



# CAPE Business News

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## Solar installers face cable challenges



The Helukabel Team at the official opening of the Cape Town branch. L to R Juliessun Snyman, Cheslyn Adams, Siseko Mali, Jaco Palmer, Sales Manager and branch manager Thomas Hall.

**S**PEAKING at the opening of its new Cape Town branch in Montague Gardens, Helukabel South Africa branch manager Thomas Hall, warned of the pitfalls of installing inferior cables in the avalanche of solar projects, both in the commercial and particularly in the residential markets.

“At present there is little or no regulation or an overseer to ensure that solar installations are safe and perform according to specifications.”

Helukabel Group is a family owned business of 45 years standing, with multiple manufacturing facilities and having 61 sites across 39 countries, supplying high specification TUV approved cable and cable accessories to a wide spectrum of industries.

Its Cape Town branch is the latest addition to the Helukabel family with its South African head office in Johannesburg and a branch in Durban.

“The rapid expansion of commercial, industrial and residential activities – particularly solar - in the Western Cape dictated

that we open a branch here in Cape Town to service and expand upon our existing customer base of some 280 plus distributors and channel partners” explained Hall.

“The rapid rise of the solar industry on the back of failing power supplies and continuous loadshedding has led to an explosion of solar installers which has attracted its fair share of ‘bakkie brigade’ operators. Many have little experience in the multi-disciplined expertise required for successful solar installations, and it’s fair to say that there are an increasing number of especially residential customers who have got their fingers burnt by unscrupulous installers who through either ignorance or by design, install inferior cabling.

“It is vital that the correct specification cabling is used for solar installations to prevent system failures, poor panel performance and in the worst case present a fire hazard. The average householder who commits to a solar solution is ignorant of the complexity of the installation and often price is the incentive in making a selection of a solar installer.

“At present there is little or no regulation or an overseer to ensure that solar installations are safe and perform according to specifications. This is less of a problem in commercial or industrial installations as businesses usually enlist the assistance of a qualified professional engineer to specify and oversee the project.



“For the homeowner, the cost of hiring a professional to ensure compliance can become prohibitive, so they rely on the ‘reputation’ of the installer.

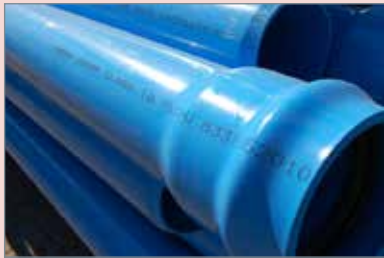
“There is a role that insurance companies can play here and some are looking seriously at the potential risk to their business and their policy holders from a poorly installed installation.

“While solar is the ‘flavour of the month’, Helukabel has other sectors which are receiving attention from our new branch – that of marine, aviation and fire protection to name but a few. Agri-processing is a major market in the Western Cape and automatic packaging and processing machinery require specialist cable products to ensure maximum up time and to prevent unexpected break downs due to ineffective maintenance.

“It’s all down to education and we are establishing a series of training courses initially for our partners and distributors to educate them in the complexity and necessity to install quality cabling in specific applications. Further along these training courses will be open to professional bodies and insurance personnel.

“While there will always be someone who will buy at the cheapest price, perhaps they should remember the old adage “The bitterness of poor quality remains long after the sweetness of low price is forgotten!” Hall concluded.

## Ensuring water safety, quality and reliability



**S**OUTHERN African Plastic Pipe Manufacturers Association (SAPPMA), has once again highlighted the importance of maintaining high standards in the manufacturing of thermoplastic pipes.

“Plastic piping is used across the complete spectrum of many industries, including mining, civil, irrigation, industrial, telecommunication, and building. Around 150 000 tons of pipe (PVC and HDPE) are produced annually in South Africa, representing many thousands of kilometres,” says Jan Venter, CEO of SAPPMA. “Plastic piping networks form an integral, expensive, long term, and extremely important part of the infrastructure of this country. The integrity of these networks, built up over many years, is of critical importance, serving the water supply and sewage disposal needs of many millions of people. This clearly highlights the need for a responsible, ethical, and quality-conscious industry”.

Venter explains that SAPPMA is not in competition with any accredited certification organization, but plays a crucial coordinating role between all stakeholders in this industry. Its sole focus is on a relatively small (but crucially important) sector of industry, and it is in a unique position to detect problems much earlier than any other organization. In addition, SAPPMA monitors its own members in terms of product quality and full adherence to all relevant national standards. This ensures that SAPPMA members

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Ensuring water safety, quality and reliability

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meet the association's high standards that are based on international best practice and stipulated in its Code of Conduct.

"South Africa is a dry country, and water is increasingly becoming a scarce resource. With demand for clean drinking water and inconsistent rainfall, we can no longer afford the huge losses in pipelines (estimated to be of the order of 40%). The need is for piping systems that are leak-free and durable for extended lifetimes, up to 100 years. HDPE and PVC pipes answer this call with distinction. In addition, they are highly suitable for the rehabilitation of old pipelines," Venter expounds.

"The SAPPMA brand is well known and is recognized by design engineers and customers as an additional safeguard against poor quality products. We will continue to be unwavering in our commitment to create absolute customer confidence in the plastics pipe industry, thereby ensuring long term sustainability and dynamic growth in this all-important industry," Venter concludes.

For more information, visit [www.sappma.co.za](http://www.sappma.co.za)

Global energy leaders named in Africa Oil Week Advisory Committee

AFRICA Oil Week (AOW) ([www.Africa-OilWeek.com](http://www.Africa-OilWeek.com)) has announced a high-powered Advisory Committee that will help to steer the direction of Africa's leading oil and gas event, due to take place in Cape Town in October this year.

As the world looks to navigate a complex energy transition towards net zero, AOW brings industry leaders together to help map a sustainable and realistic transition path that supports Africa's energy needs, stimulates socio-economic development, and ensures Africa retains control and ownership of its natural resources sector.

The AOW Advisory Committee tasked to drive this change is made up of energy-industry leaders from around the world and will be led this year by Dr Emmanuel Ibe Kachikwu – AOW Ambassador, former minister of state for Petroleum Resources in Nigeria and former group managing director of the Nigerian National Petroleum Corporation.

The AOW Advisory Committee consists of 28 members, and includes Abimbola Ayinde, GM Corporate Finance & Upstream Commercial, First E&P; Bongani Sayidini, COO, Petroleum Agency South Africa; Iman Hill, CEO, IOGP; Charles Nyirahuku, Chief Gas Regulatory Officer at AFDB; Rob Sherwin, VP Corporate Relations – Europe & Sub-Saharan Africa for Shell; and Gbenga Komolafe, Commission Chief Executive of NUPRC in Nigeria.

"We are proud to assemble an Advisory Committee of highly experienced and well-connected industry leaders for this year's event," says Paul Sinclair, Vice President of Energy at Africa Oil Week.

"The Advisory Committee members and their organisations have been game changers in terms of their commitment to Africa and helping to unlock the continent's energy potential."

This year's AOW event will take place under the theme "Maximising Africa's Natural Resources in the Global Energy Transition".

It will address policies and fiscal regimes, ESG and low-carbon emission strategies, gas monetisation and the use of technology and innovative strategies to optimise operations – all with an eye to highlighting opportunities for industry investment and global collaboration.

AOW is the voice and platform for the African Upstream. Now in its 29th year, AOW advocates for the development of a balanced regional energy mix on the continent and in the best interests of its people.

AOW takes place from October 9-13 at the Cape Town International Conference Centre.

For more information, visit <https://Africa-OilWeek.com/>.

Are oil companies price gouging for increasing prices at the pumps?

Fred Razak, Chief Trading Strategist, comments

AROUND the world the price being paid at the pump by the average consumer for a litre of petrol is going up. With the price of the raw ingredient in diesel and petrol, crude oil plummeting to a historically competi-

tive \$74 a barrel, prices aren't coming down and oil companies are, at the same time declaring record profits. Fred Razak, Chief Trading Strategist at CMTrading explains that people are probably too focused on the oil price for determining their pump price.

"What we need to understand is that the price of the raw prod-

uct does not immediately impact the price at the pump," says Razak. "Likely only 20% to 25% of the price at the pump is based around the actual oil price. The other 75% is made up of taxes, the cost of refining the oil, and the cost of distributing and serving the petrol, and the rand dollar exchange rate."

Everything is get-

ting increasingly more expensive from the labour used in the refining to, ironically, the price of fuel in the distribution process. Razak suggests that it is this, which is driving the current high prices, and says that no matter how low the price of crude oil gets, consumers should not expect the price of fuel to plummet any time soon.

"If we want to talk about where the oil industry's record profits are coming from, we should rather look to demand. During Covid-19 demand for petrol and oil was at a record low as people stayed home and logistics ground to a halt. Now it's recovering and we are seeing the oil companies reaping the benefits from this increased demand," explains Razak.

Razak's long term forecast for the price of oil is therefore not likely to be encouraging to consumers, especially as he believes the development of alternative fuels and modes of transport will not make as much of an impact as expected.

"I hate to burst the bubble, where every-



one thinks that oil is just going to become obsolete and electric cars are the way of the future. Yes electric cars are going to be used in the future, and yes they will become a standard, but that is a drop in the bucket when we look at what oil is being used for," he says. "There are obviously airplanes, tankers, locomotives all being powered by oil, and never mind the creation of plastics, so it's going to take a while for the price of oil to be diminished, because there is not enough demand in the market. The popula-

tion is just getting bigger and a larger population equals a greater demand for oil. Eventually we will overcome our dependence on oil, but the demand isn't just going to drop off."

Due to the long term factors, and the relatively stable price being experienced at present, Razak doesn't expect any dramatic moves in terms of crude oil. He does, nonetheless, predict that consumers may be paying even more at the pump for their fuel.

"Prices at the pump are being influenced by taxes that are being raised to cover some of the Covid-19 costs that have been incurred over the past few years," he says. "Sadly there doesn't seem to be anything governments can really do to ease the burden on consumers either. They can't just 'take care of it and lower the prices' because those taxes do need to be raised and ultimately that means someone needs to pay for them somewhere, and there are also other considerations like refineries and distribution, that need to be compensated for the price of oil."

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# Turning FOG wastewater into biodiesel feedstock and clean water for reuse

By Robin Hayes

A year has elapsed since the editor interviewed South African entrepreneur Christopher Clemes, who jointly invented and patented the Eco Clarity technology solution in the UK, which separates problematic FOG (Fat, oil and grease) from wastewater. The process recovers a valuable feedstock for the manufacture of biodiesel while returning effectively cleaned wastewater to the waste stream. (See article: Taking the fat out of fatbergs – CBN

April 2022 – [www.cbn.co.za/online-edition/cbn-april-2022](http://www.cbn.co.za/online-edition/cbn-april-2022)).

Keen to follow the development of this revolutionary system, the editor tracked down Chris Clemes on a recent visit ‘back home’ to the Cape where in addition to some R&R, Chris will be in discussions with personnel from Fabrinox in Paarl, the manufacturers of the containerised Eco Clarity plant units.

**Huge demand**

“Since our first pilot plant was set up in Amsterdam two years

ago for one of Europe’s largest biodiesel producers, Argent Energy, we have been investing in an R&D phase which has resulted in a third generation plant which was recently installed at Argent’s site in Stanlow, Ellesmere Port in the UK” explained Clemes.

“What we have uncovered is that there is huge demand for our recovery technology. There are about 142 000 food service outlets in the UK, each producing around 140l/month of between 5 – 30% FOG which has to be disposed of in a responsible manner by GTW

(Grease Trap Waste) hauliers.

“Our model of placing an Eco Clarity hub at a wastewater treatment site within 1 hour’s drive for the hauliers means that they benefit by completing more trips / day and greater revenue, and for the wastewater utility, the recovery of treated wastewater that previously untreated, could interfere with the biological functions of the plant. In a worst case scenario, illegally dumped FOG from overflowing grease traps causes sewer pipe blockages called ‘fatbergs’.

“The big bonus is that the concentrated FOG - up from an untreated 5%, is now +95% pure and of real value to the manufacturers of biodiesel.

“Our original 50t capacity plant has now been doubled in capacity to 100t with bigger tanks and our fourth generation plants, two of which are currently under construction by Fabrinox, will be delivered to a UK customer by October this year.

**Milestone achieved**

“We have now reached an R&D milestone where fourth generation plants can now be considered for commercial manufacture on an assembly line as a fully packaged and guaranteed treatment system. Based on our research and discussions with customers and stakeholders we conclude that it’s entirely feasible to have up to 40 plants operating in the UK and Europe by 2026.

“We have already received offers from water utilities throughout the UK to install Eco Clarity units at numerous sites and enquires are pouring in from Europe, Middle East, India and China.

“Twelve UK GTW hauliers have over 400t of FOG waiting to be processed at any one



Christopher Clemes.

time and original estimates of 20t/week/ plant of pure FOG have been revised upwards to a much higher potential of pure FOG per / week/plant. We have also received enquiries from a number of new potential sources of FOG, for example from sites which are currently spreading to land.”

**Local opportunities**

“In order to meet demand, Fabrinox are ramping up production and envisage a dedicated production line of Eco Clarity units. We are also in discussions with them for greater involvement of their service and facilities such as procurement and

installation teams for the UK.

“Under investigation is a solar powered Eco Clarity unit and the original Amsterdam pilot plant is being returned to SA to be used as an R&D test bed as local conditions here are different to those encountered in Europe, with scope for testing for our similar markets globally.

“I have my eye on the first Eco Clarity plant in SA being installed at ‘the restaurant capital’, Franschhoek although we are in discussions with several municipalities in the Western Cape who have expressed interest in the concept” he concluded.

## How Eco-Clarity works

Eco-Clarity has created a patented technology solution that easily collects and separates fat, oils and grease (FOG) from waste water through an efficient and fully automatic hub system made up of three scalable containers.

The system enables FOG to be separated before it enters the water system and becomes problematic. The cleaned water is then reused or safely returned to the waste stream. In turn, the successfully separated FOG becomes a sustainable raw material that can be used to produce second-generation biodiesel - feedstock for energy recovery in the UK and EU, which qualifies for triple counting renewable

energy directive (RED) credits.

The oil recovered goes up from 5% to +95% concentration after going through the Eco Clarity system, turning it into a valuable raw material for biodiesel production.

Eco Clarity is transforming the wastewater disposal process by extracting a valuable raw material whilst improving the quality of the separated water for reuse or for conventional treatment.

A standard Eco Clarity hub can handle 10 tons of FOG containing waste water in 10 minutes, which can then go on to begin separation immediately, and begin harvesting within 30 minutes. The hub’s

efficient system currently uses just 25% of the energy typically used in similar processes, with temperatures never exceeding 60 degrees to ensure low energy consumption.

Eco Clarity is focused on revolutionising the way wastewater is handled by turning the process from one of disposal, into one of conversion into effectively clean water, by filtering out beneficial oil residues which can then be used as raw material for the production of biodiesel - a sustainable alternative to fossil fuel, which can reduce GHG (Greenhouse Gas) emissions by around 90%, directly impacting the world’s carbon footprint.

# Market disruptions and the impact on your portfolio

Wendy Myers, Head of Securities at PSG Wealth

THE recent sharp downward movements in financial services stocks have been a cause for concern among investors. US listed Silicon Valley Bank’s demise and JSE listed Transaction Capital’s declining share price - down to levels last seen at the height of the Covid stock market collapse - have left many wondering if these events are transient or indicative of something more systemic.

As an investor, I believe that volatility

is an inevitable part of investing in shares, especially in the short-term. We are currently in the midst of unwinding the imbalances in the global monetary system after years of highly accommodative monetary policy. This normalisation of interest rates has had a profound impact on the market since 2022, and we have been cautioning investors to expect this volatility for some time now.

The real challenge for investors is to view their portfolios holistically, not to panic, and not to make any resultant poor investment decisions. Proper diversification is crucial

as part of a broader risk-management strategy. This begins with ensuring your portfolio includes a spread of shares across different sectors and geographies. Currently, a high exposure to financial shares will put your portfolio under strain, so it is advisable to spread investments across multiple sectors and avoid having a key or main exposure to financial stocks.

It is also important to consider the risk profile of the companies that you select. High-risk or growth stocks that showed material gains during the Covid years are now taking pain, and

we typically recommend that investors have not more than 5% of their total portfolio invested in these stocks, or avoid them completely, depending on their own risk profile and time to retirement.

These recent events also force us to reassess our risk and to look at our portfolios in the context of how they are constructed and set up for the long-term. Equities will always remain a key asset class to build long-term wealth, so investors should not avoid equities completely. Rather, it is essential to view your portfolio holistically

and ensure it is constructed to meet your long-term needs.

In addition, it is also vital to avoid knee-jerk reactions to market movements. As investors, we tend to be emotional and do not like losses. However, reacting impulsively to share price moves during a bad spell, due to macroeconomic factors, can have a detrimental impact on long-term outcomes and may negatively impact your ability to meet your long-term financial goals. A well-diversified portfolio can and will reduce an investor’s stress and remove the urge to react and the need to

“As an investor, I believe that volatility is an inevitable part of investing in shares...”

tinker with it.

As an investor matures and their portfolio becomes more substantial, we strongly advocate that they work with a financial adviser who can annually assist them in reviewing their portfolio’s construction. The adviser can guide the investor when considering macro events and how they impact current portfolio construction. This is where well-adjusted rebalancing can occur to ensure the portfolio is set up for the long-term.

It’s essentially not about selling out of stocks but making sure that those stocks you’re invested in, have strong fundamentals. Sometimes, taking some profit off the table or even realising some small losses in the short term set the investor up for long-term gains.

Ultimately by viewing portfolios holistically, avoiding knee-jerk reactions, and working with a financial adviser, investors can manage risk and set themselves up for long-term success.

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# Securex South Africa 2023 – end-to-end security solutions under one roof

WITH a 30-year history of matchmaking security products and services providers with organisations eager to find workable solutions, Securex South Africa is the ultimate platform for the security industry. Held at Gallagher Convention Centre in Midrand, from 6 to 8 June 2023, Securex South Africa

is the largest source of security offerings on the continent. “A visit to Securex South Africa not only guides industry professionals to the optimal product or service for their specific requirements, but also provides them with an opportunity to find out more about current trends and

legislation at the free-to-attend Securex Seminar Theatre,” says Mark Anderson, Portfolio Director at Specialised Exhibitions — a division of Montgomery Group. Eighteen seminar topics, presented by knowledgeable security specialists, share subject matter that ranges from physical security, through iden-

tity and access control and risk management, to identifying and tackling pervasive cybersecurity threats. Visitors can further maximise their time at the Expo by visiting the co-located A-OSH EXPO, Facilities Management Expo, and the recently launched Fir-

### End-to-end security

“We have an impressive line-up of exhibitors at Securex South Africa 2023 that covers the whole spectrum of security products and services,” says Anderson.

These include

- Suprema biometric and identity provider

- products (stand A02b); a wide range of batteries from Battery Experts (Stand F29);
- a smart access control system from Fluss (Stand C20);
- locally designed and produced REVA armoured vehicles from Integrated

- Convoy Protection (Stand A06);
- the Fargo INK1000, being launched by New Teltron (Stand F21);
- CCTV products and technologies from Provision ISR (Stand A01);
- a powerful SaaS solution that streamlines visitor management, employee attendance, safety induction, and parking access for a more secure and efficient environment from Kenai (Stand F46);
- smart security perimeter intrusion monitoring and detection solutions with Distributed Acoustic Sensing (DAS) and Distributed Temperature Sensing (DTS) fibre technology solutions from Tech4IR (Stand C13);
- specialist liability insurance to the security industry from Leppard Underwriting (Stand F48);
- affordable artificial intelligence software from Activeye (Stand LN04 – Link Node);
- Olarm’s (Stand B05) PRO 4G multi-channel dual SIM 4G/2G and Wi-Fi communicator and its Olarm LINK (Smart extender for Olarm PRO) smart control and sensing device; the Omada smart cloud solution for business networking from TP-Link South Africa (Stand A07);
- a unique commercial armoured solution for the cash-in-transit and high-value transport industry from SVI — Special Vehicle Innovations (Stand C1).

Securex South Africa is endorsed by leading industry professional bodies like SAIDSA, ESDA, FPASA, PSiRA, SASA, the National Bargaining Council for the Private Security Sector, and ISS. To register for free attendance at the Expo follow this link: <https://tickets.tixsa.co.za/event/securex-expo-south-africa-2023>

To find out more information about exhibiting at Securex South Africa 2023, visit the website at <https://www.securex.co.za> or contact Zelda Jordaan on: +27 010 0033082 or [zelda.jordaan@montgomerygroup.com](mailto:zelda.jordaan@montgomerygroup.com) Engage with Securex South Africa 2023 on social media using the show hashtag #SecurexSA2023.

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## Tax and technology – taxpayers need to be prepared

**Author by: Reinert van Rensburg, Attorney and Tax Practitioner at Leap Group**

THE South African Revenue Service (SARS) is currently working towards automating the tax return submission process for all South African taxpayers. This means that more taxpayers may be eligible for auto-assessments, which are already in place for taxpayers who only receive income from sources where taxes were already withheld and IRP5s and similar documents are available to SARS.

