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DURBAN LPG TERMINAL DUE ONLINE NEXT YEAR

TRANSNET officially handed over a Terminal Operating Agreement (TOA) to a joint-venture between Wasaa Gasses and the state-owned energy holding company, the Central Energy Fund to build and operate a liquefied petroleum gas (LPG) facility during an event it hosted at its Pier 1 auditorium on 12 December 2025.

In addition to the official TOA, Transnet National Ports Authority's (TNPA) acting chief executive, Mohammed Abdool, presented the JV with a permit to operate in the Island View precinct, where strict safety regulations are in place due to the highly flammable and dangerous nature of oil and gas transported and stored at the site.

DRAWN-OUT PROCESS

TNPA initially issued a Request for Proposals (RFP) for the 25-year concession in December 2022, after cancelling a previous tender for the Lot 100 site in 2019. An award letter was issued to the Wasaa CEF JV in July 2024. Transnet has framed the prolonged journey from RFP to TOA as "rigorous" and "long-awaited".

Since 2022, a new wave of top executives has taken over at Transnet, the most recent appointment being Mohammed Abdool as acting chief executive of TNPA in September 2025, after that position was vacated by Pepi Salinga in July.

PUBLIC-PRIVATE PARTNERSHIP

Nokwanele Qonde, Wasaa CEF JV director explains that the company name is a Swahili word that means "opportunity" and not an acronym.

Transnet commended Wasaa as a trusted operator, as it already operates liquid fuel terminals in East London and Matola in Mozambique.

Qonde explains that the East London terminal was established in 1920 and acquired by Wasaa Terminals, a subsidiary of Wasaa Group, from bp Southern Africa in 2022. "The terminal has a substantial capacity of approximately 64 million litres and stores various bulk fuels, including diesel, unleaded petrol, jet fuel and kerosene."

"Since its inception, Wasaa has managed to entrench its position in the LPG sector and secure contracts with major oil companies. Our operations were not limited to being LPG wholesalers, we also diversified our operations to include terminal operations, commodities and trading, chemicals, and logistics."

In the process of developing new business, Qonde says the company partnered with Mozambican state-owned company, Petróleos de Moçambique (Petromoc). "Wasaa was tasked with undertaking maintenance, repairs and/or replacement of the old Petromoc spheres at its own cost for its utilisation over the years."

"We continue to be major players in the supply of LPG in the SADC region," she says.

Qonde would not confirm whether the JV will be working with any technical partners. "We will be able to establish the exact nature of the technical capabilities required during each of the phases, namely the development, construction, operating and maintenance stages," she said.

She added that the company is pleased that this facility will have a positive multiplier effect on adjacent industries in the area.

With regards to offtakers, Qonde says Wasaa has supply agreements with major oil companies such as Sasol, Astron Energy, bp, Engen and Shell. "The company has been exporting to the SADC market over the last 10 years," she said.

She says the JV is governed by a confidentiality agreement for competitive reasons, which prevents it from disclosing any details of the partnership.

STATE-OF-THE-ART FACILITY

According to Wasaa, the state-of-the-art facility, to be known as Lot 100 Terminal, will be equipped with simultaneous ship unloading and road tanker loading, while vapour recovery operations will be enabled without operational interference. The integrated piping and valve network will permit flexible product transfer from any storage tank to any designated pump station or loading bay.

"Lot 100 intends to import, store, and dispatch propane, butane as well as an LPG mix. The terminal will trade stenched and unstenched LPG," said Qonde.

The terminal will be connected to multiple berths, and has been designed to import and export LPG via marine vessels ranging from small gas carriers to very large gas carriers (VLGCs) up to 64,000 Deadweight Tonnage (DWT).

The terminal will be the largest LPG import facility in South Africa, with a storage capacity of approximately 30,000 tonnes. Five bay loading gantries with automatic weighbridge systems will facilitate fuel transfer.

According to Transnet, the agreement will result in a 50,000 m³ LPG terminal storage and handling capacity – a comprehensive solution addressing the growing demand, particularly in KwaZulu-Natal and the Eastern Cape hinterland. The terminal, which is expected to be completed by 2027, will have capacity to dispatch up to 800 m³ per hour of heated LPG mix. This will provide essential supplies to various industrial markets and produce specific grades suitable for residential use, Transnet said in a statement.

Transnet estimates the project's investment value at approximately R1.4 billion. The Development Bank of South Africa (DBSA) holds the funding rights and is the lead arranger for the deal.

Michelle Phillips, Transnet Group Chief Executive (left) and Nokwanele Qonde, Wasaa CEF JV Director at a model of the country's largest LPG terminal planned for Durban's Island View Precinct. Picture: Shelley Kjonstad / KZNIBN

According to Wasaa, Lot 100 Terminal is planned to come into commercial operation in the fourth quarter of 2027.

SA'S LPG MARKET

According to the non-profit industry body, Liquified Petroleum Gas Association South Africa (LPGSA), the South African LPG market is poised for significant growth. Factors such as rising electricity prices and the need for cleaner energy alternatives have increased LPG demand. It says that in 2024, LPG consumption rose to 500,000 tonnes from 425,000 tonnes the previous year.

But growth in LPG consumption has not been consistent. The Fuels Industry Association of South Africa, representing a diverse range of energy sources, published fuel consumption trends in its 2024 annual report.

According to the data, sourced from the Department of Mineral Resources and Energy, LPG consumption in the country surged from 398 million litres in 2014 to 588 million litres in 2015. From that high in 2015, LPG consumption dropped steadily to 448 million litres in 2020, plunging to 308 million litres in 2021. In 2024, national consumption was estimated at 279 million litres.

Domestic production of LPG has been severely impacted by the closure of local oil refineries, as LPG is produced as a byproduct in the process of refining crude oil. In 2019, the aggregate LPG production from all South African refineries (Engen, Sapref, Natref, Chevref/Astron, PetroSA and Sasol) was consistently around 300,000 tonnes per annum. Since Engen and Sapref in

... continued on page two

High expectations for Pier 2 PSP

THE Southern African Association of Freight Forwarders (SAAFF) said in a December statement that it commends Transnet Port Terminals, Transnet National Ports Authority and ICTSI for the progress made – a development that signals the beginning of a transformative new chapter in South Africa's port reform journey. At the same time, the association emphasises that there is no margin for error. "This 25-year concession must produce the highest performance benchmark South Africa has ever set for container logistics, establishing a globally competitive platform for trade-based growth," SAFF said. The transaction — structured through a new operating company with Transnet Port Terminals holding 51% and ICTSI 49% which represents a significant reconfiguration of operational and commercial responsibilities at the country's largest container terminal.

"SAAFF trusts that the transaction advisers have rigorously interrogated the Terminal Handling Charges (THC) and all related terminal charges, given their central role in shaping the cost structure and competitiveness of South Africa's container value chain over the 25-year concession period. Fee frameworks must be transparently set, globally benchmarked, and aligned to the country's trade and industrial priorities, preventing any unintended burden on exporters, importers and the wider supply chain."

SAAFF noted that it calls for strengthened oversight to ensure:

- Commercial fee structuring that is competitive, predictable and sustainable, supporting long-term trade growth.
- Robust governance anchored in disciplined investment, including new and refurbished equipment that delivers consistent operational performance.
- Alignment with national logistics and spatial imperatives, particularly geographical integration with Gauteng and the broader regional hub system, supported by skilled and future-ready labour.
- Clear recourse mechanisms should be in place in case productivity, service standards or investment undertakings fall short of agreed obligations.

Furthermore, SAAFF called for industry clarity on how the concession interfaces with wider network enablers – including rail slot allocation, border and customs coordination, digital integration, and the alignment of terminal operations with the Gauteng hub and regional trade corridors. "Given Pier 2's role as the country's primary gateway, transparency on how risk is distributed between NewCo, Transnet Port Terminals (TPT) and Transnet National Ports Authority (TNPA) across marine, quayside and landside functions will be critical. A concession of this scale must not only optimise terminal performance – it must support end-to-end velocity across the national logistics chain.

SAFF said it is essential that this partnership must stand as a benchmark for excellence in public–private collaboration — grounded in openness, shared accountability and unambiguous integrity. Only through transparent governance and unified commitment to reform can South Africa convert this development into durable competitiveness to elevate its logistics system into a new era of performance.

TOP OF FORM

"Looking ahead, SAAFF emphasises that long-term competitiveness of South Africa's logistics system will depend on embracing both inter-port and intra-port competition as principal strategic levers of performance. Competitive pressure is the most effective catalyst for accelerated performance, and Transnet has, in recent times, given strong focus to best practice in this arena, said Dr Juanita Maree, CEO of SAAFF.

"A competitive port environment stimulates innovation, disciplines costs and raises service standards – ensuring that no terminal, operator or corridor is insulated from accountability and enforcing transparency. For South Africa to regain its position as a leading trade and logistics hub, competition must be embedded as a strategic principle across all ports and terminals. This is the pathway, not just to accelerated performance, but to organically boost sustained investment and a logistics system capable of supporting national growth and continental leadership for South Africa."

As the sector's foremost representative body, SAAFF, issued a clear and unambiguous challenge to the operator and to all governance structures involved: the credibility of this partnership will depend on transparency, measurable delivery and uncompromising accountability. The national imperatives must guide all planning and be rigorously enforced across socio-economic and environmental dimensions. A systematic transfer of skills throughout the concession period, together with robust and verifiable employment creation and employment creation alongside localisation programmes, must remain non-negotiable outcomes, it said.

According to SAAFF, the market requires the following to build and sustain industry confidence:

- A clearly defined and publicly communicated KPI framework
- Realistic and transparent tariff-adjustment oversight, aligned with inflation and productivity
- Firm, credible, and time-bound investment commitments
- Full transparency regarding the governance, mandate, and performance obligations of the NewCo
- Visibility on labour transition, productivity safeguards and dispute resolution frameworks
- Publication of safeguard mechanisms and recourse processes available to industry should service levels, investment timelines, or pricing outcomes deviate materially from agreed undertakings
- Commitment that competitive neutrality and non-discriminatory access principles are upheld, with transparency in tariff setting and operational access for all shippers, forwarders, and lines.

Dr Maree says that meeting these standards is imperative. The sector cannot afford ambiguity, delay, or underperformance. This partnership must demonstrate, through consistent action and verifiable results, that South Africa can set and sustain world-class benchmarks in port efficiency and logistics competitiveness.

"The opportunity is historic; the responsibility is equally profound. For this partnership to earn and sustain confidence, delivery must be evidenced not through promises, but through measurable outcomes, transparent reporting, time-bound investment rollout, and tariff discipline. Moreover, the emphasis placed in this communication on ethics, good governance, transparency, and strict compliance with accountability mechanisms is both intentional and necessary. These principles are not ancillary expectations; they are the foundation upon which trust, performance, and long-term credibility must be built."

Durban LPG terminal due online 2027

continued from page one ... Durban were the two largest producers, they collectively accounted for a significant majority, estimated to be well over 50% (and potentially up to 70%) of the country's total refinery LPG output.

Engen halted production in mid-2020 and Sapref in March/April 2022. Imports now dominate the supply chain, accounting for upwards of 70% of the national supply.

There are currently two major LPG import terminals in South Africa. In Richards Bay, Bidvest Tank Terminals (BTT) started operating its LPG terminal in late 2019/early 2020, with the first LPG arrivals in late 2019, targeting commercial use by Q4 2019. The facility has a total capacity of 22,600 tonnes, featuring four large storage bullets. Petredec, a leading global LPG shipping, trading, and terminal platform, initiated the project and is the primary offtaker of the storage facility.

At Saldanha on the West Coast, Sunrise Energy developed an LPG terminal on a 30-year concession from Transnet. The first phase of the terminal has a receiving or working storage capacity of 5,500 tonnes of LPG, in the form of five mounded pressurised storage bullets. Throughput capacity in excess of 17,500 million tonnes per month can be achieved through these facilities.

The LPG terminal in Saldanha started operations in 2017, following a trial shipment at the end of May 2017, with its formal launch and unveiling in August 2017, marking Africa's largest open-access import facility.

	Imports (000 tonnes)	Exports (000 tonnes)
2014	47	60
2015	99	69
2016	183	71
2017	182	104
2018	187	130
2019	160	110
2020	268	108
2021	442	109
2022	368	104
2023	871	252
2024	2,771	282

Source: Fuels Industry Association of South Africa Annual Report 2024 (Source: South African Reserve Bank/DMRE)

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Hot Isostatic Press facility to boost local manufacturing R&D

IN December, a state-of-the-art Hot Isostatic Press (HIP) facility was unveiled at the Council for Scientific and Industrial Research (CSIR) in Pretoria. The facility is designed to support local companies in advancing their products by enhancing the strength and durability of metal components.

