Tema expansion project came into operation in July, with two 600m long berths with a capacity of 1m TEUs per year. The US\$1.5bn expanded port will have a 1.4km quay with four deep berths in total, equipped with sophisticated container handling gantry cranes and terminal operating systems. The third 1,100m long and fourth 1,400m long berths will be built in 2020.

The consortium Meridian Port Services (MPS) leading the construction of the project, involves APM Terminals (35 per cent), Bolloré Transport and Logistics (35 per cent) and the Port Authority of Ghana, (30 per cent). With a deeper draught, the new port will accommodate the world's largest container ships and help boost the Ghanaian economy by increasing processing capacities from 1 million to 3.5 million TEUs.

The ports of Lagos serve as hubs for cargo transiting through Africa's most populous nation "

HADIZA BALA USMAN, MANAGING DIRECTOR OF NIGERIAN PORTS AUTHORITY

A second container terminal opened at Tanger Med port in June, making it the biggest port in Africa and the Mediterranean. The US\$1.3bn port will now have capacity to provide an annual volume of 9.5 million TEUs instead of 3.5 million.

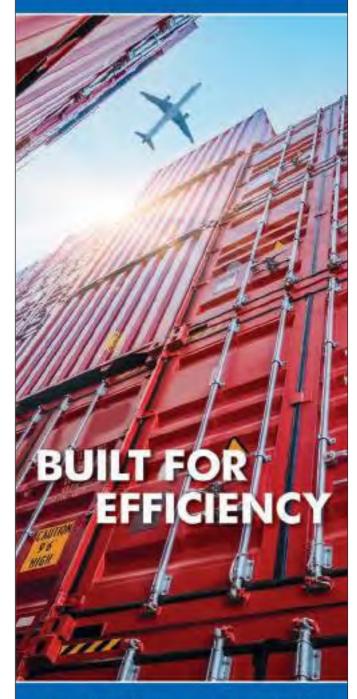
This will be good news for local car production plants wanting to use it as a platform for exporting goods across Africa. West Africa has a 40 per cent share of container volumes coming from Morocco, according to a report by Reuters.

The port is located 50km east of Tangier and was built on reclaimed land by Bouygues and Boskalis. It will be operated by APM Terminals.

Morten Engelstoft, chief executive Officer of APM, said, "APM Terminals has a long-term relationship with Morocco and we are proud to be operating the second container terminal in the Tanger Med Port complex. APM Terminals MedPort Tangier is a key junction in our global network allowing us to serve our customers better and further facilitate global trade."

A new US\$1.5bn deep seaport is being built in Lagos to help ease congestion in the main harbours of the city, and will be the largest port in Nigeria. Local media reports state it is being constructed in the Lekki Free Trade Zone via a public-private partnership. It involves three container berths, one dry bulk berth and three liquid berth. It will be capable of handling up to 4.7 million TEUs annually. China Harbour Engineering Company Ltd is the EPC contractor for the port and Louis Berger Group will oversee its construction.

Hadiza Bala Usman, the Nigerian Ports Authority managing director, said, "The ports of Lagos, the Apapa and Tin Can Island port serve as hubs for cargo transiting through Africa's most populous nation, but inefficiency and congested roads to the ports mean daily queues of hundreds of trucks. We have congestion because 80 per cent of our cargo goes on the road. The government wants to focus on improving the nearby roads and other infrastructure to ease the transportation of goods including cars, computers, food and machinery."



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The EU and JUMEME inaugurate new solar-powered mini-grid on Lake Victoria

JUMEME Rural Power Supply together with the European Union Delegation in Tanzania and its project partners, celebrated the launch of a solar-powered mini-grid on Lake Victoria, on the Mulumo island in the region of Kagera.

The facility in Mulumo is one of 11 mini-grids to be commissioned on 10 different islands on Lake Victoria in June 2019, constituting the first roll-out phase of the "Micro Power Economy, Tanzania Roll-out" project co-funded by the EU. Over the last 12 months, JUMEME has constructed more than 180km of low and medium



JUMEME solar mini-grids on Lake Victoria.

voltage distribution grids, electrifying 20 villages with a total population of more than 80,000 people and providing 24/7 electricity services based on solar-hybrid power systems to residential houses, schools, hospitals, businesses and local entrepreneurs.

The Ukerewe District Commissioner, Cornel Magembe attended the occasion, along with a representative of the European Union Delegation in Tanzania and said that "the government of Tanzania is at the forefront of supporting rural electrification" via partners such as JUMEME. Having witnessed JUMEME's work in his District of Ukerewe, he confirmed that, "The citizens have embraced electricity and this has brought about a lot of positive change in their lives; the local health centre has grown into a better facility with greater capacity; there is clean [drinking] water available; and a lot of business opportunities have arisen in line with the government's initiative of industrializing Tanzania."

JUMEME aims to build and operate solar-hybrid mini-grids in remote settlements of Tanzania with a total budget of 16mn euros (TZS 41.1bn). The project is co-funded by the European Union Energy Facility for a total amount of 7.4mn euros (TZS 19bn). The Rural Energy Agency (REA), through its result-based financing scheme, has provided grant funding to the project, and the shareholders of JUMEME have contributed with equity.

"JUMEME and its partners are doing a great job in providing electricity to rural villages; we at REA applaud the effort especially having experienced the challenging logistics JUMEME's team undergoes in these project areas. The unique business model of productive use applied by JUMEME is an initiative supported by REA 100 per cent due to its ability of improving the rural economies, as opposed to providing electricity for lighting purposes only," said Advera Mwijage, vice director of marketing development and technologies at REA.

Having run a pilot system on Ukara island since 2016, JUMEME will operate the 11 additional minigrids spread across Lake Victoria on the islands of Goziba, Kerebe, Kasenyi, Mulumo, Rukuba, Kibumba, Maisome, Mahaiga, and Irugwa. In parallel to the first roll-out phase, the construction of an additional 11 mini-grids, located on the shores of Lake Tanganyika, is underway. These mini-grids are co-financed by the European Union and will be finalised at the beginning of 2020, making JUMEME the energy service provider to more than 170,000 people.

MOTOR EFFICIENCY COULD STABILISE POWER SUPPLY

South Africa could go a long way to cut the risk of future load-shedding by adopting a minimum efficiency performance standard (MEPS) for electric motors, according to Fanie Steyn, manager rotating machines at Zest WEG Group.

A MEPS would reduce the peak power demand significantly on the national grid. Significantly, the step could be made at no cost to government and would also bring substantial savings to industry's electrical energy costs.

"The MEPS would phase out the leastefficient electric motor classes by setting a minimum standard for the efficiency of motors imported and sold in South Africa," he says. "The essential challenge now is that about 280,000 electric motors are imported each year, many of which are low efficiency motors rated at IE1 level as standard."

Steyn highlights the strides achieved in the efficiency of electric motors. Energy savings of between 2.1 per cent and 12.4 per cent, depending on the individual power rating, can be made by converting from a standard efficiency IE1 motor to a premium efficiency IE3 motor. The capital cost differential is quickly recouped by lower operating costs.

"It is estimated that as much as 30 per cent of all energy produced globally is consumed by electric motors," he says. "It is easy to see why improving motor efficiencies has a huge impact on national energy consumption."

Already more than 42 countries already have MEPS in place. These standards apply mostly to three-phase low voltage motors from 0,75 kW to 375 kW capacity. The MEPS is applied at import stage, so the process would be handled in the conventional manner by customs agencies.

"If the 150,000 low voltage motors entering the country per year were IE3 rated instead of IE1, the grid could be relieved of about 195 million kWh in a year," adds Steyn.

BRIEFS

Capital injection for Kenya solar firm

Kenya's pay-as-you-go business, d.light has received Sh1.84bn (US\$17.9mn) boost from lenders to increase its growth in Africa, according to reports. The



d.light will be able to grow its business thanks to new funding equity funds involved in the cash injection include SunFunder, DWM and SIMA. "Significant amounts of capital are required to enable us to continue providing these financing plans for our customers as we grow. We are thankful for the continued support of our funding partners," said d.light CEO Ned Tozun.



Nuclear will part of energy mix in Ghana

Nuclear power will be added to Ghana's energy supply mix.

The government has announced plans to introduce nuclear power into the country's energy mix, cited Ghana Business News. A nine-member board, known as Nuclear Power Ghana, has reportedly been set up by the government to oversee the running of the programme. A consortium featuring the Volta River Authority, Bui Power Dam and the Ghana Atomic Energy Commission will be in charge of setting up the plant. USA, China, France have registered their interest in the nuclear plan.



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Sustainable development focus on renewables

The first regional One Planet Summit took place in Nairobi in March and, among other major issues, focused on the promotion of renewable energies, highlighting mini-grid, wind and solar projects across Africa as part of plans to mitigate climate change and protect biodiversity. Tim Guest reports.

ne Plant Summit stressed Africa's role as a global partner in developing and using renewable energy, while simultaneously protecting African ecosystems. Sustainable energy supporter, the World Bank Group (WBG), announced plans to invest US\$22.5bn for the period 2021-2025 towards helping African nations achieve the summit's climate aims by managing climate risks, including investment in new renewables projects. The African Development Bank (AfDB) announced a US\$25bn commitment for the 2020-2025 period that would, in part, be used

to launch the 'Green Baseload', a financial facility aimed at reducing the reliance on coal-powered energy production by providing funds and technical input to renewable energy projects. Perhaps the AfDB's most significant statement in Nairobi was its 'Desert-to-Power' pledge to underpin renewable electricity generation for 250 million people across the Sahel region through the creation of the world's largest solar zone.

Some 25 per cent of all developing world investments in so-called 'hybrid mini-grids' – typically combining a mix of solar, wind, and/or minihydro sources of energy backed up by diesel gensets and batteries – come from the World Bank.

One of its projects highlighted, using mini-grids at its core, is the Nigeria Electrification Project (NEP), which is set to improve access to affordable, reliable electricity to some 80 million people, the majority of whom have no supplies at all in rural communities, though a small number have only very intermittent and unreliable supplies. Part of the solution for this user base will be 850 minigrids, largely based on solar hybrid solutions. According to Nigeria's Rural Electrification Agency (REA), which is implementing the NEP in collaboration with the WBG, the overall project expects to deliver power to some 250,000 micro-, small- and medium-sized enterprises, as well as one million households, with the mini-grid component accounting for the supply to 300,000 households and 30,000 local enterprises. The NEP is expected to be the largest off-grid electrification project across 250 communities in the four states of Niger, Ogun, Sokoto and Cross River.

Four other projects discussed at the Nairobi summit include: the first

ige Credit: US Embassy, Accra

utility-scale first solar power plant in Mozambique in a project, (underpinned by the International Finance Corporation with additional monies from Climate Investment Funds), that will deliver power into the national grid for distribution to 175,000 rural households. In Senegal, the first utility-scale wind farm - the largest wind project in sub-Saharan West Africa - intended to deliver power for 300,000 largely rural households, is being supported by the Multilateral Insurance Guarantee Agency (MIGA) and is set to become a showcase for largescale wind projects across the region in terms of technical/practical and business-model feasibility. And in Zambia, again with World Bank support, as well as from the IFC and MIGA, a Scaling Solar Programme will see a 48MW solar photovoltaic (PV) power plant built outside Lusaka for the delivery of viable, grid-connected solar energy to various segments of the population. Electricity from the plant will be sold to Zambia's utility, Zesco, (previously state-owned, but now reportedly Chinese-owned, at least in part). Another World Bank project outlined at the One Planet Summit and ongoing since 2017 is its investment in solar-based hybrid mini-grids to generate an aggregated installed capacity of 1.7MW of renewable energy for rural



USA Ambassador Stephanie Sullivan was shown around the SPS Kpone manufacturing facility where solar panels will be assembled incorporating inverters, batteries, and other equipment from the USA.

communities in Ghana, including to some 10,000 people in island communities around Lake Volta.

Ghana's solar shines

Two weeks after the Nairobi summit, a further solar power development took place in Ghana, in Kpone, this time financially supported by the US Trade and Development Agency (USTDA) enabling US company AEG International to enter into a partnership with Strategic Security Systems International and its subsidiary, Strategic Power Solutions (SPS). The initial objective is to provide solar energy to six dioceses of the Ghana Catholic Church where 28 health clinics, 310 schools, and 500 other facilities. The energy for the project will be generated from solar panels made at SPS' manufacturing facility in Kpone using inverters, batteries, and other solar power equipment manufactured in the USA.

With other solar projects in Tanzania, the DRC, Kenya, Ethiopia, Liberia, Rwanda, and Nigeria, AEG International is no stranger to Africa. Its president, Tod Skinner, enthused that the project will bring solar power to schools, clinics, hospitals, and other facilities and that its partnership will create jobs in Ghana and the USA for both SPS and AEG International. Strategic Security Systems International's chairman, Dr. Francis Akuamoah Boateng, said that SPS' annual production capacity of 32MWp of solar panels will increase to 165 MWp of solar panels, annually, with this new project.

US Ambassador to Ghana, Stephanie Sullivan, led an event to mark the new partnership and said the solar power will save lives by providing 'light and medical equipment during childbirth', electricity for respirators, and refrigeration for vaccines and medicines; it will keep water pumps working, provide electricity for things such as household refrigeration, and allow schoolchildren to do homework.



AEG and SPS signing with USA ambassador.

Compressors: Africa demand rising

Leading industry players compete for growing compressor market share.