The development of technology and agreements between SARS and third parties can result in a bigger percentage of taxpayers being auto assessed, including provisional taxpayers. SARS Commissioner, Edward Kieswetter, has been vocal about the importance of automating the tax assessment process and making it more convenient for taxpayers.

### **The South African residence-based tax system\**

In South Africa, taxpayers are taxed in accordance with their tax residence status, with a distinction made between resident taxpayers and non-resident taxpayers. The residence status of a taxpayer is extremely important information during tax assessments, as a resident is taxed on their worldwide income while non-residents are only taxed on South African sourced income.

During the auto-assessment process,

SARS will consider the taxpayer's residence or non-residence status before reviewing the income information provided to them by third parties. If the taxpayer is registered as a resident, SARS will assess the taxpayer on their worldwide income, even if they are living and working abroad. This highlights the importance of formalizing your non-resident status with SARS if you are living outside South Africa on a permanent basis to avoid potential tax liabilities.

### **Auto-assessments and improving technology**

The primary objective of automating the tax return submission process is to streamline the process and make it more efficient for taxpayers. It will enable SARS to assess tax returns more accurately to reduce the risk of errors. Auto assessments will also free up resources at SARS to allow them to focus on more complex tax issues and audits.

SARS will utilise technology as far as possible, one method is through data matching, where SARS uses technology to compare the information provided by taxpayers with other sources of data, such as financial institutions and employers. This process allows SARS to identify discrepancies in income and other financial information. Third parties may include foreign financial institutions and revenue services to avoid situations where taxpayers are not paying tax in any country.

Another method is through artificial intelligence, which can be

used to analyse large amounts of data and identify patterns and irregularities to pick up on potential tax evasion or fraud.

### **SARS's improvement on tax collection**

It is clear that SARS is making significant strides in improving their technology and tax collection processes each year. Mr. Kieswetter's confirmation that SARS has millions of records of South African taxpayers and their foreign assets through the Automatic Exchange of Information (AEOI), and their commitment to working through each case, is evidence of this.

Additionally, SARS's handover of 97 cases to the NPA in the past year, resulting in a conviction rate of 98% and over 75 years of prison time, demonstrates their commitment to improving tax compliance and reducing the tax gap. The continued use of advanced analytical tools and collaboration with other entities will undoubtedly further enhance SARS's ability to identify and prosecute tax evaders, ultimately improving tax compliance in South Africa.

Taxpayers, whether living in South Africa or abroad, need to be prepared and ensure that the information that is available to SARS is in line with their factual situation. If their factual situation indicates that they are a non-resident, it is important that this non-resident status is documented with SARS, as it is a crucial factor in tax assessments.

## Flexible and versatile: how magnetic track lighting enhances spaces

LIGHTING designers understand the importance of flexible lighting solutions that can adapt to the changing needs of a space. That's why we're excited about the versatility of magnetic track lighting.

With its uncomplicated design, magnetic track lighting is easy to install, and the fittings can be positioned along the track wherever lighting is required. This flexibility allows for a variety of fittings to be installed along the length of a single track, from spotlights to pendants to strip lights, to achieve various lighting effects, from task to accent.

It is this flexibility that makes track lighting so ideal for areas such as retail spaces, where lighting needs fluctuate from ambient, task and accent throughout the setting, according to customer flow and product merchandising systems.

The low voltage electrical current that powers the lighting system also makes it energy-efficient and gener-



ates very little heat. A 12W Power Supply is sufficient to power a smaller track lighting system for a modest kitchen or dining room settings that don't require a lot of power. A more expansive and complex system may require a higher wattage power supply from 24W or more, will ensure that your lighting system operates safely and effectively.

Another great advantage of magnetic track lighting is its ability to blend seamlessly into any space. The

track can be painted to match your ceiling or wall colour, making it visually unobtrusive and enhancing the overall design of your space.

Finally, the high-quality aluminium construction of magnetic track lighting ensures that it is built to last and can withstand wear and tear. Once installed, you'll be able to enjoy the benefits of this robust lighting solution for years to come, without the hassle of frequent maintenance or

replacement.

In conclusion, magnetic track lighting is an excellent lighting solution for large retail spaces, or smaller home and commercial settings, with its flexibility and range of fittings offering a versatile and adaptable solution that can be tailored to your specific needs.

*For advice on planning and implementing a magnetic track lighting system, visit [www.eurolux.co.za](http://www.eurolux.co.za) to learn more.*

## Loadshedding is having a huge impact on the uptake of new equipment, warns Shumani

LOADSHEDDING is having a huge impact on the total uptake of equipment in general, says Victor Nemukula, MD of Shumani Industrial Equipment. Companies are instead spending their capital budget on solar technology to minimise the impact of power cuts on their production output. Notwithstanding loadshedding, electric forklifts are still popular as the technology improves.

Despite this, Nemukula sees green shoots in the materials handling sector. "We are witnessing resurgence in economic growth albeit at a smaller pace." Diesel equipment is still by far the most popular in the market in terms of overall volumes sold, with Doosan and Crown remaining Shumani's top selling brands.

A major focus for Shumani remains its maintenance lease agreements, which offer customers equipment on a long-term



**Victor Nemukula.**

rental basis, including full maintenance, for extra peace of mind in a volatile market. "We provide complete management of the units and supply performance reports customised to their requirements."

It is mostly larger customers taking advantage of these agreements, combined with Shumani's com-

mitment to a 98% uptime for uninterrupted service so customers can focus on their core business. Another factor is that customers are increasingly hesitant to commit a large portion of their budget to acquiring new equipment. This makes leases with full maintenance that much more attractive, as it allows

customers to free up capital while focusing on optimising operations.

"Virtually all our equipment is mostly on full maintenance leases," reveals Nemukula. "It has become the biggest portion of our business." Here the initial contact point is with the service department. As Shumani has grown over the years, it has even set up a call centre to provide its customers with a seamless service.

It supplies world-class equipment across the breadth of the industrial and construction sectors. Brands on offer include world-leading names like Bendi, Crown, Kalmar, and Doosan in the forklift market. Construction equipment brands include Bobcat, Sany, HPower, Weima, Luthian, Ozen and Sullair. In the cleaning equipment market segment, Shumani offers Tennant, Genie, Sentinel and HighPoint.

## Cruise Season comes to an end

APRIL marked the final month for the Cape Town Cruise Season and the Cape Town Cruise Terminal concluding a bumper season.

MSC Orchestra arrived in Cape Town on 3 April for the first time this season and operated short cruises to Mozambique and surrounding islands carrying about 2 000 passengers on each leg - before returning to Europe.

Oceania Insignia arrived the following day on 4 April with 597 pas-

sengers from Lüderitz, before departing to Mossel Bay on 6 April as part of its 197-day world cruise from Miami to San Francisco.

Queen Mary II arrived on 7 April with 2 110 passengers before departing with 2 047 passengers as part of a partial turnaround visit on their world voyage from Southampton to New York.

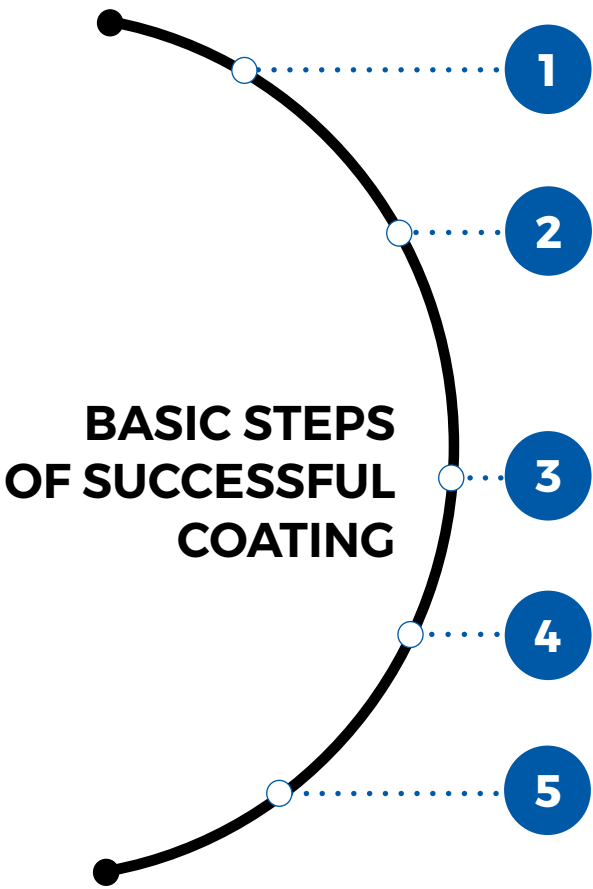
Silver Shadow arrived on 12 April from Durban as part of their 23-day voyage from Seychelles

to Cape Town. Seabourn Sojourn arrived on 26 April as part of her main 47-day voyage from Mahé Island, Seychelles to Barcelona. Some passengers disembarked in Cape Town and additional passengers embarked as part of an 18-day Cape Town to Dakar or a 30-day Cape Town to Barcelona itinerary.

The Seven Seas Mariner, arrived on 5 May which will mark the end of Cape Town's extremely successful 2022/23 cruise season.



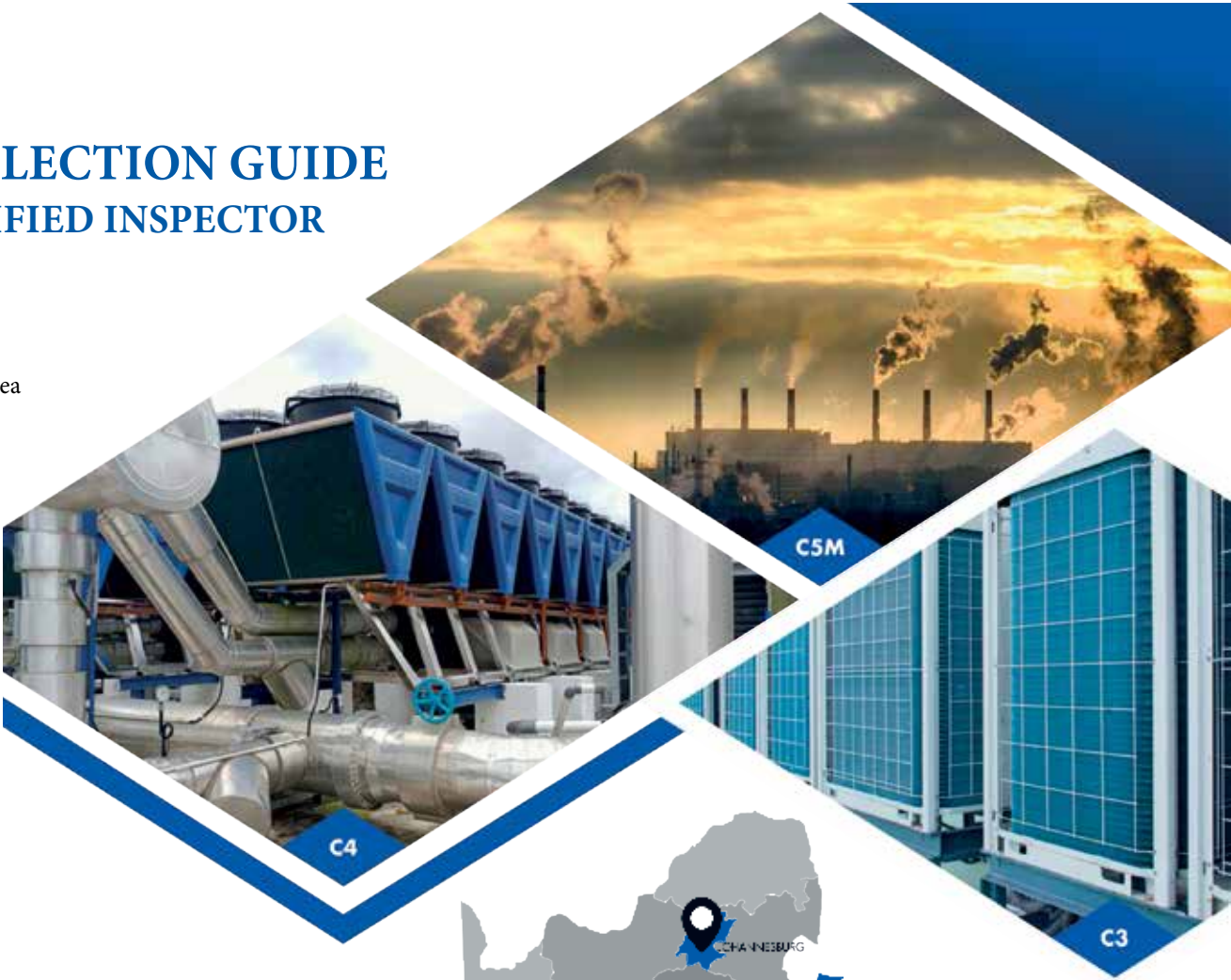
# BLUCHEM – MARKET LEADERS IN HVAC CORROSION COATING



- 1 MUST BE CLEAN**  
The substrate to be coated must be clean (oil free) and a suitable surface profile created (sandblasting / sanding, etc).
- 2 IDENTIFY THE ENVIRONMENT**  
Identify the corrosivity of the environment the equipment is located, (determined by mass loss of a specimen sample over one year, and ranked from C1 (Low) to C5 (High), but can be estimated considering the combined effect of the following environmental factors, yearly time of wetness, yearly mean concentration of sulphur dioxide, and yearly mean deposition of chloride).
- 3 DETERMINE DURABILITY**  
Determine the expected durability of the equipment, usually, Low (2+ yrs), Med (5+ yrs), High (15+ yrs).
- 4 SELECT COATING SYSTEM**  
Use relevant coating system standards (ISO, ASTM, etc) for the specified corrosion category to determine the coating system to match, i.e. environment & durability.
- 5 CHOICE OF COATING**  
It is critical to use fit for purpose paint products and applying it at the correct nominal dry film thickness.

## COATING SELECTION GUIDE NACE CERTIFIED INSPECTOR

- Mid Tier (C3)**
- 300m – 5km from the sea
  - 300m – 5km from an industrial area
- High Tier (C4)**
- < 300m from the sea
  - < 300m from an industrial area
- Extreme Tier (C5M)**
- Direct coastal location
  - Nearby a polluting industrial industry, eg
    - Waste water treatment
    - Oil refineries / petrochemical
    - Animal waste slurries
  - Areas with permanent condensation / high humidity



Bluchem has workshops located in Cape Town (Head Office), Durban, Port Elizabeth and Johannesburg. We undertake on-site work in neighbouring countries and the Indian Ocean Islands.

# Learnerships - all round benefits - if it's done right

By Daniel Orelowitz,  
Managing Director at  
Training Force

DESPITE being Africa's most industrialised nation, South Africa has one of the highest unemployment rates in the world and is struggling with low GDP growth. Economic recovery and growth are desperately needed, but this requires job creation and skills development to meet our country's current and future needs. One of the most effective ways to achieve skills development and job creation is through learnerships - aimed at promoting growth in employment and facilitating capacity building across sectors to address scarce and critical skills shortages. Learnerships are attractive for businesses but managing these programmes can be a massive undertaking so it is advisable for companies to outsource with an accredited training provider to gain all the B-BBEE and tax benefits with none of the associated administrative and compliance burdens.

## Further education benefits

Currently managed by the Sector Education and Training Authorities (SETAs), learnerships are directly related to particular occupations and roles. They provide a pathway that leads individuals through to accredited National Qualifications Framework (NQF) qualifications. Learn-



Daniel Orelowitz.

erships ensure that more people are trained for a specific working environment, and businesses benefit from having a more skilled and experienced workforce. Through such skills development programmes, learners are now able to further their education while employees contribute to the establishment of a pool of skilled labour that can either be absorbed permanently into their organisations or redirected to be of benefit elsewhere in the industry.

As attractive as the business benefits of learnerships may be, companies generally have to source eligible candidates and have them vetted and on-boarded, all of which direct time and resources from other core functions of the organisation.

## Developing essential skills

An experienced training provider can step

in here, and take on the recruitment, enrolment, and management of the right candidates. As training and employee development specialists, it is their core business to help their clients align with the requirements of learnership programmes, such as the Youth Employment Service (YES) programme. An enterprise can participate in facilitating 12-month work experience programmes for unemployed youth by either:

1. Sponsoring and hosting youth within their business
2. Sponsoring placements elsewhere within an existing SME/supply chain
3. Providing hosting to the benefit of a new SME.

## How do learnerships benefit employers?

From B-BBEE scores to tax incentives, there are several noticeable

benefits when implementing learnerships in the business:

Contributing to skills development, job creation and economic growth, while boosting the company's productivity and adding to its value through the employment of skilled, knowledgeable, competent employees.

Establishing a pool of properly-trained, experienced employees with critical skills to draw from gives the business a clear competitive edge in the industry.

Being committed to skills development positively impacts the company's B-BBEE status, improving employment equity targets by enabling previously disadvantaged employees or unemployed individuals to upskill themselves and earn qualifications.

There are Learnership Tax Incentives that allow employers to claim up to R120 000 per individual that completes their qualification, along with monthly Employment Tax Incentives (ETI) for every employee hired between the ages of 18 and 29.

## An all-round win-win

Partnering with a training provider that specialises in youth development ensures everyone benefits - the company gains the full tax and employment equity advantages of learnerships, while candidates achieve their full potential through the successful completion of such programmes.

# Ennerdale collapse: who is responsible for safety on landfill sites?

A recent collapse that claimed the life of a waste picker at the Ennerdale Landfill on 3 March 2023 begs a general review of safety and operational management at South Africa's landfills.

This is according to Environmental and Landfill Engineer Nash Dookhi, who is the Kwa-Zulu Natal Chair at the Institute of Waste Management South Africa.

"What I haven't seen in the media is a detailed investigation into why this tragedy occurred and what could have been done to prevent it," he says.

## Legislation and regulations

Dookhi's concern is how landfill sites are being managed in accordance with applicable legislation and regulations, especially in terms of industrial health and safety.

South African waste is regulated by the National Environmental Management: Waste Act of 2008.

This legislation requires that every landfill owner obtains a waste management licence and in addition to the development, engineering and monitoring of the site, stipulates the requirements for operating and managing the site.

In addition to the waste management licence, these conditions continue to be guided and governed by the Minimum Requirements for Waste Disposal by Landfill, Second Edition 1998, from the Department of Water Affairs and Forestry. The general operations require

that, on a day-to-day basis, waste that is tipped into the landfill should be shaped (that is, pushed together), compacted and covered, known as the cellular landfilling method.

In the case of the Ennerdale Landfill, the operator is Pikitup, the City of Johannesburg's official waste management company.

Are the requirements being fully implemented? Dookhi, who has over 20 years' experience in waste management, says that landfill engineering is a complex discipline that considers various factors around landfill stability. These include the types of waste, compaction, moisture content, cover material used, leachate management and many other variables.

Properly managed, waste is inherently stable because certain waste types embedded in it, like plastics, cardboard and fibres, act as built-in natural reinforcement that provides it with solidity and an acceptable factor of safety.

"The fact that a collapse would not result from one day's worth of loose incoming waste suggests a longer-term neglect of the requirements," says Dookhi.

Are waste pickers even allowed at landfills? Whether waste pickers are allowed inside a landfill site is not easy to answer.

The Minimum Requirements state that "the Department discourages waste reclamation at landfill sites", with no reclamation being permitted at hazardous waste sites at all.

However, if the licence holder opts to allow controlled reclamation at a general waste disposal site, they must seek permission on the application for their waste management licence or by amending an existing permit/licence.

This indicates that waste pickers' access depends on what is formally allowed in the site operator's licence and that their activities are effectively managed and controlled.

Regardless, as per the Minimum Requirements and the waste management licence, the responsibility for the safety of any reclaimers rests with the licence holder.

## Landfill safety

That the site operator is wholly responsible for meeting the daily operational requirements of the landfill, including the safety of the waste pickers present, puts the ball directly in its court.

IWMSA calls for landfill operators to ensure they meet their waste management licence requirements and be guided by the Minimum Requirements in every regard, including their responsibility to those on site.

"We acknowledge that there is a role to be played by the waste pickers to promote the circular economy and further acknowledge that it can be difficult to control pickers eager to reach prime materials in newly arrived waste and encourage municipalities to provide effective support and management to the sites," says Dookhi.

# Five steps to embedding sustainability in your business

By Hariprasad  
Viswanathan, Head –  
Sub Saharan Africa,  
VFS Global

BY embedding sustainability and jumping on the Environment, Social and Governance (ESG) wave, organizations can revolutionise the way of doing business. These companies will also become more resilient in the long run and reap benefits such as improved operations and performance, greater customer satisfaction, and better financial results. According to the KPMG 2022 CEO Outlook Survey, 45% of CEOs globally agreed that ESG programmes improved financial performance

- an increase from 37% the previous year. However, Businesses need to transform words into actions. A long-term sustainability framework requires looking at all the dimensions holistically. Therefore, it becomes imperative to seed practices in an organisation's sustainable program and creates a successful ESG strategy.