The HIP process involves the densification of metal powders and components through elevated heat and pressure, transforming them into solid, high-performance components or parts with complex geometries. This process minimises the need for welding or machining, significantly reducing material costs for local manufacturers, according to the CSIR.

The capability is of particular interest for the development of high-performance metal components for industries such as aerospace, automotive, medical, energy, rail and mining. “We assist industries to develop their own pressing processes. We do this by identifying the parameters suitable for the production of a particular component, and we do research based on that,” says Maurice Maliage, a CSIR senior engineer.

The CSIR's team of experts conducts rigorous tests before and after pressing using metrology equipment and X-rays to ensure that the parts are free from pores and potential weak spots or defects. “We start by taking the part into the X-ray machine where we check for defects,” says Maliage. “From there, we measure the dimensions of the part that is going to be pressed, and then we press at a certain temperature and pressure as requested by the client.”

After pressing, the part is again checked for pores or defects, and the dimensions are rechecked to ensure there are no distortions on the components or the material.

Dion Greyling from Metallurgical and Manufacturing Services, an early client of the facility and a local metallurgical company, highlighted the significance of the HIP process: “We are very excited about the reintroduction of the HIP in South Africa, because the HIP is available for development and for possible commercial advancements,” he said.

Greyling emphasised the impact of the HIP facility on the industry: “The actual mechanical properties that we have tested of the HIP product exceed the powder manufacturer’s best, best results ever. It is phenomenal that we can revitalise the industry.”

The HIP’s establishment was made possible through National Equipment Programme (NEP) funding from the Department of Science, Technology and Innovation (DSTI).

The Director-General of the DSTI, Dr Mlungisi Cele, accompanied by DSTI Deputy Director-Generals, Imraan Patel (research, development and support) and Dr Mmboneni Muofhe (socio-economic innovation partnerships), restated the department’s commitment to investing in infrastructure that supports innovation and technology localisation.

CSIR CEO, Dr Thulani Dlamini, described the HIP facility as a significant step forward for the manufacturing sector. “For eight decades, we have been true to our mandate of fostering industrial development through science and technology,” he said. “We will continue to seek out opportunities to employ advanced capabilities that strengthen not only our innovation landscape but the robustness of industry and national competitiveness.”

The CSIR called on local inventors and component producers to engage with the state-owned research body on joint technology development collaborations that contribute to the modernisation and revitalisation of South Africa's manufacturing sector.

eThekwini building collapse puts building regulations, materials under spotlight

THE outcomes on a preliminary investigation by the Council of the Built Environment into the collapse of a multi-story building in Verulam, north of Durban, on 12 December, which claimed five lives, were presented by the Minister of Public Works and Infrastructure, Dean Macpherson, at a press briefing on 17 December 2025.

The minister said the investigation found, among others, that there were concerns regarding the quality of construction, that the concrete used was friable and that no building plans were submitted to authorities.

Macpherson highlighted some of the key issues that emerged from the preliminary findings.

“Based on the information available at this point, the structure involved was a reinforced concrete multi-storey building under construction, comprising concrete columns, flat slabs, and masonry walls.

“The collapse occurred while concrete was being poured, with reports indicating that work was underway on the upper levels of the building at the time of the incident.

“Preliminary evidence, including available video footage, points to a sudden structural failure, most likely triggered by a formwork or shuttering failure during the pumping of wet concrete.

“Such a failure can impose significant and abnormal dynamic loads on the floors below – loads that no building is structurally designed to withstand – resulting in a rapid and progressive collapse,” he said.

Macpherson said that early visual assessments had also raised serious

concerns regarding the quality of construction, including indications of misaligned structural elements and potentially substandard materials.

“Rescue personnel further reported that the concrete encountered on site appeared friable, which will require further forensic testing as part of the investigation.

“Of particular concern are preliminary indications from the relevant authorities that no approved building plans were submitted, that no construction permits were issued, and that the building may have been occupied prior to the issuance of an occupation certificate, all of which would constitute serious contraventions of the National Building Regulations and Standards.

“In the absence of these submissions, the relevant authorities were deprived of the opportunity to inspect, monitor, or intervene during construction,” he said.

The minister said the site had been formally classified as a crime scene, and will be handed over to the Department of Employment and Labour to continue with statutory investigations alongside other authorities.

“These preliminary findings underscore the seriousness of this incident and the importance of a thorough, coordinated investigation to establish exactly what went wrong, who is responsible, and how similar tragedies can be prevented in future.

“The final determination of the precise failure mechanism will be made through the detailed forensic investigation, as multiple potential contributing factors remain under examination.

However, it is already clear from the preliminary findings that serious lapses occurred in the construction of this building, and these lapses will require full investigation and accountability.”

Macpherson said he had requested that the SAPS investigative team from the Western Cape, which previously led the complex investigation into the George Building collapse, be made available so that local investigators can draw on the experience gained in a similar tragedy, particularly in navigating the technical, evidentiary, and regulatory complexities that arise in cases of major structural failure.

He said he fully supported the following three steps that the Council for the Built Environment (CBE) had recommended to be taken as a precautionary measure:

1. Detecting illegal building activities in municipalities across the country,
2. Requiring ready-mix concrete providers to notify building control bodies wherever large volumes of concrete are delivered to construction sites across the country to ensure they are known to municipalities,
3. Launching a community-based campaign on the importance of building approvals and relevant statutory processes as part of public safety.

Macpherson said both this incident and the George Building collapse have again exposed a fundamental challenge in how the built environment is regulated in South Africa.

First cryogenic and liquid CO2 flowmeters accredited in SA

AIR Products South Africa's verification and repair body has been accredited for cryogenic and liquid carbon dioxide (CO2) by the South African National Accreditation System (Sanas), marking what the company calls a turning point in terms of local capability and compliance of flowmeters in South Africa.

The accreditation is the result of a demand for legal metrology in a high-risk, precision-driven field. According to Air Products, the verification and repair body accreditation process was a complex journey with a lot to learn and has sharpened the company team's understanding of the requirements. Key achievements included legal traceability, reduced fragmentation, improved local capability and technical excellence.

DUAL ACCREDITATION

According to Gift Nyambe, general manager technical at the company, the accreditation was built on three critical pillars, which empowers Air Products South Africa to deliver the verification and repair service. These pillars include technical astuteness, legal compliance and system efficiency. He says customers will be able to benefit from the company's compliant and integrated solution.

The Air Products verification and repair body accreditation team

The process included Master Meter approval by the National Regulator for Compulsory Specifications (NRCS), certification by the verification officer, and final accreditation by Sanas.

COMMERCIAL ADVANTAGE

"The accreditation is not only an indication of the compliance to regulation, but it also holds a commercial advantage to customers. This is largely due to the metering accuracy and traceability, a reduced risk of not conforming to regulation and a vast improvement in the service turnaround times and cost efficiencies as a result of our in-house capability and resources," says Nyambe.

Nyambe further comments: "Teamwork and tenacity were critical in the process, with a dedicated team that had to drive the project planning, documentation and audits. The technical team in collaboration with the bulk distribution team, were integral in obtaining the accreditation. Besides a vision, metrological rigour was essential as the systems have to be traceable to certified weighbridge standards. Lastly, the team had to ensure that a robust quality infrastructure was implemented and aligned with Sanas quality management system (QMS) requirements. The team describes the accreditation journey not only as technically fulfilling, but as transformational."

STRATEGIC INVESTMENT

According to Air Products, the accreditation milestone uplifted more than systems – it empowered people. The newly certified verification officer and repairer now hold nationally recognised qualifications, which builds sustainable metrology expertise within South Africa.

Nyambe concludes: "Earlier this year, Air Products South Africa also obtained its ISO/IEC 17025:2017 accreditation for testing and calibration in laboratories. These accreditations strategically differentiate the company from competitors in the market and assures our customers of superior service and quality products.

Institute bolsters specialised welding skills training to meet growing demand

AS South Africa prepares to advance its nuclear new-build programme, the country faces a critical challenge: a shortage of highly specialised welding, inspection, and non-destructive testing (NDT) skills required to deliver the safety-critical infrastructure nuclear power demands. These welds and inspections must meet some of the toughest integrity standards in global engineering, making the strength of the national skills pipeline a decisive factor in the success of the programme.

The Southern African Institute of Welding (SAIW) has strengthened its capabilities ahead of 2026. Working closely with Necsa, the SAIW recently completed advanced upskilling of its internal specialist NDT team as part of preparations for the future Necsa Centre of Excellence for NDT, a key component of building South Africa's nuclear-readiness. As SAIW President Joseph Zinyana notes, "The nuclear new-build programme requires highly specialised skills, especially in advanced NDT and high-integrity welding. We have therefore initiated upskilling of our NDT training team with Necsa, and we are primed to take this programme forward in the new year."

A WATERSHED YEAR

The SAIW began 2025 with several interventions to restore credibility and stability. "We ended last year in disarray, needing to make some urgent interventions to secure the sustainability and credibility of the Institute. I am pleased to say that this process has been largely successful," says Zinyana.

A major component of this turnaround has been improving the student experience, for many years a pressure-point for both learners and industry. Long delays in exam results, certificate issuance, and student support were addressed through the appointment of additional lecturers and the short-term hiring of contractors to support delivery. "We needed to drastically improve our interaction with students in terms of turnaround times between examinations, results being made available, and certificates being issued. This turnaround has been very successful," explains Zinyana.

As a result, student numbers have risen steadily since mid-year, and complaint volumes have decreased significantly, signalling that improvements are being felt across the system.

DIGITAL TRANSFORMATION

Alongside these changes, the SAIW has made meaningful progress in modernising its digital infrastructure. A new website and student portal allow prospective students to browse and register for the full range of SAIW courses. The next phase will incorporate online payment, with digital results and certificates soon to follow. "We are now working on systems to provide same-day results through automated exam setting and marking," says Zinyana.

This digital transformation extends into certification services, where ISO 3834 Company Certification is now managed through an integrated digital platform, and personnel certification databases, including CP, IPE, NDT, and IIW, are being digitised. There is also strategic focus on digital efficiency, traceability, and modernisation as essential elements of the Institute's long-term competitiveness.

TRAINING IS A PRIORITY

Training modernisation has also been a priority. The Institute continued its shift toward contemporary teaching tools, including virtual welding systems designed to accelerate learner readiness, while laser welding will be added to the curriculum in 2026 to support advanced manufacturing sectors. "Virtual welding and the introduction of laser welding extend our reach into industries such as automotive manufacturing and help make welding more exciting for the digital-age generation," says Zinyana.

Looking ahead to 2026, the SAIW plans to scale its advanced NDT and nuclear-aligned training offerings, deepen partnerships with local manufacturing institutions, build stronger relationships with African institutions and international nuclear partners, strengthen its quality and ethics governance, and push further into digital transformation. Zinyana is confident about the road ahead: "Our initiatives are drawing interest, and this modern approach is what students want.

Rural KZN village crafts popular SA school shoes

DEEP in the rural foothills of the Drakensberg Mountains lies Loskop, KwaZulu-Natal – a village that has quietly become the beating heart of one of South Africa's biggest back-to-school operations. Here, Bata South Africa's sprawling 65,000 sqm factory powers the production of Toughees, a popular school shoe brand worn by South Africans since 1954. More than 4 million pairs of Toughees are manufactured in Loskop annually.

This single factory employs 420 people, with 92% of the Toughees production line staffed by women. The factory is a lifeline for the local community and the engine behind a massive operation that ensures millions of South African learners can step into the new school year with confidence.

POWERED BY PEOPLE

Across Bata South Africa, over 60% of employees are women, driving positive change in their communities.

The impact is visible. "When you drive through the rural Loskop community, you will see that people live in brick houses, not shacks," notes Lorraine Dyer, Bata South Africa's country manager. "That really shows the influence our factory – the only one in the area – has had over generations. When you uplift women, you uplift families – and that's something we're proud of."

Beyond manufacturing, Bata employs a further 60 people at its Distribution Centre (DC) in Hammarsdale, west of Durban, and around 82 at its La Lucia head office. With over 70 years in South Africa, the company is one of the country's largest footwear manufacturers and a key contributor to local industry, producing 70% of its local

stock domestically and generating over 60% of revenue from this local production.

Every year, the back-to-school period demands intense coordination across Bata's head office, the distribution centre and the Loskop factory. For the 2024/25 season, demand surged – and the team rose to the challenge. Through rigorous planning, streamlined operations and efficient digital systems, they processed and shipped over two million pairs of shoes, setting a new benchmark for operational excellence and ensuring retailers nationwide were fully stocked.

This seamless collaboration represents the spirit behind Toughees – tough, prepared, reliable, and built for South Africa's realities.

South Africa's toughest

"Toughees are built for active school days," says Deenai Heralall, marketing manager at Bata South Africa. "Every pair comes with a six-month warranty against fair wear and tear and is made from premium, non-polish leather for durability, breathability, and easy cleaning."