The compressor market in Africa, which spans a host of diverse industry sectors, is showing strong underlying growth. According to one market research report, the Africa and Middle East compressor market combined is

forecast to reach US\$3.9bn by 2023. The report, published by P&S

Intelligence, notes that rotary compressors are one of the emerging trends across the combined regional market, especially in industries such as mining, construction, and oil and gas.

The extractive industries continue to dominate activity in many of Africa's major economies, while the construction sector is also experiencing an uplift with the upgrade of the continent's infrastructure.

The figures point to a sustained recovery in demand for compressors following a decline in 2014-2015 due to falling oil prices, which affected most major industries during this period.

In one project, SDX Energy said it was gearing up for first production at its South Disouq field in Egypt this year, with the anticipated arrival of a compressor from its US manufacturing site in August.

The research report cites significant players in the region's compressor market, such as Burckhardt Compression Holding AG, General Electric Company, Siemens AG, Atlas Copco AB, Ingersoll-Rand, Mitsubishi Heavy Industries and Toyota Industries Corporation, among others.

The breadth and depth of the compressor industry in Africa, however, reaches far and beyond hydrocarbons, mining and construction,

The market research shows that the positive displacement compressor category enjoyed particular success through its widespread application in the



automotive industry, especially in North Africa.

"OEMs are increasingly setting up automotive manufacturing in countries including Algeria, Egypt, Morocco, and Tunisia due to rising disposable income, rapid urbanisation, and continuous improvement in infrastructure," P&S Intelligence noted. "This is proving to be a major factor behind its growth in the region."

Industry players

Signs of a more buoyant market are not hard to find.

Leading player Burckhardt Compression said its total order intake rose sharply in 2018, a hike of more than 25 per cent on the previous year.

In May, the company said that it "expects the general environment in [its] key markets to remain positive in the current fiscal year as customers maintain high levels of capital expenditure."

In one large project, again in the energy sector, industry giant GE said that it had executed an upgrade on the first turbine and compressor modules at the Azito power plant in the Côte d'Ivoire, to boost output by 30MW.

In the industrial segment, another major player is Gardner Denver, which supplies the industrial and energy markets, among other areas. Last year, around half its industrials business – where it supplies a broad range of air compressors and related technologies – was taken up by the combined EMEA (Europe, Middle East, Africa) geographic market.

Almost every manufacturing and industrial facility, and many service and process industry applications, use air compression, vacuum and blower products in a variety of process-critical applications such as the operation of industrial air tools and aeration of waste water, among many others.

Again, it is an area set to benefit as more investors worldwide begin to put Africa on the map.

Atlas Copco has been on the acquisition trail, another sign that prospects are on the up - it reported revenues, orders and profits at all-time highs in 2018.

The company recently snapped up various other compressor companies around the world, notably in Europe and the USA.

New developments

More buoyant market conditions are driving innovation too.

The new high-pressure Orkan series by Germany's Sauer Compressors is part of the manufacturer's biggest development project yet.

The new air-cooled series, set to enter the market early next year, comprises oil-lubricated piston compressors and gas compressors of up to 110kW for final pressures of up to 500 barg.

Booster solutions with inlet pressures of up to 16 barg are also included.

Environmental issues are driving change in this niche too.

The Danfoss Turbocor oil-free compressor was recently endorsed by the Solar Impulse Foundation as a step forward for protecting the environment.

Already recognised as a leader in oil-free, magnetic-bearing compressor technology for the HVAC industry, the new solution will aid clients in their bid to cut harmful greenhouse gas emissions and push for further energy efficiency.

Danfoss APP pumps played a critical role in South Africa's Osmosun project, Africa's first 100 per cent solar-powered desalination plant.

Getting closer to local markets is another trend.

Baker Hughes, a GE company (BHGE), announced plans recently to expand its local services footprint in Angola, raising in-country technology know-how.

The Luanda facility will include capabilities in turbomachinery, process solutions and compression technology, among other areas.

The move is, in part, prompted by the huge opportunities Africa continues to throw up for global players and niche providers.

BHGE has snared a project to provide the technology for four offshore gas liquefaction compressor trains at BP's Greater Tortue Ahmeyim floating liquefied natural gas (FLNG) project offshore Mauritania and Senegal.

Each of the four trains will consist of a PGT25+G4 aeroderivative gas turbine driving a centrifugal compressor, to be manufactured in Italy.

By Martin Clark

Engineering an Africa for the future

Africa's future will be in the spotlight at the inaugural SAIEE National Conference on 27-29 November at the Sandton Convention Centre in Johannesburg.

he SAIEE national conference will look at how electrical and electronic engineers, together with the private and public sector, can futureproof Africa for tomorrow's challenges and opportunities.

"The South African Institute of Electrical Engineers (SAIEE) is celebrating its 110th year of providing leadership and creating an enabling environment for engineers to power a better future for South African communities. We are thrilled that our first national conference will be driven by future-thinking and the empowerment of engineers in our sector," said SAIEE CEO, Sicelo Xulu.

In developing countries, such as South Africa, engineers are critical. Their technical skills, coupled with their ability to innovate and plan ahead, positions them as great influencers of change on the African continent. The role of the electrical and electronic engineering sector in particular is vital in adequately preparing for the challenges and possibilities that the future holds.

South Africa's power crisis continues to be one of the country's biggest challenges. Eskom's ongoing woes to keep the lights on is currently topping government's agenda as plans for the unbundling of the utility forge ahead.

Award-winning business journalist, Bruce Whitfield, will lead a solutions-driven panel of experts on the current state of the power crisis and the industry reforms that are required to secure a sustainable energy future.

Delegates will have the opportunity to power up on latest trends, innovations, and best practice in the electricity supply sector, industry reform, the role of renewables and the impact of embedded generation.

G We invite you to learn from the brightest minds influencing future solutions-driven thinking on the continent" SICELO XULU. SAIEE CEO



The first SAIEE National Conference serves as a platform to equip electrical and electronic engineers with the necessary insights and tools required to engineer an Africa for the future.

The programme will also include presentations from renowned international thought-leaders, including British author and futurist, Mark Stevenson; entrepreneur, engineer, architect and investor, Marcel Botha from the USA; and South African venture capitalist, global business speaker and entrepreneur, Vusi Thembekwayo.

"We invite you to learn from the brightest minds influencing future and solutions-driven thinking on the continent and in the rest of the world. These thought-leaders will unpack major areas we've identified that will drive change in the electrical and electronic engineering sector, and ultimately how we engineer an Africa for the future." Xulu added.

As the world enters the 4th Industrial Revolution (4IR), it will challenge people to take on an innovative mindset and sharpen their focus on skills development., especially in regard to leading and owning tech opportunities in Africa. People can no longer be mere consumers of new technology, they will have to become creators.

The conference will seek to determine the continent's readiness to respond to the opportunities and challenges that the 4IR will bring, looking at the impact of technologies such robotics, artificial intelligence (AI), data analytics, big data and the roll-out of 5G on daily activities.

Rapid urbanisation projections show that existing cities will need to accommodate an

additional 10 million people by 2030. It is against this backdrop that South African President, Cyril Ramaphosa encouraged citizens to "dream big" and envision a new, smart city during his 2019 State of the Nation Address.

Smart cities are not just a Band-Aid for the staggering population growth, but an opportunity to provide greater access to integrated and improved service delivery and infrastructure to people. In short, a better life for all.

The role of small, medium, and micro enterprise businesses, (SMMEs), is another major focus area of the conference. Real economic growth and job creation are going to be driven by SMMEs, but how does our sector – together with government - give them the necessary support to reach success?

Despite numerous efforts to empower SMMEs, they are still faced with many obstacles that keep them from finding success and contributing to the economy. The engineering sector has a huge responsibility to not only open doors for SMMEs, but to equip them with the technical and basic business skills they are going to need in the future.

Interested parties can visit the website at www.saiee-conference.co.za or email saiee@idna.co.za for more information.

Fitting the part

Perkins aftermarket team has invested in high-quality and great-value solutions to keep engines performing for longer.

Perkins engines are at the heart of heavy equipment across Africa. They are used in two distinct markets: electrical power and construction, agricultural and industrial markets.

It is up to the aftermarket team to help customers maximise their engine's performance throughout its lifecycle. This is why they have invested in an array of aftermarket products and services to meet every customer's need whether it is replacing an individual part or offering a complete new replacement engine.

"We are quite traditional in terms of our roles as product managers," said Julian Wood, product manager, services and maintenance. "It is all about what we sell from an aftermarket point of view, how we price it, where we take it online and to market, and how we demonstrate the value is genuine – and the difference of what you can buy from Perkins compared to elsewhere. A lot of the parts we sell, are factory fitted on the engine from day one. We don't source and go after other parts. We sell the parts which were on the engine on the production line. That's really important from our customer's point of view because what they want is longevity of that engine. Our engines have a reputation for their reliability, quality, efficiency and longevity. By continuing to put the same part on the engine from when it was first built, every time you do a repair it will last as long as possible."

Here are some of the recent aftermarket products and services available to customers:

COMPLETE REPLACEMENT ENGINE



In countries where labour is quite expensive, customers find it easier to do a full engine swap or, if they need their machine to be up and running quickly, sometimes a complete engine is the quicker solution.

Over in Africa, the Perkins 400 and 1100 Series are often used in diesel gensets for the telecoms industry. "That's one of our major markets," said Wood. "There are a number of big telecom networks that run off diesel gensets and are powered by Perkins engines. You will also find our bigger engines, the 2800 or 4000 Series in gensets powering large-scale institutions such as schools, hospitals, banks and hotels."

Often the Perkins 4.236 is widely used in Massey-Ferguson tractors and in other well-known agricultural machines such as JCB and Manitou.

Wood said, "An engine may go into Europe where it runs for five or 10 years then moves on to a second life to places like Asia, South America and Africa. Our job in the aftermarket team is not just making sure that we supply parts for the first life of an engine but that we supply parts for the second and third life."

'NEW FOR OLD'

At times, Perkins builds up its stock of remanufactured parts and runs a 'New for Old' programme. This is where a customer can get a new part with a 20 per cent discount by sending back their old part. These return parts are then brought back to a "like new" condition and offered as remanufactured parts. The New for Old and Remanufactured Power Exchange programmes work alongside each other.



REMANUFACTURED PARTS

As previously mentioned, customers can obtain a remanufactured part off the shelf from Perkins when they return their old part. It allows the customer to have something that is the same quality as a brand-new one – but the difference is it costs them 30 per cent less than new. Wood said, "What you get is something that will last as long as a new part, and gives you the same confidence, which is why we are able to offer a 12 month warranty on all our remanufactured parts. Typically, a three to six months warranty on a repaired part is offered elsewhere.

"Having the part on the shelf, ready to buy, is really important for people as it gives them a fast turnaround. As soon as they get the part they can mend the machine and get it up and running again instead of waiting for weeks for the part to be repaired.

"We know customers don't always want to pay the full price of buying new, so we can give them something which is just as good as new through the remanufacture programme."

SECO POWER

Perkins has appointed Seco Power as an authorised Perkins distributor for 21 countries in West and Central Africa. Seco Power, which is part of the Secodi Group, will provide sales, parts and service support to Perkins customers.

"As part of the Secodi group they have a lot of experience in Europe and Turkey, which they are bringing to 21 countries throughout Africa. It will help us to develop our network. It is important to have specialists in the field like Seco Power as not everybody has an in-depth knowledge of a Perkins engine. They have experience and will receive training from us, which they will impart to dealers and equipment manufacturers," Wood explained.



Perkins distributors provide a wealth of experience.

OVERHAUL OPTIONS

When an engine reaches 8,000-10,000 hours, an overhaul (a full strip-down) of the engine is recommended. Customers can replace the individual parts or purchase an engine specific overhaul kit. This is seen as costeffective when labour costs are low. Alternatively, if labour costs are high or they don't have the time for an overhaul, they can buy a replacement long or short block.

Overhaul kits make this process easier, providing everything a customer needs in a single box to strip-down the engine. It covers gaskets, piston rings, pistons, cylinder liners and oil seals to name a few.





METKA EGN: Energy from the sun

MYTILINEOS' subsidiary METKA EGN has a portfolio of more than 1GW of solar projects in Africa, Europe, Asia, the Americas and Australia.

Solar energy, with the use of ever-evolving new technologies, is today one of the most important renewable energy sources, with inexhaustible potential. The power of the sun is sustainable and "clean". It is a solution to combat global warming, and a solution for viable alternatives, especially in countries with significant energy needs.

In 1878, Augustin Mouchot was the first in history to build a solarpowered engine. But the cost was huge. The fall in coal prices on the other hand meant that this fossil fuel would dominate for almost two centuries. But in recent years, a revolution has occurred. Technological development has been such that, for the first time in history, renewable energy sources are becoming not just competitive with polluting fuels but also cheaper. In connection with anti-carbon policies, which dramatically increase the cost, wind power, but especially solar energy, have finally found their way into the global energy mix.

2016 was the first year in history that solar power generated 1.3 per cent of global power. By 2050, solar energy is expected to become the world's largest source of electricity.

MYTILINEOS' subsidiary, METKA EGN is a world-class developer, investor and EPC-O&M contractor for the full range of solar and storage applications, ranging from standalone solar parks and storage applications to complex hybrid projects. With a strong in-house engineering capability, global scope and unmatched responsiveness, METKA EGN designs and delivers high quality projects for its clients world-wide.