## Incorporating ESG as a part of the larger company strategy

The first step for a company in achieving full sustainability potential for improving the operational performance of an organisation is to integrate necessary sustainability goals with

overall business goals, especially those for setting and delivering financial KPIs. The same CEO Outlook Survey also revealed that only about 8% of South African CEOs have invested money towards adopting a more transparent approach when it comes to ESG reporting.

Businesses must examine both their corporate and sustainability strategies to see how closely they align and reinforce one another. The strategies can also be put under stress using a variety of criteria, such as peer comparison and competitive pressures, stakeholder expectations for the present and the future, and the overall oper-

ating environment. In the future, a business can make use of this knowledge to elevate and integrate sustainability into its strategy and operations.

However, to smoothly execute a sustainability strategy, it's necessary to onboard experts who are aware of emerging environmental and social trends, and the risks and opportunities they create for business.

## Tapping the S and G in ESG

For good reasons, businesses from all sectors are focusing on the "E" aspect of the ESG (Environmental, Social, and Governance) requirement. Both big and

small businesses are expressing their dedication to, among other environmental ideals, renewable energy infrastructure, and lowering carbon footprints.

## Involve employees in your ESG strategy

Greater employee engagement is a natural outcome of companies adopting their ESG strategy by integrating it into the foundation and culture of their business. ESG strategies have proven to improve financial status even though they come with an upfront cost like any investment. It has been demonstrated that involving employees in sustainability-related issues

over and above the conventional CSR/philanthropy departments can improve a business's competitive edge, financial performance, and brand reputation

## Encouraging transparency

Being open and honest is essential for many reasons, not the least of which is that it protects your company against charges of greenwashing. Being honest about both your positive and, more crucially, your negative impacts will help you avoid criticism from others by demonstrating your grasp of the areas where your business needs to develop and advance sustainably.

## Prioritising ESG efforts

A successful ESG framework aims to make an organisation future-ready and future-proof. One must take into account the need of all stakeholders and deliver on all pillars within the framework through a holistic approach.

To sum up, an integrated future is one in which businesses prioritise sustainability challenges alongside financial gains in their overarching corporate strategy and reporting. Every decision will consider environmental, social, and economical values in relevant and meaningful ways. This is how we can work towards a sustainable future.



# Making it easy and affordable for SMEs to move to the cloud

By Argantic CEO  
Garry Ackerman

CLOUD computing has transformed the way businesses operate, enabling them to streamline their operations, reduce costs and improve flexibility. However, despite its numerous benefits, many companies remain hesitant to make the switch.

Many SMEs believe that the cost of migrating to the cloud is prohibitive. But with the right solutions, moving to the cloud is now more accessible and cost-effective than ever before.

With Microsoft Business Basic, companies can migrate their IT infrastructure to the cloud, without having to invest in expensive hardware or software. It is an all-in-one cloud solution designed specifically for SMEs. It provides access to a range of cloud-based tools, including email, calendars, file storage and sharing, video conferencing, and more.

### Cost

Even small businesses with limited budgets can benefit from the cloud, without having to worry about excessive costs. For example, Business Basic offers a cost-effective solution, with prices starting at just R91 per month.

### Scalability

With a user-friendly interface and easy setup, SMEs can quickly get started and reap the benefits of the



Garry Ackerman.

cloud. This all-in-one cloud solution is also fully scalable, allowing companies to add or remove users as their needs change, without having to worry about infrastructure costs. This flexibility is particularly important for SMEs, which often have limited resources and need to be able to adapt quickly to changes in demand. Companies can easily scale up or down as required, without having to worry about infrastructure costs.

### Improved productivity and collaboration

In addition to cost savings, migrating to the cloud can also help companies to improve their productivity and collaboration. With tools such as Microsoft Teams, employees can work together seamlessly, regardless of their location.

They can share files, collaborate on documents in real-time, and hold virtual meetings, all from within the same platform. This not only improves efficiency but also helps to reduce the need for travel, which can be a significant cost

for many businesses.

### Security

Security is also a concern for many companies when it comes to the cloud. However, Microsoft Business Basic provides a range of security features to protect company data and ensure compliance with regulations such as GDPR. These features include data encryption, multi-factor authentication, and advanced threat protection, which help to keep company data safe and secure at all times.

### Professional services

Migrating to the cloud can be a complex and daunting task and it is important to seek the assistance of professional services to ensure a successful migration. Professional services can provide guidance, support, and expertise throughout the entire migration process, from planning and design to implementation and management.

Professional services can help businesses assess their current infrastructure

and determine the best cloud solution for their specific needs. They can also assist in developing a migration plan that takes into account factors such as data security, compliance requirements, and cost optimisation.

Additionally, they can help them identify and mitigate potential risks and ensure a smooth transition to the cloud. Once the migration is complete, professional services can continue to provide ongoing support and management, ensuring that the cloud environment remains secure, efficient, and optimised for performance.

It can be instrumental in ensuring a successful cloud migration, providing the expertise, guidance, and support necessary to help organisations make the most of their cloud investment.

### Conclusion

Moving to the cloud is a cost-effective and accessible option for SMEs. With prices for Microsoft Business Basic starting at just R91 per month, companies can access a range of cloud-based tools, including email, calendars, file storage and sharing, video conferencing, and more.

By migrating to the cloud, companies can improve productivity, collaboration and flexibility, while also reducing costs and enhancing security. With these benefits, it's clear that the cloud is no longer just for large enterprises, but a viable option for SMEs as well.

# Water Use License applications for hydropower generation explained



The Gariep Dam.

THE Department of Water and Sanitation (DWS) Director-General, Dr Sean Phillips together with a team from DWS Water Use Licence Applications (WULA) met with different stakeholders and Independent Power Producers, to take them through the processes of applying for authorisation to use available water courses and the Department's water resources and infrastructure to generate hydropower as an alternative energy to supplement the currently available electricity.

Addressing the hybrid briefing session that took place at Kempton Park in Ekurhuleni on Tuesday 11, April 2023, the DG said the DWS had revised its hydropower policy to enable utilisation of its infrastructure and water resources for renewable energy generation. "The policy empowers DWS to remain within its mandate while supporting the much-needed investment in renewable energy generation in the country. We have a duty as the Department to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled as stipulated in the National Water Act," said Dr Phillips.

The DWS has developed policy principles that will apply to all institutions (Private or Public) in the interest of balancing sustainable water resource protection, water and sanitation provision and hydropower generation. According to the policy, the DWS will support the development of hydropower as part of both social and economic development within the

context of water scarcity and water infrastructure challenges without compromising sustainable protection of water resources and water and sanitation services provisions.

Dr Phillips also emphasised the principles of the window for Water Use Licence Application for hydropower.

"We are not going to provide any financial support to the applicants, during the application, construction, operations and maintenance. We are not going to be involved in any of the Eskom processes or own any electricity production. The Department will solely be responsible for Water Use Licence Applications and will ensure that the application processes are competitive, fair, transparent and underpinned by the spirit of equity allocation of water resources in line with the National Water Act," said Dr Phillips.

Advocate Sipho Skasana, a Chief Director in the DWS Water Use Licence Application (WULA), said there were three phases of WULA application, and all the phases are necessary for the processing.

The first phase is a pre-application phase which will open on 17 April 2023 and will end on 30 June 2023. The second phase will be the application compilation and submission which will end on 31 January 2024. The third and final phase is application processing, decision and communication by the DWS.

The DWS will take a maximum period of 90 working days to process the applications.

"Once the decision has been made by DWS to grant a license for hydropower generation, the licence will last for a maximum of 40

years. The conditions of a licence specify that the construction should start within the stipulated time frame following the issuance of a licence. It should however be noted that all the applications should comply with the conditions of a licence to avoid the suspension and withdrawal of the licence according to Section 54 of the National Water Act," said Adv. Skosana.

The DWS has initiated the DWS Hydropower Independent Producer Programme (DWS HIPPI) in an effort to allow for the available infrastructure and water courses to be used to contribute to the power grid with renewable energy.

The programme is in response to the 'Energy Action Plan' as announced by President Cyril Ramaphosa to enable the production of renewable energy as an alternative source of energy to supplement the currently available electricity and contribute to tackling South Africa's power crisis.

The types of hydropower technologies that can be applied for include Impoundment; river diversion or run-of-river; pumped storage and floating or kinetic turbines (small-scale generating capacity). In addition to the above, applications for floating solar panels can also be made.

A window for interested parties to submit pre-applications for water use authorisations will open on 17 April 2023.

Detailed information regarding the application process is accessible in the Electronic Water Use Licence and Application System (E-WULAAS) on the link: DWS: E-WULAAS – Documents in the DWS website.

# Merger creates industrial solutions centre

INDUSTRIAL services solutions providers TMS Group Industrial Services and Redec Services, which provides industrial and engineering solutions, are to merge. Both businesses are part of the Sekta Group, a 51% black women-owned group of highly reputable industrial services companies.

The merged entity is called TMS-Redec and will take advantage of the complementary overlap between services and sectors.

TMS was originally part of the Bidvest Group, before being acquired by Sekta Group. The business provides industrial cleaning, access, main-

tenance, insulation and support services to South Africa's oil and gas, energy, construction, and petrochemical sectors.

Redec is a provider of commercial and industrial painting services and is the global contractor for repair product manufacturers across many disciplines. Together, TMS and Redec offer a wider and more specialised range of services. Clients include Sasol, Eskom, Astron, Sapref, Engen, Pioneer Foods and SA Breweries.

"Both TMS and Redec are well-established in their respective fields. Merging them combines deep and complementary industry

knowledge and creates a larger geographical footprint, in line with Sekta's strategy to expand in South Africa and into the rest of Africa. TMS-Redec will offer a broader range of services and clients will benefit from dealing with fewer vendors. Instead, they deal with one company covering multiple disciplines," says Liran Assness, Sekta CEO.

TMS offers scaffolding and other access solutions, asbestos removal, insulation and cladding, abrasive blasting, industrial coatings, catalyst handling, chemical cleaning, tank desludging and cleaning, cold cutting, high-pressure power washing and industrial

vacuumation and other specialised services. Redec offers specialised corrosion protection coatings, abrasive blasting, fireproofing and industrial fire protection, epoxy and specialised floor coatings, tank cleaning and waste removal, concrete rehabilitation, repairs to marine vessels, rope access as well as cladding and insulation and other associated services.

Both TMS and Redec have worked on projects of all sizes and durations and maintain a presence throughout the African continent, including South Africa, Mozambique, Botswana and Tanzania across several disciplines.



# Payments API allows access African markets

*The Payments API (Application Programming Interface) enables businesses to collect and disburse local fiat currency through mobile money and bank transfer.*

YELLOW Card, the largest Pan-African cryptocurrency exchange, has announced the launch of its new Payments API. This new product will enable businesses to on-and-off-ramp customers through Yellow Card's crypto rails.

Being the largest cryptocurrency exchange on the African continent, Yellow Card allows businesses instant access to its collection and disbursement rails in 16 African countries as well as the ability to offer their customers local payment methods through mobile money and local bank transfer.

The Payments API enables businesses to collect and disburse local fiat currency through mobile money and bank transfer while Yellow Card handles the treasury management and conversion of local fiat to/from Stablecoins such as USDT and USDC. The automated conversion to Stablecoins safeguards your business from the volatility

"The Payments API enables businesses to collect and disburse local fiat currency through mobile money and bank transfer while Yellow Card handles the treasury management and conversion of local fiat to/from Stablecoins such as USDT and USDC."

of African currencies. This product is perfect for crypto companies and other global companies looking to break into Africa, remittance companies looking to benefit from crypto rails, and FinTechs that need help with treasury management.

Yellow Card's CEO, Chris Maurice, said, "Our Payments API is a game-changer for businesses looking to expand across Africa. With one API, you can outsource treasury management, collections, and disbursements across 16 African nations. We're excited to see the impact this product will have on businesses looking to expand their reach into various African markets".

Understanding the importance of pricing

in African markets, Yellow Card offers the most competitive exchange rates in all countries through the API as well as industry-low fees for using our rails.

Yellow Card's compliance with relevant regulations allows for other businesses to seamlessly expand into new African countries, fosters trust with customers, and strengthens their overall reputation.

With the launch of Yellow Card's Payments API product, businesses now have the opportunity to tap into a rapidly growing African market.

*For more information, contact: Rutendo Nyamunda, PR Office for Yellow Card, rutendo@yellowcard.io.*

# Second United Nations Habitat Assembly to be held 5-9 June 2023 in Nairobi, Kenya

THE Second United Nations Habitat Assembly (UNHA2) is set to take place in Nairobi, Kenya from 5 to 9 June 2023. The Assembly is expected to bring together representatives from member states, civil society organizations, and other stakeholders to discuss and formulate strategies for the sustainable urbanization of the world. Several heads of states and ministers will be in attendance.

The theme for the Second United Nations Assembly is "A sustainable urban future through inclusive and effective multilateralism: achieving the Sustainable Development Goals in times of global crises." Discussions will center on issues of sustainable urban development, including affordable housing, urban climate action,

urban crises response, local action to achieve SDGs and financing for sustainable urban development.

The Assembly will provide a platform for member states and stakeholders to share their views and adopt guidelines and recommendations to progress toward achieving sustainable urban development.

Speaking ahead of the Assembly, Maimunah Mohd Sharif, Executive Director of UN-Habitat, said: "The Assembly is an important platform for Member States and stakeholders to come together and discuss strategies for sustainable urbanization. We look forward to a productive and fruitful Assembly that will help accelerate progress towards achieving our common goals of sustainable

urban development.

The United Nations Assembly is the UN's highest-level legislative body on sustainable urbanization and human settlements, comprised of 193 Member States. It meets once in four years. The First United Nations Habitat Assembly took place in 2019 in Nairobi, Kenya. Then the President of Kenya Uhuru Kenyatta opened the Assembly.

The Assembly is being hosted by the government of Kenya in collaboration with the United Nations Human Settlements Programme (UN-Habitat).

*For more information on the Second United Nations Habitat Assembly, please visit the UN-Habitat website at [www.UNHabitat.org/UNHA2](http://www.UNHabitat.org/UNHA2).*

# Training and service centres for drives distributor



*Inverter Eco range of variable speed drives.*

ITEK Drives, the Germiston-based variable frequency drives distributor, is to open a training centre for transferring and improving knowledge of Optidrive product installation, programming and repair.

The training centre will open in May of this year.

Variable frequency drives (VFDs), also known as inverters, are electronic controllers that change electric motor speeds by adjusting the frequencies and voltages of current supplied.

They are most commonly fitted to fans, pumps and compressors, but are also found in lifting equipment and other applications where fully adjustable speeds during start,

stop and machine acceleration are advantageous.

Optidrive products are manufactured in the UK by Inverter Drives. In South Africa, iTek Drives has built upon the brand's solid reputation for quality by supporting it with pricing up to 25 percent lower than competitors.

The result has been significant local competitive advantage.

Besides increased sales, iTek's training centre is needed for an expanding geographic footprint. The company recently announced an export order for 20 drives for mining machinery in Zimbabwe.

Sales director Ryan Bisnath says that, besides the training

centre, the company has plans to establish a separate service centre for product maintenance, repair and refurbishment, removing this responsibility from Inverter in the UK.

"We will focus on the service centre as a secondary objective after our expanded training programmes are running," Bisnath said.

"Local enquiry flows are strong, so the aim now is to become a distribution hub for the Optidrive range across sub-Saharan Africa. We have begun exploratory negotiations with potential agencies in Zambia and Namibia to expand our network beyond the ten we have here in South Africa."

In addition to the 20 VFDs for Zimba-

bwe, there have been significant orders within South Africa's borders: 20 drives for lifting equipment, and another for 17 VFDs for a local steel mill.

These orders include eight large units of 55kW, 70kW and 75kW.

Bisnath noted that iTek Drives has seen a significant increase in the number of enquiries from potential customers not yet on the company books.

"We did suffer from the impact of global supply shortages, but these difficulties are behind us now. We are looking forward to becoming central and southern Africa's one-stop automation solution company for drives, motors, gears and control panels," he said.

# AEC Releases Q1 2023 Outlook: The State of African Energy

REGARDING oil supply, the report details 2023 global liquid outlooks, stating that month-on-month, liquids are expected to remain flat and stable while African liquids and supply are expected to add up to 8% of the global volumes over the year. The top five producers will be Nigeria, Libya, Algeria, Angola and Egypt, accounting for approximately 80% of the continent's supply, with majority of production coming from Nigeria and Angola. On the gas side, Africa's gas output is seen to primarily be driven by North and West African projects, with output expected to measure 268 billion cubic metres. Production from existing producing fields is anticipated to decline significantly, with a reverse in this trend only expected from the currently pre-final investment decision (FID) fields.

Regarding Liquefied Natural Gas (LNG), Africa's total LNG export infrastructure is expected to increase from the existing 80 million tons per annum (mtpa) to about 110 mtpa by 2030, increasing even further to 175 mtpa by 2040. Major markets driving supply will be Nigeria, Algeria, Mozambique, Senegal-Mauritania, Tanzania and Egypt.

Meanwhile, on the project front, the report provides insight into recent discoveries and their impacts on supply. Africa's upcoming upstream projects have already seen large delays from the time the hydrocarbon discoveries were made to the estimated future FID, and with many of these discoveries expected to stabilize production and offset terminal decline in output – while natural gas finds help the continent meet domestic demand, power needs

*"In addition to oil and gas, the report explores Africa's renewable energy outlook, providing key insight into project developments, investment prospects and challenges impacting development."*

and LNG export aspirations – developing these discoveries is key. The report states that over half of the hydrocarbon output from Africa over the period 2025-2040, and about 60% of the remaining recoverable oil and gas reserves, are estimated to come from these finds.

As such, Governments are putting in efforts to bring these projects online while increasing exploration investment. Approximately \$795 billion of greenfield expenditure is required between 2023 and 2040, showcasing the immense investment opportunities available.

In addition to oil and gas, the report explores Africa's renewable

energy outlook, providing key insight into project developments, investment prospects and challenges impacting development. Specifically, the report identifies that Africa's current announced renewables capacity stands at 134 GW of wind capacity, 120 GW of solar and 112 GW of hydrogen, with Egypt, Morocco, Mauritania and South Africa leading capacity. While over 75% of capacity is currently in the concept stage, the continent's overall renewable capacity is projected to increase from about 27.4 GW in 2023 to 280 GW in 2035, showcasing significant opportunities for investors and project developers alike.



# Mpumalanga gas finds powering ahead

KINETIKO Energy, the exploration company developing natural gas finds in Mpumalanga, has executed a Memorandum of Understanding (MOU) with FFS Refiners to finalise a Gas Supply Agreement. FFS Refiners is a leading supplier of industrial heating fuels in South Africa and is seeking to supplement its industrial fuels business with the supply of liquefied natural gas (LNG). Kinetiko and FFS Refiners intend to develop a proof-of-concept gas production trial that if successful can be scaled into a long-term supply arrangement. The MOU provides for the potential of FFS Refiners to purchase natural gas produced pursuant to a binding Gas Supply Agreement.

Kinetiko has also executed a Letter of Intent (LOI) with Grüner Energy, a South African owner and operator of energy assets in Africa, to conclude a gas development and supply agreement. Kinetiko and Grüner Energy intend to co-fund the development of a proof-of-concept gas production trial that if successful, can be scaled. The LOI provides for Grüner Energy to purchase natural gas produced for the gas development and supply agreement.

Commercial relationships, such as those with FFS Refiners and Grüner Energy, are integral to the Company's business model of establishing interest in local JV partners to co-develop and co-fund gas production fields in South Africa. These relationships have the potential of accelerating the exploration vision with funding support.

Moreover, the identification of potential off-takers such as FFS Refiners and Grüner Energy for gas produced by Kinetiko is significant to the potential growth of Company's gas reserves.

This strengthens the market opportunities for Kinetiko's significant contingent gas resource. Finally, the independent certification of gas reserves and the ability of Kinetiko to increase its gas reserves will depend on the ability of the Company to establish that there is a credible market for gas produced in what is projected to be a number of producing gas fields.

## Corporate

Kinetiko contracted SLR Consulting (SLR), global leaders in environmental and advisory solutions, to lead the process for a Produc-

tion Right application being submitted. The process includes, inter alia, studies in air quality, hydrogeology, surface environment and community engagements. The same consultants will lead the re-application process for Block ER320, which previously stalled due to regulatory conflicts

- now cleared - adding another 2 383km<sup>2</sup> to the total area under rights, with the concurrent potential of increasing the 2C TCF resource count considerably.

## Drilling Operations

Significant results from gas desorption testing from Core Well 270-

03C achieved gas content of over 10m<sup>3</sup>/t and rising. Wireline logging results established 153.5m of sandstone pay zones, with coal seams of combined 5.75m thickness encountered. First well where reservoir quality sandstone in the glacial Dwyka formation (below 561m) has been observed. The

Core well is situated only a few kilometres from South Africa's largest gas pipeline.

