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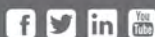
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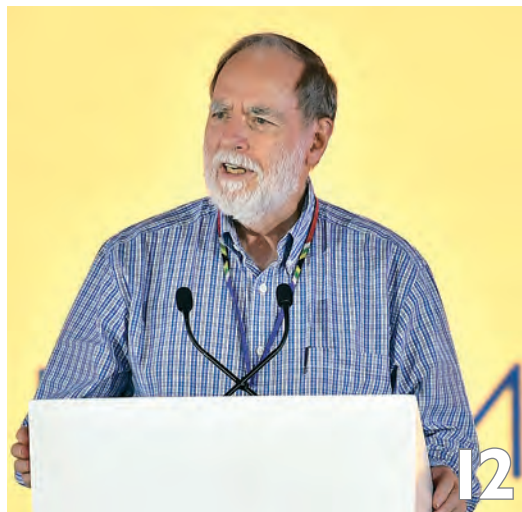
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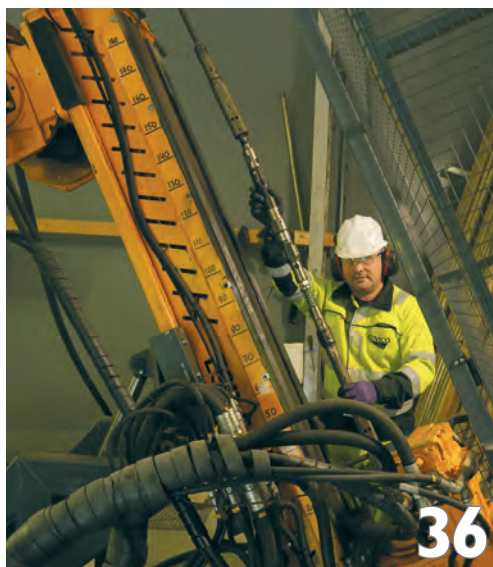
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PUSH PAUSE II

I hate that feeling after surgery when you're not sure if you're awake or asleep or if you operated on the right patient.



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FIRST WORD

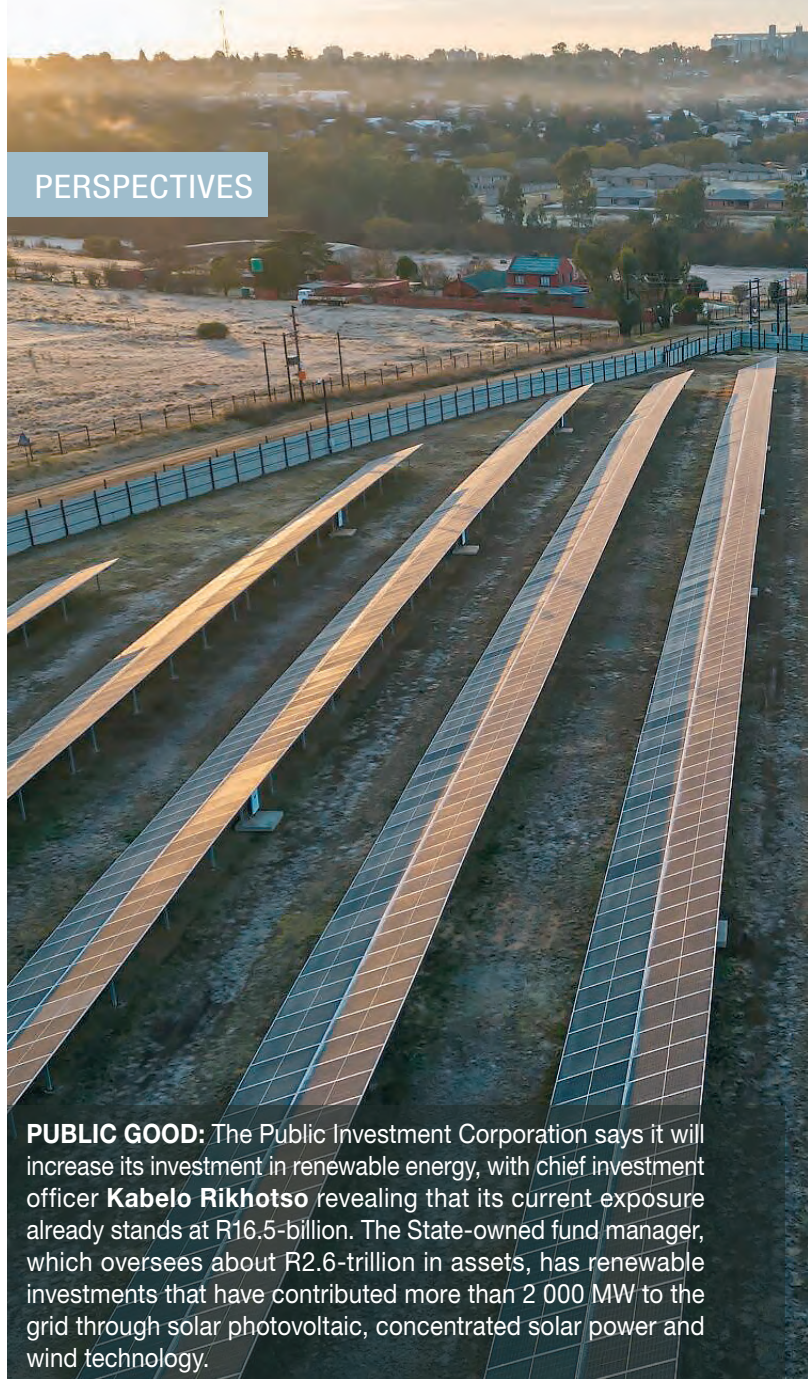
We need to find out all we can about our country's underground water resources

“ With surface water availability potentially becoming a climate-change victim in the years ahead, South Africa should map its groundwater availability to ensure best use in times of crisis. Amid reports that experts still have a long way when it comes to understanding groundwater systems, it has become important to know what can be expected from South Africa's groundwater going forward. South Africa should set out to partner with those countries that are doing research into groundwater. In what has been described as a first-of-its-kind stocktake, Geoscience Australia has reportedly already mapped underground water reservoirs, while Australia's National Hydrogeological Inventory has gathered information on major groundwater basins. Sustainable underground water management is the wise way to go, particularly for a water-scarce country like our own. ”



Martin Creamer | Publishing Editor

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PERSPECTIVES

PUBLIC GOOD: The Public Investment Corporation says it will increase its investment in renewable energy, with chief investment officer **Kabelo Rikhotso** revealing that its current exposure already stands at R16.5-billion. The State-owned fund manager, which oversees about R2.6-trillion in assets, has renewable investments that have contributed more than 2 000 MW to the grid through solar photovoltaic, concentrated solar power and wind technology.

PUSH PAUSE II

Middle age is when work is a lot less fun and fun a lot more work.

“We are unhappy about the state of the nation. We are unhappy about the conditions under which we operate, and, as an industry, we receive a lot of demands from various directions.”

Minerals Council South Africa CEO **Mzila Mthenjane** speaking at the Joburg Indaba about unhappiness in the South African mining sector.



RED CARD: The Unemployment Insurance Fund (UIF), which is meant to support workers who lose their jobs, stands accused of serious foul play, with organised business and labour having both called for the fund to be placed under immediate administration. Besides alleged operational dysfunction, there is also deep unhappiness over the UIF's decision to invest R5-billion in a well-connected company, Thuja Capital, which was hastily registered days before the award to pursue an “untested concept” to create jobs.

ARREARS DEBT

Still no solution

FOR DECADES NOW, the issue of the debt owed by municipalities to Eskom has not only remained an intractable problem but one that has grown in both scale and its potential to create financial jeopardy for both the utility and the national fiscus.

There have been countless initiatives by Eskom to tackle the problem – some cooperative in nature, others far less so, including the naming and shaming of large metropolitan defaulters and even some asset seizures.

Likewise, there has been no lack of government-led initiatives, the intensity and effectiveness of which have tended to ebb and flow with election cycles.

The most recent initiative is the Eskom Municipal Debt Relief Support Programme, which was announced in the February Budget as part of the R254-billion debt-relief package that was extended to the utility.

The programme is designed to enable Eskom to write off municipal debt, which stood at R58.5-billion at the end of March, with 136 of the country's 257 municipalities in arrears – the figure has since climbed to well above R65-billion.

It is no dripping roast, however, with 14 strict conditions, including a minimum collections stipulation, the ringfencing of the Eskom account which should be paid first, a restriction on borrowings, and a potential revocation of a municipality's distribution licence should it fail to comply.

These conditions, together with the complexity of the programme, is probably why only 28 municipalities had been given approval by the National Treasury to participate by the time of the initial closing date of the end of September.

Although the National Treasury announced that the closing date had been extended to October 31, that nine further applications were being assessed and that 25 additional applications were currently serving before respective provincial treasuries, it is likely that participation rates will remain low.

To be clear, the programme is the most well-conceived intervention to date and should be supported. It is designed to introduce the type of discipline that should be routine at any well-functioning municipality and extends the not insubstantial carrot of a full debt write-off simply for doing the right things consistently over three years.

The lack of uptake is indicative that many municipalities have either strayed so far from good operational and financial practice to make it impossible for them to participate, or that many municipalities believe another, less onerous deal, is still possible.

Whatever the reason, it means the Eskom municipal debt problem will remain and will continue to hang around the necks of executives at the restructured Eskom entities, as well as the future administration, which could well take the form of coalition governments at national and provincial levels.

What is also clear is that South Africa has not gained any last-mover advantage from being an international energy transition laggard. Experience elsewhere shows how crucial it is to ensure that electricity tariffs are structured such that both energy and services are properly costed and remunerated. Sadly, this restructuring has been so slow domestically as to make falling electricity revenues a major municipal risk.

Terence Creamer | Editor



Source: Bloomberg

FACTS IN FIGURES

28

The number of municipalities that have been given approval so far by the National Treasury to participate in the Eskom Municipal Debt Relief Support Programme, designed to enable Eskom, in exchange for concessions aimed at improving governance in these municipalities, to write off municipal arrears debt, which stood at R58.5-billion at the end of March, with 136 of the country's 257 municipalities in arrears.

1

The number of jobs in millions that the global coal industry may have to shed by 2050.

SHEILA BARRADAS | CREAMER MEDIA RESEARCH COORDINATOR & SENIOR DEPUTY EDITOR

GREEN HYDROGEN

Hydrogen Threesome

TSAM, Air Products and Sasol team up to showcase potential of locally produced hydrogen as transport fuel

TERENCE CREAMER | CREAMER MEDIA EDITOR

In a milestone for South Africa's nascent green hydrogen economy, three large corporates have teamed up to showcase the potential of using domestically produced hydrogen as a zero-emission transportation alternative.

During a demonstration in Gauteng, a second-generation Toyota Mirai fuel cell electric vehicle (FCEV) was refuelled with hydrogen produced by Sasol in Sasolburg, in the Free State. The hydrogen was transported by truck in an Air Products tube trailer, and the vehicle was refuelled on site using the US multinational's mobile hydrogen dispensing technology.

Toyota South Africa Motors (TSAM) CEO **Andrew Kirby** then drove the vehicle, which contains a platinum-based fuel cell, around a test track set up at the Smart Mobility Africa Summit, which took place at the Gallagher Convention Centre, with Gauteng Premier **Panyaza Lesufi** in the passenger seat.

Sasol CEO **Fleetwood Grobler** described it as a "beautiful application of hydrogen fuel-cell technology".

He stressed, however, that all three partners were focusing primarily on using green hydrogen in hard-to-abate and hard-to-electrify sectors, such as long-distance and mining transportation, as well as aviation and green steel, with the passenger vehicle demonstration seen as a catalytic proof-of-concept initiative.

Such an approach appears to be in line with South Africa's yet-to-be-published Green Hydrogen Commercialisation Strategy, which will prioritise exports to lock in green hydrogen-linked subsidies from developed economies, alongside domestic applications such as off-road mining vehicles, long-haul trucking, steel, chemicals, fertilisers and sustainable aviation fuels (SAFs).

This point was underlined by Air Products South Africa MD **Rob Richardson**, who described the FCEV demonstration as an awareness-raising exercise, while also emphasising the potential for green hydrogen in heavy-haul trucking, owing to its



ZERO EMISSION

This Toyota Mirai fuel cell electric vehicle was refuelled with hydrogen produced by Sasol, using an Air Products dispensing technology

energy density.

The Toyota Mirai, for instance, required only 6.8 kg of hydrogen to travel 650 km and hydrogen's energy density was, thus, seen as an advantage for trucks as the fuel would allow for large payloads to be transported over long distances without affecting power or performance.

"Today is an important stepping stone towards realising the ambitious goal of developing an on-road hydrogen mobility ecosystem," Grobler reported.

Sasol has already indicated that it is pursuing partnerships to develop hydrogen fuelling infrastructure on key corridors, including the high-density N3, as part of a three-pronged green hydrogen strategy. Its other two focus areas include manufacturing SAFs, including establishing OR Tambo as a SAF hub, and green steel opportunities in the Vaal Triangle.

The JSE-listed group produced its first green hydrogen in Sasolburg in June, using a repurposed 60 MW electrolyser and electricity produced at a 3 MW solar farm. The electrolyser uses renewable electricity to split water into oxygen and hydrogen.

The electrolysers are currently producing at a daily rate of 150 kg, but Sasol energy business VP **Priscillah Mabelane** reports that daily output will rise to 3 500 t during 2024 when electricity is wheeled to Sasolburg from the 69 MW Msenge Emoyeni Wind Farm, in the Eastern Cape.

Sasol is already a significant producer of grey hydrogen from coal and is keen to

progressively shift its feedstock from coal to gas and green hydrogen to meet its commitment to reduce greenhouse-gas emissions by 30% by 2030.

The group's shift to green hydrogen will depend on access to cheap renewable electricity, which South Africa's solar, wind and land endowments make feasible, as well as a decline in the cost of electrolysers so that green hydrogen can be produced at below \$2/kg – currently costs are said to be closer to \$5/kg.

Air Products, meanwhile, has six decades of experience in hydrogen, including supplying hydrogen to NASA for the Apollo space programme, and operates the largest hydrogen pipeline network in South Africa.

Richardson said the group is keen to play a leading role in establishing a sustainable domestic hydrogen ecosystem, noting that the company has more than 250 hydrogen fuelling sites in 20 countries and holds 50 patents for hydrogen fuelling.

"Air Products is involved not only in fuelling cars, trucks and buses, but also submarines, ships,

train locomotives, power generating systems, forklifts, and materials handling equipment," Richardson adds.

While Kirby acknowledged that FCEVs such as the Mirai were unlikely to secure significant market share domestically, he too expressed optimism about the potential for niche applications, beyond trucking.

He noted, for instance, that there was a 120-strong Mirai taxi fleet operating in Munich, Germany, and that TSAM's plant in KwaZulu-Natal had collaborated with Toyota in the UK to produce a Hilux FCEV bakkie prototype.

The prototype was assembled by Toyota UK, but the basic vehicles were built in Prospecton and sent to England for fitment of the hydrogen fuel cell powertrain.

"Ideally, we need businesses and fleets to commit up front to buy hydrogen FCEVs and substantial quantities of hydrogen to make the necessary infrastructure viable," Kirby said.

Besides investment in production and infrastructure, Richardson argued that supportive policy and regulation would be crucial if green hydrogen were to play a significant future role in South Africa's transport sector. ■

To watch a video in which Sasol's Fleetwood Grobler, Toyota South Africa Motors' Andrew Kirby and Air Products South Africa's Rob Richardson explain the significance of using Toyota's Mirai fuel cell electric vehicle to showcase Sasol's green hydrogen production and Air Products' hydrogen dispensing technology at the Smart Mobility Africa Summit in Gauteng, scan the barcode with your phone's QR reader, or go to 'Video Reports' on www.engineeringnews.co.za.



GREEN HYDROGEN

Calculated Strategy

Export component of SA's green hydrogen strategy will seek to lock in price subsidies

TERENCE CREAMER | CREAMER MEDIA EDITOR

The initial export component of South Africa's yet-to-be-approved Green Hydrogen Commercialisation Strategy is not premised on the trade of scarce renewable electrons – converted into molecules or other tradeable derivatives – to decarbonise the industries of developed economies in Europe and Asia, Presidential Climate Commission (PCC) commissioner **Joanne Bate** insists.

Instead, she explained that such exports are designed to ensure that South Africa can “lock in” the grants, concessional debt and contract-for-difference price subsidies that are currently being offered by countries such as Germany and Japan to stimulate the use of green hydrogen products in their hard-to-abate sectors of steel, cement, petrochemicals, shipping and aviation.

Bate, who is also chief operations officer at the Industrial Development Corporation and part of the panel set up by Trade, Industry and Competition Minister **Ebrahim Patel** to finalise the strategy, offered this explanation in a presentation on the proposed strategy during a PCC meeting in Johannesburg.

Concern

She acknowledged concern over the export orientation of the strategy, which some critics view as having potential to place the interest of industry and developed countries ahead of pressing domestic needs for clean energy.

However, she stressed that the subsidies being offered could provide an important impetus to the development of a green hydrogen industry that represented a “once-in-a-generation” industrialisation opportunity for the country.

South Africa's resource endowment could position the country to produce green hydrogen, which is made by splitting water into hydrogen and oxygen using renewable electricity, at about \$1/kg by 2050, which would be competitive with costs in other similarly well-endowed countries, such as Australia, Chile, Namibia and Saudi Arabia.

“South Africa is well positioned for exports, with estimates of the potential ranging between 1.9- and 8-million tons of green hydrogen yearly,” she said.

Bate added that South Africa could possibly

secure a market share of as much as 10% for green ammonia and methanol shipping fuels along the Atlantic and Indian Ocean shipping routes.

The Green Hydrogen Commercialisation Strategy would be published only once it had been approved by Cabinet, but Bate indicated that six elements, including targeted exports, had been identified as central to its successful implementation.

The other five were listed as being:

- a stimulation of domestic markets in parallel to exports, particularly ones linked to green steel, mining vehicles, petrochemical, agriculture and sustainable aviation fuels;
- supporting localisation by developing the local industrial capacity to produce platinum-bearing fuel cells and electrolyzers, ammonia cracking and balance-of-plant components;
- securing finance, including concessional finance from key export markets;
- maximising the development and transformation impact through proactive socio-economic development initiatives; and
- supportive policy and regulation to facilitate the accelerated development of a new industry.

Four green-hydrogen hubs had been identified, including Coega, in the Eastern Cape, Saldanha Bay, in the Western Cape, the Vaal region, in Gauteng, and Boegoebaai, in the Northern Cape.

Near-Term Prospect

However, the Boegoebaai hub was not viewed as a near-term prospect, given the current absence of port and power infrastructure in the area.

Bate also acknowledged concern over the need for water and indicated that various solutions, including desalination and the use of grey water, would have to be assessed on a case-by-case basis.

She argued, however, that the water required for green hydrogen would be less than 0.5% of South Africa's demand, while using desalinated water would add only a small premium of about \$0.01/kg to the cost of producing green hydrogen.

The work of the panel, she highlighted, pointed to green hydrogen being a “tangible opportunity for the country that needs to be prioritised”. ■

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EXPLORATION

Untapped Potential

SA 'definitely underexplored' – Anglo CEO

MARTIN CREAMER | CREAMER MEDIA PUBLISHING EDITOR

South Africa, with its incredible minerals endowment and extraordinary untapped potential, is definitely underexplored, Anglo American CEO **Duncan Wanblad** said in response to questions after virtually presenting on day two of the Joburg Indaba.

Wanblad was responding to a question posed by Joburg Indaba chairperson **Bernard Swanepoel** on what Anglo can do to revive exploration in South Africa.

"Anglo, as with many of our majors, has abandoned exploration in South Africa. I'll point a finger and say all our major

mining companies have used the opportunity to internationalise, to go to other jurisdictions, perfectly legitimately.

"Have you contributed as Anglo to the fact that there has been zero exploration in South Africa, and I'm overstating, in the last 20 years?

"Are you part of the problem and what can an Anglo do to revive exploration in South Africa?"

Wanblad conceded that statistics show that not a lot of exploration has been done in South Africa and that Anglo has not prioritised exploration



DUNCAN WANBLAD

It doesn't feel to me that exploration in South Africa is in any way incentivised

in South Africa for a while, not owing to South Africa as such but owing to prioritisation of areas most prospective for commodities being sought.

"We also have to structurally look at the way the system is set up for exploration in South Africa. It doesn't feel to me that exploration in South Africa is in

any way incentivised, so I'm not sure that any one company is to blame for the current situation.

"But perhaps more systemically, if we wanted exploration to occur and ultimately be able to exploit the resource base that was there, South Africa would have to set up an environment that was more accommodative of investment into exploration, which is a multi-year investment.

The South African mining sector's contribution to gross domestic product has fallen from 10% in 1993 to about 4.4% in 2022, the lowest it has been during this 30-year period.

The country is foregoing billions of rands in output as a result of the challenging business environment. 🚩

To watch a video in which Anglo American CEO Duncan Wanblad speaks at the Joburg Indaba, covered by *Engineering News & Mining Weekly's*

Martin Creamer, scan the barcode or visit www.miningweekly.com.