"At our Loskop factory, state-of-the-art machinery and skilled artisans come together to craft school shoes built for real South African conditions," he adds.

The journey of every Toughees shoe involves:

- Precision cutting: Components are cut using steel dies and hydraulic presses for accuracy and consistency.
- Skilled stitching: Uppers are assembled and stitched with expert craftsmanship.
- Injection moulding: A specialised process where molten PVC is injected into moulds – a technique Bata has perfected since the 1960s. This creates tough, breathable, reliable soles that resist wear and are easy to clean.
- Heat-bonded construction: Uppers and outsoles are bonded using heat tunnels to guarantee a secure, long-lasting fit.
- Rigorous testing: Shoes undergo tensile, tear and flex testing, among others. Toughees shoes consistently exceed South African Bureau of Standards (SABS) requirements

Choose microlearning over doom scrolling

PICKING up the phone "just to check something quickly" can lead to 20 minutes disappearing. This is called doom scrolling – the endless, often mindless consumption of online content that leaves people more drained than informed. At work, even the quick breaks taken to recharge can get hijacked by notifications and newsfeeds, leaving people feeling frazzled and unfocused instead of refreshed.

That's where microlearning truly makes a difference, turning wasted screen time into short, purposeful learning bursts. Increasingly, professionals are using microlearning to stay sharp, adaptable, and ahead in a fast-changing world.

"Choose the right topics, and those moments once lost to mindless scrolling can instead spark real professional growth — boosting your success at work and beyond," said Michael Gullan, CEO of G&G Advocacy, an e-learning consultancy helping organisations drive high-impact employee development.

WHAT IS MICROLEARNING?

Microlearning breaks education into manageable, short, focused bursts that can be completed in 5–10 minutes. It's the opposite of long lectures or dense online modules, and it makes a real impact for adult learners. "Think of microlearning as learning in sips rather than gulps," said Gullan.

These small moments of learning add up to significant knowledge gains, and research shows that brief, focused study sessions improve long-term retention and make it easier to apply new concepts in practice.

Microlearning can take many forms:

- A quick interactive module that's part of a course
- A How-to guide
- A short article or podcast episode
- A mini case study or quiz
- A 5-minute reflection exercise or workplace tip

"The key is consistency," added Gullan. "A few short, focused learning moments each week add up over time. This approach helps professionals stay consistent without the pressure of fitting lengthy courses into already time-strapped lives."

Nozzles play a pivotal role in cleaning industrial beverage tank

TANKJET nozzles play a pivotal role in maintaining high standards of cleanliness and efficiency in the brewery and spirits industry. Cleaning and sanitising tanks, vats, and other large vessels used in the production and storage of beverages is critical to ensuring product quality, regulatory compliance, and operational efficiency. According to the Spraying Systems Co., TankJet nozzles, with their advanced design and reliable performance, provide a versatile and effective solution for cleaning these essential components.

BREWING AND DISTILLING

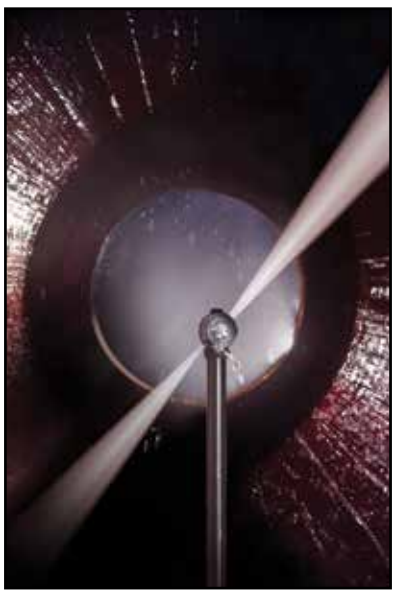
The production of beer, spirits, and other beverages involves intricate processes where cleanliness is paramount. Fermentation tanks, storage vessels, and mixing containers can accumulate residues such as yeast, grains, sugars, and other organic materials. If not properly cleaned, these residues can lead to contamination, off-flavors, or compromised product quality. Moreover, stringent industry standards, including those from organisations like the FDA and HACCP, mandate rigorous cleaning protocols to ensure consumer safety.

Efficient tank cleaning also minimises downtime, enhances productivity, and reduces water, energy, and cleaning chemical consumption. This is where TankJet nozzles excel, offering solutions tailored to the unique requirements of the brewery and spirits industry.

ADVANTAGES

Advantages of using TankJet nozzles include superior cleaning performance. TankJet nozzles are engineered for thorough and consistent cleaning. Their precise spray patterns and optimised flow rates ensure that even hard-to-reach areas inside tanks are cleaned effectively, eliminating residues and biofilms.

They also offer versatility, with various models available. TankJet nozzles can accommodate tanks of different sizes and shapes, from small mixing vessels to large fermenters and bright beer tanks. Whether the application requires a gentle rinse or a high-impact cleaning cycle, there is a TankJet nozzle to meet the need.



TankJet nozzles deliver water and chemical efficiency, as they are designed to maximise cleaning efficiency while minimising water and chemical usage. Their targeted spray reduces waste, leading to cost savings and a smaller environmental footprint – a key consideration for sustainable brewery and distillery operations.

Installation and maintenance are easy as the nozzles are user-friendly and easy to integrate into existing cleaning systems. With robust construction and minimal moving parts, they offer reliable operation and require less frequent maintenance.

TankJet nozzles support compliance with hygiene standards in the beverage industry. Their designs often feature materials compatible with food and beverage applications, ensuring safe and sanitary operations.

APPLICATIONS IN BREWERIES AND DISTILLERIES

TankJet nozzles are used across various stages of beverage production. These applications include in fermentation Tanks, where they remove yeast and fermentation byproducts efficiently. In bright beer tanks, they ensure clarity and purity by thoroughly cleaning storage vessels. Used in mixing and blending tanks, the nozzles clean residual sugars, flavours, and additives. In barrel washing in distilleries, specialised nozzles handle the delicate task of cleaning barrels without damaging their structure.

TAILORED SOLUTIONS

Every brewery and distillery has unique cleaning challenges. TankJet nozzles from Spraying Systems Co. come in a wide range of models, such as rotating nozzles for dynamic cleaning action and static nozzles for simpler tasks, for tank sizes up to 36 m in diameter and pressures up to 300 bar. Portable pump units and automated systems can be supplied and customised to meet the specific requirements of each facility, ensuring optimal performance.

Sustainable filtration services prolong service life

BMG's fluid technology services include solutions for fuel and industrial filtration systems, hydraulics and pneumatics, lubrication, hydraulic hose and fittings, as well as instrumentation, pumps and industrial valves.

Through the company's expert guidance – comprising product selection, installation, maintenance services and a dependable stockholding of components – BMG is able to meet high demand for dependable filtrations services throughout the African continent.

"Because filtration is the only effective defense against wear and tear when contaminants are present, it is critical that effective filter components are correctly used to ensure dependable performance, high efficiency and extended service life of machinery and vehicles," explains Susan Victor, sales manager, BMG's fluid technology division. "Efficiency and reliability are critical, particularly in sectors where fluid handling, lubrication and clean fuel are vital for high productivity and sustained operation.

"BMG's extensive filtration portfolio encompasses many carefully selected products that not only improve performance, but also contribute to sustainability in all sectors. Our range includes hydraulic fluid, diesel, lubricant and air filtration products from reputable manufacturers, including the Filtration Group and Fleetguard. International certification gives customers the assurance of quality, consistency, safety and environmental compliance.

"Filtration Group products - that include specialised bulk fuel filtration systems for reliable and clean fuel flow - are designed for dependable use in industrial, manufacturing, mining, agricultural and bulk fuel applications. Fleetguard manufactures advanced mobile filtration equipment that is essential for on-road and off-road machinery used in construction, transportation, and agriculture.

"The BMG team works closely with our customers in diverse sectors to implement filtration systems that enhance operational efficiency, reduce equipment wear and minimise downtime. Our filtration solutions are also designed to reduce waste and extend the service life of fluids and lubricants, minimising environmental impact. In addition, we help businesses comply with important health and safety regulations, providing cleaner air and fluids for a safer, healthier work environment."

Air and desiccant breathers are essential for protecting systems from moisture and contaminants, also preventing equipment corrosion. Water coalescers and separators are engineered to effectively remove water from diesel and lubricating oils, which is crucial for preventing rust and to maintain fuel quality.

Low, medium and high-pressure filters are designed to maintain cleanliness in hydraulic and lubrication systems under varying pressure conditions

Fleetguard mobile filters meet the demands of both on-road and off-road mobile equipment, to ensure optimal engine and hydraulic performance in the field. In-tank suction filters serve as the first line of defence against contaminants, protecting critical components, like pumps and motors, from damage. Metal edge filters are designed to efficiently handle high levels of solids, ensuring reliable filtration in demanding environments that extend from coolant systems to fuel handling applications.

Self-cleaning filters, which offer a cost-effective solution for continuous filtration, are fitted with an automatic cleaning mechanism designed to minimise maintenance requirements and reduce operational disruptions.

Tank top return filters are positioned at tank top return lines to capture contaminants returning to the reservoir, ensuring the required cleanliness of hydraulic systems. Basket strainers are ideally suited for low-pressure systems, to capture larger particles, offering protection to pumps, valves and other system components.

Simplex filters provide a single-stream solution, while duplex filters enable continuous operation by allowing one side of the filter to be serviced without interrupting flow. Dust filter bags are suitable for environments with airborne particulates and are recommended to enhance worker safety and extend service life of equipment. Liquid filter bags have been developed for high-flow filtration in various industrial processes to efficiently capture a wide range of particulate sizes.

Without the implementation of a structured control and contamination prevention programme, premature equipment failure is likely to occur, resulting in unnecessary downtime and costly replacement of parts.

Tips to avoid the pain of motor replacement procrastination

ELECTRIC motors consume nearly half of the world's electricity (IEA). From heavy-duty cranes and pumps to conveyor belts and air conditioning, the world literally moves on electric motors. Improving their efficiency will produce enormous cost savings and energy gains, which is why numerous countries, including South Africa, have established Minimum Energy Performance Standards (MEPS) regulations.

MEPS requires most electric motors to eventually adopt the IE3 standard, replacing IE1 and IE2 motors. While motor operators can phase out older motors, IE3 motors are significantly more efficient and lower maintenance. Businesses should start developing their replacement plans.

"Yet, many are unsure of the best approach to exploit the MEPS transition," says Fanie Steyn, ***(pictured)*** LV&HV executive of WEG's Electric Motor division.

"The average mid-sized factory can run several dozen to a few hundred electric motors. Some are delaying replacements because they worry that it will draw attention and resources away from their main priorities. They'd rather wait until a motor breaks and replace it then. But that approach costs more because it leaves savings on the table and rushes preparations such as procurement training. Right now, is the best time to start thinking about how MEPS affects them."

Preparing for MEPS doesn't mean replacing every motor. There are several ways to build towards a smooth and even lucrative transition. WEG shares seven tips to get the most benefit and value from MEPS:

Conduct motor inventories: Use MEPS to motivate a survey of current motor inventory for maintenance, redeployment, and replacement planning. MEPS doesn't require replacing current motors until they reach the end of their lifespans – a survey will catalogue motors based on their expected lifespans to inform maintenance and replacement timelines.

Update procurement: Start updating procurement policies and train procurement staff to support the MEPS transition. Vet motor suppliers to ensure they hold appropriate stock for replacements and can provide information on motor efficiency classes, performance tests, and warranty conditions to ensure quality and compliance. Provide training and update processes for procurement teams to support MEPS requirements and vendor assessments.

Focus on TCO: An appropriate and maintained IE3 motor can recoup its costs in one to five years, or even in months for continuously running motors. A lower total cost of ownership (TCO) is more likely when an old motor is replaced with an IE3 model instead of repairing or rewiring it. Speak to efficiency experts and motor vendors to determine the best cost strategy.

Prioritise high-performance workloads: The sheer number of motors being relied on could overwhelm best transition intentions. Manage this issue by creating motor inventories and then prioritising high-performance motors first. These are typically motors that run continuously, such as for HVAC systems, pumps, compressors, and escalators.

Use energy audits: Energy audits will identify motors with the highest operational cost. If those are replaced first, they maximise short-term savings while getting more mileage from less impactful motors. The combined savings can help fund a steady rollout of replacement motors. Top electric motor vendors have the experience and skills to help with energy audits.

Replace motors iteratively: Apart from a few exceptions, all electric motors will eventually be replaced by IE3-standard or better models. Rather than wait until the last minute to replace motors, which is costly, inefficient, and disruptive, strategically retire motors and spread out capital investment.

Selectively redeploy motors: While MEPS covers a wide range of motor uses, some IE1 and IE2 motors can be redeployed to applications with less stringent efficiency demands.