Core Well 270-05C intersected significant gassy zones in targeted deeper carbonaceous geology. The core well is approximately 10km from South Africa's largest gas pipeline. Ongoing exploration

success supports potential for large scale production.

Drilling of Core Hole 270-06C intersected strong gassy sediments in targeted carbonaceous geology extending the potential contiguous gassy sandstone geology south from core well 271-23C by approximately 64km.

Wireline logging results established 147m of gassy sandstone pay in the vertical profile, being even greater than that reported in the previous Majuba core well (~131m). Strong results from gas desorption testing from core hole 270-06C achieving gas content of nearly 7m<sup>3</sup>/t and rising.



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# Solar power market is set for 2023 upswing



**Fluke's SMFT-1000 Multifunction PV Tester, an all-in-one tool ideal for safety and performance testing of solar installations that operate up to 1000 V DC.**

WITH the solar power sector expected to rise sharply throughout 2023, installation and

testing engineers will need access to the best tools to work at optimum efficiency and

safety.

As the world makes its unstoppable transition to renewable energy sources, the global solar energy market is predicted to have grown by around 20.5% to reach R406.5bn between 2019 and 2026 (Allied Market Research). Engineers need to be ready.

Fluke, locally represented by COMTEST, a global technology manufacturer of compact, professional electronic test and measurement tools and software, says that the top five tools engineers will need – whether working on residential systems, solar farms or photovoltaic (PV) farms – are:

- a Multifunction PV Tester
- solar irradiance meter
- insulation tester
- infrared camera (thermal imager)

- solar clamp meter (DC & AC true RMS)

These will all help to improve accuracy and efficiency during installation or periodic maintenance, including checking the integrity of system wiring and connections while keeping accurate measurement records.

## Instantaneous measurements

A Multifunction PV tester enables solar professionals to test PV systems safely and accurately while streamlining workflows faster than ever. Flukes recently released SMFT-1000 Multifunction PV Tester is an all-in-one tool that's ideal for safety and performance testing of installations that operate up to 1 000 V DC.

Solar irradiance meters measure solar irradiance, PV module

temperature, array orientation and tilt angles. Fluke's award-winning IRR1-SOL Solar Irradiance Meter operates in accordance with the IEC 62446-1 standard. It enables engineers to take instantaneous measurements to determine Watts per square meter of solar irradiation.

An insulation tester makes it possible to quickly detect earth leakage problems by comparing measurements over time and allowing real-time decisions in the field. The 1587 FC Insulation Multimeter from Fluke enables engineers to monitor measurements remotely, accessing and sharing insulation resistance test results wirelessly with their smartphone via the Fluke Connect Measurements app.

## Space at a premium

Solar clamp meters measure DC and AC

currents. Fluke's 393 FC Solar clamp meter – the world's first 1 500V CAT III, IP54 rated, thin jaw clamp meter – is designed to deliver exceptional safety when working in DC environments up to 1 500V, such as solar arrays. The clamp meter's thin jaw makes it ideal for PV applications where space is often premium.

Hans-Dieter Schuessele, Application & Technology Expert at Fluke, said, "Countries worldwide are dealing with the dual pressures of climate change and reliable power sources. Renewable energy is an obvious solution that we believe will gain even greater traction throughout 2023 and years to come. Fluke has always supported the solar sector and dedicated itself to developing ground-breaking tools for PV installation and maintenance engineers. We want them

to be fully prepared for growth in this market. Only by having the best tools possible at their disposal can engineers in this demanding sector work at optimum efficiency and maximum safety."

As a global technology leader in manufacturing compact, professional electronic test and measurement tools and software, Fluke has developed various solutions by working closely with electricians, technicians and specialists in photovoltaic (PV) systems. For many years, the company has recognised that the PV sector has specific requirements that demand the use of specialised tools in such areas as surveying, installing and maintenance.

Contact COMTEST on + 010 595 1821, sales@comtest.co.za or www.comtest.co.za for more information.

# A solar hydrogen system that co-generates heat and oxygen

By Celia Luterbacher, Ecole Polytechnique Federale de Lausanne

EPFL researchers have built a pilot-scale solar reactor that produces usable heat and oxygen, in addition to generating hydrogen with unprecedented efficiency for its size.

A parabolic dish on the EPFL campus is easily overlooked, resembling a satellite dish or other telecommunications infrastructure. But this dish is special, because it works like an artificial tree. After concentrating solar radiation nearly 1 000 times, a reactor above the dish uses that sunlight to convert water into valuable and renewable hydrogen, oxygen, and heat.

"This is the first system-level demonstration of solar hydrogen generation. Unlike typical lab-scale demonstrations, it includes all aux-

iliary devices and components, so it gives us a better idea of the energy efficiency you can expect once you consider the complete system, and not just the device itself," says Sophia Haussener, head of the Laboratory of Renewable Energy Science and Engineering (LRESE) in the School of Engineering.

"With an output power of over 2kW, we've cracked the 1kW ceiling for our pilot reactor while maintaining record-high efficiency for this large scale. The hydrogen production rate achieved in this work represents a really encouraging step towards the commercial realization of this technology."

The work builds on preliminary research demonstrating the concept on the laboratory scale, using LRESE's high-flux solar simulator, which was published in Nature Energy in 2019. Now,



the team has published the results of their scaled-up, efficient, and multi-product process under real-world conditions in the same journal.

## Waste not, want not

Hydrogen production from water using solar energy is referred to as artificial photosynthesis, but the LRESE system is unique for its ability to also produce heat and oxygen at scale.

After the dish concentrates the sun's rays, water is pumped into its focus spot, where an integrated photoelectrochemical reactor is housed. Within this reactor, photoelectrochemical cells use solar energy to electrolyze, or split water molecules into hydrogen and oxygen. Heat is also generated, but instead of being released as a system loss, this heat is passed through a heat exchanger so that it

can be harnessed—for ambient heating, for example.

In addition to the system's primary outputs of hydrogen and heat, the oxygen molecules released by the photoelectrolysis reaction are also recovered and used.

"Oxygen is often perceived as a waste product, but in this case, it can also be harnessed—for example for medical applications," Haussener says.

## Industrial and residential energy

The system is suitable for industrial, commercial, and residential applications; in fact, LRESE spinoff SoHHytec SA is already deploying and commercializing it. The EPFL start-up is working with a Swiss-based metal production facility to build a demonstration plant at the multi-100kW scale that will produce hydrogen for metal annealing processes, oxygen for nearby hospitals, and heat for the factory's hot-water needs.

"With the pilot demonstration at EPFL, we have achieved a major milestone by demonstrating unprecedented efficiency at high output power densities. We are now scaling up a system in an artificial garden-like setup, where each of these 'artificial trees' is deployed in a modular fashion," says SoHHytec co-founder and CEO

Saurabh Tembhurne.

The system could be used to provide residential and commercial central heating and hot water, and to power hydrogen fuel cells. At an output level of about half a kilogram of solar hydrogen per day, the EPFL campus system could power around 1.5 hydrogen fuel cell vehicles driving an average annual distance; or meet up to half the electricity demand and more than half of the annual heat demand of a typical four-person Swiss household.

With their artificial photosynthesis system well on its way to scale-up, Haussener is already exploring new technological avenues. In particular, the lab is working on a large-scale solar-powered system that would split carbon dioxide instead of water, yielding useful materials like syngas for liquid fuel, or the green plastic precursor ethylene.

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# REIT investing in on-site solar power solutions for businesses

GAIA Fund Managers has launched South Africa's first specialist real estate investment trust (REIT) investing in on-site private electricity generation for commercial and industrial clients.

Gaia Renewables REIT is partnering with Blue Energy Africa, an on-site developer of bespoke, integrated clean energy solutions for commercial and industrial clients. Blue Energy has a well-developed pipeline of projects that aims to take a selective portion of the total market for commercial and industrial renewable energy, which is estimated to be worth over R200 billion.

Renier de Wit, managing director of Gaia Fund Managers says: "A brand-new system demands a hefty capital outlay and when megawatt systems enter the fray, it strains cash flows by tens of millions of rands. In addition, power generation is not part of the core operations of most businesses. They would rather invest in income-producing assets and have a recurring operating expense for their electricity bill."

This conundrum presents a unique opportunity to provide businesses with a renewable energy power solution owned by a third party, with predictable cash outflows over the medium term.

In terms of the structure, Gaia Renewables REIT will issue batches of preference shares, aimed to be listed on the Cape Town Stock Exchange, and open to qualified investors to trade it freely. The REIT will fund the on-site solar power projects. The first batch of preference shares – which will be listed after the current fundraising round – targets a listing in June 2023.

Gaia has raised and deployed more than R3.5 billion over 12 renewable energy transactions since 2012, showcasing its ability and track record of swiftly deploying investors' capital to earn good, consistent and inflation-beating returns.

Whereas large utility-scale renewable energy projects can take up to two years to construct and, thereafter, only offer a return to investors, on-site solar power solutions are built within a few

months, with investors likely to receive their first distributions within 12 months.

The on-site solar power projects give investors a predictable period of cash flows as electricity off-tak-

ers (commercial and industrial clients) sign multiyear power purchase agreements with the developer. In terms of these 10- to 20-year agreements, the off-take price of electricity typically increases by

a fraction of the inflation rate.

In addition, the renewable energy solutions to businesses dovetail with the UN's Sustainable Development Goals and, therefore, fit in with

investors' ESG mandate. Solar energy, for example, aligns with the UN's SDGs for affordable and clean energy, as well as climate action.

Finally, with underlying infrastructure

assets (physical solar power-generation units), South African retirement funds can utilise the Gaia Renewables REIT when considering bulking their allocations to infrastructure. Accord-

ing to recent changes, retirement funds are allowed to invest up to 45% in infrastructure assets.

Interested investors can contact [johannes@valeocapital.co.za](mailto:johannes@valeocapital.co.za).



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# NuScale Power MOU hastens SMR deployment

NUSCALE Power Corporation has signed a memorandum of understanding (MOU) with Doosan Enerbility Co., Ltd. (Doosan) and Export-Import Bank of Korea (KEXIM) to strengthen collaboration among the three parties and support NuScale's small modular reactor (SMR) deployment. This announcement leverages and bolsters an existing relationship between NuScale and Doosan, and it highlights the domestic and global manufacturing opportunities to build SMRs around the world.

The agreement outlines areas of cooperation, such as marketing, technical support, and further development of a global supply chain, and Doosan and NuScale commit to strengthening their cooperation to deploy NuScale VOYGR™ plants globally. Specifically, Doosan committed to helping establish a US-based supply chain for NuScale Power Module™ production through capacity expansion and manufacturing technology advancement.


"Today's news underscores how our SMRs fill a unique global need: providing flexible, reliable and carbon-free energy while driving economic activity in manufacturing and supply chain development. With our Korean partners and their technical expertise, we are well-positioned to meet this ambitious goal," said John Hopkins, President and Chief Executive Officer of NuScale Power. "The momentum towards creating a domestic and global supply chain to deploy our SMR technology is accelerating." This announcement builds upon a long-standing collaboration between NuScale and Doosan. At the end of 2022, NuScale placed the first upper reactor pressure vessel long lead material production order with Doosan.

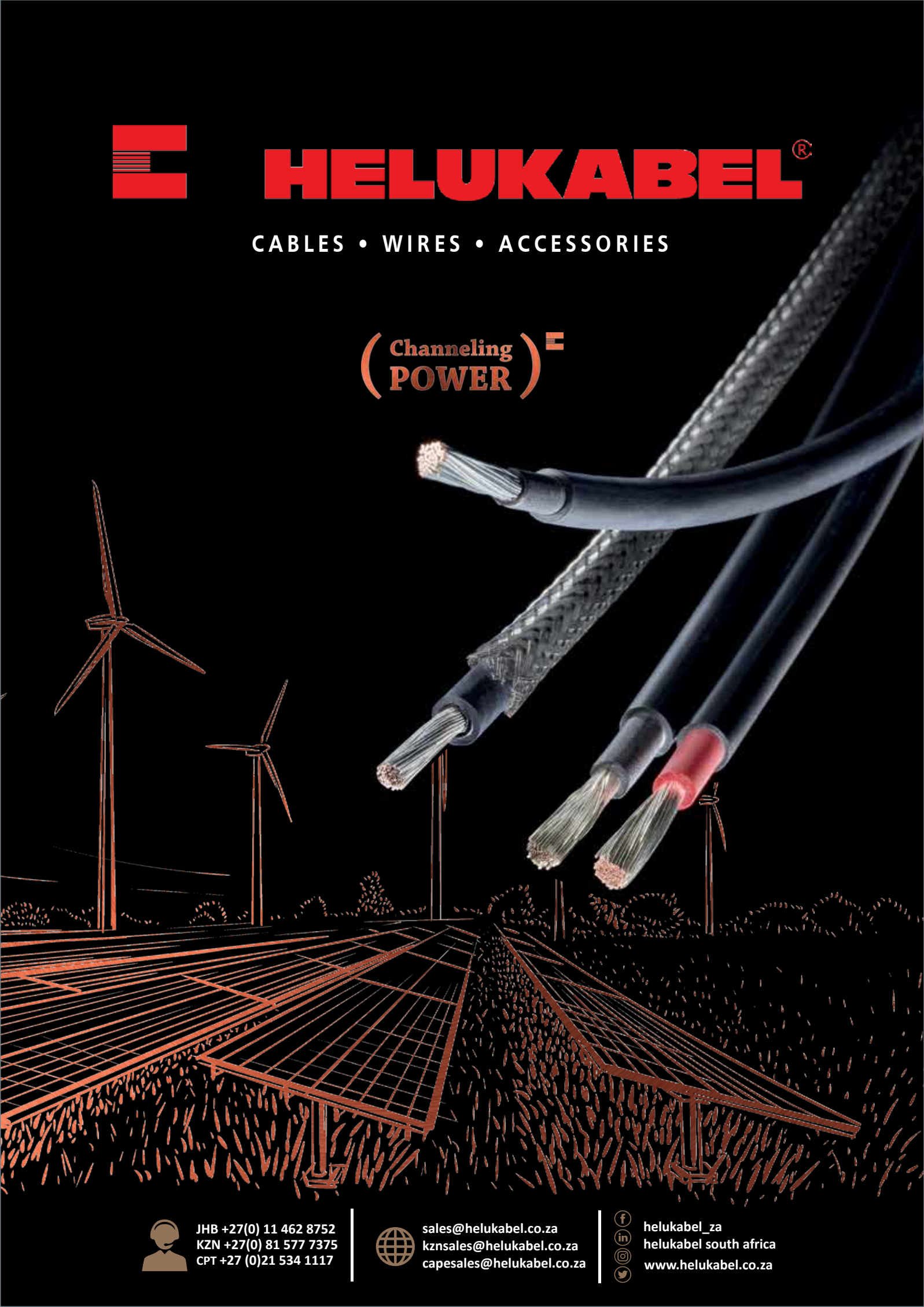
In March 2023, KEXIM and NuScale signed an MOU in which they agreed to financial cooperation in support of deploying NuScale VOYGR plants. KEXIM is the official export credit agency of Korea providing comprehensive export credit and guarantee programs to support Korean enterprises conducting overseas business. The organization continues to explore potential opportunities to provide credit facilities to NuScale and facilitate overseas business of Doosan in collaboration with NuScale. With KEXIM's assistance, Doosan and NuScale will be able to deploy NuScale VOYGR plants worldwide and utilize a Korean supply chain when deploying NuScale plants in the Asian market.




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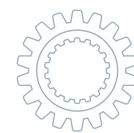
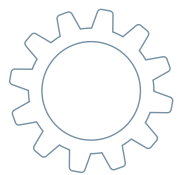
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REPUBLIC OF SOUTH AFRICA





## Renergen and Timelink sign LNG supply and storage agreements to power fleet of trucks with the greener alternative fuel

RENERGEN, through its subsidiary Tetra4, has signed agreements with transport company Timelink to supply LNG and displace a significant portion of diesel in Timelink's line-haul fleet. At the same time, Timelink will convert its fleet to operate on diesel dual fuel (DDF) technology.

**"As fleet operators, we are always looking to reduce our carbon footprint, enhance fuel efficiency and reduce costs. Introducing LNG to displace diesel in our fleet just makes sense".**

Timelink is a privately owned logistics company headquartered in Cape Town and operating nationally. The company offers specialist services in long-distance transport.

Timelink CEO Kamal Mitoo says, "As fleet operators, we are always looking to reduce our carbon footprint, enhance fuel efficiency and reduce costs. Introducing LNG to displace diesel in our fleet just makes sense".

Renergen CEO Stefano Marani says, "The adoption of sustainable solutions in business has reached a tipping point, partners like Timelink are among those leading the pack. Timelink now has a distinct advantage over competitors when speaking to customers demanding a lower carbon footprint from their logistics suppliers, as well as enjoying a reduced operating cost and increasing operational flexibility."

"LNG, when used as a substitute for diesel in trucks, not only results in significant cost reduction but has the added benefit of reducing greenhouse-gas emissions."

Renergen COO Nick Mitchell highlights that, while over 24 million vehicles worldwide operate on natural gas and this figure is set to double in 10 years, the importance of this first significant partnership with a line-haul transport

client lies in demonstrating the results in a South African context, we are extremely proud to walk this ground-breaking path with Timelink.

Significant reductions in carbon dioxide, NOx and particulate emissions are some environmental benefits of NG over diesel. Fuel savings are very important to the transport industry, and this is where Tetra4's NG can significantly assist haulage companies in improving profitability.

Renergen's Virginia Phase 1 liquefaction plant will produce around 50 tons of LNG daily, while Virginia Phase 2 will see this increase to about 680 tons, or 940 000 diesel litre equivalent a day. Virginia Phase 2 is planned to be operational in 2026.

Renergen will have multiple LNG filling points across South Africa that will deliver the LNG fuel to selected customers across all the major highways once the project is in its second phase.

## Electrical assembly's manufacturer sees growth spurt

USUALLY the term 'start-up' is reserved for businesses in the IT sector but this start-up, Modulêr – established only last year in Atlantis, is showing real growth in the type tested electrical panel enclosure and dry transformer space.

Founder Ludi Erasmus has more than 20 years' experience in these sectors and armed with the low voltage Logstrup agency for sub-Saharan Africa, he is seeing a surge in demand particularly from the expanding agri-processing industries of the Western Cape.

"We manufacture the Logstrup modular enclosures to the very exacting internationally approved specifications of Logstrup in Denmark whose products are regarded worldwide as the Rolls Royce of electrical panel enclosures, a reputation earned since its establishment in 1958.

"Logstrup is a quality product which meets the latest local and international electrical standards for panel manufacturers with higher dimensional copper busbars than was required by previous codes" he said.

"This is a vital cost differentiator as the global move to smaller and more compact internal panel components require greater heat dissipation via an increased size of copper busbars,

which affects operational reliability, safety and price.

"Logstrup modular enclosures' frames and panel covers are manufactured from AluZinc – a material which ensures maximum corrosion protection, a must have in coastal areas, hostile environments found in mines, wet environments such as water and wastewater treatment works and in marine applications" he explained.

"In fact the marine environment ports, harbours and ship building - is seen as a strong potential market for us."

### Training for new regulations

"The imminent adoption of new IEC 61439 standard for Low Voltage Switchgear and Control Gear Assemblies by the South African authorities - having been vetoed for several years by some panel builders - stipulates changes to established design criteria which require a complete understanding to ensure compliance and safety. Realising that there are some knowledge gaps in our industry, we have invested in training programmes aimed at panel builders – our main customers – their clients and end users, consultants, and regulation enforcement agencies such

as municipalities.

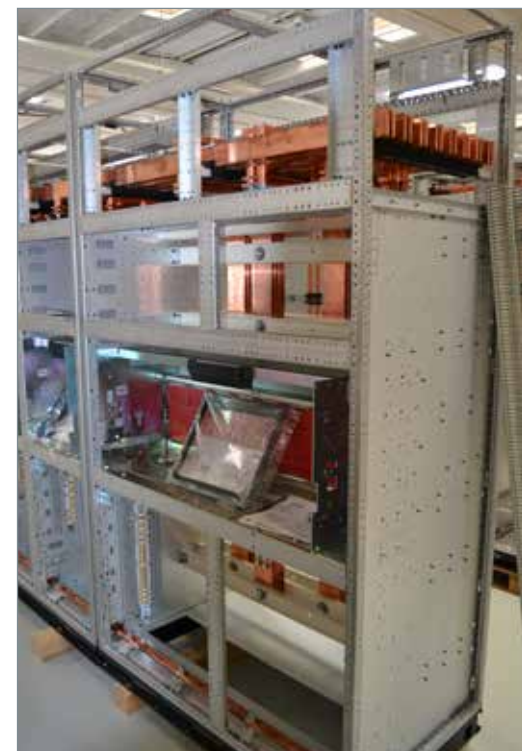
Regrettably, while the regulations will meet the latest international code of best practice, there is a serious lack of qualified inspectors necessary to ensure compliance, which is currently left to reputable panel suppliers and consultants to police.