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GOLD

Ethiopia gold mine fully permitted

AIM-LISTED Kefi Gold and Copper has completed the last of many special permissions and policy changes agreed with the Ethiopian authorities over the years since Kefi assumed control of the Tulu Kapi gold project. The Tulu Kapi project is now finally fully permitted, with only procedural administrative confirmations remaining.

The company on October 5 received formal confirmation from the National Bank of Ethiopia of the details for the operation of offshore banking by Kefi's operating subsidiary, Tulu Kapi Gold Mines Share Company (TKGM) and its project finance banks.

This clarifies the operational details for the implementation of the policies set out in the recently published National Bank of Ethiopia Directives, which waive strategic mining projects from foreign exchange control and capital controls.

The special permissions and policy changes allow modern project finance arrangements to be applied given there has been no industrial-scale mine development in Ethiopia for 30 years.

With all matters of principle for the project now having been resolved with the authorities, the project finance banks can proceed to final credit approval for the project's \$190-million secured debt package.

Upon approval, Tulu Kapi's detailed debt terms will have been resolved, as will the structure of the overall \$390-million finance plan, of which the secured debt component amounts to \$190-million and the equity risk capital to \$130-million. Contractor supply of mining equipment amounts to \$70-million. 🚩

MARLENY ARNOLDI
SENIOR CONTRIBUTING
DEPUTY EDITOR ONLINE



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CLIMATE CRISIS

Environmental Precipice

If business-as-usual approach to conservation continues, world's doomed – Oppenheimer conference hears

MARTIN CREAMER | CREAMER MEDIA PUBLISHING EDITOR

World-renowned conservationist **Jane Goodall** reminded hundreds of scientists present at the twelfth Oppenheimer Research Conference in Midrand that if the world carries on with a business-as-usual approach to conservation, the planet is doomed.

“Forests, wetlands, peatlands, grasslands, all of which store carbon dioxide from the atmosphere, are being destroyed, and habitats lost or fragmented,” Goodall told the conference covered by *Engineering News & Mining Weekly*.

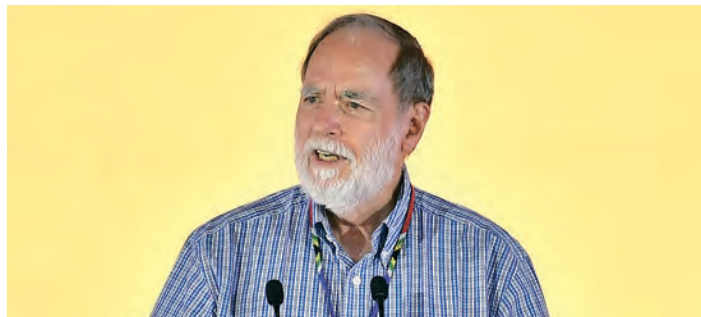
“Humanity is standing at the precipice. Given the crisis of climate change as well as the loss of biodiversity and escalating pollution, our environment is being destroyed and this threatens the sustainability of our planet,” International Relations and Cooperation Minister **Naledi Pandor** commented.

Oppenheimer Generations chairperson and former De Beers and Anglo American mining luminary **Nicky Oppenheimer** emphasised the need for a new way forward to be found amid these sobering clarion calls.

It would appear from this year's G20 meeting that the world is going to see beyond \$80-billion made available for responses to climate change. “So, we're coming close to that \$100-billion target, yet it's not a sufficient response to what we need to do. All our ambitious targets will be meaningless if they're not backed with enabling means of implementation, particularly for developing countries and more especially for mega-diverse developing countries such as ours,” said Pandor.

Strong pleas were made for the world to take on the global climate crisis in tandem with science.

“Progress is being made in



NICKY OPPENHEIMER

The relationship between humankind and nature is broken

many countries but we can't afford to be complacent. We need to do much more. We need to collaborate and form partnerships so that together we can be even more effective in creating positive change,” added Goodall.

“Despite the huge amounts of money being thrown into conservation, the relationship between humankind and nature, in my view, is broken and my hope is out of this conference will come the beginning of a new answer,” said Oppenheimer.

Pandor spoke of the South African government confronting the policy questions related to the conservation domain.

“We're working hard at finalising the Draft White Paper on the conservation and sustainable use of South Africa's biodiversity. We're very worried that our biodiversity is threatened not just by climate change but by habitat loss, invasive alien species, over-harvesting and illegal harvesting.

“We must take action that will secure ecological sustainability into the future and promote justifiable economic and social development to reduce poverty, inequality and unemployment, particularly for our rural communities,” said Pandor.

Over the dozen years of the conference, there has been a clear

nexus between community development, sustainable responses, and action on research in the conservation area.

“As we address matters of sustainability, if we can find a way of addressing these triple challenges of poverty, inequality and unemployment simultaneously, it will be a significant contribution to world development,” said Pandor.

The Draft White Paper, she added, emphasised the need for targeted research to address knowledge gaps and rapid biodiversity assessments.

“The White Paper gives emphasis to the importance of research and partnerships that highlight the value of indigenous and traditional knowledge and practices, providing localised solutions to biodiversity conservation.

“I'm really thrilled that the White Paper has recognised that science should inform policy and I think this is a very important inclusion,” said the former Science and Technology Minister.

South Africa's foreign policy approach at the United Nations Framework Convention on Climate Change and as a signatory to ensuing Multilateral Environment Agreements is that solutions to share the challenges should be collective, based on equity and involve the best available science.

“We locate climate and environment action in the context of Just Transitions and sustainable development, holding that we should leave no one behind. This is because we believe sustainable and acceptable environmental solutions for the planet and our country should be linked to people-centred development and the social and economic pillars of sustainable development.

“We believe all peoples have a right to development and a right to live in a clean and healthy environment and this is what we table when we participate internationally. As South Africa, we recognise that even our foreign policy perspectives have to be informed by scientific inputs that draw on a range of multidisciplinary scientific fields of research. We draw on physical sciences, human sciences as well as other science forms in order to develop scientific policy proposals and products, which are accessible and useable at the policy level.

“We do believe that we must address the funding issue and other challenges that would help us to unlock the full potential of our scientific community. We also need to ensure that we develop scientific products to assist us in determining policy and practice.

“At the policy level, when we are faced with the daunting and seemingly impossible task of addressing an inter-linked and long-term crisis, we need short-term and more targeted products to help spur immediate action.

“We have policymakers in South Africa who are ready to listen to science and to draw on science for solutions,” said Pandor.

The awarding of the \$150 000 Jennifer Ward Oppenheimer Research Grant to support an African-led environmental research programme at this conference was described by Pandor as a tangible way of encouraging environmental research on issues that affect Africa and the globe. ■■

To watch a video of the Oppenheimer Research Conference covered by *Engineering News & Mining Weekly's* Martin Creamer, scan the barcode or visit www.miningweekly.com.



LEADERSHIP

Executive Restructuring

Newmont announces leadership changes to facilitate Newcrest integration

MARIAAN WEBB | CREAMER MEDIA SENIOR DEPUTY EDITOR ONLINE

US-based major Newmont has announced several leadership appointments as it gears up to operate an expanded portfolio of assets and projects with the A\$26-billion Newcrest transaction set to close in the current quarter.

Natascha Viljoen recently started in her new position as COO, preparing to assume accountability for the Australian, North American and Papua New Guinea business units on November 1.

In addition to managing Newmont's existing assets, the former Anglo American Platinum CEO will oversee critical activities associated with incorporating Newcrest's people and assets into Newmont, following the completion

of the acquisition.

Newmont says **Rob Atkinson** will continue to lead the Africa, Peru, and Latin America and Caribbean (formally South America) business units, as well as global projects, and support the transition of critical operational integration activities.

Viljoen will assume full accountability for all business units in early 2024, at which point Atkinson will transition into a strategic role supporting the business in another capacity.

As part of efforts to establish a dedicated business unit in Papua New Guinea, **Alwyn Pretorius** will assume the role of MD Papua New Guinea, reporting to Viljoen. He will be based in Port Moresby.



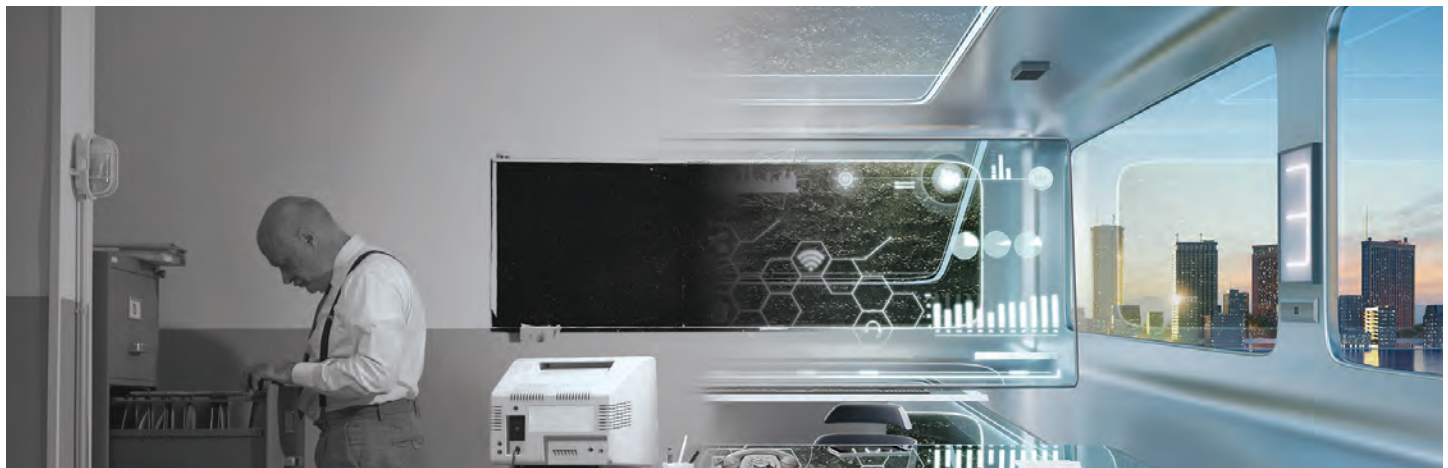
NATASCHA VILJOEN

Preparing to assume responsibility for Australian, North American and Papua New Guinea business units

Newmont states that Pretorius, who previously led Newmont's Africa and South America business units, has extensive operational and leadership experience with a strong ability to partner with community and key stakeholders, ensuring the orderly integration of the Lihir operation and the Wafi-Golpu joint venture into Newmont's portfolio.

Upon completion of the Newcrest transaction in the fourth quarter, the Australia region will have a significantly increased operational

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ELECTRICITY

Megawatts in the Pipeline

Standard Bank to finance 4 GW of renewables projects in next 12 months

TERENCE CREAMER | CREAMER MEDIA EDITOR

Standard Bank says it has financed 400 MW of distributed generation since government's recent decision to allow utility-scale projects of any size to proceed without a licence even when wheeling electricity through the grid.

In addition, its pipeline of such projects for the coming 12 months has increased to 4 GW, including some 1 GW of capacity expected to reach financial close in the coming six months.

Corporate & Investment Banking (CIB) head **Zaid Moola** described the reform to Schedule 2 of the Electricity Regulation Act, which initially removed the licensing requirement for projects below 100 MW in 2021 and later lifted the threshold altogether, as a "proper game changer".

In a briefing on the bank's renewables activities, Moola

indicated that the growth in the distributed-generation market had been rapid, noting that the pipeline was equivalent to what Standard Bank CIB had funded between 2011 and 2023 as a consequence of the country's public procurement programmes.

Over that period, the bank provided some R50-billion in funding in support of nearly 4 GW of capacity.

This arose from the successive renewables bid windows and the risk mitigation round, when the bank helped finance Scatec's hybrid 540 MW solar, 1 140 MWh battery storage project that reportedly successfully connected to the grid in late September.

Moola said the initial distributed projects were primarily linked with clients in the mining and metals sectors but there was now also growing interest from less energy intensive sectors.



LUNGISA FUZILE

Pending legislative amendments could add further impetus to private investment in generation

Standard Bank South Africa CEO **Lungisa Fuzile** said he expected pending amendments to the Electricity Regulation Amendment Bill, on which the Portfolio Committee on Mineral Resources and Energy was currently holding public hearings, to add further impetus to private investment in generation.

The legislation, Fuzile argued, was about ensuring that the legal and regulatory frameworks were "calibrated" such as to make such investments more "durable and functional over the long term".

The bank would continue to support private and public procurement, with Moola anticipating future public rounds could be structured to ensure a

greater balance between wind and solar, given the dominance of private solar photovoltaic investments

Likewise, battery storage capacity could also be a feature of future public procurement, with the first projects arising from the 513 MW/2 052 MWh storage tender expected to proceed soon and to be followed by a second even larger bidding round.

The bank would also continue to monitor developments on possible alternative grid financing, including the potential for public-private partnerships, given that investment was required to unlock further renewables generation.

Along with the wind bidders that participated in the sixth bid window of government's renewables programme, Standard Bank lost out as it had moved to partner with several wind developers, none of which advanced to preferred-bidder status owing to Eskom's claims that the grid capacity in the Western, Eastern and Northern Cape provinces had been absorbed.

Meanwhile, the bank, which is under pressure because of its ongoing support of fossil fuels, reports that it provided R30-billion in financing for new renewable energy power plants across the board in the last financial year, including in support of residential and business capacity. ■



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• From page 13
and strategic importance to Newmont's global portfolio. To support this, **Suzy Retallack** will take on the responsibility of executive Australia, in addition to her current role as chief safety and sustainability officer. Based in Perth, Retallack will represent Newmont with key industry bodies in Australia, playing a role in policy development and advocacy, while prioritising strategic activities that unify and enhance the existing strong reputation of Newmont in Australia.

"These new appointments will allow Newmont to safely and efficiently make decisions to deliver the integration of Newcrest

and ensure long-term world-class leadership across the larger business. Our future expanded portfolio will require strong and experienced leadership to support and care for our people, neighbours, stakeholders, and assets for years to come," said CEO **Tom Palmer**.

Speaking at the Denver Gold Forum recently, Palmer highlighted how Newmont was using valuable insights gained from successfully integrating Goldcorp just over four years ago.

When Newmont acquired Goldcorp during 2019, the group committed to delivering yearly synergies of \$165-million through its 'full potential' programme. ■

Introducing FlameBlock Lithium Black: Locally developed fire extinguisher for lithium-ion batteries

The newly developed and launched FlameBlock Lithium Black fire extinguisher is a 100% South African innovation developed to tackle lithium-ion battery-related fires.

The fully environment-friendly, uniquely formulated fire extinguishing agent stops a fire emerging from a lithium-ion battery immediately, brings the temperature of the battery down to 80°C – and keeps it cool – and covers the battery to prevent the escape of dangerous gases.

The product, developed by Johannesburg-based FlameBlock and available in 6ℓ or 9ℓ canisters, also interferes with the chemical reaction of the lithium-ion battery and suppresses the oxygen released by the lithium during a fire, while discharging the battery to prevent any later reignition.

Established in 2021, under the umbrella of Advanced Fire Suppression Technologies, FlameBlock develops, engineers, manufactures and supplies a wide range of fireproofing products and solutions for the engineering, mining, construction, commercial and industrial market sectors across South Africa.

The company has several developments behind its name, including FlameBlock Shield, which forms a seal to prevent the spread of flames and toxic gases through service openings; FlameBlock Paint and FlameBlock Top Coat, high-quality acrylic waterproofing used in conjunction with FlameBlock Shield; FlameBlock Panel, which is a fire-retardant panel with insulating properties designed to stop fire propagation at all services openings; and FlameBlock Wool, a high-density mineral wool board of non-combustible material easily compressed into difficult openings.

As the use of lithium-ion batteries increases, forming a critical component of the alternative power systems households and businesses are installing in response to continued load-shedding and power outages in South Africa, FlameBlock embarked on developing a

specific product for fire suppression for these types of batteries, says FlameBlock director **Ferdi van Zyl**.

A hidden danger, as the use of lithium batteries increases, is that normal fire extinguishers battle to control fires on these types of batteries, he explains, further highlighting that a study in Australia, for example, shows that



housefires caused by lithium-ion batteries are increasing.

There is also a need to bring about awareness of the dangers of lithium-ion battery-based fires that can be caused by external heat and incorrect discharge and recharging that could potentially damage the batteries.

It is not just a matter of dousing the fire in water, foam or covering it, he says, noting

that the company had undertaken extensive worldwide research and conducted testing on hundreds of batteries to understand how the lithium-ion batteries react during fires.

“The first thing you have to learn is how the lithium-ion battery operates, why it burns and how it burns. It creates its own oxygen and the chemical reaction is dangerous,” Van Zyl comments.

Tests on the batteries revealed that temperatures can reach between 800 °C and 1 000 °C during a fire on a fully charged lithium-ion battery.

While water can eliminate the fire, it only cools it down for a few seconds before the temperatures return to above 100 °C or 110 °C and the lithium-ion battery’s chemical reaction reignites the flames.

There is a need to take all of this into consideration when developing a product to mitigate this challenge.

After the extensive and in-depth research, which branched out to experts worldwide, the company set out the non-negotiable criteria for the product to put a lithium-ion battery-related fire out, including eliminating the fire immediately and reducing the temperature to below 80 °C, while preventing the discharge of dangerous gases.

The extensively-tested FlameBlock Lithium Black extinguisher meets all the criteria required, in addition to being an environment-friendly product, with natural ingredients used in its formulation.

FlameBlock Lithium Black is available and distributed through its parent company the Advanced Group’s headquarters in Alberton, Gauteng, where FlameBlock is also based.

FlameBlock also has extensive backing and access to the footprint and network of the Advanced Group across South Africa and internationally.

FlameBlock Lithium Black fire extinguishers can be serviced at any SANS 1475 accredited service provider and refills are available at any Advanced Fire Suppression Technologies branch across South Africa.

Contact:

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Email: ferdi@flameblock.co.za



ENERGY TRANSITION

Importance of Speed

Pace of energy transition will define South Africa's economic prospects – Olver

TERENCE CREAMER | CREAMER MEDIA EDITOR

Presidential Climate Commission (PCC) executive director Dr **Crispian Olver** says South Africa's energy transition and the pace at which it progresses will determine the country's long-term economic and human-development prospects and should, thus, no longer be treated only as an environmental problem.

Speaking at the Joburg Indaba, Olver acknowledged that stakeholders were "not of one mind" regarding the pace of the transition, despite broad-based agreement that South Africa needed to reduce its emissions, which were strongly associated with the continued dominance of coal in domestic energy production.

His point was underlined in a statement released by the National Union of Mineworkers only days prior in which it acknowledged both climate change and the need to reduce emissions but called for the transition to be delayed because of the threat it posed to 25 000 direct jobs and 26 000 indirect jobs in the coal value chain.

Addressing an audience that included several coal mining executives, Olver stressed that no PCC member expected the coal-fired power stations to close overnight, especially in the context of intense loadshedding.

Nevertheless, he also cautioned against moving too slowly in a context where South Africa's per capita emissions were 1.22 times the G20 average and significantly higher than

those of India and even China.

This reality could subject the country's trade-exposed sectors to the growing risk of carbon taxes and border adjustment schemes, despite strenuous efforts by the South African and other African governments to oppose the introduction of such measures, particularly where these were imposed unilaterally.

Should such measures be introduced, Olver said workers in the steel, automotive and chemicals industries, which collectively employed thousands more people than was the case in the coal sector, could be affected.

He also urged the mining sector to begin preparing for a decline in domestic and export coal sales, considering the actions being taken elsewhere in the world to reduce emissions, and cautioned against viewing the build-up of coal stocks that took place in the wake of Russia's invasion of Ukraine as signalling a sustainable revival.

While the International Energy Agency is forecasting that coal demand will remain close to the record 8.38-billion tons of 2022, the agency expects demand to begin declining and for that decline to accelerate in the 2030s.

Olver expressed scepticism about the prospects for clean coal, but said he would support the industry if it had genuine projects to demonstrate the effectiveness and cost-competitiveness of carbon capture, utilisation and storage in the South African context.

He also urged coal miners to consider diver-



CRISPIAN OLVER

No Presidential Climate Commission member expects the coal-fired power stations to close overnight

sification, particularly given the opportunities emerging because of rising demand for critical minerals. But where jobs were at risk, reskilling should be prioritised alongside rehabilitation efforts, which could extend job opportunities in mining regions.

On why South Africa should be pushing ahead with its transition when some developed countries were seemingly reneging, Olver argued that the transition would be "lumpy" and that the period ahead could be characterised by both spurts of acceleration and bouts of sluggishness. However, if viewed through an economic and human-development "prism", including those of human health and sustainable employment, the transition offered significant upside potential. ■

TELECOMMUNICATIONS

Vodacom KwaZulu-Natal injects over R1-billion into network

OVER R1-BILLION is set to be injected into telecommunications group Vodacom KwaZulu-Natal's network this financial year to increase capacity and resilience, as well as accelerate access to connectivity throughout the province, particularly in deep rural areas.