METKA EGN's portfolio includes more than 1GW of successful projects in Europe, Africa, Asia, the



METKA EGN is a world-class developer, investor and EPC-0&M contractor for solar and storage applications.

Americas and Australia, including more than 100MW of storage projects in the UK and Puerto Rico.

Recently, METKA EGN established its presence in Africa, with a PV solar project in Bufulubi, Uganda. The company designed and implemented a grid connected PV plant with associated Overhead Line (OHL) infrastructure to inject produced power directly into the local grid. More specifically, the project was a turnkey construction involving design/engineering, construction, transport, civil engineering, assembly, commissioning and start-up of a 10.020MW DC PV solar project.

But this is not the first project for METKA EGN in the continent. The company recently signed an EPC contract with Eni Tunisia B.V. to undertake the EPC of an innovative hybrid electricity production system at the ADAM oil concession located in the Tataouine governorate of Tunisia. The scope of the project includes the installation of 5MW of solar power together with a battery energy storage system, integrated with existing gas turbines in an off-grid set-up. The energy produced will be consumed on-site, enabling the upstream operations to significantly reduce gas consumption and therefore avoiding 6,500 tonnes/year of CO₂ equivalent emissions.

Furthermore, METKA EGN participates with METKA West Africa, another MYTILINEOS' subsidiary, in the first phase of the Nigerian Energising Education program that aims to provide uninterrupted power to four federal universities and university teaching hospitals across the country. More specifically, 7.5MW of off-grid hybrid power will be installed, utilising renewable energy sources integrated with energy storage and diesel generation as back-up.

MYTILINEOS has just agreed on the

acquisition of the remaining stake (49.9 per cent) that it did not already own in METKA EGN Ltd. This decision took place within the framework of MYTILINEOS' overall energy plan, which will now include a platform for the construction, operation, financing and resale of photovoltaic power generation and storage units in the international market.

The exceptional know-how developed in recent years by METKA EGN will benefit from increased financial flexibility, an increased ability to secure optimal agreements with suppliers and customers and will especially benefit from its increased size in the context of MYTILINEOS' investment activity in BOT projects.

This overall combination strengthens METKA EGN's position among the top players in one of the world's fastest-growing industries: solar power generation and storage.

AFTERMARKET TEAM IS RIGHT WHERE CUSTOMERS NEED THEM

With a large aftermarket team of technically skilled and competent field staff, Booyco Electronics is walking the talk when it comes to assisting customers optimise uptime and productivity.

A leader in proximity detection systems, Booyco Electronics strategically employs its fully trained technicians at locations that ensure consistent levels of support as well as a rapid response in the case of unplanned downtime at mining operations.

Graeme Jardine, general manager field service at the company says that its six well-resourced branches allow support teams to reach customers quickly with the right components. There are branches at Jet Park, Kuruman, Richards Bay, Rustenburg, Welkom and Witbank.

"A key element of our operating philosophy is



Booyco Electronics' well-resourced branches allow support teams to reach customers quickly with the right components.

to be as close as possible to our customers," Jardine says. "Each branch is appropriately resourced with skills, equipment and spare parts

Lifting specialist targets wind farms

There are now a dozen more renewable energy projects underway in South Africa, which together will need construction of 465 wind turbines during the construction phase of Bid Window 4 of the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP).



Johnson Crane Hire's LG 1750 lattice boom mobile crane.

According to Johnson Renew general manager Cornelis Grotius, the experienced specialist lifter is geared up to move these projects along to safe and timely completion. He confirms that it has already secured crane services contracts at four wind farm projects, namely Golden Valley in the Eastern Cape, Excelsior in the Western Cape, Kangnas in the Northern Cape and Perdekraal in the Western Cape.

"Add to our considerable experience in the renewable energy sector, is the fact that we now have three 750 ton Liebherr LG 1750 lattice boom mobile cranes which offer enormous benefits on these projects," he continued. "With tower sections weighing up to 81 tonnes, the nacelles up to 97 tonnes, and drivetrains about 60 tonnes, it is vital to have the right systems, equipment and expertise to lift safely every time." to suit the customer base in its jurisdiction."

Jardine says that the preference when servicing mines with larger fleet is to establish a permanent on-site presence governed by a fixedterm service level agreement (SLA). Having qualified Booyco Electronics technicians on site allows for close and constant monitoring of equipment, ensuring the best performance with minimal downtime.

"Our internal training department plays a vital role in keeping each technician at the top of their game," he says. "They train and assess technicians in the field regularly, testing their knowledge on the latest upgrades and new technology."

In this way, expertise is kept current while continuously building experience within a structure of accountability and development.

MAJOR REPAIR COMPLETED AT ESKOM PLANT

Marthinusen & Coutts, a division of ACTOM, has completed a major repair at Eskom's Ingula pumped storage hydro-electric plant – the largest winding installation conducted in South Africa.

The contract involved the complete rewind of a 373 MVA stator for one of Ingula's four 14-pole motor generators.

According to Richard Botton, managing director, the 342MW unit is among the biggest in South Africa with a core diameter measuring 5m, a core length of 3,2m and a rotor mass of 500tn.

"As the stator was located deep in the turbine floor, all the winding was required to be conducted on site," says Botton. "In this complicated repair, each replacement coil set was fitted, connected and brazed on-site from pre-manufactured and pre-packed components supplied by the OEM."



Sierra Leone to build US\$2bn Freetown-Lungi bridge

Sierra Leone is set to invest US\$2bn to link its capital city Freetown to the country's only international airport, through construction of a 7km-long bridge.

Speaking during the opening of the project tender ceremony, President Julius Maada Bio, said, "The project aims at making the airport more accessible. Freetown International Airport at Lungi is currently accessible only by boat or helicopter and is separated from the capital by the nearly five km wide mouth of the Rokel river. I will closely supervise the entire process and ensure that every tender is compliant, and every tender is in the best long-term interest of Sierra Leone."



A 7km-long bridge will connect Freetown city and the country's only international airport.

Upon completion, the bridge will be ranked as the largest infrastructure project in the west African country. The bridge is intended to end the "logistical nightmare" facing travellers arriving at Lungi, where a British air base was formerly located.

According to James Turner, an official from Sierra Leone's transportation ministry, he said, "The project would take between four and five years to complete. The idea of the bridge was settled on, but the government has been deterred from starting because of its capital cost, which is equal to about half of its GDP. President Bio however, believes it will be feasible using the public–private model."

The president said he did not believe infrastructural investments should burden the country with huge debt and should be financed in a way that the public and future generations are not liable for that debt. He said, "So, we are not going to build a bridge or an airport for which the people of Sierra Leone are going to pay back a high-interest loan for 10, 20, or 30 years. That simply does not make economic sense. Five European and Asian companies have already expressed an interest in the scheme."

NAMIBIAN ROAD PROGRAMME UNDERWAY

Hon. Calle Schlettwein, Minister of Finance of the Republic of Namibia, and His Excellency Christian Schlaga, Ambassador of the Federal Republic of Germany signed on 25 June a Financial Cooperation Agreement on interest-subsidised loans between Germany and Namibia.

The agreement covers programmes to the value of 80 million euros (roughly 1.3 billion NAD), financing three projects to support the development of water and transport infrastructure as well as financial inclusion, in particular in rural areas. The funding for the three projects under this agreement is provided by KfW Development Bank.

EUR 20mn (NAD\$ 320mn) will be provided for the completion of Phase 2 of MR44 Swakopmund - Walvis Bay. The completion of this road will give full functionality to the freeway, especially in view of the realisation of the new port facility in Walvis Bay. This will assist in relieving heavy traffic that is bound to inland destinations as well as to countries toward Namibia's northern borders.

This new project is the continuation of the NDP5 Support Programme on Road Maintenance and Rehabilitation jointly implemented by RAI, RFA and KfW; under the same programme co-financing has been provided by German Financial Cooperation for the road construction works at Windhoek - Okahandja and Mariental - Grünau.

FACEBOOK & GOOGLE LAY CABLES AROUND AFRICA

Facebook is working on plans to install an underwater cable, known as Simba, that would encircle Africa, similar to sea cable projects carried out in Europe and Asia, according to media reports.

The *New African* reported industry representatives say the Simba system would give "Facebook's European and Asian data centres a dedicated and reliable link to growing African markets where its apps like WhatsApp are already popular".

But it is not Facebook's first venture into high-capacity fibre-optic lines carrying "most of the world's core internet traffic".

In a Wall Street Journal report, it stated, "The company has led projects linking markets in North America, Europe and East Asia, usually sharing the investment burden with traditional telecommunications companies, which lack the cash to lay down the cables on their own."

Google reportedly has plans to build a cable between Portugal and South Africa, with the first stage due to be completed by 2021.

According to Quartz Africa, it will have 20 times the capacity of the most recent projects laid in the region and will reach out to Nigeria at first – the continent's largest internet market.

These two major moves of deploying highcapacity fiber-optic cables will improve connectivity and make internet costs cheaper, allowing tens of millions of people to come online.

Africa recorded the highest growth in internet use globally from 2.1 per cent in 2005 to more than 24 per cent in 2018.

But Kristilina Georgieva, CEO of the World Bank believes more should be done.

She told CNN earlier this year, "If countries in Africa do not accelerate investment in the digital economy, the development gap between Africa and the rest of the world will widen even further."

BRIEFS

Southern Africa presents opportunity for lift company



The merger of Hyva Southern Africa will position itself well in the region.

Hyva has merged with Hyva Southern Africa with Lift & Shift to form Hyva Southern Africa. The merger will create a powerhouse in sales for container handling and cranes in South Africa. Martin Kolkman, vice president of Hyva International, said, "In becoming a global company, Hyva's success comes from emerging markets. Southern Africa presents the opportunity to continue this growth and is a demonstration of Hyva interest in investing in this area."

Morocco to build world's largest water plant



plant will produce 75 million cu/m of water per year.

The world's largest sea water desalination plant will open in Agadir in Morocco in 2021. The US\$301mn Douira seawater desalination plant will have a treatment capacity of 75 million cu/m of water per year.

According to a report by Construction Review, Abengoa has been chosen by the Moroccan National Electricity and Drinking Water Office (ONEE) to build the desalination plant, which will produce 275,000 cu/m of desalinated water daily.

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Botswana's coal deposits poised to boost railway infrastructure

A section of a railway in Botswana.

Botswana is set to benefit from the large coal deposits in the country that are poised to boost the railway infrastructure development around the country. Meekaeel Siphambili reports.

here are more than 200 billion tons of coal deposits found in Botswana – at least two thirds of Africa's coal resources. Despite the world's outcry on the use of fossil fuels, Botswana and the whole of Africa still use coal, oil and gas.

It is widely reported that mean global temperatures have been increasing since 1850, due to the accumulation of greenhouse gases in the atmosphere. The main causes are the burning of fossil fuels to meet increasing energy demand.

But the proposed Botswana railway line infrastructure owes its new development projects to the large deposits of fossil fuel, especially coal.

Botswana Railways (BR) is a government enterprise established through an act of parliament (BR Act 1986; Amended in 2004). It is mandated to provide transportation of goods and passengers within Botswana, efficiently, safely and cost-effectively, along sound commercial lines. The amendment of the act provides BR with the ability to form joint ventures with subsidiary companies and to exploit other business opportunities.

The current Botswana Railways infrastructure is a total network of 900km with 640km being the mainline from the Zimbabwean border of Ramokgwebana to the South African border of Ramatlabama.

The country has branch lines, totalling 260km. The Sua Pan Line is 174km long and used for the ferrying of soda ash. There is a 56km railway line to the currently closed copper BamaNgwato Concession Limited mine (BCL), and a 16km line for the Morupule Power Station. According to Stephen Makuke, director of business development from Botswana Railways, the Botswana Government is looking at the need to build a bridge across Limpopo River, (which borders Botswana and South Africa) and a railway line that connects Mmamabula/Dibete (where most coal deposits are) in Botswana to Lephalale in South Africa.

The project benefits are said to be an alternative route into South Africa from Botswana Railway line, which is a single line with a capacity of 4.5 million tons per annum.

"The Mmamabula-Lephalale rail line is a project that aims to link these coal deposits to South Africa through heavy haul lines in the Limpopo Province. This is the shortest gateway to the South African ports for the coal market. This will also create employment opportunities for the Southern African Development Community (SADC) region," said Makuke.

He says all feasibility studies for the railway project are still underway and the tender for the projects are in progress.

The other railway line development projects include the Mosetse-Kazungula rail line, which provides a link from Mosetse in Botswana to Zambia and the rest of Africa via the Kazungula bridge, which is still under construction and due to be completed soon. The construction work has been awarded to Daewoo Engineering and Construction Company.

The rail line is part of the North South Corridor (NSC) and a gateway to the North African markets and a move to promote interregional trade. The railway line will connect the North African region to maritime ports in South Africa and reduce the large volumes of haulage traffic on the roads. This line will also be an opportunity to boost the tourism industry and will likely accommodate tourist trains.

"This is an alternative transport mode for agricultural products from Pandamatenga Farms in Botswana, and it is the shortest route for the North South Corridor (NSC) if coupled with the Mosetse-Kazungula line," explained Makuke.

The Ponte Techobanine rail line project encompasses the Botswana, Zimbabwe and Mozambique governments and is said to create an alternative route to the deep sea port of Techobanine in Mozambique. It will help Botswana to transport its coal resources to the Mozambique port.