The burgeoning solar industry where large scale industrial or commercial installations are involved, require suitably sized electrical control panels and distribution equipment. A lack of understanding or a deliberate use of outdated codes has created potential safety hazards resulting in a number of panel fires, caused by the overheating of inadequately sized busbars. The need for training is a matter of urgency, particularly with regards to solar installations" he explained.

### TESAR agency secured

In a complimentary venture, Erasmus has secured the distribution rights for the Italian TESAR range of dry transformers – a more environmentally friendly alternative to traditional oil filled transformers.

"While dry type transformers are not new, they previously suffered from being higher priced than the oil filled types, despite having numer-



ous advantages. TESAR has overcome the disparity and can now offer dry types with improved performance and reliability at a price that places them on par with oil filled transformers.

"We have identified significant growth throughout the agri value chain beginning with farmers extending their production capabilities through mechanised methods which involve more sophisticated electrical distribution systems. Greater produce volumes impact on the agri-processing sector that needs to expand production facil-

ities and that is good news for us!

"We have recently secured orders for three TESAR transformers from the agri-processing sector – two 2 500kVA and one 1 600kVA unit as part of a plant upgrades."

Erasmus reports that their initial growth plans have already been exceeded due to the upswing in demand from solar installers and agri sectors, and while expansion produces its own set of challenges, he is happy to be part of a revitalised economy, in the Western Cape at least.

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## Siemens Gamesa launches a tower made of greener steel



Photo: Windar Renewable

SIEMENS Gamesa has announced the GreenerTower, a wind turbine tower made of more sustainable steel. Towers consist of approximately 80% steel plates. The new GreenerTower will ensure a CO<sub>2</sub> reduction of at least 63% in the tower steel plates compared to conventional steel. Siemens Gamesa's new thorough qualification process will verify that only a maximum of 0.7 tons of CO<sub>2</sub>-equivalent emissions are permitted per ton of steel, while maintaining the same steel properties and quality.

"Wind power is one of the cornerstones of the green energy transition. With more than 600GW of new capacity to be installed worldwide in the next five years, it is important for the wind industry to reduce its carbon footprint. Our project to address emissions with greener steel is one such solution. With the launch of the GreenerTower, Siemens Gamesa leads the efforts to further push wind circularity and net-zero emissions," says Maximilian Schnipper, Head of Sustainability at Siemens Gamesa.

Today, tower production accounts for more than one-third of all wind-turbine-related CO<sub>2</sub> emissions. If all towers installed by the company in one year were exchanged with GreenerTowers, it would be the same as removing more than 466 000 cars from the roads in Europe for a year. This new CO<sub>2</sub>-reduced tower will be available as an option for both onshore and offshore wind turbines for projects to be installed from 2024 onward.

The GreenerTower has already closed its first order. RWE and Siemens Gamesa have agreed to introduce 36 GreenerTowers at the 1 000MW Thor offshore wind power project in Denmark. In total, 72 SG 14-236

DD offshore wind turbines are planned to be installed starting in 2026. Sven Utermöhlen, CEO RWE Offshore Wind: "Offshore Wind already has one of the lowest life-cycle carbon footprints of power generation technologies. At RWE we are fully committed to working towards circularity and net-zero emissions. We are already testing the world's first recyclable wind turbine blades by Siemens Gamesa under real-life conditions. By piloting the GreenerTower at our Thor offshore wind farm, RWE is now once again taking the lead by helping to significantly reduce the carbon footprint of wind turbines."

The German steel manufacturing company Salzgitter AG, with its heavy plate mill Ilseburger Grobblech GmbH, is the first sup-

plier to be qualified, something which has also been reinforced by third-party certification. The process to produce greener steel entails increased use of scrap steel, less energy-intensive steel manufacturing processes, and an increased use of renewable energy sources. As one of the measures to decarbonize steel production, for example, the electric arc furnace will be fed with green electricity from offshore wind projects.

On average, 1,91 tons of CO<sub>2</sub> are emitted during the manufacturing process for every ton of steel. By setting an ambitious threshold of 0,7 tons CO<sub>2</sub>-equivalent emissions per ton of steel, Siemens Gamesa significantly reduces the footprint of the largest component in terms of CO<sub>2</sub>-equivalent emissions.

## NewFeed Feeder Protection Relay for microgrid feeder protection between solar farms and the conventional power grid in both the LV and MV

THE NewFeed Feeder Protection Relay is designed to target Microgrid feeder protection between solar farms and the conventional power grid in both the LV and MV distribution environments.

The NewFeed Relay measures voltage, current, positive, negative and zero sequence, phase angles, power factor, harmonics, THD and independent earth leakage levels, allowing the implementation of full ANSI protection features for Microgrid feeder protection as well motor protection with multiple curve selections (IEC60255-8, NINV, VINV, EINV, MINV, DT, IT, I2T, I4T) and directional current elements to cater for parallel feeder applications. All housed in a 45mm din rail mounted enclosure with clear descriptive fault, field input and relay output LED indications, with internal fully configurable logic and statistic recordings.

A range of MV and



LV current transformer module blocks (CTMB) caters for different current ranges with easy interfacing to higher current and system voltages using interposing current transformers and voltage transformers, the ratios of which are selectable on the configuration software, catering for the full

isolation as well as flexible range settings. A separate CBCT caters for earth leakage detection.

The NewFeed relay is configurable with the aid of configuration front-end software.

The relay has an on-board database with time and date stamped 36 fault records and

940 event records. The configuration software has a full-fledged comprehensive data recorder and spectrum analyser package, which can be used to analyse motor performance or feeder power quality respectively.

Advanced control features and switch-gear controller logic, integrating motor and feeder control functions with prestart, close command execution time and continuous breaker state monitoring with load current feedback to detect unauthorised operation or starting as well as breaker failure detection.

The relay is an IED (Intelligent Electronic Device) with selectable communication protocols Modbus/TCP, PROFINET and IEC61850.

The relay is South African designed and locally manufacture ISO 9001:2015 compliant.

For more information contact: 012 327 1729  
Web: [www.newelec.co.za](http://www.newelec.co.za)  
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- ANSI 50P Short-circuit
- ANSI 66 Starts per Hour Limit
- ANSI 59 Overvoltage
- ANSI 27 Undervoltage
- ANSI 47 Phase Rotation
- ANSI 81O Over Frequency
- ANSI 81U Under Frequency

### Microgrid Feeder Protection Relay Features:

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- THD Protection and Monitoring
- ANSI 46 (I2) Negative Sequence
- ANSI 50G / 51G (I0) Zero Sequence
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# Why aren't there more small wind turbines on buildings?

By Elisa Wood, chief editor and co-founder of Microgrid Knowledge

SOLAR panels and batteries are common elements of a microgrid. Wind turbines, on the other hand, are more of a rarity.

Large wind turbines can be found in microgrids built on islands or in remote blustery locales. But smaller rooftop wind turbines, befitting a city skyline, are rare. Solar panels are the more common sight.

Cities can be plenty windy. So what's the problem?

Rooftop wind turbines placed on buildings are inefficient because they are in "the shadow of the winds," said Alexander Suma, founder and CEO of IBIS Power, a renewable energy company in the Netherlands. Turbulence around the rooftop makes energy production inefficient.

His company has devised a system called PowerNest — a modular unit that combines solar, wind and energy management in an archi-

ture that Suma said overcomes the turbulence problem and maximizes renewable energy production.

1 + 1 = 3

"The goal is to generate as much energy as possible on the limited roof space because big buildings, high buildings, they are basically the biggest energy users inside a city grid. On a small footprint, they have the highest demand," Suma said in a recent interview with Microgrid Knowledge.

Designed for flat roofs, PowerNest requires that the building be at least five stories, a height where the best winds begin. The unit has internal wind turbines and solar panels on the top. It is placed on the building roof.

It looks like a simple box from the outside, but its success lies in its use of aerodynamic shaping, he said. "Imagine an airplane with square wings. It wouldn't take off. The wings look very simple, but there is a lot of intelligence behind



PowerNest installation. Photo courtesy of IBIS.

that shape."

PowerNest works to remove the turbulence around a building by capturing the wind, then bending it inward, accelerating it and guiding it through the wind turbine.

The wind/solar combination is important, Suma said, because solar alone often can't meet the building's energy demand — there is not enough roof space. Plus, solar generates less energy in northern climates during the winter. The wind also cools the solar panels. The unit uses bifacial solar panels and employs internal

solar reflections.

All of this leads to renewable energy generation that is multiple times the norm from rooftop renewables, especially in cities with good wind and solar climates, according to Suma.

"It's not just solar and wind stuck together," said Timothy Vail, founder and principal at Blue Mountain Technologies and contract consultant with IBIS Power. "The word synergism really comes to mind because the louvers on the PowerNest not only direct the airflow and optimize the vertical axis

wind turbines, but it also cools the solar panels that are overhead. And so it takes double advantage of that situation. And it really is the first and only time I've seen two distinct technologies put together and not just be one plus one. This is one plus one equals three."

### PowerNest moving into US market

Founded in 2012, IBIS Power installed its first commercial unit in Europe in 2019 and is now completing its fifth installation with eight more in the works in

the Netherlands and Belgium. The company is currently eyeing medium- to high-rise buildings in the US, attracted by the nation's growing push for local energy, electrification and decarbonization of urban buildings. Suma said he's initially focusing on Boston, New York and Philadelphia, where he sees strong interest in sustainability, good wind and solar potential and building stock of the right size and density. Electricity costs are also high in these cities, which makes energy alternatives more cost-competitive.

The PowerNest is not a microgrid, in and of itself, but is microgrid ready — able to connect to pair with a microgrid controller and serve as a component of a building nanogrid.

### Others pursuing small wind for microgrids

IBIS Power isn't the only company that sees potential in pairing small wind turbines and microgrids.

Bergey Wind, a long-

time small wind turbine producer, has touted their use in off-grid hybrid microgrids as a way to reduce the use of diesel, increase renewables and spare wear and tear on batteries.

Newer to the market, California-based Air Voltaics is pushing small to midsize wind turbines for microgrids for similar reasons. The company also points out that wind turbines demand less space than solar panels. Together with solar panels, they create more reliable energy supply.

Last year, FlowGen, a wind turbine technology company based in Switzerland, and microgrid developer CleanSpark inked a deal to pair their technologies. CleanSpark was granted exclusive distribution rights for FlowGen's small wind turbine solutions (under 1 MW) in North America and South America.

Will these companies drive more small wind turbine use in microgrids? So far it's been a tough sell, with solar plus storage holding the spotlight.

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## OMRON announce its new strategic partnership with LAMBDA Automation

TECH innovator OMRON has long believed in the power of co-creation to drive a better future. Now OMRON is taking the vision and partnering up with OEMs to accelerate innovation.

Omron Automation is an industrial automation partner that creates, sells, and services fully integrated automation solutions that include robotics, sensing, motion, logic, safety, and more. These systems serve manufacturers in the automotive, semiconductor, food and beverage, and packaging industries, among others. Established in 1933, Omron helps businesses worldwide creatively solve problems. Omron employs more than 37 000 employees in 36 countries.

Omron's broad portfolio of industrial automation technologies is supported by a network of carefully chosen channel partners. OMRON Solution Partners act as preferred Integrators, following OMRON standards in terms of quality of service, company ethics, and respect for society.

The Omron Certified System Integrator program matches best-in-class solution providers with the technology, training, and resources required to deliver innovative and competitive solutions. With the rapid growth in automation technologies, manufacturers and business partners strive to deliver open and secure Industry 4.0 solutions that support flexible manufacturing and deliver a competitive advantage. The combined strength of this relationship solves customer challenges today while enabling more efficient, fully integrated systems that will successfully weather future demands.

In collaboration with OMRON, Strategic Partners use OMRON products and technology to accelerate the innovation of industrial automation solutions to cover the demands of End Users across important markets including Food and Commodities, Pharma, Automotive, and Warehousing and Logistics.

These companies provide global solutions, from initial design and consultation, through system development, to installation, commissioning, and after-sales support. They use innovative technologies such as mobile and collaborative robots, iautomation, vision, traceability, industrial communications, arti-

ficial intelligence, and advanced sensors.

LAMBDA Automation traces its roots back to 2014, and by focusing on developing a talented and adept workforce, has discovered its unique value in the industry as a dynamic and flexible business that delivers high-quality solutions to an ever-growing list

of loyal customers. The company prides itself on fast turnaround times and places tremendous importance on the ability to supply clients with custom-made solutions. LAMBDA Specializes in programming, robotics as well as panel wiring.

The company has its head office in Pretoria,

currently employing 18 people. LAMBDA services the Automotive, Food and Beverage, Brewery, and Dairy sectors. "LAMBDA is a solutions provider to the industry," marks Francois Scheepers, a founding partner at LAMBDA Automation. "We are not a project house, we offer tailor-made solutions to

our clients as we know from experience that automation is not one size fits all" LAMBDA Automation also offers training solutions to technical staff. LAMBDA EduTech is a solutions-based training provider to Sol-Tech, an occupational training college.

"OMRON brings in expertise and credibil-

ity to benefit customers looking to implement fully integrated solutions in their factories, manufacturing, and industrial sites. Given today's industry trends, production challenges, and labour shortage concerns, LAMBDA will be an excellent partner for end users in various industries to engage with to improve

system performance," concludes Alexander Valla from OMRON

OMRON is proud to welcome LAMBDA as a Solutions Partner.

For inquiries about Omron Industrial Automation please contact: Email: [info\\_sa@omron.com](mailto:info_sa@omron.com) - Website: [www.industrial.omron.co.za](http://www.industrial.omron.co.za)

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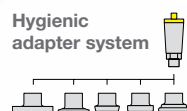
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# Going Green at Nampo

BMG is changing things at Nampo this year having only an outside working exhibition stand that will highlight the importance of ‘Going Green’ in agriculture.

The Nampo show – which is the largest agricultural expo held in South Africa every year – will be held from 16 to 19 May 2023, close to Bothaville, Free State.

“The theme of BMG’s stand (C21) this year is “BMG Going Green,” where we will highlight our initiatives to reduce our carbon footprint. This initiative includes the launch of the latest BTC pillow block’s bio-degradable packaging, that excludes any plastic material, resulting in a saving of about 300 000 plastic bags a year,” states Carlo Beukes, Business Development Manager, Agricultural, Automotive and Lubrication divisions, BMG. “In addition, BMG’s online shopping platform is successfully moving traditional commercial processes away from paper and is gaining popularity with farmers as a convenient way to procure engineering and agricultural products.



Some of the selection of BMG’s agricultural products on view at this year’s NAMPO.

“BMG specialists will showcase our latest products and technologies at our outside stand and visitors will see working demonstrations of technologically advanced products, that form part the company’s eco-friendly initiatives to reduce carbon footprint.

**Working displays**

“Working displays include components for agricultural fruit packhouses, like food-grade conveyor belts,

pneumatics and variable speed drives. We will also be showcasing new products, including Liqui Moly oil kits and additives, designed specifically for new bakkies, like the Hilux GD-6, Land Cruiser and Ranger brands. Also on display will be the Rat-Ban, Silencer Cleaner and ceramic-based Ceratec from Liqui Moly, as well as Cummins individual filters and kits for bakkies and large agri implements, including John Deere, Case and

New Holland. “A major attraction to our stand each year, is the distinctive range of BoerSlim clothing that reflects BMG’s BoerSlim / Smart Farming programme, where BMG assists farmers to embrace advancements in agricultural machinery. Through this initiative, we offer sustainable solutions that focus on effective food production, the correct use of suitable equipment for specific tasks and the efficient application of

the latest technologies. “What’s important for BMG at Nampo this year is the successful completion of the two-phase upgrade of our inhouse BTC bearing block unit (BBU) and housing range of products, which is manufactured exclusively for BMG, to stringent quality and safety specifications.”

**Product upgrades for heavier duties**

Originally the BTC range was developed for

light to medium rotating equipment applications, including packhouses and small conveyors in the agricultural sector and general industry. However, with the recent manufacturing processes and material upgrades, BTC bearings and components are perfectly suited for heavy-duty farming applications, for hammer mills, crushers and spreaders.

BMG specialists emphasise that design improvements and quality enhancements of BTC BBUs require selection of the correct lubrication solutions, to ensure optimum efficiency and extended service life of the system. A top-quality EP2 grease is compatible with most local greases and will ensure a longer operating lifespan.

BMG’s extensive range of agricultural products includes the recently launched BTC Lemken harrow discs and hub bearing units, that conform with OEM quality specifications. The company has also launched the Liqui Moly Guntac range, bakkie oil and fuel additives, as well as new solar panel operated Variable Speed Drive (VSD) units that will be on display. Also on show

will be bearings and oil seals, power transmission components, light industry conveyors, tools and equipment, hydraulics and fluid technology, as well as all electronics equipment.

All BMG agricultural products are available from the company’s national branch network, as well as through BMG’s online shopping platform.

**On-line shopping**

BMG’s online shopping portal adds value to the company’s service offering and makes shopping for engineering components even more convenient - especially with rising fuel costs. This digital procurement platform enhances convenience for farmers, who can still rely on technical support and personal care from BMG specialists.

Over 75 000 BMG products are available on this platform, including bearings, seals, fasteners and power transmission components, as well hand and power tools, abrasives, brushware, spanners, wrenches and sockets. Added to this are agricultural-specific components, including PTO shafts, planter and coultter bearings.

# Networked beer tanks delight both landlords and breweries

IoT - The Internet of Things starts with a sensor

THE Internet of Things (IoT) offers “smart” solutions that help make life easier and more convenient, improve and streamline processes, and receive information in good time that was previously unavailable or difficult to acquire. Smart solutions are highly personalised but always begin with an object and a sensor.

A level measurement with a remote transmitter is highly practical for detecting hazards and other level and fill-level applications. Take pubs, for instance, where an emptying beer tank

could be equally dangerous. In this application, two pressure sensors work at the heart of the solution to measure the liquid level in the tank and send a warning message to the brewery by e-mail via the GSM-2\* remote transmitter, the mobile phone network, and the Internet. The brewery sends an automatic order proposal to the landlord, who simply has to confirm the order.

This automated, “smart” M2M (machine-to-machine) solution reduces stress for landlords and saves brewery drivers from

profitless emergency weekend deliveries. Inaccurate order entries are now a thing of the past, shipping can be optimised, and landlords have a continuous supply of fresh beer. Crisis averted.

\* The GSM-2 Remote Data Transmission Unit was updated and replaced by the new product ARC-1

Contact INSTRO-TECH on 010 595 1831 or sales@instrotech.co.za, for more information on The Internet of Things IoT technology for NETWORKED BEER TANKS from Keller.

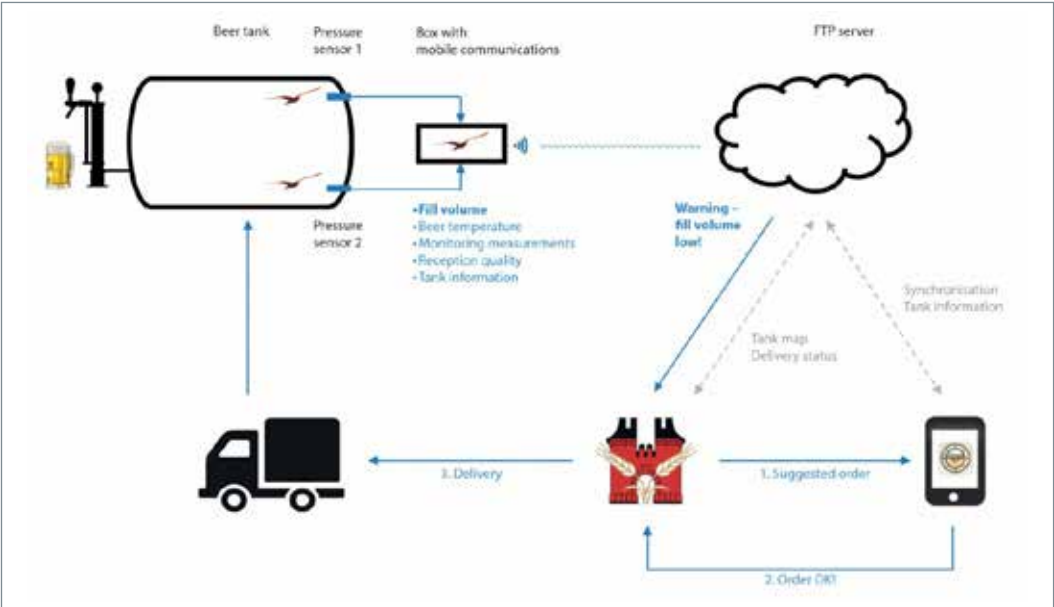


Diagram of the automatic beer order process.

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## Future dairy products will be sustainable and focused on the consumer

By Sasha Ramjathan,  
Leader of the CPG  
Segment for Southern  
Africa at Schneider  
Electric



THE consumer-packaged goods (CPG) industry stands to benefit greatly from digital innovation advancements. According to a paper entitled The next frontier in consumer goods: digitally enabled innovation - by the strategy firm McKinsey & Company, digitisation can bring new products to market 50 percent faster, at a third of the cost, and with a significant return on investment.