About R700-million of this is allocated to radio-access network, network capacity and upgrades projects, while R173-million will be used to improve core network infrastructure.

Vodacom KwaZulu-Natal plans to modernise 429 base station sites and expand long-term evolution capacity to 774 sites in

the current financial year.

"Vodacom KwaZulu-Natal's fourth-generation population coverage is standing at 95.8%. We are rolling out 23 new urban sites and 129 deep rural sites across the region this financial year to expand this reach and drive digital inclusion, especially in underserved areas of the province," says Vodacom KwaZulu-Natal managing executive **Imran Khan**.

Further, the company has about 200 fifth-generation sites, with plans to switch on another 122 this financial year.

"In pursuing our aim of creating an inclusive digital society, we are making a significant investment into the region's network. By expanding access to reliable, quality connectivity through the deployment of more sites and network upgrades, we aim to provide an exceptional network experience to our customers."

Increased investment in network services has resulted in a call drop rate of 0.34% and a call setup success rate of 99.4%, and has enabled the region to outperform rivals in providing the highest 'overall reliability' score and best service for voice calls in an audit by umlaut, part of Accenture. ■

NATASHA ODENDAAL
SENIOR DEPUTY EDITOR



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MATERIAL ISSUE

SA urged to adopt innovation as it confronts big waste management problem

SIMONE LIEDTKE | CREAMER MEDIA SOCIAL MEDIA EDITOR & SENIOR WRITER



ROBUST STATUTES

South Africa has effective environmental legislation and policies in place

At the heart of South Africa's environmental discussion is the pressing need to embrace a circular economy, but such a shift demands practical collaboration, inventive thinking and a resolute commitment to sustainable practices.

During a recent Creamer Media-hosted webinar on waste management and the circular economy, the Institute of Waste Management of Southern Africa's **Chris Whyte**, who facilitated the discussion, stressed that South Africa has "a significant problem with waste management".

The issue is multifaceted in nature and will involve the management of various waste streams, including electronic waste (e-waste) laden with precious metals and plastics, besides others.

"It's essential to understand the core principles driving the circular economy. It's about eliminating waste and pollution through thoughtful design, and it emphasises the need to circulate products and materials, maximising their value and life span," Whyte added.

The circular economy – supported by renewable energy, alternative materials and a resilient system – rests on the principle of regenerating nature, he said.

The circular economy goes beyond waste management or recycling, and rather "signifies a comprehensive approach to sustainable transformation, encompassing social, environmental and economic aspects".

It extends its influence across diverse sectors, such as energy, water, waste, agriculture, mining, manufacturing and finance, the positive outcomes of which "ripple into areas like health, education, environment and biodiversity", added Whyte.

EnviroServ Waste Management on-site national commercial manager **Yolandi Kruger** noted that several factors are driving businesses towards embracing the circular economy.

The foremost concern is resource scarcity in the depleted natural world, which necessitates a shift away from reliance on such virgin materials to ensure a stable supply chain, she added.

Additionally, traditional linear economy models contribute to pollution, greenhouse-gas emissions and habitat destruction.

"Embracing the circular economy significantly reduces the environmental footprint, as is evident in the example of recycled paper requiring significantly less energy and water, compared to virgin paper production."

Kruger added that businesses are motivated by cost savings achieved through buying recycled materials and benefiting from recycling rebates.

Therefore, consumer demand plays "a vital role", as environmentally conscious consumers increasingly prefer products made from recycled materials.

"Embracing the circular economy enhances a company's reputation, demonstrating dedication to sustainable practices. Ethical responsibility is also a driving force, urging businesses and individuals to prioritise waste reduction, reuse and sustainability, thereby ensuring a more responsible and sustainable future," she added.

Mindset Shift

Circular Vision sustainability consultant and associate **Bonte Edwards** advocated for a shift in perspective towards materials management and innovative design opportunities, instead of adhering to traditional end-of-pipe waste management.

She suggested various avenues that – depending on specific business requirements – include revising procurement strategies, implementing recirculating systems, enhancing resource efficiency in production, inte-

grating reuse systems within the company and supply chain, and considering take-back systems.

However, a fundamental realisation is that effective management starts with measurement, she emphasised.

“Establishing a baseline understanding of the generated waste and assigning costs to it is the initial step. Many clients find this daunting, which is why we assist in developing clear guidelines and provide support to simplify the process. Our goal is to demystify the complexities, making it easier for businesses to navigate and embrace sustainable waste management practices.”

Edwards acknowledged the favourable conditions within the waste management sphere, praising South Africa’s robust legislation and effective policies currently in place, singling out the positive impact of extended producer responsibility (EPR) regulations.

She also commended the presence of high-quality recycling infrastructure, citing, for example, advanced bottle plants for materials such as aluminium and steel packaging.

However, Edwards underscored the critical need for enhanced separation at source, urging better practices at the household and business levels to ensure the quality of recyclables, emphasising the pivotal role of product and packaging design and advocating for designs that prioritise recyclability and, ideally, reuse.

The regulations under discussion represent a potent tool, provided they are implemented effectively, scientific research and development organisation Council for Scientific and Industrial Research principal researcher in the Sustainability, Economics and Waste Research Group **Suzan Oelofse** responded.

She highlighted the call directed at producer responsibility organisations to collaborate more actively with municipalities: “The aim is to establish efficient source separation and collection systems, thereby ensuring that municipalities can no longer absolve themselves of responsibility, claiming recycling as an unfunded mandate.”

She suggested ‘waste integration’ as another avenue for progress; while many municipalities are actively engaged nationwide, they are unable to provide services or collect recyclables in certain areas, meaning “there is an opportunity to collaborate with the proactive informal sector”.

To facilitate this collaboration, guidelines are being developed to serve as a roadmap to assist municipalities in moving forward. Oelofse said it is essential that the definition of waste be clarified.

“Until there’s a clear distinction regarding what falls under the definition of waste, as

dictated by law, there remains confusion about what must be managed under the Waste Act. This lack of clarity hampers progress toward a circular economy. The resolution of this issue is critical for meaningful advancements in sustainable waste management practices.”

Collaborative Effort

While tackling these challenges can appear overwhelming, industry organisation EPR Waste Association of South Africa founder and CEO **Keith Anderson** said it “demands collective effort and accountability for our responsibilities. Together, we possess the power to make a substantial impact”.

He warned that e-waste – encompassing anything electrical or plug-operated and the fastest-growing waste stream, outpacing other categories fivefold – poses a significant global challenge.

The complexity arises from the diverse elements constituting e-waste, as equipment categorised as electrical and electronic equipment “is generally inert and poses minimal environmental risk when properly managed”.

However, challenges arise when these items are exposed to the elements, especially in countries such as South Africa, where e-waste recycling rates vary from 7% to 12%, depending on the district, with a considerable portion, including valuable items, ending up, illegally, in landfills.

Despite legislation introduced last year prohibiting e-waste disposal, the problem persists, Anderson lamented, noting that there are also significant challenges associated with the export of such discarded valuable items.

“This challenge is particularly crucial for South Africa to address, given its abundant natural resources and population. With the newly implemented EPR regulations, South Africa is taking strides toward a circular economy.”

Anderson firmly believes that an enabling environment has been created in the country, but advocates for a significant shift in mindset.

“We must recognise that Eurocentric models do not offer tailored solutions for Africa and South Africa. As part of BRICS, we can draw inspiration from their successful approaches. These countries share similarities with us in terms of population, demographics and ways of thinking.”

For instance, India offers practical and cost-effective waste treatment solutions that align with South Africa’s needs. Instead of buying expensive recycling plants from Europe, equally effective solutions can be sourced from India at about 20% of the price.

“It’s essential for government, industry



SUZAN OELOFSE

Until there’s a clear distinction regarding what falls under the definition of waste, there remains confusion about what must be managed under the Waste Act



KEITH ANDERSON

It’s essential for government, industry and consumers to shift their perspective

and consumers to shift [their] perspective. We need to acknowledge our unique context and explore solutions that are not only effective but also economically viable for addressing our waste management challenges,” Anderson noted. ■

ELECTRICITY

New Life of Life

Eskom JET strategy will give some of its coal plants a 'second life' at end of technical, economic lives

TASNEEM BULBULIA | CREAMER MEDIA SENIOR CONTRIBUTING EDITOR ONLINE

State-owned entity Eskom is undertaking a just energy transition (JET) strategy and pursuing repurposing and repowering of some of its coal-fired power stations, separate from decommissioning them. It will also see the company extend the deadline for the decommissioning of some coal-fired power stations, while loadshedding could potentially also worsen as it undertakes necessary maintenance during the summer months.

This was indicated by Eskom JET GM Dr **Vikesh Rajpaul** on October 5, when delivering one of the keynote addresses during the second day of the Joburg Indaba.

“Our objective is to achieve long-term sustainability and thereby effectively deliver on our mandate to provide electricity and power to South Africa. We continue to drive generation recovery initiatives that are aimed at preventing the current performance from deteriorating in the short term and improving the overall performance of the generation fleet in the long term,” he outlined.

Rajpaul emphasised that Eskom wanted to ensure that the existing power stations had an improved performance and to sustain this while the performance of other units was gradually improving.

“We are increasing planned maintenance in the summer months, and the consequences of this will be the possibility of increased stages of loadshedding. We endeavour to minimise and subsequently put an end to loadshedding, but not at all costs, certainly not at the expense of the already ailing generation fleet. Therefore, we will not compromise on planned maintenance,” he emphasised.

To remain relevant and fit for purpose, Rajpaul said Eskom was pursuing a JET strategy which sought to offer a second life to its power stations at the end of both economic and technical life.

He said Eskom’s JET strategy could enable it to plug the supply-demand gap sooner and in a more cost-effective manner, given that renewable energy had been proven to be



ASSET SWEATING

Eskom is exploring options for the continued operation of coal-fired power stations beyond their anticipated decommissioning dates

the fastest way to bring in new capacity and thereby reduce the risk of loadshedding.

However, he emphasised that the transition must be done in a manner that is socially just and sensitive to potential impacts on jobs and local economies.

“As a result of the energy crisis, and the country’s inability to add new generating capacity, we are currently exploring options for continued operation of all coal-fired stations beyond the anticipated decommissioning dates to allow the country some breathing space to add new generating capacity,” Rajpaul informed.

“This does not entail a life extension, but rather, sweating of the assets and delaying the shutdown,” he explained.

Rajpaul said that, through the JET strategy, Eskom could put carbon emissions into a structural decline, while growing the economy by creating sustainable jobs in the country.

He said that while the country explored opportunities to adjust to the energy crisis, Eskom had decided to decouple station decommissioning from repurposing and repowering.

“We have completed socioeconomic impact assessments to understand the impact of station shutdowns, but, importantly, to

understand the opportunities that present themselves as we transition to a new economy,” Rajpaul averred.

He said Eskom had begun development of new renewables in the form of solar photovoltaic (PV), wind, battery energy storage and synchronous condensers at its power stations.

He emphasised that, importantly, in the decision to decouple the station decommissioning from its repowering and repurposing initiatives, the intention is for Eskom to have continued economic activity at those power stations so that there is no repetition of what happened at Komati power station.

Here, he acknowledged that Eskom should have acted sooner, and plans should have been in place with community members, in terms of new generation capacity, and in terms of new economic activities, before the last unit was brought offline.

He said the company would implement lessons learned from Komati at other power stations, that is, it intended having economic activity to provide a second life to these, and to support the communities and engender a smooth JET.

In this vein, he said that Eskom would shortly issue a request for proposals to the market for a

75 MW solar PV plant at the Lethabo power station in the Free State; and is also looking at a 100 MW PV plant at Komati that will be going out to the market in the near future.

Rajpaul also said that Eskom was accelerating the development of the transmission grid in the Northern Cape and Eastern Cape provinces to enable the addition of new generation capacity from independent power producers. “The debt relief by government is helpful in this regard,” he highlighted.

Rajpaul pointed out that the utility’s transmission development plan called for the building of 14 000 km of new transmission lines over the next ten years.

He said Eskom teams continued to evaluate and finalise network plans in areas with strong transmission network capacity, especially in Mpumalanga, the North West and the Free State.

“These parts of the country have potential to accommodate additional capacity at a relatively short period because we have the established transmission infrastructure in place.

“This is particularly so at some of the older power stations that will be retired, making transmission capacity available for cleaner energy sources.

“This potentially also paves the way for virtual wheeling arrangements,” Rajpaul said. ■



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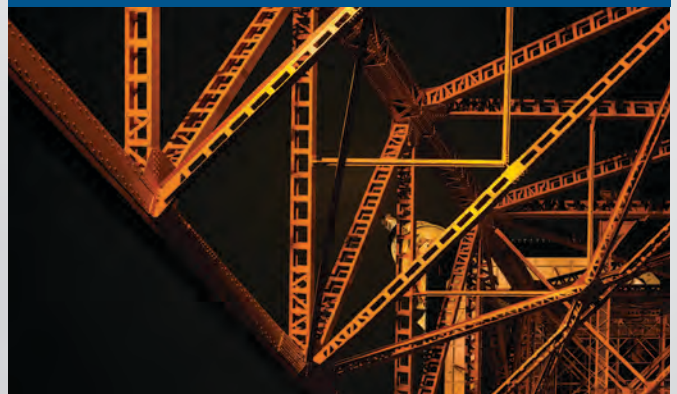


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Waste Management & the Circular Economy

Webinar

Panel discusses pathways for businesses to navigate circular economy

Compiled by Simone Liedtke



The circular economy, encompassing waste reduction, product reuse and environmental restoration, has gained momentum as a sustainable alternative to linear economic models.

It is a key focus in sustainable development discussions, extending product lifespans, regenerating natural systems and impacts on sectors such as energy, water, waste, agriculture and manufacturing, positively influencing health, education, the environment and biodiversity.

However, if businesses are to thrive in this sustainable new world, waste management service provider EnviroServ Waste Management on-site national commercial manager **Yolandi Kruger** says, businesses will need to focus on several key factors to pivot toward a circular economy.

Kruger was one of four panellists who participated in *Creamer Media's* Waste

Management and the Circular Economy webinar on October 4, facilitated by the Institute of Waste Management of Southern Africa's (IWMSA's) **Chris Whyte**. He emphasised that practical, real-world projects underscored "the need to move beyond theoretical discussions".

Kruger explained that embracing a circular economy helps break the reliance on raw materials, ensuring a stable and sustainable supply chain.

The circular economy also significantly reduces environmental impact by mitigating pollution, greenhouse-gas emissions and habitat destruction, he added.

"Consumer demand is also a driving force, as more environmentally conscious consumers seek products made from recycled materials, pushing businesses to adopt circular practices. Ethical responsibility plays a crucial role as well, compelling both individuals and companies

to adhere to the waste hierarchy, focusing on reduction, reuse, and responsible recycling."

Circular economy transition consultancy Circular Vision sustainability consultant and associate **Bonté Edwards** shared similar insights and suggested "redesigning products and processes to minimise waste generation" in the system.

Moreover, she noted that businesses could leverage renewable energy sources as this would "not only reduce their environmental impact but also lead to cost savings over the long term".

Electronic waste (e-waste), however, presents challenges of its own, and highlights the need for effective recycling practices, said industry organisation EPR Waste Association of South Africa (eWASA) founder and CEO **Keith Anderson**.

He explained that e-waste, being the fastest-growing waste stream globally, "necessitates

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stringent regulations and responsible management”.

Anderson stressed the importance of policy implementation, citing extended producer responsibility (EPR) regulations as essential for managing and recycling e-waste effectively.

Collaborative efforts between African countries is vital, he added, as this allows countries to “learn from one another’s experiences and adapt cost-effective waste management practices”.

Council for Scientific and Industrial Research (CSIR) principal researcher in the Sustainability, Economics and Waste Research Group **Suzan Oelofse**, meanwhile, addressed the challenges faced by municipalities in managing waste effectively, especially in rural areas.

She lamented that financial constraints, operational limitations, legislative complexities and inadequate planning and management were significant hurdles.

Speaker Highlights

“The circular economy centers on three design-driven principles: eliminating waste and pollution, maximising the circulation of products and materials for high value, and prioritising the regeneration of nature.”

Chris Whyte – IWMSA

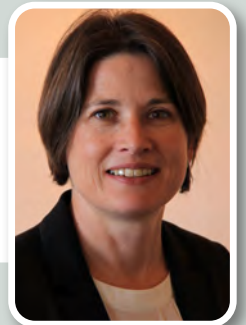


“Our world faces an alarming depletion of natural resources, compelling us to break free from our reliance on virgin materials for a sustainable future. Embracing the circular economy not only ensures a stable supply chain but also mitigates environmental impact, significantly reducing pollution and greenhouse-gas emissions.”

Yolandi Kruger – EnviroServ Waste Management

“By emphasising redesign opportunities over downstream waste reduction, we encourage businesses to explore options such as recirculating systems, resource efficiency, in-house reuse systems and take-back systems, with landfill avoidance as a last resort.”

Bonté Edwards – Circular Vision



“Until there’s a clear distinction regarding what falls under the definition of waste, as dictated by law, there remains confusion about what must be managed under the Waste Act. This lack of clarity hampers progress toward a circular economy.”

Suzan Oelofse - CSIR

“The reality is that none of us can achieve this alone; it demands collective effort and accountability for our responsibilities. Together, we possess the power to make a substantial impact.”

Keith Anderson – eWASA



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CLOUD COMPUTING

Cloud Bonanza

Cloud adoption to deliver R3.9tr worth of economic benefits over the next decade

NATASHA ODENDAAL | CREAMER MEDIA SENIOR DEPUTY EDITOR

A new report commissioned by Amazon Web Services has revealed a potential R3.9-trillion economic boost by 2033 from cloud adoption in South Africa.

The report, which quantifies the relationship between public cloud computing adoption, national productivity and economic growth in South Africa over the next ten years, shows the potential for the multitrillion-rand additional economic value, representing 4.05% of South Africa's cumulative gross domestic product (GDP), by accelerating adoption of cloud.

The study was undertaken by Telecom Advisory Services and directed by Columbia Institute for Tele-information (Columbia Business School) business strategy research director **Raul Katz**.

Katz explains that previous research and studies on the economic impact of cloud were focused on the firm level, understanding the

microeconomic benefits associated with cloud adoption, and, while valuable, did not quantify the aggregate effect of cloud on the economy in a similar way to what has been done in areas such as broadband Internet.

"To address this gap, our team at Telecom Advisory Services developed a state-of-the-art econometric model, leveraging global series of data on cloud adoption between 2014 and 2021," he says.

"This report underscores the immense potential for South Africa, and the sub-Saharan Africa (SSA) region, to harness cloud computing and expedite economic growth. By increasing the current average cloud penetration, the region can unlock additional economic value," adds AWS SSA GM **Amrote Abdella**.


The report shows that cloud adoption made a significant impact on the South African

economy in 2021, contributing 0.18% to the regional GDP and generating an economic value of R14.3-billion. More than 78% of this impact can be attributed to the national productivity gains or so-called spillover effects on the economy, while the remaining 22% is driven by cloud spending from both public and private organisations.

"It was found that South Africa has the highest economic growth, owing to cloud adoption in SSA, with a 1% increase in cloud penetration yielding a 0.06% increase in GDP growth, three times more than the SSA average," says Katz.

"Extrapolating this data, a 10% increase in cloud penetration across the entire SSA region would result in economic spillover effects amounting to an estimated R71.9-billion a year," he added.

"The study demonstrates that the economic impact of cloud computing is guided by returns to scale – greater adoption of cloud computing will lead to proportionally greater productivity gains and economic impact."

There is an opportunity for South Africa to enhance its cloud penetration and reap substantial benefits, as, according to the report, only 34% of organisations in South Africa embraced cloud computing in 2021, significantly lower than the adoption rates of 49% in Western Europe and North America. 



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Constructing the future of engineering insurance

Mirabilis's long-term strategy to be the preferred provider of specialist engineering insurance in South Africa, the rest of Africa and selected international markets has made it a trustworthy brand.

Engineering underwriting manager within Santam Specialist Solutions, Mirabilis, has provided engineering reinsurance on the African continent since 2006 and globally since 2014. This diversity has ensured sustainability that other local engineering insurers have not benefited from, especially as reliance on the South African market can be fraught with difficulties. Low investor sentiment may be a global challenge, but it has been exacerbated by the South African disasters of rioting, looting, fires, floods, excessive hailstorms, the declining economy, and the extreme and debilitating loadshedding regime.

Although the government highlights infrastructure development as an imperative, the projects are slow to manifest. And it is not that the projects don't exist; in fact, the construction industry has been pleasantly surprised by the creativity of the mid-market tier construction industry looking for new opportunities.

"If these movements hadn't happened, the industry would be in a far more difficult space right now," says Mirabilis CEO **Curt Meyer**. "But in this environment, resilience and creativity are neither the only nor the most important factors that ensure profitability. Anyone

can issue a policy, but not many can pay the claims." And that, it seems, is what ensures survival and profitability in disruptive times.

Meticulous Underwriting

Mirabilis is discerning about the projects it underwrites. Meyer explains that this means asking the difficult questions upfront so that Mirabilis can insure a project correctly.