"The missing link will start from Selibe Phikwe in Botswana and connect to Rutenga in Zimbabwe and proceed to Techobanine through the Chicualacuala line. The first 600km to Rutenga is a new line while the rest of the line is an upgrade to a heavy haul line. The line will facilitate export of coal from Botswana and is an alternative route for Botswana on imports of petroleum products," said Makuke.

It is alleged that discussions between the three states are still ongoing and this line will also form



Constructing the Kazungula Bridge.

part of the NSC, if the Mosetse-Kazungula rail line is included.

The Botswana Railways will also construct a rolling stock maintenance and refurbishment facility. The purpose of the 34,000 m² facility is to undertake ongoing maintenance, repairs as well refurbishment programmes for rolling stock. The project is also aimed to help eliminate the maintenance backlog. The project will reduce maintenance

RAILWAY PROJECTS

1. Mosetse-Kazungula rail line

costs and improve on asset/equipment availability, skills development and transfer and will create employment. Botswana Railways is said to be drawing up a business case for the project.



2. Mmamabula-Lephalale rail Line

reduce haulage traffic on the roads.

They railway connects Mmamabula/Dibete in Botswana to Lephalale in South Africa. More than 200 billion tonnes of coal deposits are found in Botswana. The project aims to link these coal deposits to South African heavy haul lines in the Limpopo Province.

It provides a line from Mosetse, connecting to Zambia and beyond the Kazungula Bridge. It forms part of the North South Corridor (NSC). It is a

gateway to North African markets, promoting interregional trade. It will

3. Ponte Techobanine rail line

The missing link will start from Selibe Phikwe in Botswana and connect Rutenga in Zimbabwe and proceed to Techobanine through the Chicualacuala line. The Botswana, Zimbabwe and Mozambique governments want to create a route to the deep seaport of Techobanine.

nage Credit: Botswana Railways

www.africanreview.com



Robust crane solutions for tough mining work.



good chunk of South Africa's economy has been built on the shoulders of its mining industry and related sectors. This calls for tough and robust equipment to perform the most arduous of tasks, extracting the diamonds, gold and other vital commodities before refining and processing work.

Longevity is vital in this challenging environment. Some three decades after supplying one of its cranes to a mine in North West Province, Condra Cranes has been asked by the mine owner to replace what had become an integral part of the mining operation. Condra recently secured the repeat order from Lonmin Platinum for an overhead tankhouse crane to replace an identical machine delivered almost 30 years previously. For three decades, the original machine had performed reliable duties in a corrosive environment at Lonmin's Middelkraal Farm refinery outside Marikana.

The new machine is due to be delivered by the end of August, and includes a host of new improvements gleaned from a further 30 years of research and experience in the field.

"To cater for a possible customer need for higher speeds in the future, we have included in Lonmin's new crane provision for an easy upgrade to frequency drives," said Condra's managing director Marc Kleiner.

Lonmin's double-girder electric overhead travelling crane has a span of 19.9m, a capacity of 5 tons, a lifting height of 7.7m and two lifting speeds of 2m and 8m per minute.

Long-travel speed over the 42m of the tankhouse is 80m per minute.

Condra has delivered to other refinery tankhouse cranes with long-travel speeds as high as 140m per minute, more than three times the speed of a standard crane and about as fast as an average person's jogging speed.

Tankhouse crane

The original crane was installed at Middelkraal Farm refinery in 1990, where it lifted and positioned copper plates and slabs within the acid tanks used during the electrolytic refining process. During this final phase, anodic copper slabs with a 99 per cent purity attained during three prior processes are suspended by the crane in large tanks filled with an electrolyte solution of copper sulphate and sulphuric acid. Small, thin sheets of pure cathodic copper are then positioned between these anodes and an electric current applied. Copper ions leave the anodic slabs

and move through the electrolyte to place themselves on the cathodic sheets, which after time become thick copper plates of 99.99 per cent purity, ready for removal by the tankhouse crane for rinsing and despatch to factories that produce copper products.

Kleiner said the new crane will incorporate other improvements too.

He said, "Condra is investing in improved digital loadcells to further improve reliability across our tankhouse line in general, even though the reliability of the Marikana crane was well proven over a period of three decades."

Lonmin's new tankhouse crane will incorporate features from Condra's design library that move it beyond the company's current generation of tankhouse cranes.

These include four LED girder downlights to illuminate the work area, remote crane control with a pendant back-up, an electrical control panel fitted with acid filtration ventilation to cater for the corrosive tankhouse environment, and a special paint finish for the same reason.

Sishen mine

At another South African mine, the Sishen iron ore mine, near Kuruman, Condra recently completed a separate installation for one of its grabbing cranes.

These are usually large machines with wide spans and high lifting heights. This is not the case with the Condra grabbing crane installed in February at the railhead serving the iron ore mine.

This finely-engineered doublegirder electric overhead travelling grabbing crane is a relatively small machine with a capacity of 1.5 tons, a span of just 7.2m and a lifting height of a fairly standard 5.7m.

It is now the final link in Sishen's ore spillage recovery chain, using its 0.5 cu/m clamshell grab to transfer dumps of ore spilled by the conveyor system and subsequently recovered, into railway cars.

Condra has previously manufactured much bigger grabbing



COLO SHI

A Condra double-girder electric overhead travelling crane undergoing testing at the company's Johannesburg factory.

Condra is investing in improved digital loadcells to further improve reliability "

MARK KLEINER, MANAGING DIRECTOR, CONDRA CRANES



cranes for various applications, such as the 25 tons and 30m span machine for a cement factory in Mozambique. But the Sishen project called for a high degree of operational precision, resulting in the need for low-tolerance engineering of the crane clamshell grab so that it can move smoothly in and out of the railway cars.

Working speeds are quick for the short distances involved. Cross-travel speed is 16m per minute for the 7.2m end-to-end travel distance. Long travel speed is 32m per minute for a gantry length of just 20m. Hoist speed is 6.2m per minute.

The crane works within the relatively tight travel and lift dimensions available.

"For a grabbing crane this is a very confined area in which to work. Spans and lifting heights are usually much larger," said Kleiner.

Sishen's grabbing crane is featurerich, with variable frequency drives incorporated throughout, a radio remote control with optional pendant control, downlights, four red-and-green proxy lights to indicate movement clearance on the gantry and grab, and a digital-scale monitor on the remote control to show the exact grab load on a continuous basis. There is a second, bigger digital scale read-out on the crane itself, to transmit grab load status at a glance when not reading the remote control.

OHS COMPLIANCE EASY WITH APEX WELDING AND SAFETY SCREENS

Zero tolerance is being exercised by the Department of Labour of South Africa towards companies that do not comply with the health and safety regulations stipulated in the Occupational Health and Safety (OHS) Act.

Wim Dessing, sales executive of Apex Strip Curtains & Doors, says this is particularly with regard to environments which are potentially hazardous to worker health.

"Welding and grinding are among the most notorious culprits for causing nasty accidents. This is not only in the immediate environment, but in the broader workplace through spreading noxious fumes and endangering the eyesight of those in the immediate vicinity," he explains.

Dessing says it is not always feasible to provide solid wall barriers to counter UV radiation and weld splatter, due to cost as well as practicality, particularly in confined spaces.

"Some manufacturers resort to makeshift protective structures, erecting wooden or metallic partitions or even hanging opaque canvas sheeting from the ceiling and crossbeams," Dessing continues. "None of these measures comply with the OHS Act and all fall far short of total worker protection and safety."

The answer lies in installing Apex Welding and Safety Screens which protect workers from weld splatter and fumes, and from harmful UV radiation.

Manufactured from a specially formulated PVC material which extensive SABS tests have proved to be far superior to conventional materials, the Apex Welding and Safety Screens come in various configurations to suit a variety of individual requirements. "The most popular version has a freestanding frame, allowing easy handling and portability," Dessing says.

One of the most important design characteristics of the Apex Welding and Safety Screen is the patented Balledge design on individual strips, which facilitates easy access for personnel and equipment to cordoned-off areas.

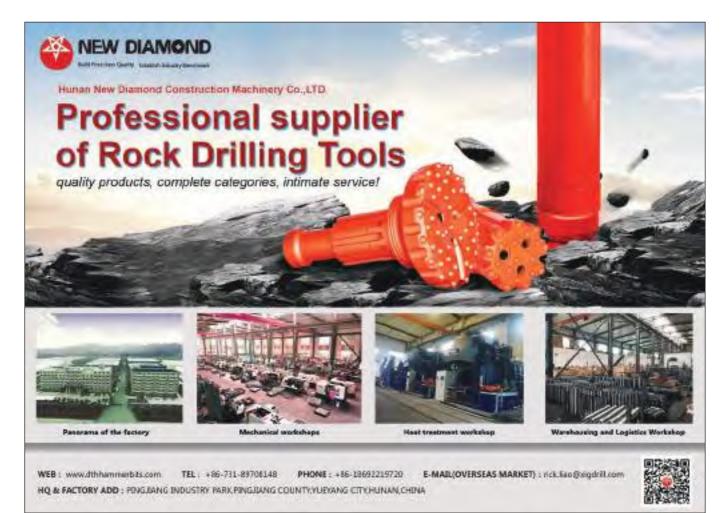


Apex Welding and Safety Screens have improved safety in many manufacturing facilities.

"The feet of the screen are also angled to allow optimum utilisation of floor space," Dessing adds. "The screens can be butted together at a 90° angle."

These features further promote ease of erection, making it simple to set up and arrange the screens in different shapes according to the specific demands of each particular workshop.

The screens absorb, scatter and filter the light spectrum to create a safer working environment for the welder and any co-workers and supervisors in the immediate vicinity. Tested by the SABS for ultra-violet transmittance, conventional materials gave readings of 0.0005 per cent, 0.008 per cent and 5.0 per cent as opposed to Apex readings of 0.005 per cent, 0.001 per cent and 0.005 per cent. Tests for total visible light transmittance demonstrated incontestably that conventional materials permit 78 per cent while Apex material allowed only 15.5 per cent light transmittance – a dramatic difference, particularly when one considers long-term exposure of workers.





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Gardner Denver unveils oil-lubricated 90 to 132 kW -**CompAir compressors**

For those seeking a reliable, efficient and flexible compressed air system, Gardner Denver has unveiled its newest oil-lubricated compressors for its leading CompAir L-Series range, offering best-in-class efficiency.

vailable in 90 kW, 110 kW and 132 kW units, the new Gardner Denver compressors deliver efficiency improvements of up to six per cent when compared with previous models, plus a seven per cent higher flow rate. The new compressors are available in fixed and regulated speeds - which can help reduce a system's total cost of ownership significantly - as well as aircooled and water-cooled options.

All models are offered with a completely new airend, featuring a larger-sized inlet and outlet to help improve airflow and reduce pressure drop. Delivering the highest quality compressed air at a low

rotational speed, to help minimise the unit's energy consumption, the new airend has been designed and manufactured at the company's Centre of Excellence in Simmern, Germany. Gardner Denver is so confident in the capabilities of its new airend technology that it is supported by the CompAir Assure warranty, which covers the airend for up to 10 years or 44,000 hours.

Furthermore, the new airend comes with a newly patented oil regulation valve, which balances oil and the discharge temperature according to environmental conditions. This removes the risk of condensate and, as a result, corrosion.

It ensures the oil in the system remains at suitably high standard at all times and can improve efficiency levels by up to five per cent. This has been cleverly integrated, along with the oil filter, into the airend's housing, helping to eliminate the risk of oil leaks while simplifying maintenance too.

The airend features a robust shaft seal system, to stop oil leaking from the housing. Its unique design, which incorporates three different Orings to

protect against oil



G The new airend comes with a newly patented oil regulation valve " **GARDNER DENVER**

CompAir

AirOnDemand

and dust, ensures the highest levels of reliability and minimises any opportunities for unexpected downtime.

> The latest additions to the CompAir L-Series range include a new intake filter, further improving pressure drop, and an improved oil separator, specially designed for quick and easy mage servicing.

Using radial fans for low noise levels, the compressors' innovative cooling system ensures a consistently low operating temperature, optimising compressor efficiency and reducing energy consumption as a result. Further noise reductions are achieved via the compressor's noiseinsulated enclosure and the fact that the compression element, separator/ receiver and drive motor assembly are all positioned on vibration-free mountings.

For more information on Gardner Denver, visit www.gardnerdenver.com/industrials

EME ASPHALT COULD SAVE SOUTH AFRICA ON COSTLY ROAD MAINTENANCE

South Africa's roads could be lasting much longer if the country made more use of the binder EME in its asphalt mixes, says asphalt producer, National Asphalt.

Developed in France in the 1990s by road construction specialists Colas, EME has been applied locally by National Asphalt, with great success. According to Dave Bennett, general manager at National Asphalt, the first official paving trial was done on South Coast Road the high-wear road into the Port of Durban.

"The heavy traffic load of large trucks carrying containers and goods in and out of the port meant that the road was lasting only about three months between repairs," says Bennett. "We replaced the road with an EME asphalt about six years ago, and it is holding up well to this day."

Since then, National Asphalt has laid down



Application of EME asphalt by National Asphalt.

around a million tonnes of EME on the country's roads, mainly in Durban to serve the highwearing bus lanes in the city's rapid transit network and N3. In a more recent project and a first for the City of Cape Town, EME is being used

Concor Buildings finishes BMW facility

Concor Buildings has completed the fast-tracked repurposing of BMW GROUP South Africa's disused parts distribution warehouse on their Midrand Campus, Gauteng, delivering a new dealer training centre, welcome centre, and IT hub for the luxury motoring group.