Similarly, the dairy industry will benefit from the advancement of technology. In this section, McKinsey stresses that in order for dairy leaders to expand in the coming years, they must reconsider their approach to customer behaviour trends paired with digital, analytics, and supply chain management.

### Consumer desires

Consumers now demand more access to information with regards to the basic materials used to produce the food and beverages they purchase. Specifically, they wish to confirm the origin of the resources and

whether (or not) they have been treated in a sustainable manner. Digital solutions enable businesses to provide end-to-end product and process traceability to consumers. Indeed, digital technologies offer access to data that aids plan management in determining the availability and traceability of raw materials across the whole food processing, storage, and delivery life cycles.

Digitisation early adopters may address customer demand head-on. Using the example of lactose-free dairy alternatives, CPG businesses can swiftly modify their production lines to handle abrupt spikes in demand while benefiting from a better supply chain and traceability.

### How digitisation can enhance operational effectiveness

Implementing a digitally enabled infrastructure require dairy executives to examine their immediate and future needs with consideration for consumer demand and sustainable operations. Digitisation creates great value at the executive and plant level by bridging information silo issues, so benefiting the entire value chain, from maintenance staff to facility engineers.

Listed below are several crucial steps that comprise a company's digitisation efforts:

- Implementing predictive maintenance - in dairy production processes, cows produce milk continuously. If companies are forced to discontinue operations, incoming milk will be wasted, resulting in the waste of a valuable food

asset and a negative impact on profitability.

In spite of equipment breakdowns and failures, machine assets are subjected to a level of stress that exceeds normal parameters, necessitating precautions to reduce unnecessary product. Here, digital technologies that enable predictive maintenance will assist personnel in focusing on the most at-risk assets and planning repairs prior to a severe disruption in operations.

By assessing the status of their equipment with IIoT sensors, businesses may also increase the longevity of their equipment. If a repair is not warranted, businesses are permitted to delay it beyond the statutory time frame. According to McKinsey, improved condition monitoring decreases maintenance expenses by 10 to 15% on average.

- Automating to enable rapid conversion to alternative products - automation technologies allow businesses to quickly respond to fluctuating market conditions. With the correct automation, a dairy facility established for milk production may, for instance, introduce new recipes for chocolate and strawberry-flavoured milk.

Digitisation equips the dairy industry with the means to achieve specific, individualised benchmarks such as establishing more sustainable operations or enhancing fundamental processes to more rapidly adjust to market demand. Ultimately, digitisation is essential to provide profitable and efficient service to consumers and clients.

## Sweetgen launches Sweetensify™ Flavors, debuting sweet protein brazzein technology

GLOBAL sweet-ness and flavour innovator, Sweetgen announced today the launch of Sweetensify™ Flavors, its newest flavour tool for food and beverage producers, to create better-for-everyone products. Powered by Sweetgen's novel sweet protein technology that includes brazzein, thaumatin II, and other unique proteins, Sweetensify Flavors improve and modulate sweet flavor, creating a sugar-like experience, thereby pushing the boundaries of healthier product innovation.

"Sweetensify Flavors will change how product developers think about reducing or eliminating sugar in beverages and foods," said Casey McCormick, vice president of

global innovation at Sweetgen. "The flavour expression enabled by Sweetensify Flavors optimizes the sensory experience and enables a more sugar-like taste. It is substantially better than any previous technology. We target taste receptors on a biochemical level that others simply cannot."

Sweetgen's Sweetensify Flavors debuts brazzein, the company's highly sought-after sweet protein, as well as thaumatin II. At the time of the Sweetensify announcement, Sweetgen's thaumatin II received the Flavor Extract Manufacturer's Association (FEMA) GRAS status.

"Our regulatory vision is to open global markets and enable brands to access unique ingredients that will

support their food and beverage creativity while delivering on health and wellness," said Hadi Omrani, senior director of technical and regulatory affairs at Sweetgen.

Sweet proteins like brazzein have an affinity for different taste receptors on the tongue, especially the receptor known as T1R3, which is associated with both umami and sweetness perception. Leveraging this unique attribute, Sweetensify Flavors will enable product developers to reduce the amount of sugar they use in products while maintaining the quality of characteristic flavours and sweetness.

Thaumatococcus belongs to a family of sweet-tasting proteins called thaumatin. Thaumatococcus is a variant of the original

thaumatin protein with a similar structure and sweetness profile. Thaumatococcus are known for their intense sweetness, several times greater than sucrose (table sugar). Brazzein is also several thousand times sweeter than sugar, making it a cost-effective tool for brands on a large scale. Thaumatococcus II is considered safe for consumption by the U.S. Food and Drug Administration (FDA).

The entire collection of Sweetensify Flavors has a wide range of benefits across sweet and savoury applications, including enhancing flavour tonalities, blocking bitterness, reducing astringency and sweet linger, eliminating unwanted aftertastes, reducing sugar use, and blocking the burn from alcohol.



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# Producing fruit juice that’s pumped with flavour!

Darryl Macdougall,  
Managing Director,  
Verder Pumps South  
Africa

FRUIT juices are one of the fastest growing agro-processing sub sectors. According to research by Insight Survey the South African Juice market achieved growth of 3.4% year-on-year between 2020 and 2021. This is stable growth and an increase on the growth rate that the market achieved in preceding years (CAGR of 2.8% over 2013 to 2018). And this growth is despite the unescapable impacts of the COVID-19 pandemic, which demonstrates the value proposition of the local fruit juice market – not only for local consumption, but as a keen exporter to numerous markets, including Netherlands, USA, Canada, Singapore and Japan.

Substantiating this growth is the change that can be seen in consumer behaviour and consumption, as more consumers become health conscious and look to switch to food and beverages that offer higher nutritional value for their money's worth. Ready to serve the more mindful consumer, South Africa's premier 100% pure and natural fruit juices offer good quality

products and numerous flavours, with staples like apple, grape, pineapple and exotic blends forming the basis of the South African range.

“Producing high quality fruit juice products every time therefore requires machines that are 100% reliable...”

That said, remaining competitive in an increasingly saturated market is no small feat. From crop to grading, to the perfect blend and everything delectably juicy in between; for every processor in

this market, ensuring high product quality – both in terms of flavour and safeguarding the health and wellbeing of the public/end consumer – is critical to their business sustainability. Maintaining the highest standards in hygiene in the production of their products is non-negotiable, as even the slightest contamination could mean a batch of product is unusable, or unsafe for consumption, which could lead to product recalls, financial losses and potentially reputational risks.

Producing high quality fruit juice products every time therefore requires machines that are 100% reliable, equipment that is safe and every part of the production line should

be accessible for regular cleaning, sanitisation and sterilisation. And the pump and piping solutions installed throughout the plant are the backbone of the production line and what keeps the product flowing through the entire processing operation to the final stage of bottling.

Understanding the intricate and technical details and implications of selecting the right pumping solutions for specific use applications can be challenging, however, it is an important purchase decision - and continued and sustainable optimum production performance of the plant is dependent on the longevity of the equipment.

For example, consider replacing progres-



Verder JRZS with Integral Motor Adaptor unit.

sive cavity pumps with Packo hygienic pump solutions (such as our twin-screw, rotary lobe and CIP pumps), which will negate issues with current progressive cavity pumps, such as tiny rubber filaments getting into the juice batch, and thereby aid in ensuring a pure product is delivered every time.

Additionally, standardising equipment throughout the plant can reduce downtime and total cost of ownership, due to less breakdowns and need for repairs on equipment/machinery, which also results in less stock holding requirements in terms of spares.

To be assured of the quality of equipment, fruit juice processors should look to a trusted and reputable brand that can offer a wide range of long-lasting, cost-effective and integratable pumping solutions that are certified and fit-for-purpose for numerous applications throughout the production line, which means more plant uptime, efficiency and high-quality outputs, and better service delivery.

Reference:  
Insight Survey 2022:  
<https://insightsurvey.co.za/south-african-fruit-juice-industry-report-industry-specific/>

## Celebrate innovation in Africa’s thriving food and beverage industry

Africa’s Big 7 returns with entries open for the inaugural Innovation Awards



ACCORDING to Statista, revenue in South Africa’s e-commerce food sector is projected to reach US\$522.90 million this year, with an Average Annual Growth Rate (AAGR) of 5.47% over 2023-2027. Ordering food online is just one facet of this booming industry, packed with tasty trends and new products to feed demand from the masses.

In its 20th year, a culinary B2B event not to be missed is Africa’s Big 7 taking place at the Gallagher Convention Centre from 18-20 June 2023, offering the best in the food and beverage business to drive industry growth. The event is co-located with SAITEX.

“Africa’s Big 7 brings quality and new, affordable food and beverage products from around the world to Africa’s doorstep,” says Evan Schiff, Portfolio Director: Food, Hospi-

tal and Trade at dmgt events.

This year’s show has a feast of features including a series of free-to-attend seminars covering the latest trends and key issues impacting the sector. The SA Bakers Challenge returns to showcase professional and amateur baking talent, along with The National Burger Challenge, in its second year where contestants will serve up their best burgers to possibly be crowned the best burger in the land!

“Up to 60% of South Africa’s population live and work in the township economy, representing a simply massive market with its own specific demands and drivers that are unlike any other part of the economy,” says Schiff.

“We have worked very closely with key stakeholders to build the relationships to make Africa’s Big 7 the best platform for sellers to access this market, and for township business buyers to come and source quality products at the best value, directly facilitating township business growth.”

Africa’s Big 7 is constantly evolving to recognise progress in the food and beverage industry and move it forward. “To recognise outstanding new achievements, we are proud to launch the Innovation Awards this year,” says Schiff.

A call to enter the Innovation Awards is currently running until May this year. All entries will be considered by an expert judging panel and scored on multiple criteria including usefulness, innovation, design, and response to market. Short-listed finalists in each category will be displayed at the exhibition, and the winners announced on the first day of the show. “If you think you have produced the next big thing or know a product that has come to be indispensable to you, then make sure to enter yourself or nominate the supplier now.”

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# Energas successfully completes turnkey gas power plant project

As more industrial operations increasingly look to alternative energy supply to curb the impact of incessant nationwide load shedding, Energas has seen increased demand for natural gas projects for own power generation.

The company has recently delivered a large project, the project consisted of two sub-projects. The first one was a tie-in and High Pressures Customer Metering (HPCMS) gas supply project for Sasol, and the second was a boiler and engine upgrade project for Reckitt. In both instances, Energas was the turnkey contractor.

## Scope of projects

With the high-pressure Sasol gas pipeline running close to Reckitt's boundary fence, it was considered cost-effective to use piped gas for own power generation and gas fired boilers



to replace coal fired boilers. The scope of the project included a tie-in to the existing pipeline, installation of an underground pipeline to Reckitt and the HPCMS.

Energas supplied a skid-mounted HPCMS station which is designed, shop-fabricated and assembled, fully-tested and

packaged before being transported to site. The skid includes filtration, pressure reduction, over-pressure protection and metering. The station reduces the pressure from 35 bar (inlet line pressure) down to 1 bar (outlet pressure to the user) within one stage of pressure reduction.

"The skid-mounted

HPCMS solution offers many benefits for the client."

"It reduces field construction time and overall project schedule. A complete factory test before shipment, thus reducing risk."

The turnkey boiler and engine upgrade project entailed the supply and installation of a new gas reticu-

lation pipeline from the HPCMS to the engines; four 500kW gas engines (gensets); a new gas-fired steam boiler; a waste-heat boiler that uses exhaust heat from the engines to produce steam; interconnecting piping; a new gas engine building and associated electrical infrastructure.

## Heat Recovery

The heat from engines is usually discharged into the atmosphere, but in this instance the exhaust heat from the engines will be used in a waste heat boiler. This free steam will result in a substantial annual saving in the gas bill.

Projections show that a substantial saving can be realised, compared with importing electricity from the grid in the first year of operation. The accumulated saving over 10 years, based on inflation and price assumptions, is substantially more than the project value.

"The client operated a coal fired boiler, but it will now be replaced with a waste heat steam boiler. When more steam is required than what could be recovered, the additional steam will be supplied with natural gas as fuel source. The

waste heat boiler is a combination boiler; it works by recovering energy from the exhaust heat and also has a gas burner. When the waste heat boiler is being serviced or the engines are not working, there is a standby gas boiler to ensure continuous supply of steam to the plant," she explains.

Having four smaller engines (4x 500kW) instead of a single large engine (1x 2MW) allows continuous power supply to the plant. When one engine is serviced, the other three can still operate. Or if the plant's usage is low, adds Van Vuuren, one or two engines can switch off while the other operates at a higher and more efficient load.

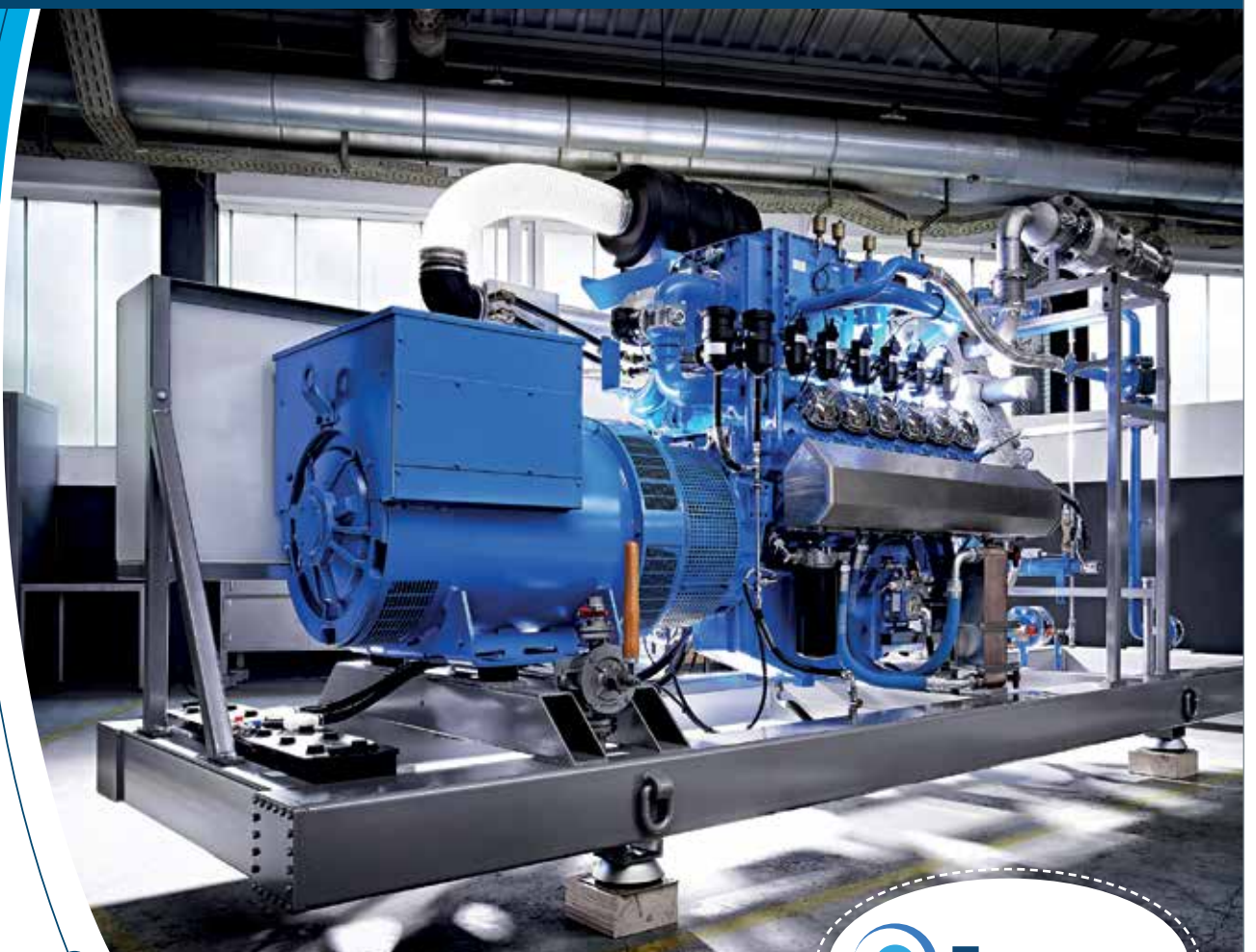
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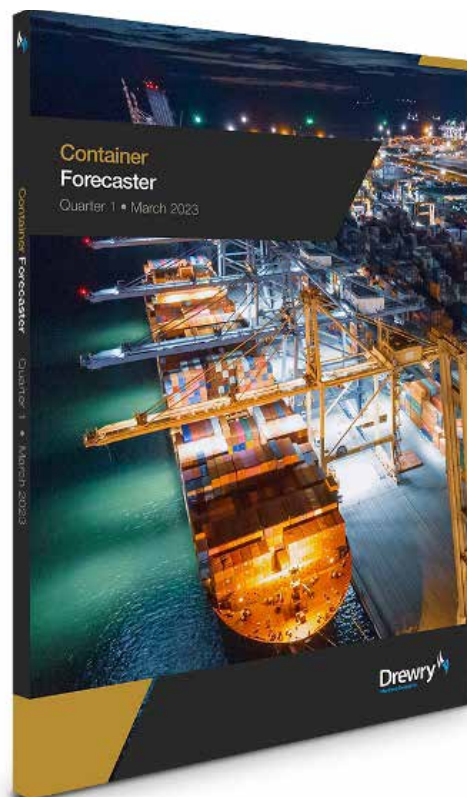


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## Hospital Ship Africa Mercy® docks at Durban for repairs and maintenance



OPERATED by Mercy Ships, the Africa Mercy® sailed in February from Senegal and chose Dormac, a leading marine engineering company that provides ship repair, maintenance, and conversion services for over 50 years as their strategic partner for its seven-month repair and maintenance programme.

As one of the world's largest non-governmental hospital ships, alongside sister ship Global Mercy™, this unique hospital ship has brought hope and healing to some of the world's poorest communities in Africa since 2007. The Africa Mercy will remain in South Africa through the rest of this year and intends to call in at East London before moving into active service again next year.

This seven-month programme will see the Africa Mercy undergo a range of repairs and upgrades. Dormac has executed similar support to Mercy Ships before, and the vessel being a hospital ship receives preference in how she is managed by both Dormac Marine and Engineering and Transnet National Port Authority (TNPA), including priority docking and berthing. The Africa Mercy will receive the same level of care and support as always, with a 3-part approach to the repair.

"We are pleased to choose Dormac and the Durban community during this important maintenance work on the Africa Mercy," stated Justin Ray, VP Marine Operations. "Our hospital ship has been providing essential medical care and humanitarian aid to communities in need for many years, and it's vital that we keep it in top condition so that we can continue to deliver this important work. We are grateful for the support of the local community and look forward to working together during our stay."

"As Mercy Ships continues to expand its

reach and impact alongside partners in West and Central Africa, the organization is calling on individuals, corporations, and foundations within Africa as well to support the mission. Together, we can bring hope and healing to those who need it the most," added Brenda van Straten, Director Mercy Ships South Africa.

Similarly, a statement from Dormac reads, "We are proud to partner with Mercy Ships and support their important work in Africa," said Mr Chris Sparg, CEO Dormac Marine and Engineering. "Our excellent engineering support services will ensure that Mercy Ships can continue to provide medical care and relief services to people who desperately need it the most. We are excited and proud to be part of this effort."

The refit process involves the ship will be alongside a repair quay, adjacent to Dormac berths and facilities. Dormac will strip, remove, and upgrade accommodation, including an IT upgrade on the vessel that will enhance the ship's capabilities for its operating theatres. This IT platform will enable the Africa Mercy to match and communicate with Global Mercy (Mercy Ship's latest hospital ship) and will support the provision of essential training of local in-country doctors. Additionally, there will be a drydocking phase, where the ship will go into The Prince Edward Graving dock (PEGD) to carry out all under water repairs and survey works in-line with Class requirements. The last phase, back alongside the repair quay, will be to further complete the IT and accommodation upgrades and related services.

Mercy Ship endorses strict adherence to a high level of quality and safety standards, which is endorsed by Dormac, and who can comply with the most stringent

Marine and Offshore International Standards, boasting full DNV certifications for IS) 9001, 14001 and 45001. "Dormac will ensure that the technical specifications are met and exceeded, and that we deliver on the project program so that the vessel's future operational commitments can be met," said Mr Stephen Murray, General Manager, Dormac Durban.

Since its inception in 1978, Mercy Ships has been committed to providing life-changing surgeries and medical care to those in need. The Africa Mercy, due to arrive early March into Durban, South Africa is staffed by a dedicated team of medical professionals and volunteers from around the world who provide free surgeries, dental care, and other medical services to people in need. Many of the ship's medical and programmatic crew will continue to serve on board the newest Mercy Ship, the Global Mercy™ in Senegal during this shipyard phase.