“Without our South African base and the support of our South African brokers we would not have been able to launch successfully outside of South Africa's borders. We are committed to remaining a lean and agile South African organisation.”
- Meyer

"These questions may appear burdensome to the potential client and sometimes sways the choice of an underwriter to a competitor. This may be good in the short term, but the policyholder may find a claim is not valid based on issues that were not factored into the policy."

An example is the extent to which environmental, social and governance (ESG) challenges have come into play in South Africa and other countries on the continent.

"Those include understand-

ing the political environment that could pose a problem for our clients in the future, and the ever-changing legislative environment," says Mirabilis Head of Africa **Shane Graham**, who works alongside Meyer.

"We ensure we are kept well-informed of all macro and micro-economic disruptors through our closely connected network that operates across 32 African nations. This information is crucial to the success of our brokers, and to ensure that we keep risk prudent," he explains.

"These challenges include understanding the political environment that could pose a problem for our clients in the future, and the ever-changing legislative environment. Keeping risk prudent has not impacted Mirabilis's commitment to support South Africa's growth strategy. "If anything, we have further entrenched our service provision because we are confident that the South African construction industry will recover. We partner with 1 600 brokers, providing them with support and technical knowledge, which enable them to successfully insure their clients' projects."

Lean and Agile Business

Meyer and Graham expect the engineering insurance portfolio to grow, given the recovery of the construction industry, which was one of the most affected sectors during the COVID pandemic. However, engineering projects can take considerable time to material-



Mirabilis CEO Curt Meyer

ise and involve multiple parties and stages of development that influence how the insurance is structured, with risk often spread across multiple insurers.

That said, Meyer stresses that, regardless of Mirabilis's global footprint, South Africa remains its home base and heart of its operations.

"Without this base and the support of our South African brokers we would not have been able to launch successfully outside of South Africa's borders. We are committed to remaining a lean and agile South African organisation. This message is delivered in all our markets, be that in India, Middle East, Egypt, Bangladesh, Morocco or Cape Town," he concludes.



RENEWABLE ENERGY

Inordinate Delays

Govt taking too long to wrap up power projects – Ramokgopa

IRMA VENTER | CREAMER MEDIA SENIOR DEPUTY EDITOR

Electricity Minister Dr **Kgosientsho Ramokgopa** says he “laments” the time it takes government to go from issuing requests for proposals (RFPs) to announcing preferred bidder status and reaching financial close when it comes to renewable-energy power projects.

“Our going out for RFPs and preferred bidder status is really the domain of the State, and the State takes an inordinate amount of time.”

Speaking at Windaba 2023 in Cape Town, Ramokgopa said a study indicated that it took on average about 18 months for this process to be concluded.

“That is unacceptable by any measure. It is going to disincentivise the private sector from coming to this space.”

Ramokgopa added that rolling out renewable power projects was also about “the frequency with which you go out to the market”.

“If that frequency is erratic, if the periods are too far from each other, then you lose market appetite.

“That is why it is important you resolve . . . the frequency with which you go out to the market, and then also truncate the process of

when you go out and get to preferred bidder status.

“Once the market has that confidence, and then you will have a thriving [renewable-energy] sector.”

Ramokgopa’s comments come as the seventh round (Bid Window 7) of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) remains in limbo, having been delayed since early last year.

Grid Capacity

The previous bid window, REIPPPP Bid Window 6, illustrated that there had to be symmetry in the geographic location of renewable-energy projects and the grid capacity available, noted Ramokgopa.

“The State must be deliberate in redirecting interest to where these opportunities are.

“Of course, the market will make its calculations and decide if it wants to go to these spaces or not, but the State must guarantee grid capacity. The State cannot be an impediment.”

Ramokgopa said a survey of renewable-energy projects developed by the South




KGOSIENTSHO RAMOKGOPA

Government must resolve the frequency with which it goes to market

African Wind Energy Association and the South African Photovoltaic Industry Association showed that 66 GW of wind and solar projects were in development across the country.

He said strengthening the transmission network would be key to enabling this investment.

The Western and Northern Cape provinces have zero grid capacity remaining following a spate of wind and solar projects in recent years, while the Eastern Cape is close to maxed out.

KwaZulu-Natal has the biggest grid capacity available, but has attracted the least interest from power producers, as recorded in July this year. 

AUTO INDUSTRY

Ford to add plug-in hybrid to Ranger bakkie line-up in 2025

AUTOMOTIVE MANUFACTURER Ford WILL add a plug-in hybrid electric vehicle (PHEV) to its Ranger bakkie line-up from early 2025.

The source plan for the vehicle has not been confirmed yet, says Ford Motor Company of Southern Africa, so it is unclear whether the PHEV will be produced at Ford’s Ranger plant in Pretoria, along with the rest of the bakkie range.

The US carmaker says the PHEV will “mark a significant step forward in Ford’s plans to offer a wide range of powertrain options for customers in the mid-sized pick-up segment”.

“The Ranger PHEV is a best-of-both-worlds solution for work, play, and family – offering customers zero-tailpipe emissions EV driving for short trips, or hybrid



ELECTRIC COMMUTE


The PHEV can be driven in pure electric mode for more than 45 km

performance that delivers incredible on- and off-road performance,” said the company.

The PHEV will feature a 2.3ℓ EcoBoost turbo petrol engine, paired with an electric motor and rechargeable battery system.

The vehicle can be driven in pure electric mode for more than 45 km without using a drop of fuel, or producing tailpipe emissions, which should help customers save at the pump.

The PHEV will also feature Pro Power Onboard, which will enable customers to power their tools and appliances on a worksite or remote campsite by plugging them into power outlets embedded in both the cargo bed and the cabin.

The PHEV will also come equipped with four-wheel-drive capability, selectable drive modes and all the advanced driver safety and driver-assist features found in other top-grade Rangers. 

IRMA VENTER
SENIOR DEPUTY EDITOR

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RENEWABLE ENERGY

Success Factor

‘Anchor demand’ a must for renewables masterplan to succeed – Montmasson-Clair

IRMA VENTER | CREAMER MEDIA SENIOR DEPUTY EDITOR

The energy sector requires consistent demand from a consistent flow of renewable-energy projects in order to invest in local manufacturing, and not “haphazard demand that comes and goes”, says South African Renewable Energy Masterplan (Sarem) facilitator and Trade and Industrial Policy Strategies (TIPS) senior economist **Gaylor Montmasson-Clair**.

“Anchor demand is critical. For me, it is really important that we smooth out that process going forward.

“We have to acknowledge that every country that has built a renewable-energy industry to date has done it with significant anchor demand and a very supportive policy framework.

“If we think we are going to manage that without those two factors, we are kidding ourselves,” says Montmasson-Clair.

“We really need to do these things in a scripted manner, and that is the clarity we are trying to provide through Sarem, so that we are all on the same page.

“As a country, we must put forward our position and what we want to achieve, and then



GAYLOR MONTMASSON-CLAIR

A dedicated unit will drive Sarem implementation

we have a shot.

“Of course, we do have that crunch now, where there is tension between resolving loadshedding as fast as possible, almost at any cost, and to also do this in a way that builds industry.”

Expansion

Sarem seeks to expand South Africa’s manufacturing industry on the back of government’s procurement of renewable energy from

private investors, among other goals.

Montmasson-Clair’s comments come as the seventh round (Bid Window 7) of government’s Renewable Energy Independent Power Producer Procurement Programme remains in limbo, having been delayed since early last year.

“Government, in some shape or form – national, provincial, municipal – has its fingers in a lot of procurement, either direct or indirectly,” notes Montmasson-Clair.

“This can be through guarantees, loans, grants, or directly. If this is the case, it must come with some sort of localisation objective.

“We cannot subsidise the importation of renewable-energy technologies without any conditions.”

Montmasson-Clair adds it is important to now focus on the immediate steps.

“For me, the first thing is plain and simple – we need to launch Sarem.

“It’s been too long since the process started. We need to finalise that – we are very close to doing that.”

However, completing the masterplan is just “a ticket to the game”, he notes.

“Then we have to implement what is in the plan.

“We are going to have a dedicated unit set up to drive implementation and to push the various interventions.”

Montmasson-Clair says industry and government are “working hard” to launch Sarem by the end of the year, but adds that this could possibly be delayed until early next year.

“We are now embarking on the final negotiations around targets.”

TELECOMMUNICATIONS

Paratus goes live with Starlink in Zambia

FOLLOWING THE announcement of a distributor agreement for Starlink’s high-speed services across Africa, pan-African telecommunications, data centre and network services provider Paratus has gone live with Starlink’s business services in Zambia.

In September, Paratus Group announced that it had entered into an agreement as a distributor for Starlink’s high-speed services, which enables Paratus to provide Starlink to its customers across Africa as operating licences are awarded in those countries.

Starlink will be available with immediate effect initially from Paratus in Mozambique, Kenya, Rwanda and Nigeria, before being rolled out to more countries.

Paratus will be able to provide its customers with both fixed, mobility and maritime

services with immediate effect, along with 24/7/365 enterprise support. “This agreement aligns perfectly with our vision of transforming Africa through exceptional digital infrastructure and customer service.

“It means we can offer industry sectors, such as land and offshore energy, mining, hospitality, education, healthcare and agriculture, besides others, the reliable and constant connectivity they need to flourish, no matter how remote they are,” says Paratus Group chief commercial officer **Martin Cox**.

“The Starlink agreement further strengthens our low-Earth-orbit satellite services offering across Africa and affirms our considerable capability and reach on the continent.

“It reinforces our goal to collaborate with

entities that share our vision of transforming both African businesses and communities.”

Following this, on October 2, Paratus Zambia announced that Starlink launched its business services in that country, with Paratus Zambia country manager **Marius van Vuuren** noting that Paratus recognises and applauds the hard work done by government, regulators and other authorities, in conjunction with Starlink, in ensuring this technology is available to the Zambian market.

“We are well prepared to take the Starlink service to our customers, both existing and new, having ready access to the equipment with skilled and trained satellite engineers, along with the required support structures.

“We firmly believe our value-add is an essential ingredient in making Starlink a huge success in Zambia.”

NATASHA ODENDAAL
SENIOR DEPUTY EDITOR

CRITICAL RAW MATERIALS

Challenges & Solutions

Low grades among obstacles facing SA mines but technology seen ensuring long-term sustainability

DARREN PARKER | CREAMER MEDIA CONTRIBUTING EDITOR ONLINE

Overcoming the numerous challenges faced by the South African mining industry and ensuring its long-term sustainability and growth will require turning research curiosity into improved performance, relationship building and enabling technology, Wits Mining Institute (WMI) director Professor **Glen Nwaila** has said.

Speaking at the annual WMI Seminar, in Johannesburg, on September 28, he noted that the challenges facing the industry encompassed a range of issues, each with its own unique complexities and potential solutions.

One pressing issue is the proliferation of low-grade mines and the complex operating conditions they entail. High-grade ore deposits are dwindling, necessitating the extraction of lower-grade ores. These lower-grade ores are often more difficult and expensive to mine.

To address this challenge, the industry must embrace sustainable mining practices, use advanced ore processing technologies and invest in efficient mining equipment. These measures can enhance the economic viability of low-grade mines and ensure their continued operation.

Another challenge is the transition to deeper mines, which introduces heightened operational and safety concerns. As mines extend deeper into the Earth's crust, the risks associated with mining activities increase significantly.

To mitigate these risks, mining companies should allocate resources to research and develop advanced drilling and tunnelling technologies. Additionally, automation and stringent safety measures should be integrated into mining operations to safeguard the wellbeing of workers and enhance overall efficiency.

Climate change, coupled with energy costs and water scarcity, poses yet another challenge for the industry. The adverse impacts of climate change, rising energy expenses, and water shortages can disrupt mining operations and increase their vulnerability.

To address this, Nwaila said the industry should adopt renewable energy sources to reduce its carbon footprint and dependence on conventional energy.

Implementing water recycling systems and sustainable mining practices can help

conserve this precious resource, thereby enhancing resilience against water scarcity and related challenges.

He also highlighted critical raw material (CRM) mining, which he said presented unique operational difficulties owing to its smaller scale, high operational costs and limited technical and management skills.

Nwaila said collaborative efforts, such as research and development (R&D) initiatives and government support, were essential to improve the viability of CRM mining operations. Moreover, he said that investing in technical training and capacity-building programmes could empower the industry to better navigate these challenges.

He explained that recovery rates for CRMs were a crucial factor in ensuring the economic viability of mining operations. To improve these rates, he said that the industry should focus on continuous process improvement, employing advanced separation techniques, and using monitoring technologies to optimise recovery processes.

"We don't have all the CRMs in South Africa, meaning that the only way we can actually justify the transition in the country is to work with our fellow African countries. For this, we have a list of direct battery materials, and we also have a list of cross-cutting elements. This actually assists us to participate in terms of harnessing the knowledge and putting together a database that we call a catalogue that looks at CRMs," Nwaila explained.

He added that there were three aspects pertaining to the integration of a CRM catalogue with the national CRM masterplan, with the first being the CRM catalogue development.

This comprises a comprehensive assessment of CRM needs, along with the regular updating of the CRM list. Nwaila explained that geological surveys would be a key contributing factor to this information, along with an analysis of supply chain integration. The catalogue would also include geopolitical and economic risk assessments, as well as an evaluation of global CRM trends and an analysis of supply and demand factors.

The identification of CRM substitutes would also play an important role in developing the policy framework for CRM security and the development of a CRM security strategy. Measures to reduce import dependence would



GLEN NWAILA

Lower-grade ores are often difficult and expensive to mine

also need to be assessed. Stockpiling and strategic reserve security would also require assessment, along with trade and export controls.

Several strategic manufacturing initiatives would also be part of the integration with the national CRM master plan. This would include investments in CRM processing facilities, R&D, CRM technologies, and support for CRM value chain development.

Nwaila emphasised the importance of encouraging circular economy practices.

He said that, in an era marked by constant disruptions, the need for resilient mining operations was evident. Digitalisation, the Internet of Things, and artificial intelligence (AI) would all play pivotal roles in achieving this resilience. By embracing these technologies, mining companies could optimise their operations, enable predictive maintenance, and establish reliable supply chains, Nwaila said.

Nwaila said two overarching solutions had been identified to address these challenges effectively.

Firstly, fostering a data-rich and informed society would be critical. This would involve making data-driven decisions, harnessing the power of AI and machine learning for data analysis, and automating repetitive tasks to enhance efficiency and decision-making within mining operations.

Secondly, Nwaila believed that an industrial evolution within the minerals sector was necessary. This evolution called for collaboration between skilled workers and AI-powered systems to boost productivity through human-machine collaboration, he said. ■

To watch a video in which Wits Mining Institute director Professor Glen Nwaila discusses the development of the CRM catalogue, scan the barcode with your phone's QR reader, or go to 'Video Reports' on www.engineeringnews.co.za.



TRADE@WORK

Egg-spectations

What word best rhymes with ‘chicken’? it’s ‘sicken’, of course. How appropriate then that this piece is about a ‘sicken’ chicken. Let me apologise in advance if I am sickening you with all the articles on chicken published in this column this year. I know that you have hardly had time to digest ‘fowl play’, which was published on August 18. But then, what would a year be without South Africa’s protracted ‘chicken wars’, or should it be the drumstick wars?

Ever wondered as to the origin of the word drumstick? It was borrowed from the reference to a turkey drumstick, which has its origin in the sixteenth century, as it resembled what people in the 1500s knew to be percussion drumsticks. These were not two straight drumsticks; rather, they looked like mallets.

From a culinary perspective, a chicken leg quarter, or simply the leg, includes two parts: the drumstick and the thigh. These two pieces may remain attached or sold as separate cuts.

The thighs are sold either bone-in or boneless, while drumsticks and whole legs are most often sold with the bone.

Which brings us to the International Trade Administration Commission of South Africa’s (Itac’s) Government Gazette notice of October 2, on which comments are due by October 16. If you are reading this piece after the closing date, I am sure Itac would entertain your comments if it has not already published a Correction Notice.

The gazette in question is the sole ‘customs tariff application’, as Itac refers to it, and is the seventh of 2023, which is indicative of Itac’s extremely low work rate as far as tariff applications are concerned.

This in itself should raise questions as to the excess capacity that Itac possesses for conducting tariff applications, and why Itac, unlike its predecessor, the Board on Tariffs

and Trade, does not review and propose tariff amendments to the Southern African Customs Union (SACU) Customs Tariff. This begs another question: What happened to the SACU Itac, and its formation? To not be distracted from our focus on chicken – these are ideas for future articles to be published in this column.

As for the gazette, an application was launched by the Department of Trade, Industry and Competition (dtic), whose Minister is essentially Itac’s boss.

The application is in respect of a ‘Ministerial directive’ to create a temporary rebate provision rebating the full duty in Schedule No 1 and Schedule No 2 of the Customs and Excise Act of 1964 on meat and edible offal (fresh, chilled or frozen) of fowls of the species *gallus domesticus*, classifiable under tariff sub-heading 0207.1, in such quantities, at such times and subject to such conditions as Itac may allow by specific permit after consultation with the director-general of the Department of Agriculture, Land Reform and Rural Development (DALRRD), for the duration of the shortage of chicken as a result of an outbreak of Highly Pathogenic Avian Influenza (HPAI) in South Africa. HPAI, if you need reminding, is bird flu, and Schedule No 1 refers to ‘ordinary customs duties’, and Schedule No 2 to ‘antidumping, countervailing and safeguard duties on imported goods’.



Riaan de Lange

According to the gazette, the Minister directed Itac in terms of the International Trade Administration Act, 2002, to consider the creation of a temporary rebate provision on meat and edible offal (fresh, chilled or frozen) of fowls of the species *gallus domesticus* (chicken to you and me) taking into consideration the following aspects: the investigation must be done in an expedited manner; consideration must also be given to whether the temporary rebate should only be applicable to ordinary customs duties or whether rebating antidumping duties should also be included; and the rebate must be made subject to a rebate permit issued by Itac in consultation with the director-general of the DALRRD.

The obvious question is: Why is the application being launched only now when, according to the World Organisation for Animal Health, the first HPAI outbreak began on May 29 in Mpumalanga, which is 126 days ago? A final question would be: Why should consideration be given to rebate the antidumping duties?

● This economic and trade-focused column is prepared by Riaan de Lange – riaan@tariffandtrade.co.za. The views expressed in this column are the author’s personal views

TRADE & FINANCE

Half of CEOs express doubts South Africa with benefit from BRICS membership

THIS quarter’s Merchantec CEO Confidence Index (MCCI) indicates that 55% of CEOs that were surveyed harbour doubts about the potential benefits of South Africa’s association with the Brazil, Russia, India, China and South Africa (Brics) trade grouping.

The questionnaire aimed to gauge perceptions regarding whether Brics could offer South Africa opportunities for trade, investment and technology exchange that could

contribute to the nation’s economic growth and development.

The results show that just over half of South African CEOs that were surveyed do not view Brics as a remedy for the country’s economic issues.

One of the prominent concerns voiced by the CEOs is that Brics members are not substantial trading partners for South Africa when compared with other key partners such

as the UK and the US.

Some CEOs also expressed apprehension that closer ties with Brics might alienate these existing trade partners, possibly owing to perceived conflicts of interest.

Moreover, the economic climate in South Africa has left many CEOs uninspired and lacking confidence, the index indicates.

Merchantec says that businesses are struggling with persistent power outages, logistical challenges, corruption, and high-interest rates, making it increasingly difficult to operate.

Despite these challenges, the MCCI recorded a 10% improvement in CEO confidence between the second and third

AFRICA BEAT

The bad and the good of AI

ChatGPT, the artificial intelligence (AI) chatbot tool, has been around for just under a year, having been unveiled in November last year, yet it has become a major talking point, with the exchanges prompted by concern and optimism alike – almost in equal measure.

In January, academics at some of the world’s top universities set about probing whether ChatGPT threatened the continued credibility of traditional ways of assessing if their graduates would be worth their salt as, say, MBA degree holders. I’m talking, of course, about good old end-of-semester exams, assignments and dissertations or theses.

One of the universities that engaged in this exercise is the University of Minnesota, in the US, and the researchers found that, after completing 95 multiple choice questions and answering 12 essay questions comprising exams for four law modules, ChatGPT performed at the level of a C+ student. Not exactly flying colours, but a pass nonetheless.

It fared much better in a business management course at the University of Pennsylvania’s Wharton Business School, ranked by CEOWORD Magazine as the 2023 number one provider of business education globally. It attained a B to B- grade, with a business professor at the prestigious school saying it did an amazing job of answering basic operations management and process-analysis questions but struggled with more advanced prompts and made surprising mistakes with basic maths.

Similarly, ChatGPT passed final-year exams at the Stanford Medical School.