"My advice to electric motor operators is, 'Don't procrastinate!'. You either take advantage of the change, or it will force you to act. MEPS doesn't mean you must replace everything right now, so use this window to revisit your motor inventory and plan around maintenance and replacement. By taking a phased approach, you'll achieve both compliance and proactively improve your overall motor management strategy," says Steyn.

Energy-efficient pumping and motor control combined in intelligent irrigation solution

BMG and Agrico have collaborated to enhance compatibility between BMG Synergy PI500 variable speed drives (VSDs) and Agrico's Web Control platform, giving farmers and industrial users across Africa new options for efficient, intelligent pumping and motor control.

"Through close collaboration and extensive on-site testing, teams from BMG and Agrico have verified the seamless operation of Synergy PI500 VSDs within the Agrico Pump Controller ecosystem," explains Mike Williams, BMG's product specialist for BMG Synergy VSDs in the Cape Region, as well as Namibia. "This compatibility enables operators to integrate Synergy drives into Agrico's Web Control environment for convenient access to performance data and energy-saving tools.

"This development benefits irrigation schemes and agro-industrial plants, where pumping systems represent a significant share of total energy use. When used together, Synergy VSDs and Agrico's remote monitoring platform help users reduce energy consumption, simplify management and improve system reliability.

"Remote access to real-time operating data enhances decision-making, while integrated protection and automation functions reduce downtime. In one installation, an irrigation customer achieved energy cost savings of nearly 20% and eliminated unnecessary pump stoppages during peak season."

ADVANCED CONTROL AND CONNECTIVITY

BMG's Synergy PI500 inverter range is designed for high-performance motor applications, offering vector-control capability for synchronous, asynchronous and permanent-magnet motors. Through automatic tuning and precise algorithms, the system maintains stable torque and accurate speed regulation across a wide operating range.

With Agrico's Web Control integration, users can manage Synergy VSD installations remotely via GSM or Ethernet, accessing real-time data, fault notifications and scheduling features from any location.

Agrico's Web Control platform extends traditional starter and drive systems with cloud-based operation, monitoring and protection – supporting a wide range of compatible VSD brands, including the Synergy PI500 series.

FLEXIBLE CONTROL AND OPTIMISATION

The Agrico Pump Controller manages up to nine pumps on a single manifold when connected to a VSD as master. Functions, including dynamic energy optimisation, section control and multi-pump coordination, are enhanced when paired with a Synergy drive, ensuring precise pressure control and efficient power use. Users can configure automated triggers, receive SMS or call alerts for critical events and perform remote firmware updates.

The Synergy PI500 inverter features robust hardware with wide input-voltage tolerance, a protective coating against dust and moisture and advanced cooling for extended service life. Safety and reliability are reinforced through EMC compliance, with built-in protection against over-voltage, under-voltage, over-current and overheating. Peripheral options include braking units, reactors and PLC function cards, while communication is handled via RS485 and Modbus RTU for smooth integration with Agrico controllers. The Synergy PI500 VSD series also supports full Hybrid AC and DC voltage supply (solar and Eskom), when installed within a BMG hybrid enclosure. This enclosure boasts advanced cooling functions and DC to AC interference mitigation.

BMG's nationwide technical support and a large stockholding up to 400 KW, as well as training and repair services, ensure optimal installation and maintenance of the Synergy PI500 range.

Agrico complements this through its dedicated Web Control help desk, assisting clients with connectivity and configuration.

Advanced missing person locator system improves mine safety

BECKER Mining South Africa has enhanced its state-of-the-art Missing Person Locator system, a powerful module integrated into the company's comprehensive SmartFlow digital mine visualisation and management platform, designed to enhance emergency preparedness and personnel safety in mining operations worldwide.

The missing person locator module represents a major leap forward in real-time tracking technology, enabling rapid location and response to underground emergencies. With capabilities extending from surface to underground environments, the system empowers mining operations with precision tracking, historical traceability, and automated evacuation protocols.

"Our priority is safety, and this technology provides both peace of mind and actionable intelligence during critical situations. By combining cutting-edge wireless technologies with a user-friendly interface, we ensure that every second counts when it matters most," the company says.

Key features and technologies include:

- Real-time tracking and location: Tracks personnel and mobile equipment with support for man-down detection and full evacuation management.
- Multi-network integration: Compatible with VHF, UHF, Wi-Fi, LTE, and other wireless systems, ensuring continuous coverage across vast and complex mining environments.
- 3D viewer interface: Provides intuitive, real-time visualizations of personnel location and movement through advanced graphics motion technology.
- Surface mapping: Uses GPS and integrates with Google Maps and satellite imagery for seamless surface tracking, including mine-specific overlays.
- Access control integration: Syncs with HR systems to manage and monitor workforce movement securely.
- Historical traceability: Maintains logs and supports custom reporting for incident investigation and safety audits.

One of the standout aspects of the solution is its integration with Becker's Leaky Feeder Technology, allowing LTE, Bluetooth, RF tagging, and remote diagnostics to operate seamlessly in underground workings. This backbone, combined with Wi-Fi and GPS for surface operations, makes it one of the most comprehensive tracking systems available today.

SEAMLESS INTEGRATION

A component of the overall SmartFlow suite, the missing person locator module interconnects with other operational systems such as environmental monitoring, power reticulation, conveyor systems, and telemetry with industry standard open communication protocols. This ensures a holistic view of mining operations whilst prioritising safety and sustainability.

Becker Mining Systems has deployed this innovation globally across operations in South Africa, Chile, Australia, and North America, setting a new standard for underground safety technology.

Unlocking stronger security through continuous attack surface management

OPINION | EVERY organisation today operates in a complex, interconnected digital environment that extends far beyond its traditional perimeter, says Nemanja Krstić, operations manager - managed security services at Galix. Cloud workloads, Software-as-a-Service (SaaS) applications, remote devices and third-party integrations have created countless entry points for attackers. While most businesses focus on securing the "front door", the real risk often lies in the forgotten side doors, service hatches and unguarded windows that make up the modern attack surface.

Attack Surface Management (ASM) addresses this challenge by providing a complete, real-time view of an organisation's digital footprint. It identifies assets, exposes vulnerabilities and allows security teams to see the environment the way an attacker would. However, visibility alone is not enough. Organisations need continuous analysis, automated processes and 24/7 oversight, which is why Managed Security Service Providers (MSSPs) play a crucial role.

CONTINUOUS VISIBILITY

Traditional security models rely on scheduled assessments such as weekly scans, monthly patches or quarterly audits. ASM replaces them with continuous monitoring, automatically discovering and analysing every element of an organisation's technology estate, from core systems to previously unidentified assets.

By providing an ongoing, comprehensive view of risk, ASM allows security teams to detect and prioritise vulnerabilities as they arise. This shift towards continuous visibility strengthens both responsiveness and resilience, ensuring issues are addressed before they escalate into incidents.

As businesses expand into multi-cloud and hybrid ecosystems, visibility becomes even more critical. Most organisations rely on a mix of hyperscaler cloud providers and other SaaS tools, each with its own security model and potential weak points. When these systems are interconnected, a single compromise can cascade across multiple environments.

ASM helps organisations understand these interdependencies. By offering a unified, contextualised view of their attack surface, it becomes possible to identify where security controls are strongest and where additional measures are needed.

It also plays a vital role in addressing shadow IT: the unsanctioned devices, applications and cloud services that employees introduce to stay productive. These tools often fall outside governance and compliance frameworks, creating data leakage risks that are invisible to traditional monitoring. ASM, supported by clear policy and process, helps bring these assets into view and under control.

SCALABLE PROTECTION

Many organisations lack the specialised skills and knowledge, as well as the robust platforms and ability to conduct ongoing analysis, which are required to implement and maintain effective ASM. By offering a combination of technical capability, consulting and advisory expertise, MSSPs can help to bridge this gap. They assist clients with automating remediation workflows, interpreting results and deploying and integrating ASM tools.

Scalability is a major benefit of the managed service model. Businesses can use ASM as a service, paying for only the features they require while still having access to enterprise-level analytics, reporting and monitoring. This adaptability ensures cost-effectiveness without sacrificing protection by enabling security operations to adapt dynamically to meet business activity.

In addition, MSSPs offer a maturity advantage. They can benchmark clients› security postures, find best practices and match ASM activities with established governance frameworks, thanks to their cross-industry experience. They help businesses to transform their security from a reactive process into a robust, adaptable, proactive function by integrating automated response and continuous monitoring into routine operations.

BUILDING RESILIENCE

The modern attack surface evolves constantly, shaped by new technologies, integrations and business initiatives. Effective protection therefore requires both comprehensive visibility and operational agility. Attack Surface Management provides the visibility; a trusted Managed Security Service Provider delivers the agility to act on it.

SA ranks 75th in Digital Quality of Life study, 63rd in AI development

THE cybersecurity company, Surfshark, has published the seventh edition of its Digital Quality of Life Index (DQL) 2025, ranking South Africa 75th globally (previously 66th). The study assesses countries' overall digital wellbeing across five areas: internet affordability, internet quality, digital infrastructure, digital security, and artificial intelligence. South Africa outperforms Kenya (95th) and Nigeria (97th). Finland tops the index, while the US leads the artificial intelligence pillar despite ranking 16th overall.

South Africa performed best in internet affordability, claiming 51st place, but faced challenges in internet quality, ranking 87th. The nation ranks 63rd in artificial intelligence — a newly introduced pillar in this year's edition, 79th in digital security, and 82nd in digital infrastructure.

"Measuring digital quality of life is no longer possible without looking at AI implementation, which is why we made AI one of the core pillars of our global benchmark report. It shows whether a country is attractive to AI investments and ready to integrate the technology into public services. Higher positioning in AI development can streamline routine work, create new job positions, enhance public services, and support sustainable economic growth," says Tomas Stamulis, chief security officer at Surfshark.

"Since AI is here to stay, all countries should start prioritising reliable nationwide connectivity," he adds. "That includes modernising and securing IT systems, training and reskilling their workforce, and adopting clear laws with effective oversight. However, what is concerning is that even some of the highest ranked countries in AI development still lack strong data protection laws, which is essential when processing large volumes of sensitive information."

South Africa ranks lower in artificial intelligence than 51% of the countries analysed.

South Africa is 79th in the world in digital security — four places lower than last year

Digital security measures how safe people are online. According to the study, South Africa is unprepared to fight against cybercrime, the country has some data protection laws. South Africa lags behind Kenya (72nd) and Nigeria (58th).

INTERNET QUALITY

The country's internet quality is lower than the global average, ranking 87th globally,

• South Africa's fixed internet averages 85Mbps. However, the world's fastest fixed internet — Singapore's - is 463Mbps.

• South Africa's mobile internet averages 105Mbps. The fastest mobile internet — the UAE's — is 576Mbps.

Compared to Kenya, South Africa's mobile internet is 49% faster, while fixed internet is 181% faster. Since last year, mobile internet speed in South Africa has improved by 15%, while fixed internet speed has grown by 7%.

Compared to other countries, the study showed that access to the internet is affordable in South Africa.

• South Africans must work about 1 hour 32 minutes a month to afford fixed internet.

Largest reach stacker starts 60-month assignment at rail siding

HEAVY Lift, a division of CFAO Equipment, has delivered Konecranes's largest standard reach stacker, the massive SMV 4646 TC5, to logistics services provider, C. Steinweg Group, under a 60-month rental agreement.

The equipment will be used to lift containers from a rail siding at C.Steinweg Bridge's Johannesburg facility. The reach stacker, which weighs more than 100 tons and measures 14.15 metres in length, can lift 46 tons on the first and second rows of containers and 36 tons on the third.

Heavy Lift National Product Specialist, Lenny Naidoo, says standard reach stackers can pick up 45 tons on the first row, 32 tons on the second row and 17 tons on the third row. "This is what really differentiates the SMV 4646 TC5 from other reach stackers, making it a true 'monster' of a machine."

On confirmation of the order with Heavy Lift, the reach stacker was manufactured in Sweden and methodically tested before being stripped and shipped to South Africa's Durban port in multiple components (boom, spreader, counterweight and main unit).

Once the equipment reached South African shores, the components were transported to Johannesburg where the unit was then re-assembled on-site at C.Steinweg Bridge, a process which took about a week and a half to complete.

Naidoo says C.Steinweg Bridge is one of Heavy Lift's key customers. "We have a strong partnership that exceeds 20 years. When we were approached by C. Steinweg Bridge, the business wanted to replace its existing unit with new equipment with more capability on the second and third row. After much deliberation, the team signed up for the SMV 4646 TC5 on a 60-month rental contract, viewing it as the ideal solution for enhancing capabilities and improving efficiencies on site."