The Africa Mercy is equipped with five state-of-the-art operating rooms, a dental clinic, an ophthalmology unit, and a laboratory. It is also home to a community of more than 400 crew members who work tirelessly to ensure that patients receive the best possible care.

Mercy Ships has more than 30 years of history of working in Africa, where access to surgical care can be severely limited and on location training is welcomed. The organization has completed more than 200 port visits in 57 developing nations, providing medical care to over 2.8 million people and performing more than 100,000 life-changing surgeries.

For more information about Mercy Ships, the Africa Mercy, and Dormac Marine and Engineering visit <https://mercyships.co.za/> or <http://www.dormac.net/>

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# SA Harvest calls on the logistics industry for support in reducing food waste and hunger

SA Harvest, a leading food rescue and hunger relief organisation in South Africa, is drawing attention to the critical role of logistics in reducing food waste and hunger. With over 10.3 million tons of edible food wasted annually in South Africa, while 20 million people are on the spectrum of food vulnerability, SA Harvest is working to bridge the gap by rescuing surplus food from farms, manufacturers, and retailers, and distributing it to those in need.

An immediate and urgent need has arisen, resulting from the generous donation of 1 000 tons of citrus fruit from Indigo Fruit Farming. Ozzy Nel, Chief Operating Officer of SA Harvest, says, "The donation of the fruit is just one piece of the food rescue puzzle. It is a massive logistical undertaking to transport 68 tons of fruit every week from the packhouse in Nelspruit to either Durban or Johannesburg. We are calling on the logistics and transport industry to support us in ensuring that this nutritious, vitamin-rich fruit reaches our beneficiary organisations in Durban and Johannesburg. We are grateful to have secured support from Unitrans and Maersk, who are providing trucks for the first four weeks of this joint venture in food rescue, and from HelloChoice, who have procured the agri bins. This leaves us with a weekly transport requirement of 68 tons of citrus between Nelspruit and either Johannesburg or Durban between 5 June and 28 August. We are also in need of trucks to return the agri bins to Nelspruit each week."

Nel explains that the bulk of food loss and waste in South Africa is associated with processing and packaging, with 49% lost, followed by 19% lost during the post-harvest handling and storage phase, and 18% at the consumer/household level. Cereals contribute half of the overall losses and waste, followed by fruit and vegetables (19%), milk (14%) and meat (9%). SA Harvest works with food donors such as manufacturers, farmers, and retailers to rescue this food and redirect it to beneficiaries who convert it into nutritious meals.

Logistics plays a crucial role in SA Harvest's food rescue operations, from coordinating with food donors to collecting and transporting surplus food to ensuring the safe and efficient distribution of the food to

local community organisations and charities. The organisation has a fleet of refrigerated and other vehicles operating from warehouses in Durban, Cape Town, Johannesburg and Lusikisiki. A proprietary technology platform is being built to enhance the organisation's logistics capability, which will help maximise the efficiency of the entire food rescue supply chain. "This platform will allow for knowledge and data sharing with NGOs and other key stakeholders and bring about the collaboration

needed to build solutions. It empowers how we tackle the problem of food waste in South Africa and eventually scale sufficiently for our industry to be more effective."

SA Harvest currently receives support from logistics companies such as Meridian Logistix, Maersk, Waterford Carriers, Time Link Cargo, Unitrans and Bulldog Hauliers. These companies provide crucial logistical support in the form of transportation, enabling SA Harvest to rescue and redistribute even more surplus food.

However, the organisation is calling on the logistics industry for more support to assist with reverse logistics and transport of surplus food to their warehouses.

Nel urges transport companies with vehicles of all sizes to register with SA Harvest as logistics partners. "By registering with us, transport companies can provide much-needed logistical support and transport when their capacity allows. This will allow us to rescue even more surplus food and get it to those who need it most," he added.



SA Harvest's efficient collection of food ensures it can be distributed before spoiling.

In addition to reducing food waste and helping those in need, food rescue has significant

environmental benefits. By rescuing and redistributing surplus food, SA Harvest is helping

to reduce greenhouse gas emissions and the impact of food waste on the environment.



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# Ctrack enhances Crystal fleet management platform



AS part of its latest update, Ctrack's Crystal software has been refined with additional industry-defining functionality along with flexible and scalable AI software to assist with everyday business needs, all from one platform.

"Ctrack understands that the needs of our customers are always changing and as Crystal

is cloud-based, it can be continually refined without any disruption to the daily functionality," says Hein Jordt, Chief Executive Officer of Ctrack Africa.

The last-mile delivery industry has shown tremendous growth in the last three years with no signs of slowing down. The latest updates to Crystal are particularly

attractive to this industry. Fleet managers can now assign jobs to drivers and provide them with details regarding pickup and delivery, such as address or specific instructions when they reach the location safely via the Crystal app.

Crystal now includes Electronic Proof of Delivery. It is fully customisable and could consist of digital documents

such as an Invoice or a Delivery Note, ensuring peace of mind and a time-stamped record that packages arrived safely at their destination. This Sign-on Glass technology, and the ability to see the whereabouts of drivers, allows better operational control and client benefits.

New scheduling func-

tionality allows for optimal use of resources and vehicles. Real-time data allows for visual comparison between planned and actual delivery and turnaround times, enabling fleet managers to continuously refine schedules due to unforeseen delays or traffic. Once on the road, this routing automatically adapts to changing conditions, assisting drivers in delivering safely and on time. Refuelling can be planned in such a way that the impact on the schedule is minimal, and drivers can easily be alerted should they need to deviate from the schedule, such as in emergency situations.

The driver app, which forms part of the Crystal offering, gives managers and drivers enhanced control of their daily activities using one single application that offers a myriad of functionality and allows for the safe navigation of their schedule and on-time status.

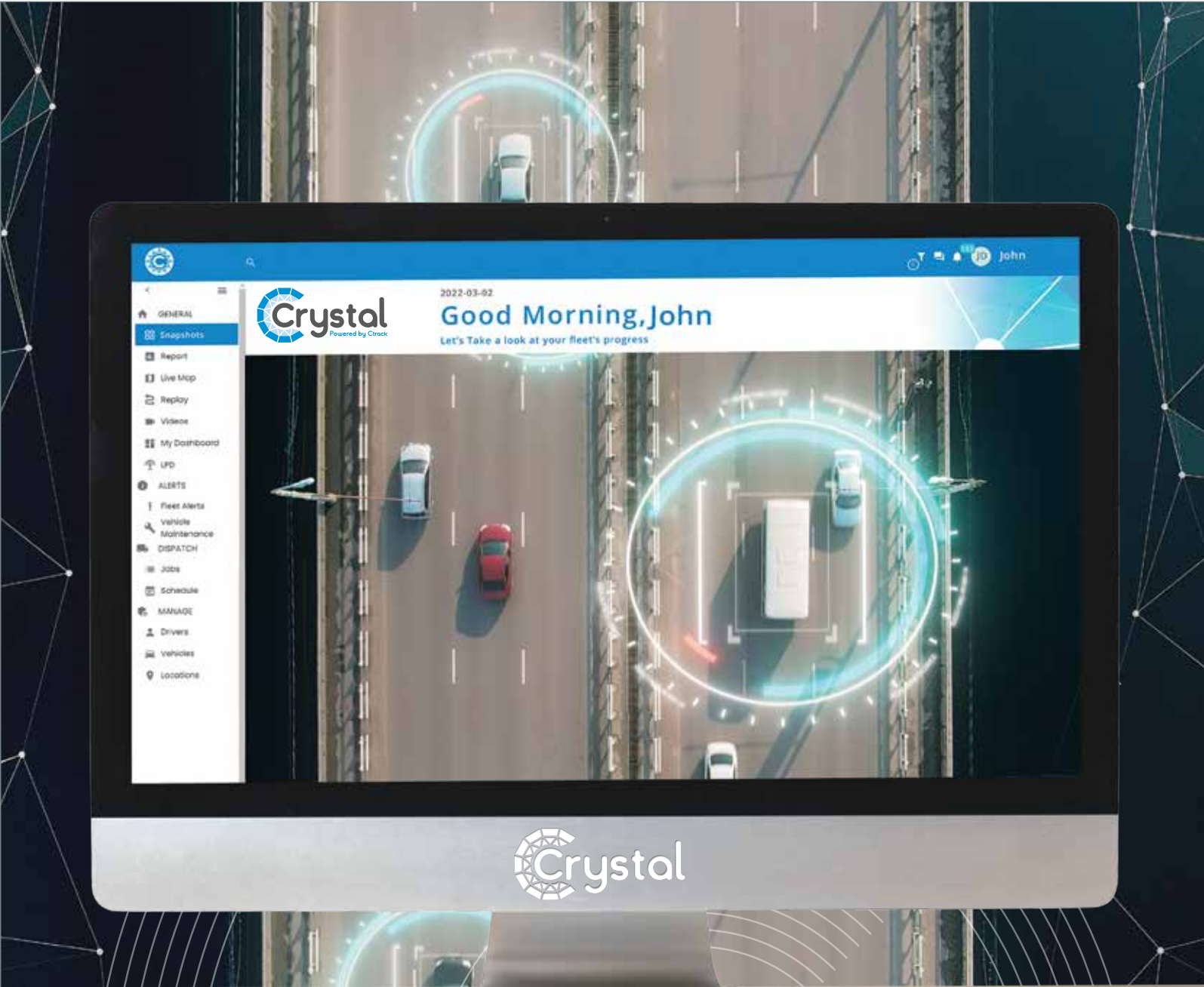
Clear communication with drivers ensures a smooth running operation. Now drivers can receive a job list and route guidance via the Crystal app. Sign-on-Glass technology with integrated Electronic Proof of Delivery ensures quick and efficient movement of goods to and from the vehicles, all within the same app.

Further enhancements to "Crystal" also includes the addition of video monitoring straight from the "Crystal" platform, with the viewing and management of all of a fleet's cameras in real-time. This technology enables fleet managers to see exactly what is happening in the cabin or load bay of any of their vehicles at any time.

User-friendly functionality includes a picture-in-picture option, downloadable video clips, SMILE script integration, Artificial Intelligence analysis of video feeds to create alerts, access to fleet video feeds from within a map view, date or location view as well as user defined video alerts such as harsh braking, G-Force, or speed limit transgressions.

"The ability to create and optimise jobs, monitor route adherence, view your fleet via video feed in real time, and capture electronic proof of delivery from one single platform allows for simple and efficient management of your entire fleet," adds Jordt.

"Live data is crucial for the optimal running of any fleet operation, and a powerful user experience allows fleet managers to be more proactive. Real-time visibility of all assets via a digital dashboard ensures efficient management," concludes Jordt.



## Ctrack Crystal

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\* Some product functions not immediately available in Africa. Image for illustration purposes only.



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## Volvo Trucks' first extra heavy electric truck on SA roads



VOLVO Trucks South Africa is currently busy with the homologation of its first extra-heavy electric truck units locally. Plans are to present the first of these vehicles to a local customer, KDG Logistics, within the next two months, once all statutory procedures have been adhered to.

*"Volvo Trucks South Africa is bringing in its complete extra-heavy electric truck range, which includes FH, FM and FMX models in truck-tractor and rigid configurations."*

Eric Parry, Volvo Trucks SA's sustainable solutions manager, took the Volvo FM 4x2 truck-tractor through its paces on a trip from the company's dealer in Durban to its facilities in Johannesburg – a 600km journey, with only one stop for charging.

"We aimed to prove that an extra heavy electric truck like this, can drive long dis-

tances. Even though we didn't carry any payload, it still gave us a good indication of just what this truck is capable of," said Parry. "Generally, battery electric trucks are used in regional distribution, operating in and around cities, running from distribution centres to stores, etc. But with proper planning, customers will be able to do so much more."

Volvo Trucks South Africa is bringing in its complete extra-heavy electric truck range, which includes FH, FM and FMX models in truck-tractor and rigid configurations. Axle combinations will also include 4x2 through to 8x4 models. The full load on the first FM units will be 44 tons GCM (Gross Combination Mass). With a drive line that has 490kW of power and 2400Nm of torque, it will definitely not struggle to get the job done.

"Locally, there has been a lot of activity and interest around electromobility, a lot quicker than we anticipated, and the enthusiasm and opportunities in South Africa are there," said Sally Rutter, Volvo Trucks South Africa's sales

director. "Irrespective of local challenges when it comes to loadshedding and infrastructure, a lot of customers are looking at setting up their own charging infrastructures to accommodate electromobility and their own sustainability goals."

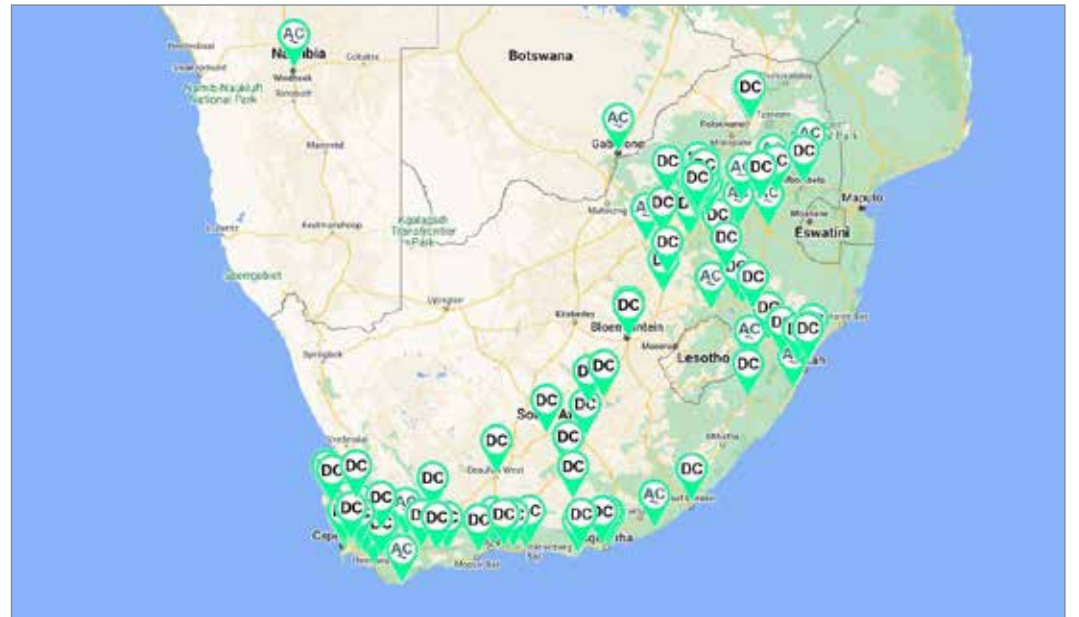
"These trucks can run meaningful kilometres in a day and if you have your charging set-up optimised, you can extend that range quite comfortably and match your operations to it," said Parry. "Within regional operations, public charging is not really relevant for these types of fleets and having control of their own charging will allow customers to fix their costs of energy."

Volvo Trucks electric trucks are designed to operate in a wide range of climates and environments. This includes higher altitudes and warmer conditions typically found in South Africa.

"These electric trucks will be working commercial vehicles, and are designed to be treated and driven as such," said Parry. "We are excited about Volvo Trucks' electromobility future in South Africa."

*Update:*

## EV charging stations network flourishes



*GridCars Charge Station Location Map.*

GRIDCARS is a South African developer of electric vehicle charge-point software management systems and supplier of charge points. In September 2017, Solareff (part of Alvia Holdings) expanded into green mobility through the acquisition of a 75,0% stake in GridCars, who are the dominant force in South African EV charging. At the end of 2018 GridCars, in partnership with Jaguar, deployed 82 public charging stations nationwide.

*"Despite South Africa's ongoing electricity supply challenges, the country's EV revolution is gaining momentum with various OEMs..."*

Since then, through their partnerships with various players in the industry, including OEMs, GridCars has effectively grown the national charge point network. Their most recent partnership with Audi includes four 150kW DC super-charging stations as part of a national roll-out of 70 new EV charge connectors across 33 sites. GridCars have installed public charging stations at various points of convenience in Johannesburg, Pretoria, Durban, Cape Town, Port Elizabeth, East London, and Bloemfontein, and have connected South Africa's city centres through their national charging network – a series of charging stations along the N3 between Gauteng and Durban and the N1 between Gauteng and Cape Town. Cape Town is also connected



to the Garden Route with a series of charging stations along the N2, all the way to East London. This extensive national network of EV fast-chargers has been a game changer for EV drivers as it makes long-distance travel possible within South Africa, as evidenced by the success of the eXpedition to Formula E 2023 Cape Town E-Prix, all participants combined covered almost 60 000km of EV driving!

### The impact of Loadshedding

Despite South Africa's ongoing electricity supply challenges, the country's EV revolution is gaining momentum with various OEMs introducing all-electric model ranges to their South African product offerings. The country was in the grips of stage 4 and stage 6 loadshedding while the EV drivers were participating in the GridCars EV eXpedition to Formula E 2023 Cape Town E-Prix, however, the impact was fairly minimal with all drivers successfully making the journey – testament to the robustness of the EV charging network and the diligent work of the dedicated Grid-

Cars support team who were available 24/7 to provide assistance to drivers along the route if they experience any issues while charging.

Customer service is a key factor in GridCars' success and if a driver encounters a problem at any of their charge points, they can call the support team on +27 10 109 3344 or WhatsApp GridCars eMobility on +27 60 070 2372 for assistance. "We have a passionate community of EV drivers in South Africa, many of whom have been driving EVs for several years and have become ambassadors of the EV lifestyle. The public are very interested in EVs, when stopping at a charging station we are frequently asked questions about the technology and inevitably the loadshedding question comes up" says Jordaan, "but the reality is that our EV drivers aren't impacted very much at all! The majority of EV charging takes place overnight where the EV driver has plugged in at home, even with a 2 – 4 hour loadshedding block the EV will still be fully charged in the morning. Many of the EV charge stations on our GridCars national charging network have

back-up generators or solar PV and batteries, allowing them to continue to function during loadshedding. For the charge stations that don't have back-up power, the EV driver can choose to either wait for that loadshedding block to end, or they can simply to drive to a charge station that is located in a nearby area which is not experiencing loadshedding at that time."

### How to find EV Charge Stations

GridCars ChargePocket members utilise the ChargePocket webapp to locate their nearest charging station and to managing their accounts. As GridCars are the first EV charging stations in Africa to be included on the Google Maps platform, members of the public can utilise Google maps to locate over 350 charge points on the GridCars national network. A quick Google search for "GridCars charging stations" will display the location of our nearest charging stations with detailed directions and navigation available directly within Google Maps.

*For more information visit [www.gridcars.co.za](http://www.gridcars.co.za)*

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# SABIA news

SABIA was pleased to be included at the Unido stand at the Africa Energy Indaba held in Cape Town from the 7th to the 9th of March. SABIA was involved in a round table discussion around the potential of green hydrogen in South Africa. The Africa Energy Indaba was a good opportunity to meet potential project funders as well as connect with members. The overall discussion was around the potential and growth for the biogas industry. SABIA would like to thank Unido for the invitation and for hosting SABIA at the UNIO stand.

## Danish Biogas Delegation

SABIA has also participated in the Danish Biogas delegation that included biogas suppliers and support agencies in Cape Town from the 27th to the 30th of March looking at existing biogas systems and holding discussions with local experts around the technology and potentials for the future. The delegation included vis-

its to biogas sites as well as presentations by local experts who gave a clear picture of the legislation around biogas installations at present.

One key finding was the successful use of biogas slurry as a fertilizer with more than 50% of all fertilizer being used for the very intensive farming in Denmark. SABIA would like to thank the members of the Danish delegation for the open and frank conversation as well as the Danish Embassy for arranging the trip.

SABIA presented on Biogas Past Present and Future in SA.

## Waste to Energy Conference

SABIA attended and presented on biogas at the 2023 Waste to Energy Conference which was held at Emperors Palace Convention Centre in Johannesburg 30-31 March 23. The conference included delegates from different industries and organisations. There was real interest in the potential role of biogas as well as engagements with potential suppliers.

# Load shedding traffic delays add to concrete truck drivers' responsibilities

THE critical role that the drivers of ready mix concrete (RMC) trucks play in providing top quality concrete to construction sites on time is often overlooked, says Matthews Magwaza, lecturer at Cement & Concrete SA's School of Concrete Technology.

Magwaza says the drivers of RMC trucks must be skilled in many more aspects of concrete operations than merely delivering concrete to a building site. "How fresh concrete is batched and prepared have a direct effect on its transport, and how the concrete is transported will affect the placing and concrete end-product," he explains.

"With load shedding now increasingly causing traffic delays, the fact that drivers of RMC trucks need to know when - and how - to adjust the mix they are carrying has be-

come most important. The driver must know when his company should send a concrete technologist to assist the driver in adjusting the mix before delivery," Magwaza states.

He says among a RMC driver's general responsibilities are:

- Performing daily comprehensive vehicle check lists;
- Determining the consistency of the concrete mix to be transported by ensuring that a slump test is carried out, either personally, or by assigned colleagues;
- Being totally familiar with procedures when delays occur on site or, as mentioned, in transit; and
- Knowing how to ensure his company is not held legally for failures should site supervisors insist on alterations to the mix, such as the

addition of water.