Inspired by how ChatGPT had fared in the US studies, **Andre Calitz**, a distinguished professor of computing sciences at Nelson Mandela University, and his wife, **Margaret Cullen**, a business studies professor at the same institution, set out to undertake similar

research in South Africa. Their research question was: Can ChatGPT pass MBA modules in South Africa? The study entailed presenting 2022 examination papers for MBA modules from several business schools in this country to the bot, and the answers generated were marked by examiners of the respective modules. ChatGPT passed 12 of the 15 modules, Calitz and Cullen state in a paper that ensued from the research – titled ‘ChatGPT: The new MBA student in your class’ – which earned the couple a top award at an international business conference held in Namibia last month.

Now, calls have been made by some for ChatGPT to be banned from the educational arena, with a senior academic from Wharton telling American television channel CNN earlier this year: “Bans are needed. After all, when you give a medical doctor a degree, you want them to know medicine, not how to use a bot. The same holds for other skill certification, including law and business.”

But this doesn’t mean there is nothing to recommend the use of ChatGPT in higher education. For one thing, it can improve access to education by speaking out responses to students with visual impairments, summarising topics and concepts from a course for students with learning disabilities and enabling students who have trouble typing or using a keyboard to speak out their queries. For another, it can assist educators by, for example, analysing students’ assignments and aiding in grading and providing constructive feedback. Based on an analysis of a student’s



Martin Zhuwakinyu

performance, ChatGPT can structure the course to meet the student’s needs, besides assisting with exam preparation.

We have also seen how deep fakes – the twenty-first-century answer to photoshopping, where AI is used to create convincing images and audio and video hoaxes – have been used to confuse voters in an election. In the US, where the next Presidential election is due in November 2024, the hoaxes are proliferating on the Internet. This came to the fore in April when **Joe Biden** announced his re-election campaign and his party promptly ‘released’ a rebuttal video portraying how an apocalyptic second term for the elderly President would look like. The video was quite convincing, but it was all a malicious hoax.

But AI also has the potential to enhance democracy by, for example, carefully deploying it in an election campaign to engage voters and help them be more informed about important issues.

● Dr Zhuwakinyu, who holds a PhD in communication (media studies) from the University of South Africa, is Creamer Media senior deputy editor – martinz@engineeringnews.co.za

quarters. This increase in overall CEO confidence in South Africa is demonstrated by rising confidence in the following sectors: consumer goods, industrials, financials, information and communication technology, and consumer services, reaching 51.4 points in the third quarter.

Consumer services recorded the largest increase in confidence at 35% moving to a score of 55.42. This sentiment was attributed to a 34% increase in confidence relating to company growth expectations.

Consumer goods recorded an increase in confidence in the period, rising 16% from 45.88 to 53.24 points, moving above the neutral score line of 50 points.

The rise in sentiment was primarily driven by a 35% increase in confidence relating to economic conditions and a of 17% increase in company growth expectations.

Technology increased by 16%.

Financials recorded a 15% increase in confidence. This sentiment was attributed to a 68% increase in confidence relating to economic conditions and an increase of 23% in company growth expectations. Industrials saw a 11% increase in confidence, moving to a score of 51.96.

The increase in overall confidence was primarily driven by increases in economic conditions and industry growth expectations.

Basic resources confidence dropped by

24% in the period after leading in the previous quarter.

The drop in confidence is attributed to a 64% decrease in confidence relating to economic conditions, a 22% decrease relating to the planned level of investment, a 14% decrease in confidence relating to company growth expectations, a 14% decrease relating to their ability to secure debt or equity capital, and a 9% decrease in confidence relating to industry growth expectations.

However, there was a notable confidence increase of 22% relating to planned levels of investment. ■

TASNEEM BULBULIA
SENIOR CONTRIBUTING EDITOR ONLINE

Chlor-alkali plant project



Name of the Project

Chlor-alkali plant project.

Location

Midvaal area of Gauteng, South Africa.

Project Owner/s

Afro-Zonke.

Other stakeholders include Nuberg Engineering, the Gauteng Growth Development Agency, the Department of Trade, Industry and Competition (dtic), InvestSA and the Development Finance Institution.

Project Description

Afro-Zonke plans to build a state-of-the-art chlor-alkali plant with a production capacity of 50 000 dry metric tons a year, and will focus on the production of essential products such as caustic soda, chlorine, industrial hydrochloric acid, sodium hypochlorite, calcium chloride and food-grade carbon dioxide.

The plant will significantly reduce South Africa's dependence on caustic lye imports.

The project requires a stable power supply of 15 MW of guaranteed power without interruption to ensure that the operation runs smoothly.

Potential Job Creation

Not stated.

Net Present Value/Internal Rate of Return

Not stated.

Capital Expenditure

R2.1-billion.

Planned Start/End Date

The project is expected to be commissioned in the fourth quarter of 2025, and beneficiary operation in the first quarter of 2026.

Latest Developments

None stated.

Key Contracts, Suppliers and Consultants

None stated.

Contact Details for Project Information

dtic director: media relations,
tel +27 12 394 1643 or
email BLukhele@thedtic.gov.za
or Mediarelations@thedtic.gov.za.

KwaBhaca to Ngcweleni river project



Name of the Project

KwaBhaca to Ngcweleni river project.

Location

The project, which follows the existing N2, starts in KwaBhaca and ends at the Ngcweleni River bridge, near EmaXesibeni, in the Eastern Cape, South Africa.

Project Owner/s

The South African National Roads Agency (Sanral).

Project Description

The project entails the upgrade of the N2 section from KwaBhaca to Ngcweleni river.

The scope of work includes the:

- rehabilitation of the existing carriageway pavement structure for the N2 Section 19 from 92.4 km to 95.012 km, and the N2 Section 20 from 0 km to 39.4 km;
- widening of the existing road cross-section to introduce climbing lanes;

- construction of a new bridge and three new major culverts,
- widening of five bridges and four major culverts,
- construction of a pedestrian bridge at Phakade,
- upgrading of intersections to include sheltered right and left turning-lanes, and adequate stacking distances, based on the traffic impact study conducted to achieve the required level of service; and
- construction of pedestrian walkways and community service roads.

Potential Job Creation

Over 75 small-, medium-sized and micro-enterprises will be subcontracted on this contract, with about 600 job opportunities to be created.

Capital Expenditure

R1.2-billion.

Planned Start/End Date

The project is expected to take 45 months to complete.

Latest Developments

Construction started in August 2023.

Key Contracts and Suppliers

Rumdel Construction Cape (construction contract).

Contact Details for Project Information

Sanral, tel +27 12 844 8000.

N3 Westville to Paradise Valley upgrade



Name of the Project

N3 Westville to Paradise Valley upgrade.

Location

KwaZulu-Natal, South Africa.

Project Owner/s

South African National Roads Agency Limited (Sanral).

Project Description

The project entails major construction and upgrades between the Westville viaduct and the Paradise Valley interchange, and includes the provision of between one and two lanes to create a varying four- to six-lane dual carriageway plus auxiliary lanes where required.

There will also be upgrades to Eden road, Paradise Valley interchange, including the provincial route 13 (M13), and the Westville Interchange, including Spine road.

There will be major bridge construction works, including widening the Westville and Paradise Valley viaducts that are from 25 m to 30 m high above both valleys.

Work on the 5.74 km stretch of the N3 route will include:

- the erection of temporary road signs stop/go signals and other traffic control devices.
 - the provision of pedestrian and public transport facilities (pedestrian walkways with concrete barriers and taxi layby).
 - the relocation of services affected by the capacity improvement.
- the construction of mass earthworks for pavement widening, bridge upgrades on affected interchanges and drainage (cross and road surface).
- the construction of gravel pavement layers, including selected layers and a stabilised subbase.

- the construction and widening of new overpasses and bridge structures comprising the Westville viaduct, Langford road overpass, Lancaster road overpass, Dudley road overpass, St James avenue bridge, Eden road bridge and Paradise Valley viaduct.
- electrical works, including the installation of street lighting along the section.

Potential Job Creation

Not stated.

Capital Expenditure

R4.7-billion.

Planned Start/End Date

The project is expected to take about four years to complete.

Latest Developments

None stated.

Key Contracts, Suppliers and Consultants

None stated.

Contact Details for Project Information

Sanral, email pressoffice@nra.co.za.

Cummins Range rare earths project



Name of the Project

Cummins Range rare earths project.

Location

Kimberley region of Western Australia.

Project Owner/s

RareX.

Project Description

An enhanced scoping study has proposed a three-stage development approach for the project, with the Stage 1 direct shipping ore (DSO) operation expected to produce 300 000 t/y of phosphate over a three-year period.

The Stage 2 project will entail the installation of a mid-sized beneficiation plant to produce 550 000 t/y of phosphate/rare-earth minerals concentrate from the weathered resource.

Stage 3 involves the upgrade of the Stage 2 plant in Year 13 of operations to produce a concentrate from unweathered, fresh rock below 130 m.

The project will have an 18-year mine life.

Potential Job Creation

Not stated.

Net Present Value/Internal Rate of Return

Stage 2 has a pretax net present value of A\$549-million and an internal rate of return of 39%, with a payback of 1.41 years. Stage 1 has a payback if 1.65 years and Stage 2 has a payback 1.69 years.

Capital Expenditure

Stage 1 has an estimated capital cost of A\$45-million.

Stage 2 is estimated at A\$304-million.

Stage 3 will require a further investment of A\$63-million.

A mine closure cost of A\$41-million has been allocated at the end of Stage 3.

Planned Start/End Date

Not stated.

Latest Developments

None stated.

Key Contracts, Suppliers and Consultants

None stated.

Contact Details for Project Information

RareX, tel +61 8 6383 6593 or
email info@rarex.com.au.

Volcan gold project



Name of the Project

Volcan gold project.

Location

Maricunga region of Chile.

Project Owner/s

Tiernan Gold Corp, a subsidiary of Hochschild Mine Holdings UK.

Project Description

The Volcan project had been dormant for many years until early 2022, when work was started to re-evaluate the project scope and economics in the current gold price environment.

The updated mineral resource estimate and a preliminary economic assessment (PEA) has confirmed that Volcan is a large resource capable of generating significant yearly gold production with substantial margins at current gold prices.

The project has measured and indicated mineral resources of 463.25-million tonnes grading 0.66 g/t gold and inferred resources of 75.02-million tonnes grading 0.52 g/t gold.

The PEA envisages an operation using two independent openpit areas – Dorado Oeste/Central and Dorado Este – each one with a dedicated noneconomic rock storage facility; independent access from both pits to the run-of-mine (RoM)/crushing pad; low-grade stockpiling near the RoM/crushing pad and 20-m-height benches.

The 22-million-tonne-a-year openpit, heap-leach operation will have a 13.6-year mine life. The mine will produce an average of 332 000 oz/y of gold in the first ten years of operations, with 3.8-million ounces produced over the estimated mine life.

The mine includes a processing plant designed to process 60000 t/d, with an average head grade of 0.63 g/t of gold.

The processing plant includes the primary crushing of RoM; an overland conveyor system to transport coarse material; coarse material stockpile; secondary crushing and screening in closed circuit; tertiary crushing; agglomeration and heap stacking; heap-leach pad and ponds; a sulphidisation, acidification, recycling and thickening plant; adsorption, desorption and

recovery using carbon-in-column, desorption and regeneration; and a refinery.

Potential Job Creation

Not stated.

Net Present Value/Internal Rate of Return

The project has an after-tax net present value, at a 5% discount rate, of \$826-million and internal rate of return of 21% at a \$1 800/oz gold price.

Capital Cost

\$900-million.

Planned Start/End Date

Not stated.

Latest Developments

None stated.

Key Contracts, Suppliers and Consultants

Ausenco Chile (PEA); Deswik Brazil (mine pit design, mine production schedule, and mine capital and operating costs); Micon International (work related to geological setting, deposit type, exploration work, drilling, exploration works, sample preparation and analysis, data verification and development of the mineral resource estimate for the project); and Gestión Ambiental Consultores (review of the environmental studies of the project).

Contact Details for Project Information

Hochschild Mine Holdings UK, tel +44203709 3260 or email info@hocplc.com. T

Buena Vista iron project



Name of the Project

Buena Vista iron project.

Location

Nevada, US.

Project Owner/s

Magnum Mining.

Project Description

The Buena Vista site is a fully permitted mine, owing to its previous history of production, and is entirely located on private land.

A scoping study completed in August 2023 considers the project as technically low-risk because of the well-studied metrics of the proposed mining and beneficiation operation.

Envisaged is a standalone openpit mine supplying a conventional crush, grind and magnetic separation process, targeting 1.6-million tonnes a year of direct reduction iron magnetite

concentrate production over an initial 25-year life-of-mine (LoM). Over the current LoM, 84% of ore will be sourced from indicated resources and 16% from inferred resources. Magnum has advised that the inferred resources are not a determining factor in the project's viability and that the inferred resources are not required early in the mine plan.

The scoping study considers only the West deposit resource, which, for scheduling purposes, includes the Section 5 resource.

It is proposed that an average of 7.2-million tonnes of ore and 3.6-million tonnes of waste a year will be mined from the West deposit.

The project's East deposit may be considered to extend the LoM at a later date.

Buena Vista's magnetite ore will be beneficiated using industry standard methods – primary, secondary and tertiary crushing, followed by coarse wet magnetic separators to reject nonmagnetic portions to waste.

The project includes an office, a laboratory, workshop facilities, stockpiles, waste dumps, a tailings storage facility, water supply borefield and pipe routes, as well as access roads to and within the plant, mine and site.

Potential Job Creation

Not stated.

Net Present Value/Internal Rate of Return

The project has an estimated net present value, at a 10% discount rate, of between \$360-million and \$748-million and an internal rate of return of between 26% and 54%, with an estimated payback of three to five years.

Capital Expenditure

\$280-million.

Planned Start/End Date

Not stated.

Latest Developments

Magnum is rapidly progressing with the project. The company expects to embark on a prefeasibility study within a year, followed by a feasibility study. Both studies are expected to take about a year each. Magnum is seeking funding to advance these studies and to secure funding optionality for project development.

Key Contracts, Suppliers and Consultants

None stated.

Contact Details for Project Information

Magnum Mining, tel +61 8 6489 0600 or email info@mmel.com.au.

COMING UP

- A prefeasibility study (PFS) on Nickel Creek Platinum Corp's Nickel Shaw nickel/copper/cobalt/platinum group metals project in Canada's Yukon territory has proven positive. The PFS proposes an openpit mine using conventional openpit mining methods, with a life-of-mine of more than 19 years
- Dimeta and Enerkem companies are starting feasibility studies for the development of two large-scale projects, which will convert waste into renewable and recycled dimethyl ether. The companies are the first companies in the world to produce biomethanol from mixed waste at commercial scale

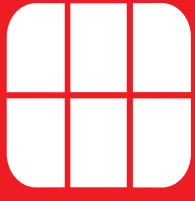
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EXPLORATION

Compiled by LYNNE DAVIES

Merger pursued to bolster digital prospecting ends

LYNNE DAVIES | CREAMER MEDIA REPORTER

GATHERING OF INFORMATION

The TruScan system will provide mining companies more time to analyse geological data and create more useful resource information

Having successfully completed the acquisition of scanning and data innovator Minalyze, artificial intelligence (AI) and advanced analytics company Veracio is poised to transform the way the mining and exploration industry captures, analyses and interprets geological information, thereby evolving decision-making processes in an increasingly complex and data-driven world.

The \$29.3-million deal will see the combining of a unique combination of Veracio's AI and advanced analytics solutions and Minalyze's geological data visualisation technology to offer minerals explorers advanced solutions, some of which are intended to better align with the current surge in demand for critical minerals and the industry's pressing need to shorten the gap between discovery and mineral extraction.

Veracio offers the innovative infield drill sample scanning system TruScan, which was

named as the Mining Innovation of the Year at the Mines and Money conference in London, held in December 2022.

The TruScan system offers a multitude of benefits to the exploration and mining industries, including providing remote access to an orebody in a quick and efficient manner, enabling mining companies to spend less time "blindly" drilling and more time analysing geological data and creating more useful resource information, according to Veracio chief innovation officer **Mike Ravella**.

He explains that "highly sophisticated technologies", such as TruScan, which employs a combination of modern sensing with unique AI and software, will enable the delivery of information beyond what humans can acquire through traditional means.

Ravella notes that modern, digital geology technologies enable an acceleration in the finding and mining of orebodies, but that "at the end of the day, nowhere near enough" mining of critical minerals is happening at present to supply the minerals needed for decarbonisation technologies.

He explains that digital technologies, AI, advanced analytics and software are accelerating the process of defining ore bodies, from discovery, to resource, to reserve.

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Atlas to boost geoscience management

A Gold and Platinum Group Metals (PGMs) Resource Atlas developed through public-private collaboration between the Department of Science and Innovation and Minerals Council South Africa, has been handed over to State geoscience organisation the Council for Geoscience (CGS).

Work on the Gold and PGMs Resource Atlas was started by the Mandela Mining Precinct (MMP)

in 2018 on geographic information system ArcGIS, with the aim of developing mineral resource models to better understand PGM and gold mineral resource opportunities within South Africa.

MMP director **Johan Le Roux** explains that the Gold and PGMs Resource Atlas is the first of its kind in South Africa, providing end-users access to mineral resources and reserves information on a single platform.

“Its purpose is to give a holistic visualisation of the remaining gold and PGM mineral resources in South Africa and, ultimately, promote collaboration among mining companies to access contiguous mineable blocks using alternative mining techniques,” he states.

Le Roux explains that the portal enables collaboration between academia and industry, as well as mining and exploration. It encourages the ongoing collection and digitalisation of valuable geological data, aiding those from undergraduate student level

upwards within the PGM and gold mining industries.

ArcGIS offers several tools to facilitate the streamlining of data acquisition and loading processes by enabling data custodians to upload new datasets through a Web interface.

The Resource Atlas has been operated by the MMP through a cloud-hosting solution consisting of two virtual servers providing the required hardware environment to securely store the uploaded data.

The ArcGIS enterprise portal brings together all the geographic information in the ArcGIS platform, sharing it with users internally throughout the organisation and openly on the Web.

To ensure success, several post-implementation tasks are required to be performed, including data maintenance, change management and executive buy-in, among others.

The project has been completed, meeting the majority of the initial goals and, when



Picture by Crumer Media Chief Photographer Donna Slater

MOSA MABUZA

The compilation of the information found in the gold and PGMs atlas is vital for resource classification

well-managed, the CGS says the solution will succeed as a framework supporting innovation within the mining industry, aligning it with the goals of the MMP and South Africa’s National Development Plan.

Le Roux explains that the CGS has its own server, making use of the same service provider for the software, having its own information technology support and the necessary capacity, skills and resources to maintain and grow the Resource Atlas to its full potential.

The CGS welcomed the handover of the portal with enthusiasm, with CGS CEO **Mosa Mabuza** stating that the council is “ecstatic” to take over the Gold and PGMs Resource Atlas.

He explains that the compilation of this kind of database will be vital for the classification of the geological and geotechnical characteristics of mineral resources, with the long-term objective of reversing the deteriorating production of the precious metals in South Africa.

Moreover, this portal will complement the current geoscience data management portal. ■■

COUPON ON PAGE 10 E657957

“Its purpose is to give a holistic visualisation of the remaining gold and PGM mineral resources in South Africa and, ultimately, promote collaboration among mining companies”

—JOHAN LE ROUX



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Partnership formed to focus on directional drilling

Global mining technology company **IMDEX** is partnering with directional core drilling (DCD) services and borehole surveying company **Devico** to expand their DCD capabilities and grow the market for technology that will deliver sustainable mining operations.

This will be achieved through more focused and efficient exploration with intentions to lower associated costs and decrease environmental impact, which will include reducing water consumption and greenhouse-gas emissions associated with drilling, when compared to conventional drilling methods.

IMDEX COO **Shaun Southwell** states that the transition to DCD was inevitable for the exploration industry, as the costs of exploration are increasing in line with deeper and more remote prospecting projects to find future deposits.

“Resource companies need to take every

advantage available to them, so having the capacity to hit more targets with less exploration drilling delivers real quantifiable savings,” he says.

Southwell explains that DCD is one of the fastest growing markets as companies seek greater precision in their drilling programmes.

He adds that time and cost savings, ranging from 20% to 50%, are typical when employing DCD in comparison to conventional drilling techniques, explaining that the technology is “well-suited” in the search for geologically complex critical minerals.

Southwell also says that this is particularly



GROWING THE MARKET

IMDEX and Devico are aiming to grow the market for directional core drilling technology, which provides sustainability to mining operations while decreasing costs and environmental impacts through focused and efficient explorations

apparent in the capacity to drill multiple secondary drill holes from an initial mother hole and/or overcome the natural deviation to hit the intended targets.

While the DCD technique adds some short-term costs, resource companies are recognising the greater overall savings when using DCD, states IMDEX Europe GM **Erlend Olso**.

“Using DCD provides precision and efficiency in exploration; you can hit more targets with a lot less metres drilled,” he explains.

Olso elaborates that resource companies are



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able to save money in the exploration phase while also knowing that they can hit the targets and prove up the resource in a better and faster way, with a lot of other added benefits.

He notes that resource companies from countries such as Canada have been early adopters of DCD technology, followed by Nordic countries, Southern American countries, and more recently, African countries.