According to Concor Buildings' site agent Blaine van Rensburg, the whole project was to be built within existing structures, with extensive demolition and bulk earthworks required.

The main scope of the contract included a new dealer training centre for technicians from BMW Group's dealer network, office space for the IT staff, a 'green lung' multi-purpose area, and repurposing of the old training centre on site to house a gym, restaurant and other facilities.

Work began in May 2018 and construction was completed in March 2019. The team moved off site at the end of May. The training centre has been constructed to include both technical and non-technical training facilities.

"The technical training areas are double-volume workshops, each constructed to meet the specific requirements of a particular trade or apprentice level," he says. "This area also includes three plant rooms for air conditioning facilities, a server room and ablution facilities."

A major aspect of the primary construction project related to inserting office space within the disused warehouse, generally referred to by BMW GROUP as the "IT Competence Hub", further improving the digital linkages between BMW's South African operations and other countries in the worldwide group.

"The demanding specifications for this area included acoustic-rated drywall, glass and aluminium partitioning for office spaces and meeting rooms and ceilings which are rated for both fire and acoustic performance, as well as similar specifications for the 4,500 m² over-sheet roofing system," he says



in on a new circle intersection on Jan Smuts Street. It was also installed in the Western Cape's famous Huguenot Tunnel.

Using a hard grade of bitumen, EME imparts a high stiffness and structural strength to the pavement. The added strength allows for the road's layer thickness to be reduced by around 30 per cent on average, with the associated cost benefits. Alternatively, EME asphalts of the same thickness have a lifespan of 5 to 10 times that of regular asphalt.

In spite of its inherent stiffness, EME binder has very good workability and compactability. This means that no specialised production method is required, however attention to detail during the paving operation is extremely important and only experienced contractors should install EME as there is no room for error.

HYDRAULIC PUMPS OFFER ALTERNATIVE TO DIESEL

No two pump rental applications are alike, and it is this understanding that has positioned Integrated Pump Rental as one of the leading pump rental operations in South Africa.

Managing director, Lee Vine, says that some dewatering applications are simple plug-and-play operations where access to electric power is not an issue, but others, especially in remote or difficult to reach areas, require the use of diesel driven pump sets. "Large diesel driven pump sets are not always the answer where electricity is not available and to provide customers with a effective solution we introduced the Quax hydraulically driven pump range into our fleet."

Not only will these hydraulically driven submersible pumps complement the existing Integrated Pump Rental fleet by filling the gap between the electrically operated submersibles and those powered by diesel, it will open opportunities for the company to extend its reach into other markets. Vine says these include dewatering on construction and infrastructure projects in built-up areas as well as in the wastewater treatment sector.

"It is a reliable workhorse that can pump in all conditions. Apart from dealing with large particles and sludge, the pumps work well where suction lift can be an issue," Vine says.

The Quax range of submersible pumps includes a 2", 3", 4" and 6" unit, and all units are equipped with a run-dry capability which is considered essential in dewatering applications. The pumps are simple to install and operate, and offer reliable pumping even under challenging conditions. This enables end-users to dewater effectively in areas that are difficult to reach.

CONSTRUCTION & MINING Buyers' Guide

Section One: Listings by Category **Section Two: Suppliers** Section Three: Agents & Subsidiaries in Africa

Section One: Listings by Category

AIR COMPRESSORS

CANTONI MOTOR S.A. Coelmo SpA CompAir South Africa (Pty) Ltd Doosan Portable Power

Diesel Driven CompAir South Africa (Pty) Ltd Doosan Portable Power

Electric

Altaaqa Global Energy Service CANTONI MOTOR S.A. HIMOINSA IREM S.p.A. a socio unico Lovato Electric S.p.A. Marelli Motori S.p.A.

BUILDINGS

Jindal Aluminium Limited MYTH INFOS Zamil Steel Building Co. Egypt

COMPONENTS AND SPARE PARTS

Ansaldo Energia **BLUMAQ S.A** Marelli Motori S.p.A. Rossi S.p.A. Wirtgen Group Holding GmbH

CONCRETE EQUIPMENT

Bobcat Elkon Concrete Batching Plants IVECO S.p.A. Liebherr- Export AG Pan Mixers SA (Pty) Ltd. Parker Plant Itd. Vortex Hydra S.r.l Wacker Neuson (Pty) Ltd.

Batching Plant

Elkon Concrete Batching Plants Jessop & Associates (Pty) Ltd. Marini S.p.A. Pan Mixers SA (Pty) Ltd. Vortex Hydra S.r.l.

Block/Tile-Making Equipment

Elkon Concrete Batching Plants Jessop & Associates (Pty) Ltd. Pan Mixers SA (Pty) Ltd. Vortex Hydra S.r.l.

Breakers

Bobcat Fritsch GmbH Milling and Sizing Jubaili Bros Lovato Electric S.p.A. Wacker Neuson (Pty) Ltd.

Concrete Pumps

Elkon Concrete Batching Plants Pan Mixers SA (Pty) Ltd.

Mobile Mixing Plant

Bobcat Elkon Concrete Batching Plants Marini S.p.A Pan Mixers SA (Pty) Ltd. **Pipe Making Equipment** Pan Mixers SA (Pty) Ltd.

Recycling

Elkon Concrete Batching Plants Keestrack n.v Marini S.p.A. McCloskey International Ltd. **Concrete Equipment -**

Other **Doosan Portable Power** Jessop & Associates (Pty) Ltd. Pan Mixers SA (Pty) Ltd. Vortex Hydra S.r.l

CONSTRUCTION VEHICLES

APEXWAY PRODUCTS CORP. Aquamec Ltd. Caterpillar SARL IVECO S.p.A. PK Trucks Holland Van Vliet Automotive Trading Volvo Construction Equipment

Dump Trucks and Haulers Caterpillar SARL

IVECO S.p.A. NLMK Clabecq SA Panafrican Equipment Group **Engines, Components and**

Accessories Caterpillar SARL HIMOINSA Jubaili Bros Motorenfabrik Hatz GmbH & Co. KG Perkins Engines Co. Ltd. Siemens Engines S.A.U. Volvo Penta

Site Dumpers

Caterpillar SARL NLMK Clabecg SA Wacker Neuson (Pty) Ltd.

Tractors Caterpillar SARL IVECO S.p.A.

Trailers

Faymonville Distribution Goldhofer Aktiengesellschaft IVECO S.p.A. Wacker Neuson (Ptv) Ltd. **Truck Mounted Platforms** IVECO S.p.A.

Construction Vehicles -Other Caterpillar SARL

CONSULTANCY SERVICES NUBA Screening Media

CONVEYOR SYSTEMS CANTONI MOTOR S.A.

Keestrack n.v McCloskey International Ltd. Parker Plant Ltd. Voith Turbo (Pty) Ltd.

DEMOLITION EQUIPMENT

Bobcat **Doosan Portable Power** McCloskey International Ltd. Rockster Austria International GmbH Volvo Construction Equipment

DRILLING

Soilmec S.p.A. **Components and**

Accessories NUBA Screening Media Voith Turbo (Pty) Ltd.

Drilling Machinery and Plant Bauer Maschinen GmbH

CANTONI MOTOR S A Doosan Portable Power Soilmec S.p.A.

Piling

Aquamec Ltd. Bauer Maschinen GmbH **Trenching and Pipe**

Laving Dressta (LiuGong Dressta Machinery)

Tunnelling Liebherr-Export AG Soilmec S.p.A.

Drilling - Other Doosan Portable Power

EARTHMOVING EQUIPMENT

APEXWAY PRODUCTS CORP. BLUMAQ S.A. Bobcat Caterpillar SARL Dressta (LiuGong Dressta Machinery) J.A DELMAS Liebherr-Export AG MB Crusher Panafrican Equipment Group PK Trucks Holland Van Vliet Automotive Trading Volvo Construction Equipment

Attachments and Accessories

Bobcat Caterpillar SARL Magni Telescopic Handlers **Backhoe Loaders**

Bobcat Caterpillar SARL

Caterpillar SARL Dressta (LiuGong Dressta Machinery)

Excavators

Wacker Neuson (Pty) Ltd.

Loaders - Other Bobcat

Caterpillar SARL Wacker Neuson (Pty) Ltd. **Mini-Excavators**

Bobcat Caterpillar SARL Liebherr-Export AG Wacker Neuson (Pty) Ltd.

Motor Graders Caterpillar SARL

Scrapers Caterpillar SARL

Skidsteer Loaders Bobcat Caterpillar SARL

Wacker Neuson (Pty) Ltd. **Earthmoving Equipment -**

Other APEXWAY PRODUCTS CORP.

BLUMAQ S.A. Caterpillar SARL Liebherr-Export AG

Equipment

HIMOINSA IVECO S.p.A. J.S. Corrugating Machinery Co. Ltd. **PK Trucks Holland** Snorkel Van Vliet Automotive Trading

Services J.A DELMAS

LIFTING EQUIPMENT

CANTONI MOTOR S.A. CONDRA (PTY) LTD IVECO S.p.A. Liebherr-Export AG Magni Telescopic Handlers Snorkel Volvo Penta

Access Snorkel Please mention African Review when contacting your supplier

Components and Accessories

Rossi S.p.A. Cranes

CANTONI MOTOR S.A. CONDRA (PTY) LTD Liebherr-Export AG Soilmec S.p.A.

Hoists CANTONI MOTOR S.A. CONDRA (PTY) LTD Liebherr-Export AG

Hydraulic Voith Turbo (Pty) Ltd. Mechanical

Voith Turbo (Pty) Ltd.

Other Materials Handling CONDRA (PTY) LTD

Telescopic Handlers Bobcat

Magni Telescopic Handlers Snorkel Wacker Neuson (Pty) Ltd.

MOBILE POWER SUPPLY UNITS

Aksa Power Generation Altaaga Global Energy Service Coelmo SpA CompAir South Africa (Pty) Ltd Doosan Portable Power FG Wilson IMG Ltd. KOHLER-SDMO LINZ Electric SPA **MYTILINEOS** Visa S.p.A.

Generator Sets

Aksa Power Generation Altaaqa Global Energy Service Clarke Energy Coelmo SpA FG Wilson FLORIDIA SRL HIMOINSA JMG Ltd. Jubaili Bros KOHLER-SDMO LINZ Electric SPA Lovato Electric S.p.A. Marelli Motori S.p.A. Morris Site Machinery Motorenfabrik Hatz GmbH & Co. KG MYTILINEOS Siemens Engines S.A.U. Visa S.p.A.

MOTORS/DRIVERS CONTROL

CANTONI MOTOR S.A. Marelli Motori S.p.A.

Doors & Windows Jindal Aluminium Limited

Dozers

Liebherr-Export AG

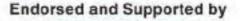
Aquamec Ltd. Caterpillar SARL Liebherr-Export AG



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PUMPING EQUIPMENT

Aquamec Ltd. IVECO S.p.A. Morris Site Machinery Visa S.p.A. Wacker Neuson (Pty) Ltd.

Concrete

Agria Machinery Services & Co. Ltd. Bobcat

Pan Mixers SA (Pty) Ltd. Submersible

Wacker Neuson (Ptv) Ltd.

Pumping Equipment -Other CANTONI MOTOR S.A.

Motorenfabrik Hatz GmbH & Co. KG

RAW MATERIALS

Voith Turbo (Pty) Ltd.

Crushing, Screening and Washing

CANTONI MOTOR S.A. Fritsch GmbH Milling and Sizing Keestrack n.v McCloskey International Ltd. NLMK Clabecq SA NUBA Screenng Media Parker Plant Ltd. Rockster Austria International GmbH Volvo Penta Wirtgen Group Holding GmbH

Grinding Equipment

CANTONI MOTOR S.A. Fritsch GmbH Milling and Sizing Pan Mixers SA (Pty) Ltd.

Mixing

CANTONI MOTOR S.A. Fritsch GmbH Milling and Sizing Pan Mixers SA (Pty) Ltd.

Quarrying

Doosan Portable Power Dressta (LiuGong Dressta Machinery) Keestrack n.v Liebherr-Export AG Magni Telescopic Handlers

ROAD BUILDING EQUIPMENT

BOMAG GmbH Caterpillar SARL Ciber Equipamentos Rodoviarios Ltda. Doosan Portable Power Liebherr-Export AG Panafrican Equipment Group PK trucks Holland Van Vliet Automotive Trading Volvo Construction Equipment Wacker Neuson (Pty) Ltd. Wirtgen Group Holding GmbH

Asphalt Plant

Ciber Equipamentos Rodoviarios Ltda. Marini S.p.A. Parker Plant Ltd.

Compaction Equipment

Agria Machinery Services & Co. Ltd. BOMAG GmbH Caterpillar SARL Panafrican Equipment Group Wacker Neuson (Pty) Ltd.

Pavers

BOMAG GmbH Caterpillar SARL Pan Mixers SA (Pty) Ltd. Panafrican Equipment Group

Recycling

Bobcat BOMAG GmbH Fritsch GmbH Milling and Sizing Liebherr-Export AG NLMK Clabecq SA Rockster Austria International GmbH

Rollers

Agria Machinery Services & Co. Ltd. BOMAG GmbH Caterpillar SARL Wacker Neuson (Pty) Ltd.