Group Asset Manager of C. Steinweg Bridge, Christiaan Venter, says the business believes in having the correct equipment for the task at hand and that this new addition will enhance its operational efficiency. "The new Reach Stacker not only offers superior lifting capacity but is equipped with an advanced telematics system – Trueconnect – which enables us to keep customers informed about their projects. It also allows us to monitor uptime and access real-time diagnostics, supporting predictive maintenance and maximising performance."

Konecranes Global Key Account Manager, Winfried Lux, says the company is proud to deliver the largest reach stacker ever to Heavy Lift, one of its main customers in the Southern African region.

"The SMV 4646 TC5 is equipped with the latest safety features such as reverse camera, shock monitoring and tyre pressure control system, amongst others. These exceptional safety features are aimed at securing a safe and optimised operation, reducing operation costs and downtime and improving productivity."

Being afforded the opportunity to supply equipment of the calibre of the Konecranes SMV 4646 TC5 marks a significant milestone in Naidoo's career.

"With its powerful, low-emission engine, heavy-duty chassis, a versatile telescopic spreader and Optima cabin - designed for maximum operator safety and comfort - this heavyweight equipment is a marvel of engineering precision and performance," he concludes.

Keeping lifting equipment safely and securely on track

IN the hustle and bustle of mining production and associated activities, the focus on the servicing of lifting equipment can unintentionally be sidelined, says Johan Naude, agreements specialist, South Africa and Africa, for Konecranes South Africa.

"The problem though, is that equipment performance and safety for technicians on site can be compromised as a result. This situation can easily be avoided with a customised Konecranes service agreement that offers a comprehensive and systematic approach to asset management".

"We at Konecranes recently identified a servicing break on lifting equipment at a mining operation during our standard overview of customer operations. After a service visit to site and discussions with the customer, they believed that signing up for a two-year customised service agreement with Konecranes was the most cost efficient way forward. When the movement of heavy mining related equipment such as conveyors and crushers is key to sustained production, then regular and planned maintenance is essential.

"The service agreement was drawn up based on knowledge of the equipment, its usage, operating environment, service history and international and local safety regulations. It is for the servicing of not only their Konecranes CXT lifting equipment, but also other crane equipment of a differing brand. The Agreement forms part of our responsibility to our customer to ensure their lifting equipment operates in a reliable and sustainable manner, says Naude.

BENEFITS

The Konecranes service agreement is designed to deliver all historical and current operational data as well as flag up refurbishment, upgrades or new equipment data to both the customer and Konecranes technicians in real time via The Konecranes Portal. This assists with the long term spare parts and service needs for the entire lifespan of the equipment.

The Konecranes Portal also issues simultaneously alerts to both technician and customer in the event that any equipment unexpectedly develops a fault.

This ensures that corrective action can be implemented as soon as possible.

Naude says "The ability to monitor part performance 'live' eliminates unnecessary downtime. It provides guardrails that prevents any fault from becoming catastrophic. Proactive online service scheduling via the Konecranes Planner is based around the customer's production cycle thereby allowing planned stoppages that do not dramatically interfere with operations, which in the mining sector, as well as other industries, is a critical factor. This saves the customer valuable time and money."

Service agreements will ensure that future Capex expenditure budgeting is streamlined and more accurately planned for, whilst also ensuring that all international and local safety regulations are adhered to.

Other benefits of the Konecranes customised service agreement include properly scheduled inspections which help to identify and address safety issues timeously reducing the impact on employees.

In addition, planned and scheduled maintenance work can assist in minimising excessive labour and parts replacement costs which also helps reduce the impact upon the environment.

A maintenance program can also help in assessing whether cranes are being used properly or as intended and identify opportunities for operator training.

Another benefit is that preventive maintenance conducted at regularly scheduled intervals is often the most effective way to maintain and potentially extend the lifespan of certain cranes.

OTHER COMPONENTS

To eliminate concerns about lifting components that fall outside of the Konecranes service agreement, the Konecranes technician conducts a post service review with the customer to highlight the findings from the service visit. They will also discuss and identify the components that need attention that are not covered by the service agreement and explain risk and opportunity factors.

How vision-guided robotics is transforming SA manufacturing

IN South African manufacturing, the final stages of production – picking, placing, packing and palletising – are no longer routine tasks, says Andrew Crackett, managing director at Yaskawa Southern Africa. Rising product variety, fluctuating volumes, and increasingly exacting quality standards mean that manufacturers need more than manual labour or conventional automation. For many, vision-guided robotics is becoming the solution to smarter, more flexible end-of-line processes.

THE CHALLENGES AT THE END-OF-LINE

For companies in fast-moving consumer goods (FMCG), food and beverage, and logistics, the end-of-line can quickly become a bottleneck. Historically, tasks such as case packing, stacking, and palletising relied on manual labour. However, with growing SKUs, mixed-case orders, and seasonal peaks, these traditional methods struggle to keep up.

High-volume bakeries or food-packaging lines that switch products frequently cannot afford delays, product damage, or errors associated with manual handling. The need for speed, precision, and adaptability has never been more pressing, Crackett continues.

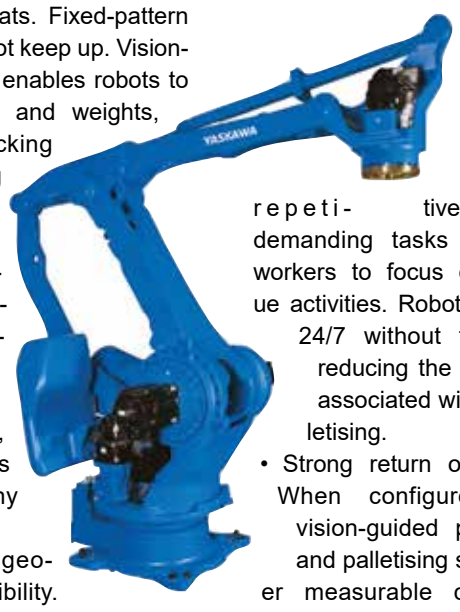
VISION-GUIDED ROBOTS

Vision-guided robots combine advanced manipulators with machine-vision systems and intelligent software. Yaskawa's pick-and-place robots, when paired with MotoSight and MotoPick software, allow production lines to dynamically track products, pick them in real time, and adapt to changes on the fly.

Crackett explains that, rather than simply following pre-programmed paths, these systems detect incoming products, classify them, allocate tasks among robots, and adjust automatically – even on moving conveyors. On the palletising side, Yaskawa's Motoman robots use vision-enabled stacking strategies, intelligent grippers, and advanced software such as Pallet Solver to optimise throughput while reducing errors.

He highlights the impact this can have on South African manufacturers:

- Handling mixed SKUs and packaging types. Production lines today often deal with a wide variety of box sizes, bag types, and packaging formats. Fixed-pattern palletising cannot keep up. Vision-guided robotics enables robots to identify shapes and weights, adjusting stacking and picking strategies in real time. This flexibility is critical for manufacturers responding to customer demand, seasonal changes, or varied SKUs without lengthy downtime.
- Rapid changeovers and flexibility. With integrated vision systems and intelligent software, Yaskawa solutions allow for fast changeovers with minimal reprogramming. Engineers can quickly switch the line to a new product, reducing downtime and improving overall agility.
- Reducing product damage and improving output. Manual handling comes with risks: errors, fatigue, and damaged products. Vision-guided systems pick accurately and consistently at high speeds, lowering reject rates and increasing output.



- Labour efficiency and safety. Automating repetitive or physically demanding tasks frees human workers to focus on higher-value activities. Robots can operate 24/7 without fatigue, while reducing the risk of injuries associated with manual palletising.
- Strong return on investment. When configured correctly, vision-guided pick-and-place and palletising solutions deliver measurable cost benefits, including lower handling costs, reduced waste, and more efficient labour deployment. Over time, these gains typically outweigh the initial investment, especially in high-volume or labour-intensive operations.
- Building local capability. Technology alone is not enough. Successful deployment requires trained integrators, engineers, and operators who understand vision systems, gripper design, and stacking optimisation. Collaborating with local experts and investing in training helps create a strong ecosystem that supports long-term innovation and sustainable adoption.

LOOKING AHEAD

Crackett says adoption of vision-guided robotics in South Africa is set to grow for several reasons:

- Automation beyond automotive: While robotics was once closely associated with automotive manufacturing, industries such as FMCG, food and beverage, and logistics are increasingly embracing automation.
- Industry 4.0 and digitalisation: Data-driven production relies on vision-guided robots to improve process control, traceability, and performance analytics.
- Sustainability: Flexible automation reduces product waste, lowers damage, and optimises transport efficiency, supporting more sustainable manufacturing practices.

For South African manufacturers navigating growth, volatility and digital transformation, vision-guided robotics offers a clear pathway: smarter machines, greater productivity, and a stronger competitive edge, he concludes.

Debunking 'convergence' and other AI myths in condition monitoring

CUTTING-EDGE technology and solutions powered by artificial intelligence (AI) are embraced by specialist condition monitoring company, WearCheck, where the extreme accuracy of data used to assess and diagnose machine health is paramount.

However, it is important that certain diagnostic responsibilities are not just assigned to AI tools without considering the need for human intervention and experience, warns Annemie Willer, manager of WearCheck's ARC (asset reliability care) division.

"We keep hearing worrying claims from industry stakeholders and customer," says Willer, "that if you throw enough data from vibration, oil, thermography, process sensors, ultrasound, and AE (acoustic emission) into an AI system, it'll somehow converge into a perfect picture of machine health, complete with the exact corrective action to take.

"It's a nice idea. In fact, it sounds like the future. But I don't buy it," she says.

"Importantly, this is not because I'm anti-technology – quite the opposite. I've worked in diagnostics long enough to see the value of every tool we have. But I've also been around long enough to know this: machines don't behave according to theory. And AI doesn't understand that.

"For example, I keep encountering the myth of 'convergence' – the idea that all condition monitoring technologies can fuse into one holistic truth, which assumes that machines behave in predictable, repeatable ways.

"But they don't.

"You can install ten pumps from the same OEM, running under the same process conditions, in the same plant, with the same lube, and still...they won't age the same. One might run clean for six years. Another might seize up in eight months. And no amount of sensor data is going to tell you why, not reliably. "Why? Because machines are not clones. They're flawed. They are manufactured to tolerance, not perfection. Machined surfaces differ microscopically, and assembly is never identical. And once you add human hands, production targets, rushed shutdowns, and midnight shift decisions into the mix – good luck feeding that into an algorithm!

"It is important to take the real-world situation into account when assessing an asset. AI relies on data, but data only captures what the sensors see – not what the human maintainer did when nobody was watching. It does not record the subtle looseness that a technician 'felt' but didn't log. It does not register the fact that someone topped up the wrong grease, or skipped torque checks, or ran a fan uncoupled for three minutes at startup. "No historian records that. And without that real-world information, AI is flying blind on the stuff that actually causes most failures.

Annemie Willer is the manager of WearCheck's ARC (asset reliability care) division.

"I believe that every condition monitoring technology has its place — and its limits. For example, vibration monitoring tells us about mechanical behaviour; oil analysis identifies lubricant condition and contamination; thermography picks up heat and load imbalance, AE and ultrasound testing give early warnings of friction, turbulence, or sparking; and process data provides the operating context – but not the root cause of failure. "These monitoring techniques and their test results don't converge neatly. They weren't designed to. One doesn't combine them to get a better truth – rather, they should be compared to demonstrate different perspectives. That's what makes condition monitoring powerful: it's a team effort, not a solo act," says Willer.

CAN WE RELY ON AI?

"AI is useful," she insists, "just not the way that the vendors keep claiming. It can spot changes over time. It can rank the risks, it can filter out noise and highlight anomalies - all of this is valuable. "Importantly, however, AI cannot know the history of every shaft and housing. It cannot understand why a lube change worked for one gearbox and not the next. It cannot interpret subtle mechanical behaviour that only a human technician would notice, and it cannot predict how different people on different shifts handle the same piece of equipment.

"In other words – AI can help one find where to look, but not what to do when you get there.

"I have always told our customers that machines are messy, and that this is not a problem, it is merely the reality. Here's the truth: machines have personalities. Not literally, of course, but in how they wear, respond, and behave under pressure. And a lot of that has nothing to do with engineering design or process control. It has to do with maintenance history, human touch, and physical realities that no AI-powered model – however sophisticated — can learn. "The idea that AI will converge all technologies into one correct decision ignores this complexity. It reduces the craft of diagnostics to a logic problem, when in truth, it's part science, part art, and always tied to context."

Willer concludes, "Let AI support us. Let it help us scale, see patterns, and work smarter. But let's stop pretending it can replace understanding – or diagnose machines like a seasoned engineer can. Because machines don't live in the cloud. They live in the real world. And in the real world, convergence isn't the goal. Clarity is."