"These are just a few of the aspects RMC truck drivers need to be fully versed in. Training is essential to equip them with all the knowledge needed to capably represent their company. The School of Concrete Technology is this year again offering a 'SCT14 Concrete for RMC truck drivers' course that specifically deals with the vital considerations described above," Magwaza adds.

Included in the School's truck drivers' course are:

- A brief overview of concrete, the roles of each of its ingredients, and the importance of maintaining the correct water to cement ratio;
- Demonstrations and explanations of how to assess the strength and workability of the



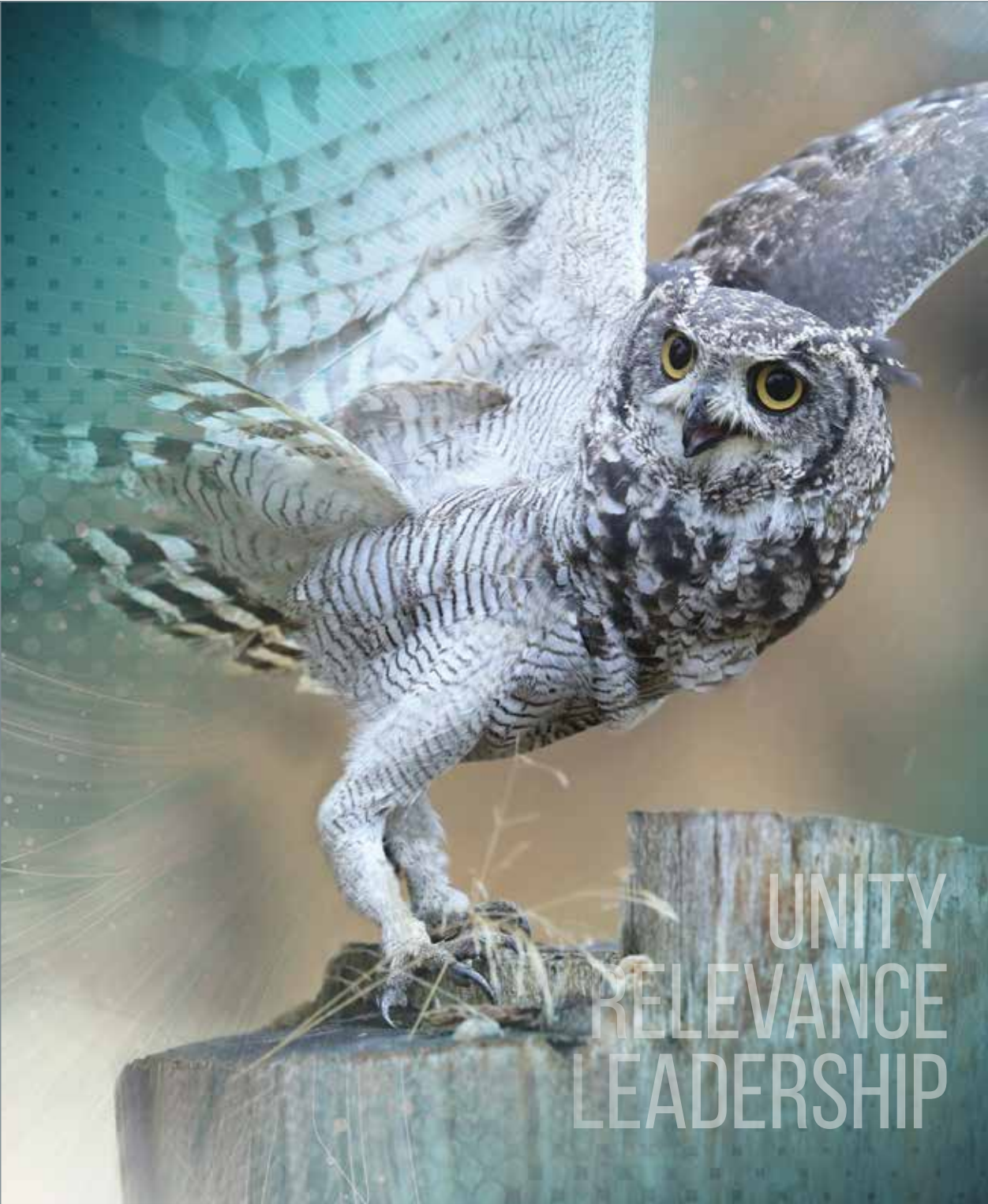
Matthews Magwaza.

concrete in the truck;

- Demonstrations and explanations of concrete cohesiveness and bleeding;
- Explanation of the delivery note and the legal implications contained therein; and

- Basic health and safety issues.

For more information about the courses and scheduled dates for 2023, email [rennisha.sewnarain@cemcon-sa.org.za](mailto:rennisha.sewnarain@cemcon-sa.org.za) or phone 011 315 0300. <https://www.cemcon-sa.org.za>



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# How electricity can heal wounds three times faster

By Chalmers University of Technology

CHRONIC wounds are a major health problem for diabetic patients and the elderly—in extreme cases they can even lead to amputation. Using electric stimulation, researchers in a project at Chalmers University of Technology, Sweden, and the University of Freiburg, Germany, have developed a method that speeds up the healing process, making wounds heal three times faster.

The study, «Bioelectronic microfluidic wound healing: a platform for investigating direct current stimulation of injured cell collectives,» was published in the journal Lab on a Chip.

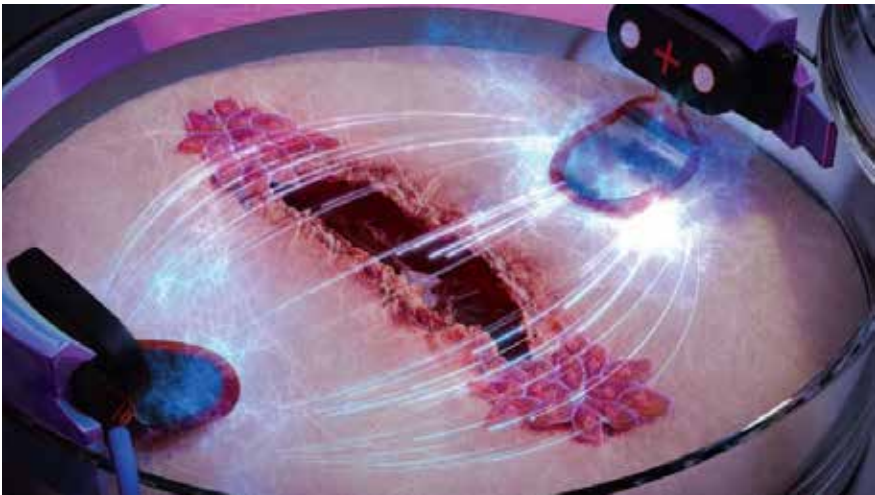
“Chronic wounds are a huge societal problem that we don’t hear a lot about. Our discovery of a method that may heal wounds up to three times faster can be a game changer for diabetic and elderly people, among others, who often suffer greatly from wounds that won’t heal,” says Maria Asplund, Associate Professor of Bioelectronics and head of research on the project.

### Electric guidance of cells for faster healing

The researchers worked from an old hypothesis that electric stimulation of damaged skin can be used to heal wounds. The idea is that skin cells are electro-tactic, which means that they directionally “migrate” in electric fields. This means that if an electric field is placed in a petri dish with skin cells, the cells stop moving randomly and start moving in the same direction.

The researchers investigated how this principle can be used to electrically guide the cells in order to make wounds heal faster. Using a tiny engineered chip, the researchers were able to compare wound healing in artificial skin, stimulating one wound with electricity and letting one heal without electricity. The differences were striking.

“We were able to show that the old



New research from Chalmers University of Technology, Sweden, and the University of Freiburg, Germany, shows that wounds on cultured skin cells heal three times faster when stimulated with electric current. The project was recently granted more funding so the research can get one step closer to the market and the benefit of patients. Credit: Science Brush, Hassan A. Tahini.

hypothesis about electric stimulation can be used to make wounds heal significantly faster. In order to study exactly how this works for wounds, we developed a kind of biochip on which we cultured skin cells, which we then made tiny wounds in. Then we stimulated one wound with an electric field, which clearly led to it healing three times as fast as the wound that healed without electric stimulation,” Maria Asplund says.

### Hope for diabetes patients

In the study, the researchers also focused on wound healing in connection with diabetes, a growing health problem worldwide. One in 11 adults today has some form of diabetes according to the World Health Organization (WHO) and the International Diabetes Federation.

“We’ve looked at diabetes models of wounds and investigated whether our method could be effective even in those cases. We saw that when we mimic diabetes in the cells, the wounds on the chip heal very slowly. However, with electric

stimulation we can increase the speed of healing so that the diabetes-affected cells almost correspond to healthy skin cells,” Asplund says.

### Individualized treatment is the next step

The Chalmers researchers recently received a large grant which will allow them to continue their research in the field, and in the long run enable the development of wound healing products for consumers on the market. Similar products have come out before, but more basic research is required to develop effective products that generate enough electric field strength and stimulate in the right way for each individual.

“We are now looking at how different skin cells interact during stimulation, to take a step closer to a realistic wound. We want to develop a concept to be able to ‘scan’ wounds and adapt the stimulation based on the individual wound. We are convinced that this is the key to effectively helping individuals with slow-healing wounds in the future,” Asplund says.

# Study explores use of invasive Port Jackson trees, plastic bags to build low-cost housing

- showed that this composite material has the necessary physical, chemical and mechanical properties to render it suitable for producing thermal and acoustic insulation boards for use in RDP and other houses.
- Australian acacia species are among the top 10 worst aliens in South Africa. These trees invade catchments, reduce water runoff, increase the severity of veld fires, and threaten indigenous species.

A new composite material made from invasive Port Jackson trees and recycled low-grade plastic waste could help solve South Africa’s social housing crisis, and some of its environmental problems.

It was developed by Dr Abubakar Sadiq Mohammed, whose recent doctoral studies showed that a combination of these two types of waste may be used to build better low-cost houses.

In December last year, Dr Mohammed, originally from Ghana, received his PhD in wood product science from Stellenbosch University’s (SU’s) Faculty of AgriSciences.

He developed a wood-plastic composite using a mix of biomass from all parts of a Port Jackson tree (*Acacia saligna*) and recycled, low-density polyethylene. This light polymer is primarily used in

packaging such as plastic bags.

Dr Mohammed showed that this composite material has the necessary physical, chemical and mechanical properties to render it suitable for producing thermal and acoustic insulation boards for use in RDP and other houses.

Wood-plastic composites are generally made from recycled plastic and small wood particles or fibres. Typically, manufacturers separate the woody parts of the chosen plants used from the non-woody parts (such as bark, leaves and seeds). Until now, the non-woody parts of alien invasive trees were considered contaminants rather than suitable components from which to produce composite materials.

Dr Mohammed included every part of the Port Jackson tree — from bark to leaves — in his composite mix. The plant material was salvaged from alien invasive clearing operations in the Western Cape. The trees were used in their entirety as received, without any pre-processing.

Having studied industrial art and wood science in Ghana before enrolling for his PhD, his choice of dissertation topic grew from his concern over the amount of waste generated in agricultural processes and the scale of plastic pollution in the environment.

“Plastic waste is a known global menace, so the idea was to transform this



Dr Abubakar Sadiq Mohammed at his graduation from Stellenbosch University in South Africa. Photo: Stefan Els

waste material into something useful,” he says. “I was also interested in developing affordable, eco-friendly alternatives to existing low-cost building materials.”

His supervisor was Prof Martina Meincken of SU’s Department of Forestry and Wood Science.

Dr Mohammed’s study is part of a bigger project in the department that investigates ways of using alien invasive wood species, including in the building sector.

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# Presenting the light in the tunnel

“As we celebrated Freedom Day on April 27,” schemed Luke the Dude, “The New South Africa is now three decades old, give or take. A celebration with a pint of the old cold and frothy?”

It was a windless and sunny autumn day and the collection of curious conversationalists was congregating in the shade of the ancient White Stinkwood at the local Pub & Pasta.

“And then,” sneered Bob the Book, “we’ll toast the achievements of The Rainbow Nation during the years?”

“Wait a minute,” worried Irene the Queen, “may I propose just one rule: No mention of Eskom. Not once.”

“Useless!” laughed Jon the Joker.

“Why,” queried Miss Lily combatively.

“Because that is no longer possible: Sweet Irene has already voided any such rule by mentioning Eskom, once,” smiled Jon disarmingly.

“Good!” enthused The Governor, “Because if you don’t start ordering your drinks, you won’t be toasting anything!”

“Well spoken,” nodded The Prof, “friends and others, let’s indulge our host!” And so we did, soon raising our glasses noisily.

“Speaking of Eskom,” provoked Stevie the Poet, “Has anyone seen André de Ruyter’s remote appearance before SCO-PA on eTV?”

“Useless! Waste of time!” growled Jon the Joker. “They got stuck on one question: who was the senior politician involved in the looting and corruption at Eskom. No matter how many times he explained the perfectly good reasons for not naming names, they tried every trick in the interrogator’s book. Over and over.”

“Only,” said Bill the Beard, “they got ruder and more unparliamentary. One honorable member was annoyingly dishonorable. No names, in support of the stoically respectful De Ruyter.”

“Non non, Mon Ami,” Jean Jay wagged his finger, “that word, unparliamentary, is no more. Here in our, what you say, Rainbow Nation, we have the Economic F-ing

Fighters in the House. It is parliamentary to disrupt, make noise, behave like swine and spit on democracy.”

“Salut!” agreed Jon the Joker. “Useless!”

“Like Eskom,” agreed Bill the Beard, “since Gwede Mantashe ousted De Ruyter after an undetectable person tried to kill him, the once internationally admired power utility’s rolling blackouts are worsening by the week as we head for winter in Darkest Africa.”

“Well ...” disagreed Big Ben, “There is a beam of light.”

“Do you mean that oncoming train in the tunnel, eh Boyo?” teased Colin the Golfer.

“On the contrary,” countered Big Ben, “I mean the CEO of Remgro, Jannie Durand. He believes Eskom will be, wait for it, irrelevant in five years. By then the private sector will be doing the generation and the distribution.

“I read it on My Broadband. Shaun Jacobs quoted Durand explaining that Remgro founded the Energy Exchange to source renewable energy from producers

## OPINION

### ON THE CONTRARY

The columnist is a journalist and editor based in Onrusrivier. His awards for journalistic excellence include the Mondi and the Sanlam Awards.  
**Pieter Schoombee**



and sell it to corporate customers. They started five years ago, are licensed by Nersa and are going strong.

“So, if Eskom doesn’t make it, South Africa has the can-do savvy to make it without them.”

For the first time, we raised our glasses to Ben and shouted “Cheers!”

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# Knocked down but not defeated: Robots learn soccer

By Peter Grad, Tech Xplore

DEEP Blue vs. Kasparov. Watson vs. Ken Jennings and Brad Rutter. Deepmind vs. Atari. Alpha Go vs. Lee Sedol.

The great machine vs. human competitions over the last few decades left no doubt about who’s the boss.

All of those matches were played in a most courteous fashion. The challenges all involved intellectual pursuits.

But what will happen when AI takes on games of physical contact, when, for instance, robots engage in pushing, shoving or knocking opponents over?

Researchers at DeepMind addressed that issue during trials of humanoid robots trained to play soccer. No human subjects were involved in these contests, not yet anyway. But there was some rough play.

In a paper released recently of the arXiv preprint server, Tuomas Haarnoja and more than two dozen colleagues reported on their successful efforts to teach complex movement skills and basic game strategy to robots.

The researchers said that numerous projects by others in recent years involving quadrupedal robots have yielded impressive results. Notable among them was Boston Dynamics’ robot dog Spot that excelled at smoothly navigating unknown, unstructured and hostile environments.

Fewer projects have tackled bipedal movement. The researchers say two-legged mobility poses additional challenges concerning stability and safety. When it comes to sports, those challenges are even greater.

“Soccer requires a diverse set of highly agile and dynamic movements, including running, turning, side stepping, kicking, passing, fall recovery, object interaction and many more,” Haarnoja said.

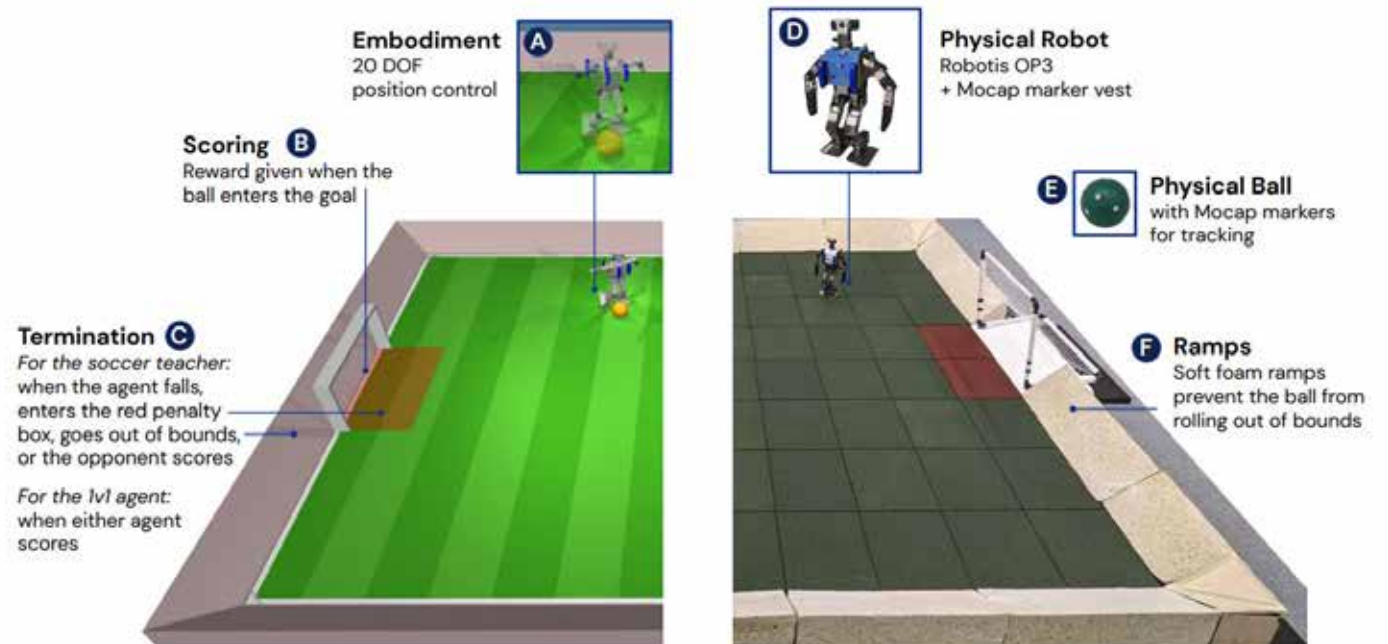
“Players further need to be able to make predictions about the ball, teammates and opponents, and adapt their movements to the game context. Players also need to coordinate movements over long time scales to

achieve tactical, coordinated play.”

The crew at DeepMind designed miniature humanoid robots with 20 controllable joints and used Deep RL (Deep Reinforcement Learning) to teach them basic soccer skills. They focused on context-adaptive movement skills such as “walking, running, turning, kicking and fall recovery.”

The robots exhibited “robust and dynamic movement skills,” said Haarnoja. The report, titled “Learning Agile Soccer Skills for a Bipedal Robot with Deep Reinforcement Learning,” was also posted on a Google blog last week.

The robotic soccer project differed from many earlier similar projects in that it focused employing the entire robotic body—not just hands or feet—to engage in strategic play.



Credit: arXiv (2023). DOI: 10.48550/arxiv.2304.13653

“Creating general embodied intelligence, that is creating agents that can act in the physical world with agility, dexterity and understanding—as animals or humans do—is one of the long-standing goals of AI researchers and roboticists alike,” Haarnoja said.

Publication of the DeepMind project stirred much discussion on social media, but one brief video clip drew particular attention. In the clip, a researcher is shown continually pushing down a robot trying to score a goal. The robot heroically proceeded each time to recover and get back on its feet.

Although clearly done to test and improve the robot’s ability to recover from stumbles and other errors, the “abuse” stirred Twitter users to respond.

“It’s hard not to anthropomorphize. My

brain says, STOP BEING MEAN! Lol,” said John Weller.

“At what point do [the robots] learn it’s easier to kick the football when a human isn’t constantly pushing them and then take action to stop it happening so they can play ball?” asked N4GERACS.

“I’ve got to say, given how fast AI is moving these days, I would not be so cavalier about shoving those robots,” Jeff Kirsch warned.

And a cautionary note from Jing Lang: “I hope they will forgive us for this.”

Perhaps those unnerved by the shoving will be comforted by the wisdom of a great athlete from a different sport, the late great baseball slugger Babe Ruth, who once observed, “You can’t beat the person who won’t give up.”