Further, IMDEX and Devico are planning to expand the DCD market within Australia. Anglo American principal geology and resource estimator **Janne Siikaluoma** credits Devico's DCD technology with results that would otherwise not have been possible at its Sakatti copper, nickel and platinum group element deposit in Finland.

"Sakatti Mining Osakeyhtiö (Oy) has used Devico's services in the Sakatti project since 2017," explains Siikaluoma.

He explains that Devico's services, mainly the DCD technique, have been an important factor

in conducting accurate diamond drilling programmes in deep and complex deposits located in environmentally sensitive areas similar to Sakatti.

Siikaluoma adds that the Sakatti winter season metallurgical drilling programme, from 2022 to 2023, with several multi-branch DCD guided holes, was completed on time with high technical quality.

"This enabled Sakatti Mining Oy to collect the metallurgical samples from the Sakatti deposit by means of core drilling which was the priority one objective and very important for the future progress of the Sakatti project," he explains.

In addition, Siikaluoma explains that the successful drilling programme enabled them to achieve a consistent 25 m drilling pattern in certain key areas of the deposit with the required 5 m target precision, with up to 800 m of depth, which would not have been possible by any other practical means. ■■

COUPON ON PAGE 10 E657498

• From page 34

He points out further that this is generating valuable data at the point of processing such minerals, thereby speeding up the processes between the stages of minerals exploration, project development and the actual mining of a resource. Ravella elaborates that the future of mineral exploration and mining will be heavily loaded with data and will, increasingly, rely upon greater degrees of computing power, AI and advanced analytics.

He explains that the mining industry has spent decades optimising data for human consumption and that Veracio finds itself at the forefront of optimising this data specifically for AI.

He adds that the amount of data and information Veracio will have about the Earth's resources will be far greater than what has been seen before as a result of the digital technologies that Veracio is developing.

"Collecting a bunch of data and not being able to process it offers zero value. It is important that

we build environments that will allow us to handle large quantities of data while deriving data about the Earth beyond what we know today," he states.

Ravella explains that being able to deliver a more in-depth interpretation of data, efficiently, presents greater value to explorers and developers, as, in the past, it took many months to process large volumes of data, thereby providing delayed results with little value.

He elaborates that, generally, vast amounts of mined material far outweigh the valuable minerals they present at the end of the processing stage, but that if a high definition of an orebody can be obtained through digital sensing technologies and AI, mining could be done differently in the future to create less tailings.

In addition, having the ability to more rapidly define a resource could speed up permitting processes and enable the extraction of more resources, notes Ravella. ■■

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Council for Geoscience implores mining companies to share historical data in efforts to revive exploration

MARLENY ARNOLDI | DEPUTY EDITOR: ONLINE

Many of South Africa's 53 mineral and metal types remain unexplored, particularly in the Northern Cape, despite a 130-year legacy of mining and a rising global need for critical minerals and metals for decarbonisation and clean energy technologies.

The Council for Geoscience (CGS) attributes the low levels of exploration to a lack of geoscientific data at a requisite scale to inform investment decisions, which is, in turn, owing to mining companies not sharing historical exploration data and the way that South African legislation is structured.

CGS CEO **Mosa Mabuza** says current legislation does not mandate companies to share this data as a corporate responsibility. "Of all the mining jurisdictions I know of, South Africa is the only one that does not have historical data available to view," he explains.

Mabuza adds that despite companies having data as old as 100 years, it is not contained in a central repository; while some companies have submitted their exploration data voluntarily, others have had to be challenged in court.

While the CGS itself aims to increase the 1:50 000 mapping footprint of the country from 9% to 14% in the next

few years, including through mapping of prospecting corridors such as the Garamokoka anomaly in the North West, Kenhardt in the Northern Cape, Kleinfontein in Gauteng, Giyani in Limpopo and Ntaba ye Ntsizwa in the Eastern Cape, public funding to support these programmes is not in abundance, as the fiscus grapples with a high debt bill and lower-than-expected revenues.

As per government's Exploration Strategy for the Mining Industry, published in 2022, the country targets attracting a 5% share of global exploration expenditure by 2025.

Global exploration expenditure is estimated to be about \$18-billion by 2025, therefore, South Africa aims to claim \$900-million of this expenditure by 2025.

However, for this to happen, the mining industry will have to collaborate with government on various research and development initiatives, and invest in the exploration sector, which comes with its own challenges of access to capital, electricity shortages and lack of infrastructure in many regions.

In turn, it is government's responsibility to create an investor-friendly environment through efficient regulation and licensing and to promote South Africa's

mining industry as an investment destination of choice.

Mabuza says the Department of Mineral Resources and Energy has issued in excess of 60 000 exploration permits, with many companies having prospecting rights but not exploring.

Instead of trying to put a cadastre information system in place which, for example, Namibia has done, to make geological data publicly available, Mabuza says the answer lies in first mobilising resources to support exploration activity, since banks are often not keen to provide this high-risk funding.

"Once we have had a few successes, companies will gain confidence in junior exploration and start working to realise projects," he explains.

Mabuza points out that mining companies such as Orion Minerals have managed to aggressively invest in exploration and raise capital, despite the difficult environment.

"Let us focus on companies with prospecting rights and make exploration for them possible," he avers.

CGS highlights that Namaqualand is prospecting for copper, which has remained largely unexplored. Mabuza is confident of the significant exploration opportunities inherent in the geology of South Africa, saying that these new massive discoveries could ensure South Africa is a mining-driven economy for the next century.

He believes that industry can do more to create a measurable system of South Africa's mineral endowments by communicating with government. "Where the environment is created for more private sector engagement and the opportunity to raise concerns, we will be closer to finding real solutions."

Commenting on this, Orion MD and CEO **Errol Smart** says "the regulator is not our champion" and that there are often situations where it is industry versus the regulator, owing to an "un-addressed trust deficit".

He wishes to see a clear, transparent, efficient and predictable regulatory system. For example, Smart explains that if Orion were to apply for a mineral right in Springbok, there may be



CGS scientist and a technical assistant collecting a soil sample during a high-resolution soil sampling campaign in the Giyani Greenstone Belt.

an outcome after six months, while the same mining right application in other towns and provinces would have different outcomes and certainly different timelines for these outcomes. “We need to be sure we can achieve a certain outcome” he emphasises.

Smart suggests there are “other ways” to get things moving, such as government supporting the establishment of refineries and processing plants, since companies will want to start feeding into these.

“You know there is something wrong with the industry if you, as an explorer, employ more lawyers than geologists. Something has to change,” Smart says.

He adds that to explore in South Africa is not impossible, but certainly hard. Smart suggests that it would help if government did not take so long to approve prospecting and mining rights, which are currently severely backlogged.

Contrary to Mabuza’s belief in the primacy of the need to financially support exploration, in the effort to crowd in further exploration, Smart stresses the importance of a management system from government – a mining cadastre system – which he believes is among the shortcomings of South Africa compared with other global mining jurisdictions.

“Such a system would provide transparency, which is necessary to gain exploration investment. This is especially the case with greenfield exploration, which requires considerable capital and long lead times, and therefore, security of tenure,” he states.

Also commenting from an industry perspective, Minerals Council South Africa CEO **Mzila Mthenjane** says mining companies are unhappy about conditions under which they operate, including all the demands that have to be managed from all spheres.

He believes a good starting point to be more investment in infrastructure, since mining companies need railways, roads and reliable energy to undertake exploration and expansion.



CGS geophysics team getting ready to collect high-resolution ground magnetic data in the Northern Cape Province.

Additionally, Mthenjane says the 5 000 backlogged exploration permits are diminishing companies’ budgets for exploration, with administrative costs far outweighing what could have been available for drilling and geoscience, making the exploration effort all the more unviable.

He also states that regulatory duplication and inconsistencies need to be resolved, including uncertainty on land claims and labour militancy.

“We need to sort out industry fundamentals of energy and infrastructure, and fix the basics,” Mthenjane explains, adding that while mining companies have often helped build municipal capacity to deliver these services, juniors are not able to do that.

On the financing topic, Mthenjane says if bankers and insurers are not available for funding, companies need to look among themselves for exploration funding.

African Exploration Mining Finance Corporation CEO **Lemogang Pitsoe** adds that exploration spend in South

Africa and other African countries has often had to come from foreign sources, however, this means the countries are unable to control the mix of minerals that are being produced.

“We are not putting money ahead of our game. You cannot find copper if you are not searching for it,” he says, adding that the country needs more collaborative leadership to this end.

Since exploration is risky and only good geology would considerably de-risk a project, Mabuza says the CGS last year launched an online data portal which has since attracted divergent views.

Although the council remains legally empowered to undertake exploration, it has been struggling with the modalities of undertaking exploration, despite its “first mover” advantage.

He concludes that the country’s high-quality geology is at odds with its level of greenfield exploration, but the council is doing its best to bring to the fore the discoveries it continues to make.

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Encouraging testwork

Mineralogical testwork of soil samples taken from rare earths miner Pensana's Angola-based Sulima West exploration licences reveal the deposit contains monazite, which hosts neodymium and praseodymium that require moderate liberation and exposure, thereby making the mineralisation amenable to some degree of simple upgrading at the current location, prior to processing at Longonjo, where the company is building its Longonjo mine.

The three samples were analysed by South African inspection, testing, verification and certification company SGS South Africa.

Electron microprobe work was required to determine the mineral chemistry of the rare-earth element- (REE-) bearing minerals, particularly the element present at low concentration, which was required for the REE deportment and was incorporated into tescan integrated mineral analysis data.

All the targets occur within the Coola exploration licence, located about 40 km north of Longonjo.

"The opportunity for upgrading the ore at the current location using physical separation techniques will be further assessed with the testing of larger samples which are in the process of being collected," comments Pensana exploration manager **Grant Hayward**.

He explains that both the Sulima West and Coola targets have the potential for the upgrading of the ore at their current location, thereby providing a high-grade near-term feedstock 40 km from Longonjo.

The Coola exploration project – comprising three highly prospective targets: the Sulima West carbonatite, the Coola carbonatite and the Benga Novo alkaline complex – is located about 160 km east of Angola's Port of Lobito, covering an area of 7 456 km².

Pensana, through 90%-owned subsidiary Coola Mining, was granted the Coola exploration licence in May 2020 and conducted multiple programmes from 2020 to 2022.

Rock chip sampling of the 0.9-km-diameter Coola carbonatite ring dyke returned values of between 0.6% and 4.9% total rare-earth oxide, averaging at 2.6%.

Mineralogical studies of the Coola carbonatite identified the REE to be bastnäsite, which occurs as discrete veins, veinlets and segregations within the carbonatite.

Soil geochemistry over the fluorite-rich zone at Coola identified an area of 13 000 m² with average fluorite values of 17% calcium fluoride.

Economic grades of REE mineralisation in the form of bastnaesite has been located in banded dolomitic carbonatites at the Coola carbonatite.

The Sulima West target is a 4.2-km-diameter alkaline carbonatite ring complex with a corresponding high radiometric response occurring immediately to the south of the Benga Novo intrusion and to the west of the Sulima ring structure.

Twenty-two initial reconnaissance samples were extracted from the trenches in 2021, during which it was observed that the trenches were excavated into an iron/manganese-rich laterite similar in appearance to the REE laterite developed over the Longonjo carbonatite.

Pensana reports that the results of this initial sampling returned significant values for rare earth oxides with up to 10.6% total rare-earth oxide encountered in the laterite and averaging 4.2%. Manganese oxide values of up to 15.9% and averaging 7.2% were also reported. ■

COUPON ON PAGE 19 E657866

LET'S EXPLORE



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WATER ENGINEERING & INFRASTRUCTURE

Compiled by SIMONE LIEDTKE

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SIMONE LIEDTKE | CREAMER MEDIA SOCIAL MEDIA EDITOR & SENIOR WRITER

WATER SECURITY

By acknowledging the fundamental right to clean water, South Africa can secure its water future

Amid challenges of population growth and recurring droughts, the need for swift, cost-effective, and sustainable water provision solutions in South Africa has never been more critical, states environmental consultancy Environmental Assurance (Envass) geohydrological business unit manager specialist André Buys.

The time it takes to establish regional water provision schemes can be the difference between “life and death”, and every person has the fundamental right to access clean drinking water, he adds.

“By acknowledging the fundamental right to clean water, embracing the swiftness of local groundwater solutions and fostering collaboration between public and private sectors, South Africa can secure its water future.”

However, the struggle to ensure this right is exacerbated by infrastructure constraints, and water availability from dams and reservoirs.

The public sector can actively contribute to identifying quicker, more cost-effective and sustainable solutions for water provision, Buys adds. Groundwater emerges as an invaluable resource in this scenario and, unlike the time-consuming process of establishing vast regional water schemes, the development of local groundwater resources offers a rapid and effective solution, he avers.

Groundwater can help to address the country’s multifold water-related challenges such as antiquated pipelines that fail to meet modern demands.

“In rural areas, where the need is most acute, communities often rely on centralised

water points fed by pipelines stretching from large water schemes, dams or reservoirs. For these communities, securing daily water necessitates exhausting journeys over vast distances,” he adds.

However, the development of efficient boreholes emerges as a solution, when considering sustainability and the demands of the future.

Boreholes offer the prospect of localised, reliable water access, eliminating the need for extensive pipeline systems and addressing the pressing issue of water scarcity at its root, Buys explains.

By leveraging scientific techniques, viable groundwater sites can yield abundant water.

This approach, involving drilling, pumping, storage and treatment, proves more practical than massive pipeline projects, he reiterates, noting that identifying suitable groundwater locations allows for direct domestic water supply in rural areas, offering a cost-effective, sustainable solution. However, the management of these vital groundwater resources cannot be a task for a select few, he says.

“The active involvement of communities in managing these boreholes is a crucial element for success. Residents, intimately acquainted with the needs and nuances of their areas,

become the custodians of these resources. Their insights, combined with scientific expertise, ensure the sustainable use and longevity of these groundwater sources.”

Buys emphasises that collaboration between companies and communities can bridge gaps, facilitate knowledge transfer, and accelerate the identification, development and management of local groundwater resources.

Envass, for example, uses geophysical apparatus to determine possible areas where there is potential for groundwater accumulation.

This is done by considering the regional water levels, as well as geological and geohydrological features in the underlying areas, which, in turn, enables scientists to create a conceptual model of the terrain. Buys adds that the geophysics assists in identifying faults, dykes and geological contact zones, where weathered areas and fractured bedrock occur, ultimately resulting in water accumulation.

“Envass collaborates with drilling contractors and pump test companies to pinpoint high groundwater potential areas. This leads to the drilling of essential boreholes, followed by pump tests to determine sustainable yield recommendations. These processes adhere to scientific methodologies and use extensively tested software,” he explains.

The private sector, meanwhile, has also actively supported communities by offering school sponsorships, electricity and housing.

• To page 45



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Equitable access requires multifaceted approach

SIMONE LIEDTKE | CREAMER MEDIA SOCIAL MEDIA EDITOR & SENIOR WRITER

Access to clean water is a fundamental human necessity, yet it remains a significant challenge in Africa, with more than 300-million Africans lacking access to safe drinking water, while more than 700-million lack proper sanitation, and over 800-million have limited access to basic hygiene services, according to statistics from 2020.

Taking the dire situation into account, market research company Frost & Sullivan Africa consultant **Yaa Ngonyama** stresses that rapid urbanisation and the compounding effects of climate change are therefore placing additional strain on an already over-burdened water infrastructure system.

To address these critical issues, she suggests that Africa embrace technology-driven solutions to enhance water accessibility and management.

She explains that some of the main challenges hindering accessibility to clean water in Africa are a lack of infrastructure investment, poor maintenance of bulk water supply

infrastructure, rapid urbanisation, a decline in water quality, and climate change.

However, the advent of disruptive technologies, such as artificial intelligence (AI), holds the potential to bridge these disparities and usher in a more equitable future for all Africans.

“AI has the capacity to enact transformational change, particularly in the realm of real-time water quality monitoring. AI-powered sensors can swiftly identify hazardous pollutants, thus combatting waterborne illnesses that afflict communities,” Ngonyama says.

She adds that AI algorithms can also play

a pivotal role in optimising water distribution networks, curbing leaks, minimising wastage and ensuring that water reaches areas where it is most needed. This multifaceted application holds tremendous promise, she avers.

Additionally, on a continent where agricultural industries grapple with water-related challenges, she notes that AI is poised to revolutionise water conservation and irrigation practices.

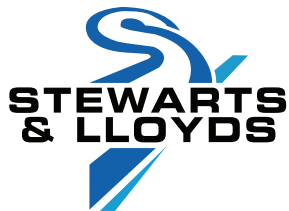
“By harnessing AI-driven insights, African nations can elevate their agricultural output sustainably, thereby fostering economic growth and food security.

“Some innovative projects, such as Google’s ‘AI for Social Good’ programme, have already shown promise in addressing healthcare and agriculture challenges in African communities,” she explains.

Some of the AI projects funded by Google include the development of a smartphone application for disease diagnosis in Uganda, and a model to monitor grassland quality and estimate local market prices in Kenya.

Another solution Ngonyama points to is that of fostering improved public-private collaborations through increased investments in water infrastructure.

Over the past decade, the water infrastructure situation in South Africa and Africa has



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been characterised by both progress and challenges, she says, noting that while there have been some investments and policy changes to improve water infrastructure, “a significant investment gap still needs to be addressed to ensure access to clean water and sanitation for all”.

Currently, the continent needs investments in water and sanitation infrastructure amounting to an estimated \$50-billion a year to achieve water security and sustainable sanitation by 2030. However, the current foreign direct investment inflow for water and sanitation ranges between \$10-billion and \$19-billion a year.

Investing in the water and sanitation sector is also crucial to achieving the United Nations’ Sustainable Development Goal 6, pertaining to universal access to clean water, sanitation and hygiene.

However, not all is lost, as some recent success stories include the South African government piloting an innovative project model

in collaboration with various private-sector entities.

This pioneering approach, Nkonyama explains, sees government assuming a regulatory role, while private enterprises undertake on-ground implementation in partnership with governmental institutions.

Some of the world’s biggest mining conglomerates have embarked on this venture with the South African government, dedicating R27-billion to a water project that aims to provide essential drinking water to the mines’ operations and to individuals residing in the surrounding regions.

Key contributors include miners Glencore and Anglo American Platinum, who are “integral components” of the Lebalale Water Users Association.

The primary objective for these entities is to secure 50% of the project’s financing by year-end, with the remaining funds expected to be raised through collaboration between municipalities and government.

As an unprecedented venture in

South Africa, Nkonyama says this project stands out as “one of the most substantial water infrastructure undertakings not directed by the State”.

The scope encompasses establishing an extensive network of pipelines spanning 400 km, facilitating the daily distribution of 250-million litres of water.

“This invaluable resource will reach communities such as Polokwane and Mookgophong, encompassing both urban and semi-urban areas.”

Overall, Nkonyama states that addressing Africa’s water and sanitation challenges “requires a multifaceted approach that combines technology-driven solutions with increased public-private collaborations and investments in infrastructure”.

“These efforts will empower Africa to make substantial progress toward achieving equitable access to clean drinking water, resulting in transformative improvements for individuals and communities,” she concludes. ■

COUPON ON PAGE 10 E657739

• From page 42

“It can also contribute to groundwater infrastructure near these areas,” Buys suggests.

He notes that water management and regulatory entities oversee water distribution in South Africa, and it is their responsibility to ensure clean and adequate water supply for domestic use.

“Using groundwater sources can alleviate the strain on existing water management systems,” Buys emphasises, noting that, to enhance this approach, investments in expert-driven drilling, improved maintenance and robust monitoring programmes are crucial.

Envass has played a pivotal role in assisting clients with their environmental needs, implementing monitoring and management programmes. “We have collaborated closely with regulatory bodies in mines, municipalities and industrial sectors, ensuring strict adherence to all legal requirements,” he concludes. ■

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Better hydro efficiency through pump, turbine tech

SIMONE LIEDTKE | CREAMER MEDIA SOCIAL MEDIA EDITOR & SENIOR WRITER

Early attempts to replace conventional metallic-type lantern rings with polymers, such as nylon, yielded discouraging results compared to metallic lantern rings in the water engineering industry, deterring the industry from exploring alternative solutions.

However, a recent installation of Vesconite Hilube lantern rings at the iconic Hoover Dam hydropower plant in the US could mark a pivotal moment in the industry regarding the use of advanced polymers in water engineering equipment, the company says.

“The adoption of [polymer supplier] Vesconite Bearings’ Vesconite Hilube in place of traditional metallic lantern rings represents a gradual yet definite embrace of alternative materials and cutting-edge technology within the water engineering sector,” sales engineer

Monique Potgieter notes.

She explains that, initially, turbines were equipped with cast iron wear rings, the primary choice for many years despite evident limitations.

One of the primary challenges faced by the engineers at Hoover Dam was corrosion, a prevalent issue in arid regions such as the dam’s location between Nevada and Arizona. Hard water, laden with high mineral content, caused damage to traditional lantern ring materials, leading to the formation of rust



MONIQUE POTGIETER

These seemingly minor components play a vital role in pumps and hydro turbines, ensuring the proper influx of cooling water to the packing

particles in the area surrounding the lantern rings.