Specialised equipment solutions provider expands range with acquisition

ASTEC Industries has completed its acquisition of TerraSource Global. TerraSource Global (TSG) offers renowned, long-established brands that include Gundlach Crushers, Jeffrey Rader, Pennsylvania Crusher Elgin, Tabor Vibratory Screens, Norris Screen, CMI and CSI.

TSG is a provider of precise, industry-leading equipment including crushers, feeders, separators, sizers, liquid and solid separation, dewatering and waste management solutions. The addition of TSG's technologies to Astec's portfolio boosts the group's capabilities in the aggregates, mining, power generation and industrial minerals sectors.

Expanding on the benefits for African customers, Astec chief technology officer Michael Rai Anderson says: "Africa remains a key market for Astec. The integration of TSG equipment will enable us to deliver an even broader range of world-class solutions in the region. Customers gain access to TSG's premier crushing, feeding and sizing systems, which complement Astec's existing aggregate and mining solutions."

Anderson adds, "In addition, the acquisition brings new product categories to Astec's portfolio, including specialised crushing and feeding systems for soft to medium-hard materials.

TSG also introduces coal crushing, biomass and industrial material handling solutions that expand Astec's range beyond traditional aggregates." With TSG products, now fully backed by Astec South Africa's established infrastructure for sales, service and spare parts, customers will enjoy improved local support, Anderson notes.

"The local availability of components and

technical expertise enables faster turnaround and continuous operations, ensuring reduced lead times and increased uptime. The enhanced engineering collaboration means that customers will benefit from the combined R&D and technical innovation of both companies."

With Astec South Africa serving as the regional hub for all TSG sales, service and support, training programmes have been implemented for seamless integration and to ensure that Astec's local teams are fully certified on TSG's portfolio of technologies. Anderson says that further skills development, service centre expansion and job creation opportunities are expected as demand grows and additional capacity and personnel are needed in the region.

"With TSG now part of the Astec family, we are ideally positioned to serve as a single-source provider for all crushing, screening, feeding and material handling solutions across Africa. We will ensure that customers have access to the best global solutions with local support," he says.

German telehandler targets African agricultural sector

WACKER Neuson South Africa is bringing the German telehandler brand, Weidemann to sub-Saharan Africa's agricultural sector.

"Our introduction of Weidemann to the South and sub-Saharan African market reinforces our long-term growth vision for Africa and marks a defining moment in our expansion journey, by bringing Weidemann's renowned telehandler technology into our sales channel and opening new avenues for innovation and efficiency throughout Africa's farmlands," says Stefan le Roux managing director of Wacker Neuson South Africa. "We identified significant potential in Africa's agricultural market for telehandlers even before the pandemic. Weidemann, another premium German brand within the Wacker Neuson Group, enables us to deliver yet another exceptional product to our valued customers. Providing end-users with the highest quality equipment, backed by outstanding aftersales support, is both our vision and our mission, and this launch is a natural evolution of that commitment."

The Weidemann T7042 marks a milestone as the first telehandler model to debut on African soil. Compact, robust and engineered for high performance, it embodies the agility, versatility and multi-functionality that define Weidemann's brand promise – 'designed for work'. "After evaluating both market demand and real-world performance, we selected the T7042 for its strength and smart engineering, a machine capable of meeting the rigorous demands of modern agriculture," says Le Roux. He further highlights that this launch sets the stage for potential future rollouts, guided by market response, with six Weidemann telehandler variants to choose from, including an electric model.

"Weidemann's DNA has always been agriculture," says Etienne Pignon, market development manager for Weidemann South Africa. "Africa is a key growth region where farms are rapidly moving toward more efficient, mechanised operations, and our machines are built precisely for these daily demands – from feeding livestock to stacking bales. The T7042 reflects this strength, combining high lifting performance, robust engineering, operator comfort and true multi-purpose capability for the realities of African farming. Working through Wacker Neuson South Africa allows us to provide trusted local support, fast service and a solid foundation to grow the product range step by step. This step into the region is not about making a quick splash; it is about building long-term value and earning trust, one customer at a time."

The T7042, one of the largest models in the Weidemann portfolio, boasts a 7-metre lifting height and a 4.2-tonne payload, the machine is built to handle demanding tasks with ease. Available in two powerful engine configurations, the T7042 delivers exceptional performance across a wide range of applications, from heavy material handling and high reach stacking to precision pushing and continuous system filling.

With nearly 180 years of global manufacturing heritage, the Wacker Neuson Group continues to shape the future of compact and light equipment. Wacker Neuson South Africa celebrates its 45th anniversary in 2025, underscoring its deep roots in the region's construction and agricultural sectors.

"Weidemann's own legacy is equally impressive," notes Le Roux. "The company marks its 65th anniversary in 2025, and its longstanding reputation for quality and innovation makes it a perfect fit for our customers." Founded in Diemelsee-Flechtdorf in 1960 by brothers Oswald and Reinhold Weidemann, Weidemann Maschinenfabrik KG initially produced components and devices. Driven by a mission to ease the burden of stable and internal farm management through mechanisation, the company achieved a breakthrough in 1972 with the invention of the Hoftrac, a compact, articulated wheel loader that revolutionised agricultural work that remains an indispensable everyday helper on farms around the world, valued for its versatility, reliability and compact power.

Process technology company reflects on growth, innovation and resilience

BÜHLER Southern Africa reports that it is closing 2025 on a strong and forward-looking note despite ongoing global volatility, shifting consumer behaviour and persistent supply chain pressures. It says the region has continued to demonstrate growth, resilience and innovation across both the food and mining sectors, supported by sustained investment in local manufacturing, skills development and sustainability initiatives.

Reflecting on the year, Marco Sutter ***(pictured)***, managing director of Bühler Southern Africa, says the regional market has shown remarkable agility in the face of changing conditions. “The past few years have taught us that the ability to adapt quickly is essential. We still develop long-term strategies, but the pace at which we execute them needs to respond to the realities of the market. Fortunately, Southern Africa remains a growing and dynamic region with both challenges and significant opportunities.”

TRENDS

Climate change, rising input costs and shifting dietary habits continue to reshape food production across the continent. A notable trend has been the gradual shift from maize to wheat-based foods as consumers respond to fluctuations in maize quality and pricing. Rising interest in pasta across Africa, along with increased localisation of pasta production, has created new avenues for investment.

“We have seen a strong wave of demand for locally produced pasta. Many countries want to move away from imports and establish their own processing capabilities,” says Sutter. “West Africa is experiencing similar momentum in cacao, where countries are increasingly investing in roasting, grinding and chocolate production instead of exporting raw beans.”

As food safety risks grow due to extreme weather patterns, Bühler’s advanced sorting and detection technologies have become even more crucial. Higher aflatoxin and mycotoxin risks demand better traceability, more sophisticated cleaning processes and integrated quality control across the value chain.

AUTOMATION AND DIGITALISATION

While infrastructure limitations remain a bottleneck, African producers are increasingly seeking automation and digital systems to improve productivity. Bühler continues to support this transformation with technologies such as SCADA and cloud-based MES systems, as well as autonomous milling concepts already piloted in markets such as the United Kingdom.

“Automation does not replace jobs. It changes them,” notes Sutter. “We will always need people with the skills to interpret data, manage systems and make informed decisions. This is why our apprenticeship and skills development programmes are so important for the future of the industry.”

MINING

On the mining side, Bühler continues to supply critical processing equipment, spare parts and upgrades for mines operating in harsh conditions. Consistent maintenance needs, together with Bühler’s reputation for quality and reliability, have strengthened the company’s market share.

“Our customers trust our equipment to perform under demanding conditions,” says Sutter. “Unplanned breakdowns can be extremely costly, so superior quality and strong after sales service make a measurable difference.”

MANUFACTURING HUB

South Africa remains a strategic base for Bühler’s operations in Angola, Zambia, Zimbabwe, Mozambique, Malawi and the Indian Ocean islands. The company continued investing in its local factory in 2025, installing laser welding technology, improving vertical storage systems and upgrading overall efficiency and safety.

“South Africa has a strong base of technical skills, especially in manufacturing and fabrication. It will remain one of our key hubs on the continent,” explains Sutter. “Investment is essential. If you stop investing, you fall behind. We are committed to maintaining world-class standards and expanding our capabilities.”

SUSTAINABILITY AND EFFICIENCY

Global and local sustainability goals continue to shape Bühler’s strategy. Since 2019 the company has worked to reduce waste, water use and energy consumption across 15 value chains. It has already achieved or exceeded its targets in 11 of them.

“Climate change is no longer a future scenario. It is already affecting crop quality, food safety and global markets,” stresses Sutter. “Our responsibility is to provide technologies that make food production safer and more resource efficient.”

Locally, Bühler has installed solar power at its Johannesburg and Cape Town sites and is now doubling its solar and battery capacity to run night shifts off-grid in Johannesburg. A 60,000-litre grey water system is also being installed in response to deteriorating municipal water infrastructure. “These initiatives reduce our environmental footprint, but they also make us more resilient as a business,” adds Sutter.

SKILLS AND PARTNERSHIPS

A highlight of the year was the global Bühler Networking Days in Switzerland, which brought together more than 1,200 international customers and partners. Bühler Southern Africa also hosted a well-attended local customer day in Johannesburg and its first customer event in Madagascar, demonstrating strong appetite among African producers for knowledge exchange and technical insights.

In October 2025, President Cyril Ramaphosa also visited Bühler’s headquarters in Switzerland, showing keen interest in the company’s apprenticeship model. This engagement underscored the importance of technical skills development for South Africa’s long-term economic growth.

Aligning the energy chain with decarbonisation goals

AS South Africa intensifies its move towards cleaner, smarter energy systems, solutions like Schneider Electric’s SF_6-free pure-air medium voltage switchgear is taking the country closer to achieving its decarbonisation goals.

The company says the GM AirSeT has been designed for primary distribution applications up to 40.5 kV and is helping utilities and industries future-proof their infrastructure with advanced performance and reliability while aligning with global climate goals.

“The GM AirSeT undoubtedly represents a breakthrough for South Africa’s power ecosystem,” says Brighton Mwarehwa, offer and marketing director for power systems at Schneider Electric. “By replacing sulphur hexafluoride (SF_6) with pure air and making use of the proven vacuum interruption technology, we are eliminating one of the most potent greenhouse gases from our electrical network, without compromising on reliability, performance, or safety.”

A GREENER FUTURE WITHOUT SF_6

SF_6, a common insulating gas in switchgear, is known to have a global warming potential over 23,500 times higher than CO2. With tightening environmental regulations and a national drive toward decarbonisation, the GM AirSeT will enable South African utilities, municipalities and energy-intensive industries to transition towards sustainable and regulation compliant operations.

Unlike traditional switchgear, GM AirSeT’s pure air insulation and vacuum interruption eliminate toxic by-products and the need for gas handling or recycling at the end of life. Its design has zero global warming potential, directly supporting Schneider Electric’s Green Premium standards whilst operators comply with evolving climate legislation.

“The GM AirSeT allows customers to build and operate greener, safer, and smarter electrical networks, whether they are powering a smart grid, a renewable energy plant, or a large industrial facility.”

BUILT-IN INTELLIGENCE

The GM AirSeT is natively digital; equipped with smart sensors and EcoStruxure, Schneider Electric’s open IoT architecture, connectivity and real-time monitoring. It therefore provides operators with continuous insights into performance, safety and maintenance needs.

Users can access cloud-based analytics for predictive maintenance, fault detection, and asset optimisation, significantly reducing downtime and operational risk.

The GM AirSeT’s modular cubicle architecture and front-access design make it ideal for both new installations and retrofits and, importantly, delivers up to 40 years of operational life.

“The GM AirSeT is ideally suited for medium voltage (MV) primary substations, MV renewable energy installations, and other energy-intensive infrastructure. Its robust design and advanced technology make it the perfect fit for environments where reliability, efficiency, and sustainability are critical. This is why we are engaging with local municipalities and industrial players to introduce the technology to the South African market, and are already seeing strong interest,” explains Mwarehwa.

“Green is not just about renewables but the whole renewable eco-system. Sustainability goes beyond adopting renewable energy. It is not enough to say we are going green with renewables while using outdated, high-emission equipment. The GM AirSeT represents a sophisticated technological leap, enabling elimination of harmful greenhouse gasses and providing confidence in a transition to a lower carbon future.

“At Schneider Electric, we sell reliability, peace of mind, and sustainability. Our value proposition is about helping customers reduce risk, enhance performance, and meet their environmental commitments. The GM AirSeT embodies that promise,” he concludes.

Powering SA's energy transition through skills development in battery storage

OPINION | SOUTH Africa's renewable energy landscape is evolving quickly, and Battery Energy Storage Systems (BESS) are emerging as a critical enabler of this transition. According to Maureen Phiri, director at Oxyon People Solutions, while energy storage is essential to stabilise the grid and unlock the full value of solar and wind, the country does not yet have enough specialised engineering talent with hands-on experience in large-scale storage projects. Closing this gap will require stronger collaboration between employers, training institutions, industry partners and government, as well as meaningful investment in practical exposure, mentorship and upskilling. At the heart of this shift is a powerful opportunity for local engineers to shape the country's renewable future rather than simply participate in it.