Road Building Equipment

Agria Machinery Services & Co. Ltd. Bobcat Caterpillar SARL Doosan Portable Power Dressta (LiuGong Dressta Machinerv)

STEEL

NLMK Clabecq SA Zamil Steel Building Co. Egypt Fabrication and

Structures Zamil Steel Building Co. Egypt

Steel - Other Zamil Steel Building Co. Egypt

TOOLS

CANTONI MOTOR S.A. Doosan Portable Power

Mechanical MYTILINEOS

Pneumatic Doosan Portable Power

Tools - Other

Doosan Portable Power

UNDERGROUND & MINING MACHINERY

APEXWAY PRODUCTS CORP. BLUMAQ S.A. CANTONI MOTOR S.A. J.A DELMAS Liebherr- Export AG Magni Telescopic Handlers Normet Group Oy PK Trucks Holland Soilmec S.p.A.

OTHER SITE EQUIPMENT AND MATERIALS

Bobcat Coelmo SpA Doosan Portable Power

Lighting Masts/Towers

Aksa Power Generation Doosan Portable Power HIMOINSA Jubaili Bros KOHLER-SDMO LINZ Electric SPA Morris Site Machinery Wacker Neuson (Pty) Ltd.

Sand Blasting Equipment Doosan Portable Power

Scaffolding

Wilhelm Layher GmbH & Co KG Silos

Pan Mixers SA (Pty) Ltd.

WELDING EQUIPMENT Coelmo SpA KOHLER-SDMO LINZ Electric SPA

Morris Site Machinery USED EQUIPMENT

Bauer Maschinen GmbH Caterpillar SARL J.A DELMAS Morris Site Machinery Snorkel Visa S.p.A. Vortex Hydra S.r.l.

Rental Equipment

Altaaqa Global Energy Service APEXWAY PRODUCTS CORP. Bauer Maschinen GmbH Caterpillar SARL CompAir South Africa (Pty) Ltd FG Wilson J.A DELMAS Visa S.p.A.

Complete Solutions for

Electrical Needs Altaaqa Global Energy Service Jubaili Bros Lovato Electric S.p.A. MYTILINEOS

SAFETY EQUIPMENT

Aluminium Products Jindal Aluminium Limited

Section Two: Suppliers

Agria Machinery Services & Co. Ltd.

PO Box AN5280 No. 5 Royalt Castle Road Kokomlemle (Adjc. SSNIT Kokomlemle Branch) Accra North Ghana Tel: +233 30 2222169 Fax: +233 30 2222621 Web: www.agriamachinerygh.com E-mail: sales@agriamachinerygh.com Distributors of construction, horticulture equipment with after sales service & space

parts support.

Aksa Power Generation

Ruzgarlibahce Mahallesi Ozalp Ciknazi No 10 Beykoz Instanbul 34805 Turkey Tel: +90 216 6810000/1265 Fax: +90 216 6815784 Web: www.aksa.com.tr E-mail: aksa@aksa.com.tr

Aksa Generators manufactures gasoline, diesel, natural gas and marine generating sets range between 1kVA to 3000 kVA as well as lighting towers and generator hardware in the manufacturing facilities in Instanbul (Turkey 20.000 m2 of indoor space), Changzou (China 100.000 m2 of indoor space) and Louisiana(USA, 10.000 m2 Indoor space); and has become a leader and poineer within the sector. Aksa Generator exports more than 50% of its product and is among the top ten global firms of the sector with 13 offices located in Asia, Europe and Africa.

Agents:

Algeria - EURL Aksa Generateurs Algerie Ghana - Aksa Generators Ghana South Africa - Aksa Power Generation SA(Pty) Ltd United Arab Emirates - Aksa Power Generation FZE

Altaaqa Global Energy Service

VA 01, RA 08 Blue Shaded Warehouses JAEZA North Jebel Ali Dubai United Arab Emirates Tel: +971 4 8808006 Fax: +971 4 8808007

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Altaaqa Global Energy Services, a member of the Saudi-based international conglomerate Zahid Group, is a pioneering energy services business providing cost-effective integrated power solutions to a diverse range of industry sectors, such as mining, oil & gas, manufacturing, cement, process, and utilities. We act as an energy partner and offer our clients expert project consultancy and advisory services, flexible contractual and project financing arrangements (including Build-Own-Operate-Transfer or BOOT), best-in-class power systems with unmatched energy efficiency, and reliable plant operation and service delivery. Our hespoke nower solutions comprise a wide variety of power generation technologies.

including reciprocating engines, gas turbines, renewables and hybrid systems, which can operate on a range of fuels, among which are natural gas, HFO and diesel. We are headquartered in Dubai, UAE and have regional offices in Johannesburg, Dakar and São Paulo.

Agents:

South Africa - Altaaqa Global Energy Services

Ansaldo Energia

Via Nicola Lorenzi, 8 Italy

Tel: +390106551 E-mail: info@ansaldoenergia.com

Ansaldo Energia is a leading international player in the power generation industry, to which it brings an integrated model embracing turnkey power plants construction, power equipment (gas & steam turbines, generators and microturbines), manufacturing and services and nuclear activities. Ansaldo Energia is active as full service provider with a broad portfolio on heavy duty gas turbines offering complete maintenance solutions on power generation rotating equipment and plants, built both by itself or by other OEMs. Our mission is to deliver innovative, proven, state-of-the-art, flexible solutions for the power generation industry, aimed at increasing the Customer's value.

Agents:

Nigeria - Ansaldo Energia Nigeria South Africa - Ansaldo Energia South Africa





14F-5, No. 238, Shizheng, N. 2nd Rd. Xitun Dist., Taichung City Taiwan (R.O.C.), 40756, Taiwan Tel: +886-4-2251-2251 Fax: +886-4-2251-2129 Web: http://solidtire.apexway.com.tw E-mail: apex@apexway.com.tw

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Supplier of equipment for piling and mining.

Agents: South Africa - BAUER Technologies South Africa (Bauer)

BLUMAQ SOUTH AFRICA

Blumaq

Unit 8 Osborn Park,1 Barfoot Road, Estera, Germiston (Johannesburg - South Africa) Phone: +27 0119665092 Fax: +27 86 676 4460 web: www.blumaq.com

E-mail: southafrica@blumaq.com

Blumag delivers replacement parts and maintenance products for Construction and Minina Equipment

Agents:

South Africa - BLUMAQ SOUTH AFRICA Zambia - BLUMAQ ZAMBIA

Bobcat



PO Box 262688, JLT Platinum Tower Cluster I, Level 18, Office 1802 **Dubai, United Arab Emirates** Tel: +971509402136 Fax: +971 4 2767204 Web: www.bobcat.com E-mail: gaby.rhayem@doosan.com

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BOMAG GmbH



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Stabilizers/Recyclers, Milling machines as well as pavers. The company employs approx.2,500 people (including 1,600 at its headquarters in Boppard, Germany) and is represented with its machines in approx.120 countries.

Agents: Germany - BOMAG GmbH

CANTONI MOTOR S.A.



3 Maja 28th Street, 43-400, Cieszyn Poland

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Agents:

Algeria - Bergerat Monnoyeur(CATERPILLAR SRL) Angola - Barloworld Equipamentos Angola Lda. (Caterpillar SRL)

Botswana - Barloworld Equipment Botswana Pvt. Ltd. (Caterpillar SRL)

Burkina Faso - Burkina Équipements (Caterpillar SARL) Cameroon - Tractrafric Equipement Cameroun Cameroon - Tractrafric Equipement Cameroun

(Caterpillar SRL) Chad - Tractrafric Equipment (Chad) Congo Brazzaville - Tractrafric Equipment Congo Congo Brazzaville - Tractrafric Equipment Congo 1 Congo DR - Tractrafric Equipment RDC Cote Divoire - Manutention Africaine (Cote D'Ivoire) (CATERPILLAR 1)

Cote Divoire - Manutention Africaine Cote D'Ivoire(CATERPILLAR 2)

Djibouti - Anciens Comptoirs Ries Egypt - Mantrac Egypt(Caterpillar SARL 1) Egypt - Mantrac Egypt(Caterpillar SARL 2) Egypt - Mantrac Egypt(Caterpillar SARL 3) Egypt - Mantrac Egypt(Caterpillar SARL 4) Eritrea - Eritrea Equipment PLC

Ethiopia - Ries Engineering S. Co. (Ethiopia - Caterpillar SARL) Gabon - Tractrafric Equipment Gabon (Caterpillar SRL) Gambia - JA Delmas Export - Gambia (SARL) Ghana - Mantrac Ghana Ltd. (Caterpillar SARL 1) Ghana - Mantrac Ghana Ltd.(Caterpillar SARL 2) Ghana - Mantrac Ghana Ltd. (Caterpillar SARL 3) Guinea - Manutention Guineenne Guinea Bissau - Bissau Equipamentos Guinee Equatoriale - Tractrafric Equipement

(Guinee equ) Kenya - Mantrac SAE Kenya - Mantrac SAE Kenya - Mantrac SAE (CAT SRL Kenya 1) Lesotho - Barloworld(LESOTHO) Liberia - Liberia Equipment Ltd. (Cat SRL) Madagascar - Henri Fraise Fils & Co.(CATERPILLAR 1)

Malawi - Barloworld Equipment Malawi Ltd.(CATERPILLAR 2) Malawi - Barloworld(CATERPILLAR SRL 1 malawi)

Mali - Manutention Africaine (Mali) Mauritania - Societe Mauritanienne Des Tracteurs SARL Mauritius - Ireland Blyth Ltd.

Mauritius - Tractrafric Equipment International (mauritius)

Morocco - Tractrafric Equipment Maroc

Mozambique - Barloworld (CATERPILLAR SRL Mozambique)

Namibia - Barloworld Namibia (Pty) Ltd. (cat SRL) Niger - Manutention Africaine (Niger)(CATERPILLAR)

Nigeria - Mantrac Nigeria Ltd. (CATERPILLAR 1) Nigeria - Mantrac Nigeria Ltd. (CATERPILLAR 2) Nigeria - Mantrac Nigeria Ltd. (CATERPILLAR 3) Nigeria - Mantrac Nigeria Ltd. (CATERPILLAR 4) Reunion - Societe Commerciale Industrielle de Materiels

Rwanda - Tractrafric Equipment Rwanda Senegal - Societe Auxiliaire (Senegal) D

Equipements (Saudequip) Sierra Leone - Mantrac Sierra Loene Ltd.

(CATERPILLAR) South Africa - Barloworld Equipment(CATERPILLAR 1) South Africa - Barloworld Equipment(CATERPILLAR 2)

Sudan - Sudanese Tractor Company Limited (SUTRAC) Swaziland - Barloworld Equipment Swaziland (Pty) Ltd.

Tanzania - Mantrac SAE (CATERPILLAR 4) Tanzania - Mantrac SAE(CATERPILLAR 1) Tanzania - Mantrac SAF(CATERPILLAR 2 tan) Tanzania - Mantrac SAE(CATERPILLAR 3) Tanzania - Mantrac SAE(CATERPILLAR 5) Togo - Togo Equipment Tunisia - Parenin SA

Uganda - Mantrac Uganda Ltd.(CATERPILLAR) Yemen - Tehama Trading

Zambia - Barloworld Equipment Zambia Ltd.

(CATERPILLAR) Zimbabwe - Barzem Enterprises Pvt. Ltd.

Ciber Equipamentos Rodoviarios Ltda.

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Ciber is a company in the road building and equipment industry; a member of the Wirtgen Group, that also comprises the brands Wirtgen, Vögele, Hamm and Kleeman, Ciber offers a complete line of equipment for carrying out all the highway building process for building, maintaining and repairing pavements.

Agents:

Algeria - TPS - Tractor Parts Services SARL Cape Verde - Moviter Equipamentos Lda Morocco - SMDM - Societe Marocaine de Distribution Materiel Nigeria - SCOA Trac South Africa - Wirtgen South Africa (Pty) Ltd.

Clarke Energy

Clarke Energy

Power House, Senator Point, South Boundary Road **Knowsley Industrial Park** Liverpool, L33 7RR, United Kingdom Tel: +44 (0)151 546 4446 Fax: +44 (0)151 546 4447 Web: www.clarke-energy.com

Clarke Energy is a multinational specialist in the engineering, installation and maintenance of reciprocating engine-based power plants and gas engine compression stations. Our offering ranges from the supply of an engine, through to the turnkey installation of a multi-engine power plant.

Agents:

South Africa - Clarke Energy South Africa (Pty) Ltd

Coelmo SpA

Via delle Industrie 278 Agglomerato Industriale ASI 80011, Italy Tel: +39 081 8039731 Fax: +39 081 8039724 Web: www.coelmo.it E-mail: sales@coelmo.it

Coelmo is one of the oldest European manufacturers of industrial and marine generators from 3 kVA up to 4000 kVA. Based in Italy, with a large stock available to be shipped overnight to any destination in the world. Company profile products and modules are available on line at www.coelmo.it.

Agents: Togo - ADTF SARL





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www.gardnerdenver.com/industrials E-mail: sales@compairsa.com

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Tel: +27 11 776 6000 Fax: +27 86 669 2372 Web: www.condra.co.za E-mail: sales@condra.co.za

Condra designs, manufactures, services and supports portal cranes, bridge cranes, cantilever cranes, hoists, end-carriages, single and doublegirder overhead travelling cranes, and crane components.