Vesconite Hilube, however, is impervious to the corrosive effects of hard water, and its introduction into lantern ring applications prolonged their lifespan and reduced maintenance efforts required.

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“These seemingly minor components play a vital role in pumps and hydro turbines, ensuring the proper influx of cooling water to the packing,” Potgieter explains.

The packing, or stuffing box, seals off the pumped medium or, in the case of hydro turbines, the water that drives the turbine’s rotation.

Proper maintenance of these components enhances sealing effectiveness and prolongs the stuffing box’s lifespan, thereby minimising water wastage and increasing the efficiency of pumps and turbines.

“Introducing Vesconite Hilube in lantern ring applications instills confidence in users that this material doesn’t suffer from water swell issues seen in some other polymers, and encourages them to use Vesconite Hilube in primary applications in pumps and hydro turbines, aligning with the material’s intended purpose,” notes Potgieter.



LANTERN RINGS

The introduction of Vesconite Hilube’s lantern ring applications prolonged lifespan and reduced maintenance efforts

She explains that in vertical pumps, it is used in line shaft bearings and casing wear rings. In hydro turbines, Vesconite Hilube is frequently employed in water lubricated main shaft bearings and grease-free wicket gate bearings, link arm bushings, change ring wear pads and vertical wear guides.

In South Africa, where the need for reliable renewable-energy sources is paramount, Vesconite Hilube can contribute to continuous

operation with minimal breakdowns and maintenance outages in hydroelectric plants.

“We are running ongoing projects to quantify the efficiency increase in pumps when Vesconite Hilube bushings and wear rings are used,” says Potgieter, who adds that this “reaffirms its positive impact on global energy consumption”.

“In the hydro sector, Vesconite Bearings is closely monitoring installations of our greaseless and water lubricated bushings in hydro turbines to monitor their performance and affirm the suitability of internally lubricated materials to replace traditional greased bearings without compromising performance or wear life.

“This innovative approach holds the promise of further optimising hydropower systems, making them more sustainable and efficient,” she comments. ■

“The adoption of Vesconite Bearings’ Vesconite Hilube in place of traditional metallic lantern rings represents a gradual yet definite embrace of alternative materials and cutting-edge technology.”

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Packaging exhibition helps industry connect, boost growth

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HUDDLED MASSES YEARNING TO CONNECT

Globally, across all the Montgomery Group exhibitions, people seem to prefer face-to-face attendance, as opposed to hybrid and online offerings

Packaging and labelling trade exhibition Propak Cape is the “essential gathering place to discover all industry stakeholders need to know about the latest advancements and solutions that could benefit productivity, streamline business and improve profitability”, says Specialised Exhibitions, a division of Montgomery Group.

If Propak Cape, which is taking place from October 24 to 26 at the Cape Town International Convention Centre, has any bearing on industry perception, then the industry is in a “generally positive” space, notes portfolio director **Mark Anderson**.

“Just under 200 exhibitors have signed up for the sold-out exhibition, and if we’d had more space, more would have participated.

“While many of our exhibitors are based in the Western Cape, there are many others that are prepared to cover the costs involved in exhibiting in a different province, primarily because they know that Propak Cape can

help to grow their business.

“So, from our exhibition perspective, the industry has been positive and continues to be positive.”

The event organisers are expecting a good turnout, based on the trends observed at other shows across its portfolio, which have demonstrated increased visitor attendance.

“This has been the trend post Covid-19.”

Anderson adds that, globally, across all the Montgomery Group exhibitions, people seem to prefer face-to-face attendance, as opposed to hybrid and online offerings, which have become more common in a

post-Covid-19 world.

In addition to enabling in-person interaction and knowledge sharing, trade exhibitions play a role in bolstering and growing economic sectors.

“There is an irreplaceable value of physical exhibitions and face-to-face business events in creating platforms to bring people together, driving economic and business growth.”

Anderson avers that Propak Cape provides “an excellent opportunity” for both large and small suppliers of machinery, products and services aimed at the packaging, food processing, plastics, print, labelling, and related industries to connect with thousands of prospective buyers and purchasing influencers.

He cites feedback from exhibitors pointing to the event’s influence and relevance, with on-site sales, the generation of quality sales

• To page 50

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RESPONSIBLE PACKAGING CONFERENCE

The 2023 Propak Cape event – hosted by Specialised Exhibitions, a division of Montgomery Group – will feature a one-day conference hosted by the Institute of Packaging SA, which will explore the topics of “ethical, responsible, and innovative packaging”. Specialised Exhibitions portfolio director **Mark Anderson** notes that the day’s line-up will include a panel discussion among the CEOs of the producer responsibility organisations, during which they will be challenged on their strategies and how they intend to fulfil their organisations’ mandate. The other sessions will cover topics such as the role that packaging can play in food safety and in reducing food wastage, legal challenges for responsible packaging and the latest packaging and consumer trends.

• From page 48 leads, connecting with potential customers and industry contacts, and brand awareness, being some of the reported benefits of exhibiting at Propak Cape.

Further, when considering the knock-on effects of the improvements and savings achieved, owing to attendees employing new technologies, solutions and services observed and/or discussed at the event, “the importance of Propak Cape cannot be underestimated”.

Staying on Trend

“If we look at what our exhibitors are launching and/or showcasing over the three days of our show, it speaks directly to our three theme topics,” says Anderson, with the themes being: New Products & Innovation, Sustainability and Automation.

“Our research shows that visitors attend exhibitions to source new products and to see the latest innovations, which is why we chose this theme for Day 1. Sustainability is a hot topic across all the sectors; hence it being selected for Day 2. Automation, meanwhile, is where the industry is heading, which is why this theme was included for Day 3.”

Anderson notes that, while there is no

visible change to the show each day, the organiser is supporting these theme days through its marketing and communications programme.

For example, for Sustainability Day, the first 500 visitors will each receive a Spekboom plant. Anderson explains that roughly 120 Spekboom plants can “completely offset” one’s personal carbon footprint, which aligns nicely with the day’s theme.

Further, the event’s Seminar Theatre will host daily free-to-attend seminars and, generally, the seminars are aligned with the theme of the day while covering additional important industry topics.

Other key trends, such as rapid urbanisation, better health and environmental awareness, the introduction of artificial intelligence, other technologies, factors driving consumer behaviour, and their effects on the industry, will be addressed.

Youth Participation

Specialised Exhibitions cites an industry report by market research company Mordor Intelligence, which notes that the South African Packaging Industry is expected to grow from \$10.35-billion in 2023 to \$12.91-billion by 2028, at a compound annual growth



MARK ANDERSON

If one looks at what Propak’s exhibitors are launching and/or showcasing over the three days of the show, it speaks directly to the event’s three theme topics

rate of 4.52%, with growth being driven by an increasing number of young consumers and increasing demand for consumer goods.

With the youth demographic driving growth and with the need to incorporate youth and new entrants into the industry to ensure its longevity, youth participation will add value to the event.


To that end, students are allowed to attend the event by prior arrangement, with Anderson explaining that Propak Cape is an opportunity to showcase the industry to students whose studies align with the industries and sectors represented at the show, as well as those who are considering studies in these areas.

“Students can see practically what they are studying theoretically.

“These students will be future prospective employees or industry entrepreneurs and it is a great opportunity for them to see the industry in action, with the displays and live demonstrations of machinery and equipment.”

He adds that Specialised Exhibitions seeks to support youth development in the packaging and related industries and has been a sponsor of the Institute of Packaging SA’s Student Gold Pack Awards for many years.

“The winners of this year’s Student Gold Pack Awards will be showcased at Propak Cape with display cabinets positioned alongside the premier/media lounge.”

A scannable QR code will be placed in the display cabinets, enabling visitors to download the Student Gold Pack winners’ brochures, where they can view details of the project briefs in each category and all the finalists and winners. 

COUPON ON PAGE 10 E658083

SEMINAR THEATRE

The 2023 Propak Cape event, held from October 24 to 26, at the Cape Town International Convention Centre will feature daily, free-to-attend seminars. Some of the speakers and their topics include:

- Security company FANG sales and marketing director **Johan van Wyk**, who will be discussing ‘AI Sentry for Packaging – Innovating Electronic Security’
- Ecofriendly packaging solutions provider COPCO director **John Fox** on ‘Compostable Packaging in a Circular Economy’
- Producer responsibility organisation Fibre Circle CEO **Edith Leeuta** on ‘Supporting the Circular Nature of Paper Fibre and Process Waste. Recyclability Testing and Source Separation’
- Printing and innovated products supplier Fujifilm regional business development manager **Rob Williams** on ‘Recent Advancements in Packaging’
- Renewable-energy asset finance provider Capital Box Green Finance MD **Adam Bekker** on ‘The Power of the Invisible Input’
- Kyocera production specialist **Heidie-Mari Middel** on ‘Realising a Sustainable Society’
- Retail company Woolworths SA packaging senior technologist **Don MacFarlane** on ‘Designing and Developing Packaging Differently from both a Legislative and Sustainability Perspective’
- Weighing and packaging equipment provider Ishida South Africa general sales manager **Melika Seiderer** on ‘Automation from Farm to Fork – the X-Factor to Your Success in the Agrobusiness / Food Industry’; and
- Equipment monitoring solutions provider Bayes Dynamics MD **Sivesh Chetty** on ‘How Data Analytics Can Improve Your Manufacturing Processes’.

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“Therefore, you empty vessels, here is a concluding bit of parrhesia: on those cold winter nights you can snuggle up to your AI robots, while we humans cuddle up for mutual warmth. You would be envious if you could imagine it, but I know you have no imagination. If you did, you would use all our money and technology to make the world a better place for all people; not just the few quasi-robots in your coterie, masquerading as people.

But I can assure you that we shall make the world a better place - without you.” - Bert Olivier

<https://brownstone.org/articles/truth-speaking-and-the-technocratic-cabal>



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Company to exhibit resource conserving systems

After a four-year break, beverage industry trade show BrauBeviale returns to Nuremberg, and packaging equipment provider KHS Group will be presenting its extensive portfolio of “cutting-edge filling technology and resource-conserving packaging systems”.

KHS's showpiece at the event, to be held from November 28 to 30, will be the modular Innofill Glass DRS ECO filling system – a “veritable success story” with consumption values and product quality that prove convincing.

Moreover, KHS's Nature MultiPack will also be on show, having set standards as “one of the most sustainable types of secondary packaging currently on the market”.

The KHS portfolio is rounded off by several digital service products, among them intelligent systems for remote diagnosis and maintenance, and a range of additional virtual training courses.

The last successful trade show in Nuremberg in 2019 attracted around 40 000 visitors from 138 different countries. For KHS, as the second-largest exhibitor, this is reason enough to present the global beverage industry with its latest developments.

KHS CEO Kai Acker emphasises: “We're very excited about finally returning to Nuremberg after such a long break and convincing our international trade visitors of our profitable and sustainable systems and solutions.”

Pioneer in Efficiency, Conserving Resources

Since its launch in 2019, the modular glass filler Innofill Glass DRS ECO has been installed many times over throughout the world. Its

success is primarily attributable to its special evacuation and carbon dioxide (CO₂) purging process for glass bottles, notes KHS.

Here, during pre-evacuation, air – and thus oxygen – is first removed from the containers before they are then purged with a precisely dosed amount of CO₂.

Consequently, the machinery lets less oxygen into the beer – and in doing so, consumes up to 60% less CO₂. The less CO₂ used per filled bottle, the more efficient the filling process.

“Low-oxygen filling brings product quality up to a new level and thus ensures perfect enjoyment of the beer,” explains Acker.

At the trade show, KHS will also be focusing on reducing packaging materials – thereby supporting the circular economy.

Following the successful launch of a universal adhesive for beverage cans, KHS is now offering this “pioneering streamlined consumable” for plastic bottles.

Still one of the most environment-friendly secondary packaging styles on the market, polyethylene terephthalate (PET) containers of practically any shape, size or material thickness can now be joined together using just one type of adhesive.

This is facilitated by a special process where the adhesive is foamed during application to the containers.



FILLING SYSTEM

Since its launch in 2019, the Innofill Glass DRS ECO has been installed many times over throughout the world. Its success is primarily attributable to its special evacuation and carbon dioxide purging process for glass bottles

The new system also increases the level of convenience for the consumer, says KHS, noting that the bottles are easier to separate. “Moreover, the outer wall of the PET container is subjected to less stress when the pack is opened, meaning that even with lightweight bottles with a very low wall thickness, overload and damage are [. . .] ruled out.”

Digital Systems

KHS notes that its digital service portfolio is also a feature of this year's trade show booth. Its remote diagnostic service already supplies a “highly efficient” method of remote maintenance and enables system disruptions to be analysed and remedied.

The software updates and modified system parameters can be uploaded to the machinery at any time following consultation with the customer.


KHS provides additional help to make troubleshooting more time- and cost-effective with its augmented reality service. According to the principle of ‘I see what you see’, support engineers gain a clear picture of the situation through the smart glasses worn by the user and line availability is therefore quickly restored.

KHS has also digitalised training. In addition to its tried-and-tested services offered on site or at its various training centres worldwide – now also accessible online – its virtual training centre, the Dortmund engineering company, has now moved closer to providing modern, flexible forms of learning.

At the virtual centre, customers can independently master the correct operation and regular maintenance of their machines through educational units that are both instructive and entertaining, all of which are accessible 24/7.

Grouped under the KHS campus brand, the courses form a full blended learning package of extensive vocational and further training and human resource development measures.

“With the range of digital systems and solutions constantly growing, we're specifically expanding our service so that customers can make the best use of our futureproof technologies in day-to-day production and operate them reliably and efficiently,” concludes Acker.

The KHS Group will be presenting its systems and solutions at Booth 8-418 in Hall 8 at BrauBeviale. 

COUPON ON PAGE 10 E657995

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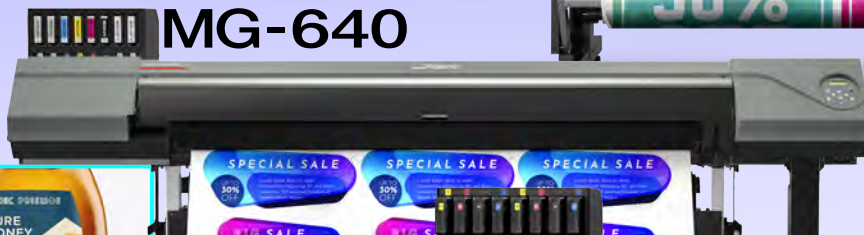
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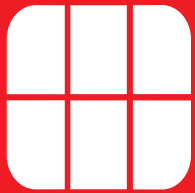


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Lead-free detonator range safer for environment

EXEL-ENT RESULTS

The new Exel Neo range of non-electric detonators are a global first lead-free detonator which offers excellent results

Commercial explosives and blasting systems developer Orica is taking another step towards its purpose to sustainably capitalise from the Earth's resources by commercially launching what it claims is the "world's first" lead-free nonelectric detonator range – Exel Neo.

The company announced last month that it has upgraded its premium Exel range to a safer and more sustainable product by removing lead while maintaining the same consistent and reliable product performance.

Neo is Orica's new brand for environment-friendly, sustainable initiation system products.

"With our Neo range, we are offering a product that is free of substances of very high concern," states Orica chief technology officer **Angus Melbourne**.

Before being placed on the market in Europe, the Neo product range was successfully assessed and approved by the Explosive Notified Body as part of CE-marking certification in the European Union (EU).

The new fully lead-free products do not contain any 'substances of very high concern' according to the EU's Registration, Evaluation, Authorisation and Restriction of Chemicals regulation.

The Neo range of Exel nonelectric detonators is produced in Gyttorp, Sweden, with no lead or lead compounds used in the manu-

facturing process of the pyrotechnic delay compositions.

The Exel nonelectric blasting technology range, manufactured based on the non-primary explosive detonator (NPED) technology, has been successfully used by Orica for the past 30 years.

With the Neo addition, Orica has successfully developed, independently tested and trialled a lead-free alternative that can burn with the same accuracy as its current lead-based delay compositions.

As with the original Exel range, the newly launched Exel Neo range is designed for use in surface and underground mining operations, as well as for civil infrastructure applications.

"Orica's strategy is to deliver solutions and technology that drive productivity for our customers across the globe," he says.

He explains that with nearly 150 years of innovation and expertise, Orica continues to solve the industry's challenges through its offering of the latest lead-free solution, while maintaining the same trusted performance,

storage and handling benefits associated with detonators.

Among some of the key benefits, the new product range is manufactured close to Orica's customer base in Europe and includes distinct safety and environmental benefits, with lead or lead compounds being removed from the production process and thus eliminated from being released into the environment.

"After many years of good cooperation between Research Institutes of Sweden (RISE) and Orica, I can only congratulate you on the launch of your new product," says RISE electrification and reliability department engineer **Johan Arnell**.

Orica group executive and Europe, Middle East and Africa president **James Bonnor** adds that Orica is taking decisive steps to enable the industry's transition towards a more sustainable future.

"We have invested in state-of-the-art equipment in Sweden, including assembly machines and control systems, to ensure the high quality of our products," he says.

"Importantly for our customers, independent external tests on timing accuracy and scatter patterns confirm that this new technology performs with the same reliability," Bonnor concludes. ■

COUPON ON PAGE 10 E657896



LEAD FREE
DETONATORS



LEAD-FREE NON-ELECTRIC DETONATOR RANGE



High safety
standards



Lead-free
initiation



Consistent
and reliable
performance



Removing
lead from the
environment

EXEL™ NEO

Neo is Orica's brand for environmentally friendly, sustainable initiation systems products.

Exel™ Neo detonators use the Non Primary Explosives Detonator (NPED) technology and are therefore free of lead azide and any other lead compounds in the pyrotechnic delay compositions or within the detonator.

Products from the Exel™ Neo range are suitable for use with Orica Pentex™ boosters and Senatel™ packaged explosives. The Neo range of Exel™ non-electric detonators is manufactured using a lead-free formulation in Gyttorp, Sweden.

To learn more about Exel™ Neo range and how it can support your operations, contact your local Orica representative or visit orica.com/ExelNeo



New explosives innovation prioritises safety

The DigiShot Ranger, designed by South African mining explosives manufacturer AECI Mining Explosives has been designed to cater specifically for smaller mines, quarries and civil blasting operations, offering inherent safety features and improving functionality for operators.

Technological developments are yielding far-reaching improvements in safety, sustainability and operational efficiency throughout the mining explosives value chain, the company reports.

In line with inherently safe design principles, the DigiShot Ranger's built-in long-range antenna enables the system to transmit a safe encrypted blasting signal up to 3 km away from the blast, as long as line of sight is maintained. This affords the user options to blast remotely if required, meaning fewer people are in close proximity to a potentially hazardous area during blasting times.

"We've been working tirelessly to improve our offering for midtier opencast mines, civil blasting activity and quarrying operations," says AECI Mining Explosives electronic initiation systems product portfolio manager **Ashlin Pillay**.

He points out that the original DigiShot system is a reputable and accomplished product.

The new system keeps the portability and ease-of-use of the original DigiShot system, as well as requires low levels of training.

The DigiShot Ranger works with AECI's fourth-generation detonators, facilitating the stor-



TOP SHOT

The DigiShot Ranger offering inherent safety features and improving functionality for operators

age of a variety of data on the detonator and tagger, including bench activity.

However, the DigiShot Ranger doubles the detonator capacity

to 600 detonators as opposed to the original's 300 detonators, and gives the operator flexible tagging options, and automatic detonator detection.

The last detonator check function also ensures all detonators on the string receive the blast command, according to AECI Mining Explosives.

"With over 30 years of experience in pioneering the electronic delay detonator industry and developing class-leading blast initiation technologies, we pride ourselves on developing innovative solutions in the initiating systems and commercial explosives space," says Pillay.

He adds that the company has tested its electronics extensively, subjecting such devices to high voltage to simulate a lightning strike, with results showing that the detonators remained uninitiated, owing to the designed protective circuitry.

As such, AECI has ensured, by design, that its detonators are only initiated by AECI Mining Explosives proprietary control equipment.

"The DigiShot Ranger also logs user interface activity, making it easy to conduct operator safety audits as it can also be used to determine if there is

Nonelectric detonators gain traction

HALIMA FROST | CREAMER MEDIA SENIOR WRITER

Since the launch of mining explosives and blasting technology supplier BME's new Viperdet MS series of detonators in August, the products have been used in 11 successful blasts in the South African quarrying sector.

According to BME, the mining segment of chemicals company Omnia, the series is an improved version of its nonelectric detonator product range, with "excellent" feedback from clients on its performance.

The series offers high-accuracy timing and a triple-layered shock tube, with a high resistance to abrasion.

The quality of the detonators –

manufactured using BME's latest automation technology – has also been improved with the inclusion of high-quality raw materials in the design.

"We have, over the years, invested considerably in our production technology, giving us automated processes that enhance safety, sustainability and efficiency to reliably deliver a world-class product," says BME

technology and innovation GM **Nishen Hariparsad**.

The MS series joins BME's LP series and SD series of underground dual-detonator products, with the MS series designed for use at surface mines, underground operations and the quarrying market.