BATTERY STORAGE AND SPECIALISED SKILLS

The most significant stumbling block of renewable energy is the fact that it is intermittent in nature. BESS is therefore one of the most significant developments in South Africa's energy story, because it transforms solar and wind generation into a reliable, on-demand resource. By storing excess energy and releasing it when needed, it bridges the gap between generation and supply and provides stability at a time when loadshedding and grid weaknesses remain persistent concerns. This ability to strengthen reliability, maximise renewable output and support more flexible energy management has made storage indispensable.

Maureen Phiri, director at Oxyon People Solutions

However, the rapid rise of BESS has highlighted a challenge: the specialised engineering skills needed to design and operate large-scale storage systems are still in short supply. While the country has strong technical talent, few professionals have real-world experience in front-end engineering and design, grid integration, control systems or the battery chemistry and thermal management knowledge required for these projects. Many engineers come from solar PV or electrical backgrounds, but storage requires a different level of system understanding that can only be developed through exposure to projects of this scale.

EXPANDING SKILLSETS IS ESSENTIAL

Engineers already working in solar PV or electrical fields can become more competitive by deepening their understanding of battery integration, energy management systems and power systems modelling. Even short courses, mentorship under senior project engineers or participation in pilot projects can accelerate that transition.

Upskilling supports individual growth, but it also ensures that South Africa develops the talent required to support its long-term energy ambitions. Front-end engineering teams will need deeper grounding in chemical and electrical engineering, and greater exposure to large-scale BESS installations. Learning from countries that have already executed major storage projects can support this development, but sustained progress hinges on local experience. Research institutions such as the CSIR also have a role to play by working with training partners to advance studies in storage technology, maintenance requirements and energy utilisation.

PRACTICAL LEARNING PATHWAYS

Reliable energy underpins sectors such as mining, logistics, freight, manufacturing and engineering, so the impact of BESS extends well beyond renewable energy alone. Employers can help close the skills gap by creating opportunities for hands-on exposure through SETA programmes, apprenticeships and internships that place young engineers and graduates directly on storage-related projects. On-site visits for students in chemical and electrical engineering can also spark early interest and introduce future professionals to the realities of large-scale energy systems.

Stronger alignment between education and industry requirements is equally important. Apprenticeships for existing professionals, targeted SETA programmes for new entrants and mentorship from engineers with large-scale project experience all contribute to building a more capable workforce.

Stakeholders including government, Eskom and the Independent Power Producer (IPP) community need to engage intentionally with training institutions to ensure that technical education reflects the skills needed as South Africa shifts its approach to generating and storing electricity.

LONG-TERM ENERGY CAPABILITY

Addressing the BESS skills shortage is about more than just meeting immediate project demands. It is central to building a resilient workforce that can support the long-term stability of South Africa's economy, which is underpinned by reliable energy. As industries move toward renewable and hybrid systems, professionals with expertise in storage, electrification and sustainable operations will become increasingly important. Without these capabilities, renewable rollout will be slower, with higher project costs and reduced opportunities for local job creation. This will have knock-on effects across the wider industrial ecosystem and our economy.

For the country to transition successfully, technology and human capability must advance together. BESS represents a significant industrial opportunity, but its success depends on deliberate investment in the people who will design, implement and maintain these systems over time.

Construction intelligence service gives suppliers an edge

IN 2025, the construction firms in South Africa that grew were not the ones that chased the most leads. They were the ones that focused on verified opportunities, engaged earlier in the project lifecycle, and built practical relationships with key decision-makers, according to Morag Evans, CEO of Databuild.

She says, "At Databuild, that has been our message all year. If you first hear about a job when the tender goes public, you are already competing in a crowd. When you know earlier who is involved, where the project sits in its lifecycle, and whether specifications are still being discussed, you can be relevant before price becomes the only conversation."

Evans outlines the key moves of the past year as follows:

1. Verified intelligence over volume. The most consistent performance gains came from replacing rumours with verified project information. Teams that filtered by building type, stage, location, role players, and even bills of quantities did less activity for more impact. They stopped looking wide and started engaging where they had a realistic fit, which improved conversions and forecasting discipline.
2. Earlier engagement. Evans says Databuild saw a clear shift from reactive bidding to consultative engagement. Manufacturers and suppliers who contacted architects and quantity surveyors while specifications were still flexible were able to answer technical questions, propose compliant alternatives, and support design intent. That timing changed the tone of conversations and the outcomes that followed.
3. From cold calling to consultative discussions. Blind outreach has limited value in today's market, she says. "When a call is anchored in a known project, stage and role player, you are not interrupting but helping solve a live problem. That is the difference between a pitch and a partnership, and it showed up in win rates across sectors this year."
4. Practical digital and sustainable delivery. Evans says the company has seen the slow, steady adoption of alternative building technologies and the use of smarter methods and materials to improve speed, quality, and sustainability. "The firms that paired these choices with disciplined project intelligence were the ones that kept programmes, costs, and compliance on track."

DATABUILD CLIENTS

Evans explains that the company's clients leaned into the following three efficient habits.

"First, they searched smarter. Using Databuild Online, teams filtered current and qualified opportunities by location, project type, stage, and/or CIDB grade, then drilled down to see who was involved and when tender documents were due. That reduced the clutter and focused effort on opportunities they could actually win.

"Second, they worked from watchlists rather than inboxes. By tracking named projects, setting stage-based follow-ups, assigning owners, and exporting what mattered into estimating or CRM tools, managers reduced hand-offs and rework. The point was not more alerts but better discipline.

"Third, they moved earlier. Daily updates meant teams saw shifts before a tender surfaced and could engage on design, compliance, or value engineering while there was still room to contribute. That shortened decision cycles and raised hit rates.

"One result I often cite internally is a client testimonial from a major brick manufacturer. Their team reported being up and running on the platform in minutes and converting about 16 to 22% of Databuild projects into real work. For them, ease of use plus verified data translated into measurable wins," she says.

WHAT WE LEARNT FROM THE MARKET

Evans says this year's response to Databuild's "how to get specified" guidance reaffirmed an important point. "Specifications are not won by pushing products. They are won by educating, being transparent about fit, and making it easy for professionals to evaluate options. The basics still matter. For example, clear technical documentation, compliance with local standards, timely responses, and a willingness to provide CPD-level insight when it is relevant.

"We also kept the culture conversation on the table. Inclusion is not a side issue. It affects safety, problem-solving, and performance. The organisations that made practical changes this year, such as mentorship targeted to women, properly fitted PPE, and visible leadership support, are the same ones reporting stronger team engagement and better delivery," she says.

PUSHING FORWARD

"We focused on helping clients see earlier and act faster. Databuild Online matured as a daily operating system for many teams. For managers, usage dashboards made it easier to coach teams and close the loop between intelligence and follow-through.

"Across hundreds of client interactions, the ROI argument became simpler. A lead platform carries a monthly fee. One secured contract can pay for years of access," says Evans.

Collaboration on steel roof sheeting ensures safety and quality

ALTHOUGH steel roofing has long been a primary construction material in industry, it is becoming increasingly popular in both commercial and residential spaces. However, many end-users – and even members of the industrial value chain – are not fully aware of the different steel thicknesses, or of metallic and organic protective coatings. This increases the risk of substitution with inferior products, especially in the price-sensitive lower end of the market.

This is why Dennis White, head of the Southern African Metal Cladding and Roofing Association (SAMCRA) and the Hot Dip Galvanising Association of South Africa (HDGASA) are lobbying for the new South African Bureau of Standards (SABS) standard – developed specifically for self-supporting metal cladding, including metal tiles – to be elevated from best-practice to mandatory status, as part of the soon-to-be revised National Building Regulations. This will make the standard a legal requirement.

OLD TECHNOLOGY, CONTEMPORARY CHALLENGES

Corrugated galvanised steel roofing dates back to the Victorian era, when the sheets were hand-dipped to produce a very thick coating of approximately 79 microns. Today, the steel is pre-galvanised, with coatings ranging from 4 to around 19 microns thick, and often augmented by organic or painted coatings of varying quality and thickness.

Contemporary challenges include draining from photovoltaic (PV) panels or inert surfaces onto a galvanised surface. This produces an accelerated corrosion effect known as drip spot corrosion. Within 18 months of placing PV panels onto an existing galvanised roof, rust spots appear. SAMCRA and the South African Photovoltaic Association are now writing a joint code of practice to deal with this.

Another revolves around preventative maintenance: “If there is proper preventative maintenance, a roof will virtually last forever. However, if there is only reactive maintenance after a leak, it is too late. That can be very costly,” White observes.

In South Africa, one of the biggest concerns is the thickness of both the steel core and coating on hot dip galvanised steel sheeting typically used for informal, sub-economic housing: “Currently, material sold into this sector by unscrupulous dealers is 0.18mm thick, with a 4 micron galvanised coating - compared with the 0.46mm thickness and 14 micron coating deemed to satisfy the National Building Regulations. People are being cheated in terms of what they are purchasing.”

SAFETY AND QUALITY CONCERNS

“Now, the quality of the product has reduced to a point where it is no longer safe. There is a mandatory national standard that specifies the forces sheeting has to withstand – but this is ignored by these unscrupulous dealers,” White warns.

He explains that a rudimentary structure or shack typically consists of a couple of blue gum poles to form a skeleton. The steel sheeting is the so-called weatherproof skin on the outside. The contents of a shack are often made up of synthetic fabrics - such as bedding – which burns very quickly at high temperatures. A fire burns through this very thin metal and jumps from one shack to the next. This is a crucial safety issue.

“That is why we want this new standard to be converted to a mandatory specification, which will make it illegal to sell sub-standard steel sheeting. The committee that is working with this has determined a minimum thickness for the steel core because, when it comes to metal cladding, the strength of the product - that is, its ability to span between two supports - is related to the thickness of the steel core, whereas the thickness of the coating provides the durability of the product.”

‘STEELY’ COLLABORATION

“Collaboration between organisations such as SAMCRA and the HDGASA is crucially important. Not only do we contribute to the development of these critical quality standards, but we also help the greater steel supply chain - and industry as a whole - to understand the very real problems arising from poor quality and non-compliance.

“It comes down to two pools of knowledge focused on one particular area: safety and quality. As such, we are a network of specialists and industry associations, staffed by dedicated technical experts, working in close collaboration to keep this ship afloat and on a steady course,” White concludes.

Safer mining powered with PDS technology

WITH the mining industry under increasing pressure to prioritise safety without compromising productivity, Booyco Electronics is pushing the boundaries of Proximity Detection System (PDS) and Collision Avoidance System (CAS) technology across both underground and surface operations. Leveraging over 18 years of experience in mine safety innovation, the South African-based company continues to lead the sector in developing intelligent, adaptable safety solutions that meet today’s demanding operational and regulatory environments.

A MULTI-ENVIRONMENT APPROACH

Whether in the confined high-risk zones of underground operations or the complex and dynamic settings of open pit mines, proximity detection and collision avoidance are non-negotiable. According to Anton Lourens, CEO of Booyco Electronics, the hazards differ in these environments, but the safety requirement remains the same, and that is zero harm.

“In surface mining operations, poor visibility from dust, fog or low light and the movement of mixed fleets in large open areas create a unique set of safety challenges,” says Lourens. “Underground, the risks are amplified in narrow tunnels with minimal escape space, making early warning and rapid intervention absolutely vital.”

Booyco’s PDS solutions are designed to be effective across these conditions, providing scalable site-specific technologies that respond to real-world risks. “We have developed systems that work in both surface and underground mines, ensuring safety performance across multiple environments,” Lourens adds.

MULTI-TECHNOLOGY AND AI INTEGRATION

Booyco Electronics has remained at the forefront of innovation by developing PDS solutions that integrate multiple technologies - such as RFID and GPS - into a single intelligent platform. These systems are designed to deliver high-accuracy detection, reduce false alarms and ensure that operators receive only the most relevant alerts.

“False alarms are one of the biggest challenges to adoption,” says Lourens. “Our systems are engineered to issue graded alerts based on severity to inform and warn operators.”

Booyco Electronics’ latest developments also support interoperability across mixed OEM fleets, a critical requirement as mines rely on a diverse range of equipment. “Our solutions are OEM-agnostic, which means a mine doesn’t need to retrofit or replace existing machinery to achieve a unified PDS deployment,” explains Lourens.

DATA-DRIVEN DECISION MAKING

A cornerstone of Booyco Electronics’ ecosystem is its BEAMS (Booyco Electronics Asset Management System) software platform which enables mines to harness operational data. By tracking near-misses, safety incidents and operator behaviour, BEAMS can potentially identify high-risk areas and implement proactive safety measures before incidents occur.