Doosan Portable Power



PO Box 262688 **ILT Platinum Tower** Cluster I, Level 18 Office 1802 Dubai **United Arab Emirates** Tel: +971509402136 Fax: +971 4 2767204 Web: www.doosanportablepower.com

Doosan Portable Power is a market leading manufacturer of portable compressors and mobile lighting systems for the African market. All Doosan Portable Power products are designed and rigorously tested to ensure they give outstanding operation on the toughest sites and in the most extreme conditions around the world, for applications in construction, roads, utilities, rental, quarrying and many other industries.

E-mail: gaby.rhayem@doosan.com

Dressta

DRESSTA

ul. Kwiatkowskiego 1 Stalowa, Wola, 37-450, Poland Tel: +48 501 802 802 Web: www.dressta.com E-mail: info@dressta.com

DRESSTA, headquartered in Stalowa Wola, Poland, is a global manufacturer of full line of crawler dozers and pipe layers. DRESSTA is redefining crawler dozer productivity and durability with its customer focused approach to design and manufacturing.

Elkon Concrete Batching Plants

Istanbul, PO 34394, Turkey Tel: +90 212 2889633 Fax: +90 212 2746310 Web: www.elkomix.com E-mail: info@elkomix.com

ELKON is a 44 year-old international company offering all types of ready-mix & precast concrete batching plants and block making machines.ELKON is one of the biggest concrete batching plant manufacturer in Europe with the annual sales and manufacturing capacity. ELKON has installed over 3500 plants in 120 countries.

Agents: Ethiopia - Proinvest Ethiopia PLC

Faymonville Distribution

8, Duarrefstrooss Weiswampach, 9990, Luxembourg Tel: +352 26 9004155 Fax: +352 26 9004425 Web: www.faymonville.com E-mail: info@favmonville.com

Faymonville manufactures trailers, low-loaders and modular vehicles for service loads from 20 tonnes to 500 tonnes. Using a modular building system, Faymonville offers customer-specific solutions that are designed for all requirements outside the conventional standards. We are the experts in the exceptional, and special vehicles from Faymonville are used to transport oversized loads around the world. Everything tall, long, wide or heavy! Faymonville products excel in their technical precision and quality of processing.

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Agents:

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Viale delle Industrie 26 - 97075 Modica (Rg), Italy Tel: +39 0932777900 Fax: +39 0932777458 Web: www.floridiasrl.it F-mail: export@floridiasrLit

Floridia Srl is a leading Italian manufacturer of power generators having a have a long triadition

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Agents: Senegal - FLORIDIA AFRIQUE SARL

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Industriestrasse 8 Idar - Oberstein, 55743, Germany Tel: +49 67884700 Web: www.fritsch.de

E-mail: info@fritsch.de

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Agents:

South Africa - Labotec (Pty) Ltd.

Goldhofer Aktiengesellschaft

Donaustrasse 95, Memmingen 87700, Germany Tel: +49 8331150 Web: www.goldhofer.com E-mail: info@goldhofer.com

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Hammstraße 1, Tirschenreuth 95643, Germany Tel: +49 9631 800 Fax: +49 9631 80111 Web: www.hamm.eu E-mail: info@hamm.eu

HAMM AG is a member of the WIRTGEN Group, a group of companies operating on an international basis in the construction equipment industry. The WIRTGEN Group comprises the brands of WIRTGEN, VÖGELE, HAMM, KLEEMANN and BENNINGHOVEN and has local production facilities as well in China. Brazil and India. HAMM AG is the leading manufacturer for rollers in soil and asphalt compaction.

HIMOINSA

Ctra. Murcia-San Javier, Km. 23.6 San Javier/Murcia, 30730, Spain Tel: +34 968 191128 Fax: +34 968 191217 Web: www.himoinsa.com

E-mail: info@himoinsa.com HIMOINSA is a global corporation that designs,

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Agents:

Angola - Himoinsa Angola South Africa - HIMOINSA SOUTHERN AFRICA

INMESOL S.L

Ctra. de Fuente Álamo, 2 Corvera - Murcia, 30153, Spain Tel: +34 968 380300 Fax: +34 968 380400 Web: www.inmesol.com E-mail: inmesol@inmesol.com

IREM S.p.A. a socio unico

Via Abegg 75 Borgone (Torino), 10050 Italv Tel: +39 011 9648211 Fax: +39 011 9648222 Web: www.irem.it E-mail: svm@irem.it

IREM S.p.A. specialises in design and manufacture of electrodynamic voltage regulator and line conditioners (power up tp 8000 kVA) for indoor and outdoor installation. In business since 1947, IREM is a medium size company exporting all over the world. Company certifications according to ISO9001, ISO14001, BS OHSAS 18001.

Agents:

Ghana - Modern Age Technologies Ltd. Kenya - Specialised Power Systems Ltd.

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Via Puglia, 35, Italy Tel: +39 011 0072111 Fax: +39 011 0075849 Web: www.iveco.com

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John Deere Power systems develops, manufactures and markets diesel engines for a large variety of generator sets, compressors,industrial and agricultural applications. John Deere is one of the very few engine manufacturers that doesn't make gen-sets, this makes us unbiased partners with gen-set OEMs, offering them a robust power generation line-up from 30 to 500 kVA.

Agents:

Argola - Jembas Assistencia Technica Lta. Egypt - Orascom Trading Co. SAE Morocco - Societe de Realisations Mecaniques Nigeria - Stag Engineering (Nigeria) Ltd. South Africa - PowerO2

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Jebel Ali Free Zone, UAE Tel: +971 4 8832023 Fax: +971 4 8832053 Web: www.JubailiBros.com E-mail: jbdubai@jubailibros.com

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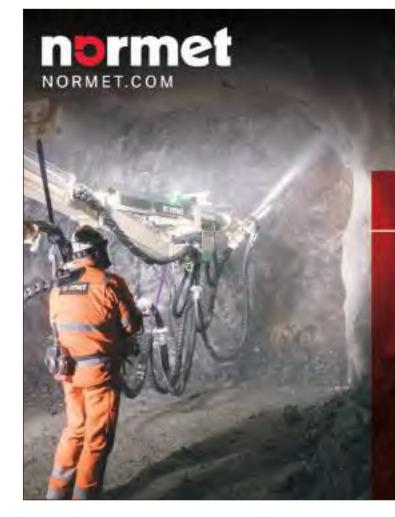
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Agents:

Algeria - EURL METEC Egypt - M.S.E. Modern Structures & Equipment Kenya - Achelis Material Handling (Kenya) Ltd Morocco - ETS L Berenger

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MB Crusher attachments for heavy machines allow companies to manage the full cycle of recycling at the site simplifying crushing, screening and handling of aggregates and allowing companies to save time and money

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salesuk@mccloskeyinternational.com

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Agents:

Benin - Logistics & Assistance Ethiopia - Ries Engineering Kenya - Regal Equipment Nigeria - Pioneer Equipment South Africa - HPE Africa Zambia & Zimbabwe - BL&D Plant Hire & Sales

Morris Site Machinery

Station Road, Four Ashes Wolverhampton, West Midlands WV10 7DB, United Kingdom Tel: +44 0345 4090280 Fax: +44 1902 790355 Web: www.morrismachinery.co.uk E-mail: info@morrismachinery.co.uk

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E-mail: marketing@hatz-diesel.de

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Morocco - Sonacom (Hatz) Nigeria - A1 Multi Services Ltd. South Africa - Hatz Diesel SA (Ptv) Ltd. (Hatz) Tunisia - S.I.A. Ben Djemaa & Cie (Hatz)

MYTILINEOS



8 Artemidos Str., Maroussi 151 25, Athens, Greece Tel: +302106877300 Fax: +302106877400 Web: www.mytilineos.gr E-mail: info@mvtilineos.gr

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Agents:

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NUBA Screening Media

NUBA Screening Me

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international@nubasm.com NUBA Screening Media was founded in 1968

and now is one of Europe's most important manufacturers of screnning media and accessories for the aggregate and mining industries, encompassing all the products related with screening and classification. Also, have turned a global company in the design and projection of aggregate plants

Agents: Spain - Nauzet Javier Del Rosario Almeida

Pan Mixers SA (Pty) Ltd.

12 Graniet Street, Jet Park, Boksburg 1459, South Africa Tel: +27 11 5788600 Fax: +27 11 5788800 Web: www.pmsa.com E-mail: sales@panmixers.co.za

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Agents: South Africa - Pan Mixer SA (Pty) Ltd.

Panafrican Equipment Group

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PO Box 392163

Dubai, United Arab Emirates Tel: +971 4 2124750 Web: www.panafricangroup.com E-mail: info@panafricangroup.com The Panafrican Group operates in various countries across Africa where they are recognized leaders in providing equipment and aftersales support solutions including training to the miningand mineral processing, civil infrastructure, power & energy and the Aariculture & Forestry sectors.

Agents:

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(Panafrican Group)

Ghana - Panafrican Mining Services Ltd. (Panafrican Group)

Kenya - Panafrican Equipment (Kenya) Ltd. (Panafrican Group)

Nigeria - Panafrican Equipment (Nigeria) Ltd. (Panafrican Group) Tanzania - Panafrican Equipment (T) Ltd.

(Panafrican Group)

Tanzania - Panafrican Mining Services (Tanzania) Ltd. (Panafrican Group & Komatsu)

Uganda - Panafrican Trucks and Equipment (Uganda) Ltd. (Panafrican Group)

Parker Plant Ltd.

Canon Street, Leicester LE4 6GH United Kingdom Tel: +44 116 2665999 Fax: +44 116 2610812 Web: www.parkerplant.com E-mail: sales@parkerplant.com

Parker Plant manufactures and supplies a comprehensive range of crushing, screening, asphalt and concrete plants as well as bitumen / road surfacing equipment and bulk handling conveyor systems

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ROCKSTER is a specialist in the development and manufacturing of mobile crushers, screening machinery and stackers for profitable recycling of asphalt, concrete and other construction waste as well as the efficient processing of natural stone. With innovations such as patented Duplex System or the patented Double-Functional Return Belt, the company repeatedly demonstrates its approach towards progress & improvement.

Agents: South Africa - Mfangano Solutions

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Agents:

South Africa - Rossi Southern Africa

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Part of the Siemens family, the Siemens engine business designs, develops and commercializes its engines and genests worldwide. Their pioneer R&D centre and the experience gained through 50 years in the market make Siemens Engine Business a leading international technology provider, in both liquid and gas fueled engines for a wide range of applications (power generation, cogeneration, trigeneration, marine applications and other sectors of activities). The power range offered by this engine business goes from 190 to 2065 kWb for gas engines.

Agents: Egypt - Proserve

Mozambique - Tecnel Service Lda. South Africa - Zest Africa (Pty)

Snorkel

Vigo Centre, Birtley Road, Washington Tyne & Wear, NE38 9DA, UK Tel: +44 845 1550057 Fax: +44 845 1557756 Web: www.snorkellifts.com

E-mail: sales@snorkellifts.com

Snorkel is a leading global manufacturer of aerial work platforms. With a focus on simple and robust design, the Snorkel product line ranges from 3.0 meter push-around scissor lifts for low level access, to 40 meter telescopic boom lifts for the largest construction projects.

Soilmec S.p.A.

5819 Via Dismano 47522 Cesena Italy Tel: +39 0547 319111 Fax: +39 0547 318548 Web: www.soilmec.it E-mail: info@soilmec.it

Soilmec is an international company leader in design, manufacture and distribution of equipment for ground engineering, established in 1969. Since its inception, Soilmec has developed safe, innovative, cutting-edge technologies and equipment solutions. Soilmec equipment is used everyday on jobsites all around the world for bridges, motorways, tunnels, underground lines, railways and buildings of all types. Thanks to a constantly upgraded and broadening range of products and a greatly increased production capability; we are an established landmark in the international ground engineering field.

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Van Vliet Automotive Trading

PO Box 3, Parallelweg Zuid 215 Nieuwerkerk a/d Ijssel Rotterdam, 2910 AA, Netherlands Tel: +31 180 312644 Fax: +31 180 319158 Web: www.vanvliet.com E-mail: mining@vanvliet.com info@vanvliet.com

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SMT (Algeria) Tel: +213 56 0078851

E-mail: info@smt-algeria.com T.P.S. SARL Tractor Parts Services

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Kouba – Alger Tel: +213 23 534634 Fax: +213 23 534956 Web: www.tps-algerie.com E-mail: tps-algeria@tps-algericom

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Burkina Faso

ATS Truck Solutions Burkina Faso

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Panafrican Equipment Ltd. (Burundi - Wirtgen)

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Chad

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Congo Brazzaville

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SMT (Congo)

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SMT Congo 2

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E-mail: info@smt-rdc.com **SMT RD Congo 2** Route de Likasi, Lubumbashi Tel: +243 815656565 Web: www.smt-rdc.com E-mail: info@smt-rdc.com

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Tel: +251-116 463352/53/54/11 **Equatorial Business Group Pvt.**

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Ghana overtakes South Africa as number one gold producer

The mining industry remains pivotal to the socio-economic development of West African countries.

According to data released by Research and Markets, West Africa supplied 22.6 per cent of the world's titanium oxide, 11.5 per cent of its bauxite, 9.4 per cent of its gold and 5.6 per cent of its uranium in 2016.

Ghana and Mali continue to be the major gold producers in the region – with Ghana recently overtaking South Africa as the continent's largest gold producer. Mali is the fourth largest gold producer in Africa, with gold accounting for 64 per cent of total exports and 21 per cent of government revenue in 2018.