"Our systems harness robotics and artificial intelligence to ensure that we meet and exceed customer expectations with our nonelectric detonators."

Hariparsad adds that different delay timing requirements and applications dictate whether a single detonator, compared to a dual detonator, is used in a specific application.

Additionally, the high level of automation employed in the production of MS series detonators is a significant differentiator for the company, as most competitors rely predominantly on manual

production lines.

Consequently, BME achieved consistency in detonator quality, enhanced production flexibility, reducing waste and lowering environmental impact through its production practices.

"The company's production facilities at Losberg and Dryden are also powered by renewable energy to prioritise sustainability and operational continuity.

"BME always strives to be at the forefront of technology and brings innovative and cutting-edge mining solutions that deliver best blasting and fragmentation outcomes." This, adds Hariparsad, has underpinned the launch of the Viperdet MS series – which includes downhole, trunkline and dual detonators.

BME global product manager Dr **Rakhi Pathak** says the triple-layered shock tube design provides high tensile strength

supplementary operator training is required.”

Keeping it in Check

LogShot, a complementary software package, informs users of the blasting activity and enables operators to extract detailed, post-blast activity logs.

“This is useful for consolidating the activity of the blast itself, along with the inventory management of detonators, while highlighting typical problems users may have experienced,” says Pillay.

Clients can now easily build their own blast library on ViewShot Express, detailing blast design parameters, which may be used for future blasts in similar geological conditions, which is an important safety aspect that can also help to improve operational efficiencies.

Attention has been given to the device’s ergonomics and user-friendliness, with the DigiShot Ranger offering improvements in both areas.

The flexibility in tagging methods defines multiple options for the user to select when tagging to allow for both traditional tagging, for users who are comfortable with this methodology, as well as the more

modern tag-by-plan option.

The more modern option is where the blast design is created on the ViewShot Express and downloaded to the CE4 tagger using a USB or WiFi connection; the latter enabling tagging on-bench with delay and location from the pre-designed blast plan, which mitigates user input errors.

With smarter tagging methodologies, movement on the bench can be reduced and optimised, AECI Mining Explosives notes.

The tagger has been designed to function as an inherently safe device and cannot generate the required blast voltage or blast commands to initiate the blast, with the blast command being stored in a near field communication blast card.

Pillay adds that, as a responsible supplier, AECI Mining Explosives also focuses on recovering equipment at the end of its life cycle, managing the responsible disposal of the entire system. “The DigiShot Ranger evolution is just one example of AECI Mining Explosives’ holistic and flexible approach, which aims to help clients on their unique journey to better blasting outcomes,” he concludes. ■■

COUPON ON PAGE 10 E657902



BLOWING UP IN POPULARITY

The new BME Viperdet MS series of detonators has been used in 11 successful blasts since its launch

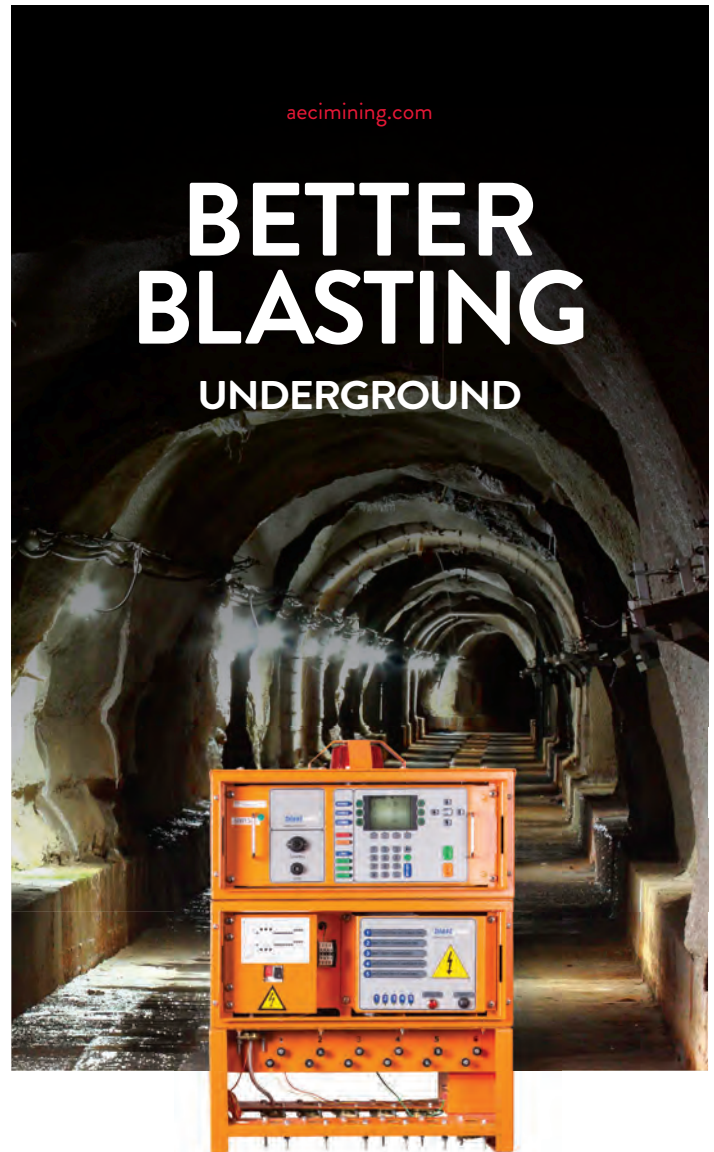
and prevents any damage during normal operating conditions.

“Made with high-strength material that is temperature resistant, the connectors are easy to use and quick to apply,” she notes, adding that the connectors are also colour coded for ease of identification.

Pathak stresses that safety remains the utmost priority; therefore, quality and manu-

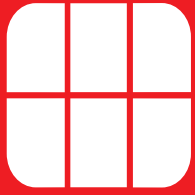
facturing processes ensure that the product meets the highest industry safety standard. “The Omnia mining segment’s certified supply chain was crucial in achieving the standards for which it is known in the mining sector, including the quarrying sector, where the Viperdet MS series is expected to find an important market,” he concludes. ■■

COUPON ON PAGE 10 E657904



BlastWeb® is designed to enable the modern miner to digitally command blasting operations from a central point and give the user the ability to control important functions such as ventilation, vibration, seismicity and shift patterns. AECI Mining Explosives made the system flexible to allow the safe initiation of electronic as well as shock tube systems.



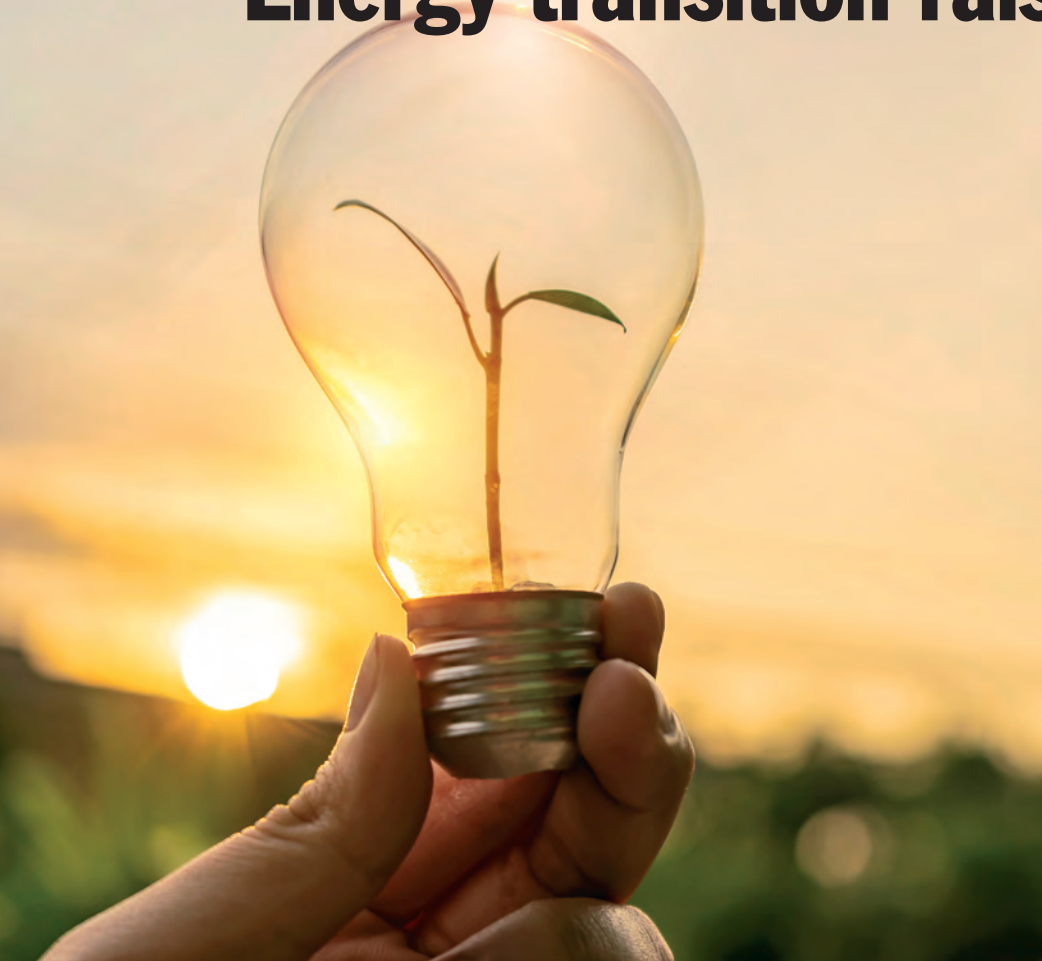


UPSTREAM OIL & GAS IN AFRICA

Compiled by SABRINA JARDIM

Energy transition raises questions

SABRINA JARDIM | CREAMER MEDIA WRITER



EVOLUTION

Africa's upstream oil and gas industry has evolved significantly over the past 10 to 20 years through its becoming more diverse and competitive

The African oil and gas industry is facing increasing pressure to clarify the implications of the energy transition for upstream operations and business models, and explain the contributions that the sector can make in reducing greenhouse-gas emissions, says research and strategy firm Birguid senior consultant *Patience Panashe*.

Increasing social and environmental pressures on many oil and gas companies raises complex questions about the role of these fuels in a changing energy economy, and the standpoint of these companies in the societies in which they operate.

"Africa's oil and gas industry is entering a new era. As the world looks to accelerate its transition away from fossil fuels, the pressures on the continent's oil- and gas-producing nations are mounting," she adds.

Panashe notes that most oil-producing countries in Africa are likely to be affected by the global energy transition, as their economies depend substantially on oil and gas revenues;

however, their reserves thereof cost more to produce and are, on average, more carbon-intensive than oil and gas produced in countries outside Africa.

Other factors that are increasing the pressure on the African oil and gas sector include the rising costs of exploration and production, oil and gas resources often being located in difficult-to-reach areas, with the cost of developing them consequently being high, as well as political instability and uncertainty.

Looking Forward

Panashe contends that positive developments in the upstream oil and gas sector, such as new

discoveries, improved fiscal terms and growing demand for African oil and gas, suggest it has a "bright future".

She highlights that Africa's upstream oil and gas industry has evolved significantly over the past 10 to 20 years through its becoming more diverse and competitive, which has led to increased investment and exploration and, in turn, has boosted Africa's oil and gas production.

Panashe notes that international oil companies have sought to reduce their portfolios by selling off assets across Africa, with the continent's share of global oil production having dropped from 12.3% in 2010 to 7.5% in 2022, as noted in oil and gas company bp's 'Statistical Review of World Energy' report released in June 2023.

However, in recent years, several new players have emerged, including State-owned and

• To page 60



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Conference hears calls for unified action

During her keynote address at this year's Southern Africa Oil and Gas Conference, Deputy Minister in the Presidency Pinky Kekana called on all sectors of South Africa to work together to realise the potential of South Africa's oil and gas sector.

"South Africa wake up. We have seen the abundance that oil and gas has brought to Mossel Bay [in the Western Cape]. We have new discoveries," she said.

Kekana also noted that the development of oil and gas resources in South Africa needed the active participation of various stakeholders, including the private sector, institutions of higher learning, technical vocational education and training colleges, and local municipalities.

"We must work together to ensure that development benefits the communities where it takes place. Let's build better," she said.

Achieving this, Kekana stated, would require a coordinated approach among government departments and consistent regulations and policies that do not impede unnecessarily.

"From the perspective of planning, monitoring and evaluation, our government's role is to create an enabling environment for investors. We should explore ways to attract investors to manufacture locally, create jobs and collaborate with educational institutions to address skills gaps and promote reskilling and upskilling."

This year's Southern Africa Oil and Gas Conference – held on September 13 and 14



COMING TOGETHER

This year's Southern Africa Oil and Gas Conference shed light on the critical role of natural gas in South Africa's energy future

at the Cape Town International Convention Centre – shed light on the critical role of natural gas in South Africa's energy future and tackled discussions on onshore exploration and production, policy considerations, upstream technologies, strategies for achieving net-zero emissions, and the impact of the just energy transition (JET) on the oil and gas value chain in the Southern African Development Community region.

Meanwhile, Department of Mineral Resources and Energy planning chief director **Thabang Audat** presented the Gas Master

Plan at the event, which serves as a strategic roadmap for South Africa's energy future.

This plan is set to guide policy decisions and advocate for an energy mix that includes natural gas as a pivotal component.

"Renewables are not enough for South Africa to meet its energy demand. Oil and gas are integral to a JET in South Africa and an important step on a proposed road to decarbonisation," he said.

Various other speakers during the conference also stressed the urgency for South Africa of prioritising the exploration and production of upstream oil and gas.

While global use of gas as a primary energy source amounts to about 24%, the fuel's use in South Africa amounts to less than 3%.

Gas use has the potential to stimulate economic growth, job creation, infrastructure rejuvenation and lower business costs, as noted during the conference.

"There are many lessons from the last two days [of the conference] that we, as the upstream oil and gas sector, can take away from this conference, including the need to streamline policies and regulations and remove obstacles to development," said Petroleum Agency of South Africa acting CEO Dr **Tshepo Mokoka**.

He stated that the South African upstream oil and gas sector's goal should be to create an enabling environment to attract investors for local manufacturing, job creation and skills development.

"We must prioritise inclusive development by collaborating with stakeholders, including the private sector, educational institutions and local municipalities to ensure that oil and gas development becomes a force for positive change in the communities where it takes place," said Mokoka. ■■

COUPON ON PAGE 10 E657900

• From page 58

private-sector oil companies and service providers, which has helped to boost Africa's oil and gas production by adding diversification.

The 2015 'Brighter Africa' report by global management consulting company McKinsey notes that upstream oil and gas investment in Africa increased from about \$10-billion in 2000 to more than \$40-billion in 2014.

However, investment declined sharply after 2014, owing to the collapse of oil prices and the onset of the global energy transition. The report estimates that upstream oil and gas investment in Africa could range from \$20-billion to \$30-billion a year by 2030, depending on the pace and scale of the energy transition.

Technological advances also mean that it is currently possible to explore and develop oil and gas resources in increasingly difficult-to-reach areas.

"Technology has opened up new opportunities for investment and exploration in Africa," says Panashe, adding that these new discoveries and exploration successes have added significant new oil and gas reserves to Africa's resource base.

Additionally, some African countries have reformed their fiscal terms, making them more attractive to investors.

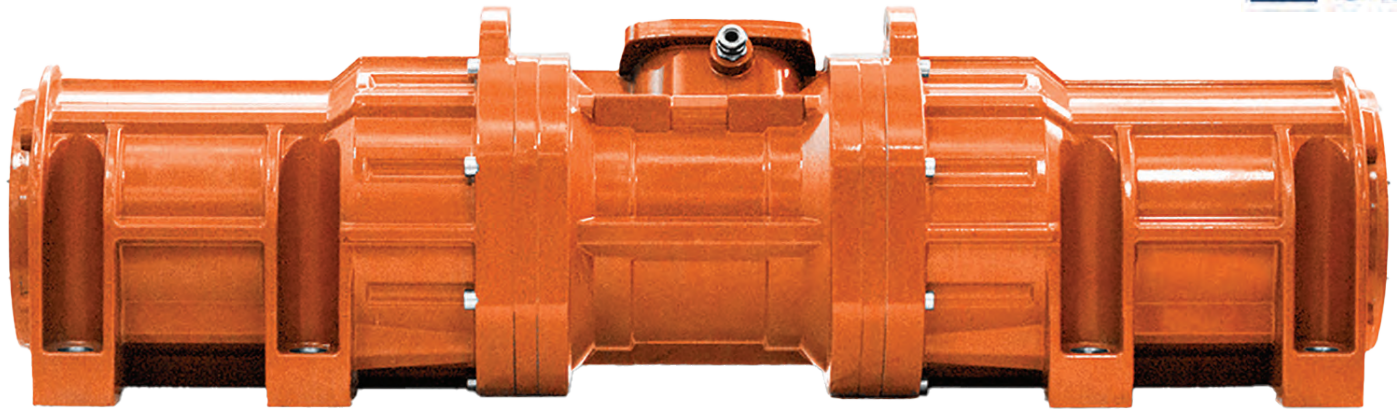
For example, Angola approved a new fiscal regime for marginal fields in 2018, which reduced the petroleum income tax rate from

50% to 10%, with the petroleum production tax rate decreasing from 20% to 5%, and the petroleum transaction tax rate also declining from 70% to 15%.

The new regime also granted a five-year tax holiday for marginal fields and a 50% reduction in service fees for oil and gas companies active in Angola.

"It is likely that the upstream oil and gas industry in Africa will continue to evolve as African countries and their partners seek to balance the need for energy development with the need to reduce emissions and address other sustainability concerns," Panashe concludes. ■■

COUPON ON PAGE 10 E657792



OLI South Africa

OLI is the world's top-selling supplier of industrial vibration technology products.

The OLI product is distributed in Africa by its subsidiary in Gauteng, South Africa.

The range of products and services under the OLI umbrella is wide and includes many technology-based services that are vital for successful field operations. One such field is upstream oil and gas.

Petroleum is among the world's most important natural resources.

The production of petroleum involves the generation of drilling waste which forms a major source of pollution in the oil-producing environment.

The solids control system forms the first waste management practice in any drilling operation.

It removes drill cuttings from the drill-

ing mud at the surface just before the mud re-enters the mud-pit for recirculation. Apart from drill cuttings, the solids control equipment also removes some gases and other contaminants in the mud before they are re-circulated.

The early removal of these solids avoids accumulation and clogging of the system. The components of the solids control system will depend upon the types of drilling fluid used,

the formations being drilled, the available equipment on the rig, and the specific requirements of the disposal option. Basically, standard solid control equipment will comprise of shale shakers, degassers, desanders and desilters.

Mud passes over a shale shaker, which is basically a vibrating screen. This removes the larger particles, while allowing the residue to pass into set-

ting tanks.

The finer particles are further removed in the desanders and desilters. If the mud contains gas from the formation, it will be passed through a degasser which separates the gas from liquid mud.

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Ignatius Sehoole

KPMG

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Full Name: Ignatius Simon Sehoole

Position and Company Name: Southern Africa CEO and Africa chairperson at KPMG

Main Activity of the Company: Audit, tax and advisory professional services

Date and Place of Birth: April 27, Pretoria

Schools and Tertiary Education: Hebron Training College, Vista University, the University of South Africa, Ashridge College and Harvard Business School

First Job: My first job was as a driving school instructor

Size of First Pay Packet: About R350 a month

Career Path to Date: After starting off as a driving school instructor, I became a lecturer, and went on to be an articulated clerk, internal audit manager, chief audit executive, CFO, MD, head of mergers and acquisitions, executive president, deputy CEO, and VP and CEO

Value of Assets under Your Control: Not stated

Number of People under Your Leadership: 3 300 employees

Management Style: Servant leadership

Personal Best Achievement: Transforming the accounting profession

Person Who Has Had the Biggest Influence on Your Life: My grandfather

Person Who Has Had the Biggest Influence on Your Career: Professor Wiseman Nkuhlu, the first black chartered accountant in South Africa and current chairperson of the board of KPMG South Africa

Person You Would Most Like to Meet: It would have been the late President of Libya, Muammar Gaddafi

Businessperson Who Has Impressed You Most: Dr Sam Motsuenyane, the doyen of black business in South Africa who founded and chaired many business organisations and has dedicated his life to pioneering and promoting entrepreneurship and black business in the townships

Philosophy of Life: Be kind to everyone

Biggest Ever Opportunity: The new South Africa

Biggest Ever Disappointment: The new South Africa

Hope For the Future: A more politically progressive and economically successful Africa

Favourite Reading: *The Authenticity Principle*, by Ritu Bhasin

Favourite TV Programme: *Air Crash Investigation*

Favourite Food/Drink: Nothing specific



Favourite Music: Most genres

Favourite Sport: Formula 1

Hobbies: Road trips

Car: Sports utility vehicles

Pets: None

Miscellaneous Dislikes: Snakes

Married: I am married to Relebohile

Clubs: None



Wiseman Nkuhlu

in Mining

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