“In both underground and surface mines, access to actionable data is becoming essential,” Lourens notes. “BEAMS transforms data into a strategic tool helping mines optimise safety without compromising throughput.”

SMARTER, SAFER, MORE AUTONOMOUS

The company’s roadmap for 2025 and beyond reflects its commitment to the next evolution of mining safety. Current R&D efforts focus on incorporating advanced AI for smarter risk analysis, enabling engineering control intervention such as automatic braking or speed control and expanding remote diagnostics through IoT-enabled connectivity.

“As we move toward Level 9 safety systems, where intervention is automated, the role of AI and machine learning becomes even more important,” Lourens explains.

Integration with autonomous and semi-autonomous vehicles is also a priority, ensuring that Booyco Electronics’ systems continue to safeguard human-machine interactions as mining shifts toward automation.

Compressed gas training enhances industrial safety

COMPRESSED gas safety is one of the most critical issues in industry today. Across many sectors, including mining, petrochemical, maritime and engineering, the risk of fires, explosions, and equipment failures related to the use of compressed gas in activities such as welding remains ever-present. In response, GSI, a subsidiary of First Cut, has over the last forty years positioned itself at the forefront of industrial safety training, offering a comprehensive, Engineering Council of South Africa (ECSA)-accredited programme which goes beyond compliance, to deliver lasting workplace improvements.

UNIQUE

Compressed gas remains a cornerstone of industrial processes. However, without proper training, the risks are considerable. Peter Rohlssen, managing director at GSI, explains: “Gas safety training is not a box-ticking exercise. It is about protecting lives and property – as well as ensuring sustainable business operations.”

GSI’s comprehensive compressed gas safety training covers the technical and human aspects of safety. “We distinguish between Safety One - which is ensuring safe and compliant equipment - and Safety Two, which is about correct training of the operators who use it. True safety can only be achieved when both elements are fully addressed,” Rohlssen advises.

Currently, GSI is the only ECSA-approved compressed gas safety training service provider in Africa. ECSA subjects every course to rigorous review by engineers before granting approval. Every year, GSI must resubmit its material for re-evaluation, ensuring that its courses remain aligned with the latest safety standards and industry best practices.

“Our training material is carefully assessed and re-approved annually. This ensures that our courses are not only technically sound, but also up to date with evolving industry standards. Our clients know they can rely on us for world-class training, which is benchmarked against global best practice,” Rohlssen says.

GSI’s Level Three course carries five Continuous Professional Development (CPD) points, an important incentive for engineers, who must retain their professional accreditation. This recognition underlines the depth of the training and its contribution to career progression, while also demonstrating its importance in meeting legal and regulatory requirements such as those set out in the Mine Health and Safety Act.

COST VERSUS BENEFITS OF TRAINING

Some companies still view training as an avoidable expense. GSI is quick to point out that the cost of training is negligible compared to the financial, legal and reputational consequences of an accident. Rohlssen explains: “For example, if a training course costs one hundred thousand rand, the potential cost of a major incident at a mine can easily exceed many millions of rands. When the consequent reputational damage and downtime are also factored in, the training return-on-investment is obvious. Training is the most effective way to reduce risk and ensure compliance while maintaining operational continuity.”

This cost-benefit perspective is reinforced by GSI’s internal training material, which emphasises how risk assessment, decision-making and risk management ensure elimination of hazards: “Without a proper understanding of compressed gas safety, companies end up tolerating high levels of risk. With the right training, however, there is a clear pathway towards effective risk assessment, structured decision-making and ultimately the elimination of hazards,” Rohlssen says.

FLEXIBLE, BESPOKE TRAINING

GSI offers bespoke training programmes tailored to specific vertical industries and client needs, ranging from mining to petrochemical plants, shipyards and even universities. This flexibility allows the company to address unique hazards, procedures and operational contexts.

“We have designed and delivered customised training solutions across many industries,” Rohlssen says. “Whether it is a mine, a shipyard or a chemical plant, our focus remains the same: to empower operators and managers with the knowledge to reduce compressed gas safety risks and ensure a safe working environment.”

Rohlssen warns against the rise of unaccredited providers offering short, superficial courses which fail to address the full spectrum of compressed gas safety risks: “Mediocre training may appear to be attractive because it is shorter or cheaper – but it does not stand up to scrutiny,” he says. “GSI’s five-day compressed gas safety training programmes are comprehensive because they need to be. We cannot compromise when people’s lives are at stake.”

The company’s global track record, experience and outlook – demonstrated by its training initiatives not only in Europe but also in Malaysia, India, and both North and South America – reinforces the universality of compressed gas safety risks, and the importance of consistent standards across borders.

“Our role is not only to deliver accredited training, but also to change mindsets and behaviour. We want companies to move from a culture of reactive to one of proactive safety,” Rohlssen concludes.

Leveraging AI to bring real-time accuracy to conveyor belt scales

AS the industrial sector undergoes rapid digital transformation, conveyor systems – once regarded as passive infrastructure – are emerging as intelligent data sources. Shaun Blumberg, COO of Tru-Trac, notes that at the centre of this shift is the belt scale.

“This technology was historically focused on weighing material flow but is now transforming into a strategic tool for real-time production visibility, process optimisation and predictive analytics,” he says.

Tru-Trac’s AccuTrac AI-enabled belt scale platform represents the leading edge of this evolution. Rather than being a retrofit of outdated hardware, it has been designed around the principle that mass flow measurement should be dynamic, contextual and adaptive – not static and reactive. Developed in partnership with Germany-based SHG, the system fundamentally changes the way material flow is measured and managed in industrial environments.

Blumberg explains that conventional belt scales rely on assumptions such as constant belt speed, consistent loading geometry and stable mechanical conditions. In reality, these factors vary: belts stretch, rollers wear unevenly and bulk density fluctuates. This leads to drift in measurement accuracy, frequent

recalibrations and reduced confidence in the data.

“The Tru-Trac AccuTrac AI belt scale does not rely on static assumptions. Instead, it continuously learns from the conveyor’s operating behaviour and compensates for factors such as drift, vibration and anomalies in the load profile in real time,” Blumberg says.

At the core of the system is a fusion engine that processes inputs including belt speed, load cell output, vibration patterns and environmental conditions. Adaptive algorithms then generate a normalised computational mass flow that more accurately reflects true material movement in demanding environments.

The intelligence is embedded at the edge rather than in a remote server, allowing the system to respond immediately without relying on constant connectivity. This provides operations teams with real-time information and alerts such as early indications of belt tension changes, density fluctuations or idler failures.

“Unlike traditional systems that provide delayed or averaged readings, the Tru-Trac AccuTrac AI belt scale delivers contextual data that can be acted upon immediately,” Blumberg adds.

Beyond mass flow measurement, the scale also performs diagnostic functions. It can identify belt slip or stretch, uneven loading, mechanical wear and systemic inconsistencies. By combining these roles into one device, the system reduces the need for additional sensors and infrastructure, simplifying installation and maintenance while lowering potential points of failure.

Calibration, often a challenge with conventional belt scales, is managed through intelligent auto-calibration. The Tru-Trac AccuTrac AI belt scale system references historical data, production baselines and throughput values to optimise its internal models, improving accuracy with use rather than degrading over time.

The platform is also designed for integration with plant control systems using standard protocols.

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Optimising transfer points and boosting productivity in minerals processing plants

IN mineral processing operations, unplanned downtime can rapidly translate into lost production, missed targets and escalating costs. One of the most common - and most overlooked - contributors to these interruptions is poorly designed or worn transfer points. These critical areas, where material moves from one conveyor to another or into processing equipment, are subject to extreme wear, dust generation, spillage and blockages if not engineered for the specific application.

Weba Chute Systems, a recognised global leader in custom-engineered chute solutions, has long emphasised that optimising transfer points is one of the most effective ways to reduce maintenance requirements, extend equipment life and increase throughput.

"Many plants operate with transfer points that were either part of the original design or added later without a detailed engineering assessment," Dewald Tintinger, technical director at Weba Chute Systems explains. "These chutes may not be suited to the current material characteristics, tonnage rates or operating conditions, resulting in accelerated wear, excessive maintenance and unexpected stoppages."

Unplanned maintenance on transfer points is not only disruptive but costly. Frequent liner replacement, unblocking of material build-up and cleaning of spillage can take equipment offline for hours at a time. The cumulative effect is a measurable loss in productivity and a higher total cost of ownership.

RETROFIT SOLUTIONS

Weba Chute Systems offers a specialised assessment service for existing chute installations. This involves a detailed on-site inspection, operational analysis and where required, advanced flow simulation to identify the root causes of inefficiency or premature wear.

"Our expertise lies in engineering and manufacturing chutes that control the flow of material through optimal trajectory and velocity," Tintinger says. "This reduces impact and turbulence, minimises dust and spillage and delivers a steady controlled feed to the next stage in the process."

Retrofit solutions from Weba Chute Systems are custom engineered to integrate seamlessly into existing plant layouts, avoiding major structural changes while delivering significant performance gains. Many customers report reduced maintenance intervals, improved safety and increased uptime within weeks of installation.

PRODUCTIVITY AND SAVINGS

An optimised transfer point not only lowers direct maintenance costs but also safeguards downstream equipment from damage caused by uncontrolled material flow. By reducing spillage and dust emissions, plants also benefit from cleaner safer working environments and compliance with environmental standards.

"In many cases, the investment in a retrofit chute pays for itself quickly through reduced downtime alone," Tintinger notes. "When you factor in lower maintenance costs and longer wear life, the return on investment becomes compelling."

With decades of experience and installations across the globe, Weba Chute Systems continues to help mineral processing plants turn a known bottleneck into a high performance asset - proving that small changes at transfer points can deliver big gains in plant productivity and profitability.

Level sensor meet formidable palm oil challenges

GROWN only in the tropics, the oil palm tree produces high-quality oil used in more than half of all packaged products, but its primary use is for cooking in developing countries and is as a minor part of the Western diet. It is used in food products, detergents, cosmetics and, to a lesser extent, in biofuel.

Oil palms are grown both on large plantations and on small family farms across Asia, Africa and Latin America. Such rapid expansion comes at the expense of tropical forests – which form critical habitats for many endangered species and a lifeline for some human communities. Achieving the highest possible yield with the minimum detriment to nature is the challenge of sustainable palm oil cultivation.

The World Wildlife Fund (WWF) is working toward a global marketplace based on socially acceptable and environmentally-friendly production and sourcing of palm oil. In addition to the WWF, various certifications have been established in recent years, including the Roundtable on Sustainable Palm Oil (RSPO), the Rainforest Alliance, International Sustainability & Carbon Certification (ISCC) and the Roundtable on Sustainable Biomaterials (RSB). These groups aim to encourage increased demand for, and use of, goods produced using such practices.

An increasing number of companies in all parts of the world are acknowledging their responsibility in the global supply chain and are only purchasing RSPO-certified palm and palm kernel oil. With its excellent market prospects and high profits per hectare, palm oil therefore presents good earning opportunities in rural areas and hence also for smallholders. Sustainability certification opens access to the international market, which again increases employment and earning opportunities in the rural regions of producer countries.

According to Instrotech, the Senix ToughSonic 30 has been selected as the sensor of choice at a large producer of palm oil in Asia. This particular sensor accurately measures and monitors the level of palm oil in large tanks approximately 9 meters in height. The level data is displayed via the sensor's 4-20mA output on a display unit, available from Senix.

Because the tanks are located outdoors, the sensors need to perform in a dirty, hot environment. The Senix ToughSonic 30was also selected due to its rugged design. ToughSonic sensors were engineered for use in some of the harshest industrial environments and feature tough 316 stainless steel housing, potted and protected electronics, and IP68 rating. They quickly and accurately measure level or distance, easily connect to display units, and, among other things, can control switches or pumps.

Homegrown wastewater pump enters the market

From left: Mondli Sibiya, Abangani Projects; Eugene Chetty, KSB Pumps; Richard Sherwood, Sherwood Pumps; Canton Naidoo, Klomac Engineering and Keith Pillay, KSB Pumps

From left: Mondli Sibiya, Abangani Projects; Howard Shabane, KSB Pumps; Judy van Huyssteen, KSB Pumps and Faraaz Khan, Ernest Lowe

Left, Byron Athymoolan, Ecochem Pumps and Fama Mocheko, KSB Pumps

KSB Pumps unveiled its 100% locally developed and manufactured ELN-150 self-priming wastewater pump, named Imvubu late last year. The name Imvubu is the isiZulu word for 'hippo', and the company is hailing the new pump as a breakthrough in wastewater handling in South Africa. Because Imvubu can pass bigger solids, it is less prone to clogging and perfectly suited to municipal applications. It has also been designed to be robust and easy to service.