Gold output in Ghana jumped 12 per cent in 2018, whereas South Africa reported a five per cent dip to 4.2 million ounces, reported the country's Chamber of Mines.

Mining giant AngloGold Ashanti dealt the gold industry in South Africa a further blow after announcing its final step in divesting its assets from South Africa, with plans to sell off Mponeng, its last underground mine, to focus on other countries such as Ghana, Mali and Guinea.

In a statement, chief executive officer Kelvin Dushnisky said, "We believe that under the right ownership, our South African assets offer a compelling longterm value proposition that may allow for an extension to Mponeng Mine's current life."

In June, AngloGold Ashanti announced its operations at its Obuasi mine were still on track with first gold output for end of 2019. The mine is said to have around 5.8 million ounces of gold deposits and is expected to have an average gold output between 350,000 ounces and 450,000 ounces during the first ten years.

Jasper Musadaidzwa, the senior



vice-president, AngloGold Ashanti for the Continental Africa Region, told the press during the 2019 Ghana Mining and Energy Summit in Accra it was going beyond compliance with legislation with more than 67 per cent of procurement contracts being awarded to local suppliers.

While in Nigeria, it has already begun steps to change its perception from solely an oil and gas producer to a major mining destination. In an exclusive interview with African Review earlier this year, Hon. Abubakar Bawa Bwari, Minister of State, Ministry of Mines and Steel Development, Nigeria, said the government wanted to increase mining from 0.3 per cent of the country's GDP to seven per cent by 2025.

And already mining companies were taking advantage of the government's favourable policies such as a three-year tax free holiday for new investors and 100 per cent ownership of mining projects for foreign investors.

One such company, Thor Explorations, has established 862,000 ounces grading at 4.3g/t, with first gold output expected in the first quarter of 2020. It is said to be Nigeria's most advanced gold project.

Nigeria has rich reserves of gold, tin, iron ore, lead zinc, limestone, barite and coal.

The minister said, "Our mining

This project will have a lasting impact on the Kamsar community "

TONY MORGAN, PRESIDENT OF FLUOR'S MINING AND Metals business endowment is not in doubt. We import a lot of materials into Nigeria, and under no circumstances should we be doing this as we have the raw materials."

According to the latest Research and Markets report, in 2017, West African countries exported minerals worth US\$416.1bn, 25 per cent up on the previous year, due to the large increase in Guinea's exports.

Guinea ranks first in the world in bauxite reserves and sixth in the extraction of high-grade bauxite (aluminium ore). Bauxite and gold reportedly accounted for 87 per cent of the country's exports. Societe Miniere de Boke (SMB) and Compagniedes Bauxites de Guinée (CBG) are said to export most of the bauxite via the River Nunez and Kamsar port. CBG is a joint venture between Guinea government, Halco, Alcoa and Rio Tinto.

CBG achieved its first ore at its bauxite expansion project in Kamsar last November. The project is expanding bauxite production at the mine from 13.5-18.5 million tonnes per year, according to Global Mining Review. More than 1,500 craft workers were reportedly on site at peak construction.

"From developing the local craft workforce to strengthening the economy, this project will have a lasting positive impact on the Kamsar community," said Tony Morgan, president of Fluor's Mining & Metals business.

CBG has a contract with investment fund Mubadala and Dubai Aluminium to supply 10 million tonnes of bauxite, starting with five million tonnes from 2017.

With ongoing projects like these, it will be no surprise that West Africa will continue to be a prominent player in the global mining industry in years to come.



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SOUTH AFRICA SEES VALUE FROM FLSMIDTH'S NEXTSTEP INNOVATION

FLSmidth's innovative nextSTEP flotation technology is proving itself in the South African mineral processing space.

According to Ricus van Reenen, regional product line manager – Separation at FLSmidth, the nextSTEP rotor and stator combination has been at work for over a year at a large South African platinum mine, achieving positive results.

"The customer has achieved significantly lower power consumption on the full-scale retrofits we installed early in 2018," says van Reenen. "The more efficient design allows the same or higher slurry circulation at reduced rotor speed, leading to lower power draw."



efficient pump allowing for slower rotation and lower power consumption.

to primary and secondary flotation applications, where energy savings of over 10 per cent have been achieved. Years of research and development have been invested in the nextSTEP technology, which was originally launched in 2015. Among the major design elements are the addition of slots to the stator, adjustments in the rotor profile and a parallel distance between the rotor and stator. "Energy dissipation is more uniform than in traditional forcedair designs," van Reenen says. "This means a more even wear pattern across the rotor and stator, and therefore longer intervals between maintenance."

In the South African installations, the wear on the rotors and stators has been minimal after more than a year's operation. In the one flotation cell, the equipment has been operational for 15 months. The thickness of the rotor has reduced from 65mm to 60mm, and the stator from 75mm to 70mm. After 13 months of operation in the second installation, the wear is even less. The rotor's thickness has reduced from 65mm to 63mm, while the stator was down from 75mm to 73mm.

The retrofits have been applied

CLOUD PLATFORM IS A 'GAME CHANGER' FOR ANGLO AMERICAN

Mining giant Anglo American has called Passport 360 as "a real game changer" in its business across the world.

The Passport 360 cloud platform improves performance in procurement and onboarding times. It allows for better visibility in regard to compliance, time and safety, and risk management, resulting in increased productivity.

"Not only has Passport 360 slashed onboarding time for our contractors, it has also made the ongoing management far easier and less time-consuming," says Anglo American SHE Manager Craig Mitrovich. "This allows our safety officers to focus more on safety on-site, and a lot less on paper management."Prior to the adoption of Passport 360, Anglo American managed its safety and quality entirely on paper. He said they have had positive feedback from the majority of their contractors, with many using the system to manage their projects and sub-contractors.

Contractors experienced frustration with the onboarding process, which often caused delays and was inefficient. Since implementing the Passport 360 solution a couple of years ago, the Anglo American head office has been able to implement a system to manage project compliance and individual contracting employees.

Recent developments have allowed contracting companies to book individuals on the system for training as required by Anglo American, which can be tracked using the learning management system. "We have engaged with a number of service providers to determine the value-add they have experienced, which has ranged from being easy-to-use to online compliance management and saving on printing costs," explains Mitrovich.

"After Passport 360 was implemented, turnaround time for contractor onboarding was reduced, with a significant saving in costs and time as a result," Passport 360 director and cofounder Siobahn Whitehead says. "This is a clear testament to how major multinationals such as Anglo American can reap the maximum benefit from our complete solution."

Passport 360 cloud platform improves performance in procurement and onboarding times. It allows for better visibility in regard to compliance, time and safety, and risk management, resulting in increased productivity.

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UNDERSTANDING DESIGNS FOR SCREENS

Don't generalise about the pros and cons of different vibrating screen technologies, advises Kwatani CEO Kim Schoepflin; the main consideration is the application.

"When a customer considers their options for a screening machine, there are a number of good technologies from which to choose," Schoepflin says. "The appropriate technology choice will depend on the application, and we believe there is a space for every technology."

Brute force screening is the most common technology employed among mining screens. Its benefits include being generally cost effective, relatively simple to maintain and economic in terms of life



Kwatani screens for a coal application being loaded for transportation to the end user.

cycle costs, all of which translate into lower Total Cost of Ownership (TCO).

"Having the mechanical and metallurgical knowledge in-house, Kwatani can provide the technology that best suits the application," she says. "We are not tied to one technology, and our primary focus is on understanding exactly what the customer needs, and providing a solution that is engineered for tonnage."

Twin-mass or resonant screens, which run very close to a natural frequency, have a self-amplification benefit, says Kenny Mayhew-Ridgers, Kwatani's chief operating officer. "This gives the screen a greater energy-efficiency."

Mines convert to froth pumps

The value of Weir Minerals' Warman AHF pump range in pumping frothy, high density and viscous slurries has been successfully proven at two platinum and phosphate mines in South Africa's Limpopo province.

Handling froth in some process circuits can be very challenging, as froth will airbind a conventional slurry pump. In froth applications, the Warman AHF inducer impeller solves this problem, producing far less surging. The inducer impeller and oversized inlet enhance the movement of the froth, high density or viscous slurries into the impeller, facilitating effective transportation. In addition, its higher efficiencies mean a smaller pump will deliver the required results.

At the platinum operation, a Warman AHF 2 pump was commissioned in early 2016. It has met the specified flow rate of 40 m3/h with no pump-related stoppages, repairs or replacements. The Warman AHF inducer impeller solves the problems experienced with pumping froth with a conventional pump.

A 12 month trial period showed that the unit saved the mine over R200,000 when compared to the cost of the competitor pump installed previously. Based on this, the mine replaced another eight competitor products with Warman AHF pumps. It has approved the Warman AHF 3 pumps as standard for all frothy applications at the plant's first flotation section, and Warman AHF 2 pumps for the second flotation section.

The Warman AHF pumps – with Hi Seal expeller design – were also tested in a viscous slurry application at the phosphate mine for six months. They demonstrated that they could pump the high density viscous underflow slurry at densities above 1,90. As a result, the customer purchased the pump and began upgrading the remaining concentrate thickener underflow pumps to the Warman AHF pump technology.



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CONTRACTOR AND INCOME.

Africa can lead the fight against NTDs

President Nana Akufo-Addo of Ghana challenges Africa to eliminate at least one neglected tropical disease (NTD) in 15 African nations by 2023.

t is difficult to imagine the pain of those suffering the advanced stages of blinding trachoma. The eyelashes start growing inwards so they scratch the eyeball.

It is, one sufferer said, "like having acacia thorns poking at your eyes every second, all day long".

Think about that for a moment, and imagine the excruciating pain every time you blink. Then think about how many times you have blinked since starting to read this article.

In Ghana, we know this disease. Our parents' generation knew it all too well. In the 1990s, it was rampant in our nation.

But I am delighted to report that last year, after a big effort involving our Ministry of Health and several international organisations who helped us out, Ghana eliminated blinding trachoma - and we have a World Health Organisation (WHO) validation certificate to prove it!

In February, I attended the African Union Summit in Addis Ababa. There was plenty of politics to discuss. But there was also an important discussion at the Summit, a discussion which may well be relevant to our people on the continent.

At the gathering of heads of state, we reviewed Africa's progress in fighting neglected tropical diseases (NTDs), alongside malaria, under the leadership of the African Leaders' Malaria Initiative (ALMA).

NTDs are a group of diseases which include blinding trachoma and which are now almost unheard of in the west.

They are a consequence of poverty occurring in remote areas where sanitation is poor and good quality water is in short supply. But they are also a cause of poverty; their debilitating symptoms stop children from going to school or

adults going to work, robbing developing countries of billions of dollars in productivity.

The Sustainable Development Goals (SDGs), of which I am a strong advocate, challenge us to leave no one behind, to ensure that we are delivering for the poorest people on the continent. If we do not reach people suffering from NTDs, we will simply not achieve the SDGs.

Our Africa 2063 agenda has a target to end these diseases of poverty.

Therefore in Addis Ababa, we reviewed progress across the five most common NTDs that are amenable to mass treatment: blinding trachoma, bilharzia, mosquito-borne elephantiasis, intestinal worms that stunt the growth of children and river blindness.

Together these five diseases affect more than 600 million people in Africa - nearly half of the entire population of the continent.

Building on our success of eliminating Guinea worm disease in 2015, Ghana eliminated blinding trachoma last year.

But I want Ghana, and all of Africa, to go further.

Ghana is a modern, democratic state. We have gone through significant economic growth for several years. I believe we can use that growth - along with well-targeted and well-funded health programmes - to eliminate other diseases. I want other African nations, many of them fast growing democracies like ours, to have similar ambitions.



I am aware that, while Ghana eliminated blinding trachoma last year, our 'scores' in treating some of the other NTDs have been dipping down in the last couple of years.

We were pulled up for that on the NTD scorecard. But Ghana doesn't shy from constructive criticism; we are strong enough to take that. I want those scores to go back up to being among the best on the continent and I commit here to achieving this. Our fellow citizens deserve nothing less - they are among the 600 million people in Africa who still suffer from at least one NTD.

The World Health Organisation has a bold new plan running from 2019 to 2023. Among other things, it aims to eliminate at least one NTD in 30 endemic countries. I want to challenge Africa to achieve at least half of those 30 eliminations. That's ambitious but eminently doable.

G The Sustainable Development Goals challenge us to leave no one behind "

PRESIDENT NANA AKUFO-ADDO

We have many challenges as a continent. But at the same time many African countries have double digit economic growth and healthy democracies which are accountable to those poorer citizens, who tend to be among the most vulnerable to NTDs.

I am a co-chair of the UN Secretary General's 'Advocates' for the Sustainable Development Goals, an honour I share with the Prime Minister of Norway, Erna Solberg,

A key goal is SDG 3.3, which includes a commitment to end NTDs by 2030. My challenge to Africa to eliminate at least one NTD in at least 15 African nations by 2023 would be a great push towards the ultimate goal.

I recall the origins of the SDGs. They emerged from an earlier idea to improve the lot of humanity, the Millennium Development Goals.

The driving force behind the Millennium Development Goals was another fellow Ghanaian, a man dedicated to justice and equity, the late UN Secretary General Kofi Annan.

Kofi Annan would have expected us to continue his work to help the poorest and most vulnerable, especially those affected by NTDs.

We owe him no less.

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