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HOW TO USE A VOLTAGE TESTER

Voltage testers are essential tools for professionals and hobbyists working with electrical systems, allowing users to verify the presence or absence of voltage in circuits to ensure safety and efficiency. Comtest explains how to use a voltage tester effectively and which Fluke models are best suited to different settings.

Introduction to voltage testers

Voltage testers come in various forms, including non-contact voltage testers, contact voltage testers, and multifunction testers. Fluke, a leading manufacturer of electronic test tools, offers a range of reliable and user-friendly voltage testers designed to meet different needs.

Types of voltage testers

Fluke T6-1000 PRO electrical tester: Measures voltage up to 1,000 V AC and current up to 200 amps AC without contact. Displays voltage and current measurements simultaneously, providing visual cues for continuity in noisy environments.

Fluke T5-1000 V continuity and current tester: Can measure current without breaking a circuit due to its OpenJaw design. Automatically selects AC or DC measurement up to 1,000 V.

Fluke 1AC II non-contact voltage tester: Portable, non-contact voltage tester ideal for quick safety checks. Includes a continuous self-test feature and visual and audio cues during voltage detection. It can measure a range from 90 to 1,000 V AC.

Using a voltage tester: step-by-step guide

1. Safety first

Always wear appropriate personal protective equipment (PPE) such as gloves and safety glasses. PPE needs will vary depending on the environment you test in, so refer to OSHA and NFPA guidelines to keep yourself safe when working with circuits.

Ensure the voltage tester is in good working condition by performing a self-test if the device has this feature. If no self-test feature is available, visually inspect the device, test leads, and any accessories for signs of damage. If no damage is present, test the voltage tester on a known voltage source or proving unit to ensure it measures properly.

2. Power off the circuit

Before using the tester, turn off the power to the circuit you are going to test at the main breaker panel.

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Solar installers cutting costs with cheaper cables

The solar industry is seeing a sharp rise in unsafe and non-compliant wiring practices, as some installers and suppliers continue to use standard AC power cables in photovoltaic (PV) solar installations. South Ocean Electric Wire (SOEW), an Alrode-based JSE-listed cable original equipment manufacturer (OEM), warns that the use of standard cabling in solar installations can lead to serious risks, including overheating, insulation failure, fires, and costly system breakdowns.

"A solar installation costing hundreds or even millions of rands could be severely compromised with ordinary cabling, with the faults sometimes only becoming apparent after a few years," explains Andre Smith, CEO at SOEW.

"One of the criteria we recommend is that solar cabling be rated at 1,500/ 1,500 V DC and able to be used in systems rated 1,800/ 1,800 V DC as per SANS 62930. It should be noted that PV cables are DC-rated, whilst normal power cables are AC. AC cables are rated 600/ 1,000 V but AC cables have no 1,000/ 1,000 V rating."

Can normal cables be used for solar power systems?

Smith notes that using regular electrical cables instead of PV cables for a solar installation is not recommended. PV cables are specifically designed to meet the unique demands of solar systems, including UV resistance, weather resistance, and high-temperature tolerance. Regular electrical cables may not possess these characteristics and could lead to safety hazards, decreased performance, and reduced lifespan in a solar environment.

What is the difference in conductivity between PV cables and normal cables?

Smith adds that PV cables often use flexible tinned copper conductors with high conductivity. The tinning process enhances the copper's conductive properties and minimises the risk of oxidation. Tinning promotes soldering when required. Normal cables may either use copper or aluminium conductors, with copper being the more conductive of the two. Copper conductors offer superior electrical conductivity compared to aluminium conductors but also come at a higher cost.

What are the key characteristics of a high-quality PV cable?

"PV cables have insulation materials specifically engineered to withstand prolonged exposure to sunlight, temperature variations, and harsh environmental conditions. This insulation provides protection against UV radiation, ozone resistance, moisture, and abrasion, ensuring long-term performance and cable durability. The insulation is normally cross-linked low smoke and zero halogen (LSZH), and these properties are designed to enhance safety in case of fire," Smith notes.

Special connectors

"In addition, PV cables use special connectors designed and engineered to guarantee proper and secure connections that minimise voltage loss, heating, water ingress and disconnection. The outer diameter of the cable is critical to the connector; it is therefore not recommended to use an ordinary power cable."

Cable cost

Smith argues that PV cabling costs more than ordinary cable due to its additional properties. But in the long term, it will last longer than ordinary AC power cabling.

Compliance with the standard

"Compliance is key in selecting the correct product. Solar cabling needs to meet both TUV and SANS IEC 62930 standards, which include testing under all different operating conditions. This guarantees safety, reliability and performance in every installation.

> **A solar installation costing hundreds or even millions of rands could be severely compromised with ordinary cabling, with the faults sometimes only becoming apparent after a few years.**
>
> **- Andre Smith, SOEW**

"Each cable produced at SOEW undergoes compliance testing internally by our laboratory personnel who have over 28 years of cable testing and quality assurance experience, as well as external SANAS 17025-accredited laboratories testing to give our clients and installers assurance that we go beyond standard certification requirements.

"Our cables are marked with SANS 62930 IEC 131, which denotes that the insulation and sheath both include cross-linked LSZH insulation, which provides properties designed to meet enhanced fire safety compliance," Smith concludes.

Enquiries: https://soew.co.za/

HOW TO USE A VOLTAGE TESTER

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3. Test for voltage

For non-contact voltage testers: Hold the tester close to the individual wire you want to test. The Fluke 1AC II will light up and beep if voltage is present.

For contact voltage testers: Touch the probes to the wires or terminals of the circuit. The Fluke T5-1000 and T6-1000 PRO will display the voltage reading on the screen.

4. Interpret results

If no voltage is detected, it is safe to proceed with work on the circuit. However, if voltage is detected, further investigation is needed to ensure the circuit is safe to work on.

5. Verify continuity

Set the tester to continuity mode. Touch the probes to the two points of the circuit. A continuous circuit will cause the tester to beep or display a continuity indicator.

6. Record measurements

Note the voltage readings for documentation or further analysis. The Fluke T5-1000 and T6-1000 PRO feature a HOLD function to freeze the display if necessary.

Ten use cases for voltage testers

Fluke voltage testers can help test, troubleshoot, and maintain circuits in a variety of settings. Here are a few typical applications and the testers to use in each scenario:

1. **Verifying power supply:** Use the Fluke 1AC II to quickly check if an outlet or power source is live before plugging in devices or performing maintenance.
2. **Troubleshooting circuit breakers:** The Fluke T6-1000 PRO can measure voltage and current simultaneously, helping identify faulty breakers or overloaded circuits.
3. **Testing light fixtures:** Ensure light fixtures are properly connected by using the Fluke T5-1000 or T6-1000 PRO to measure the voltage at the fixture's terminals.
4. **Inspecting electrical panels:** Use the Fluke T6-1000 PRO to safely measure voltage in electrical panels without making direct contact, reducing the risk of electric shocks.
5. **Checking outlet wiring:** Verify that outlets are wired correctly by measuring voltage and continuity with the Fluke T5-1000.
6. **Maintaining industrial equipment:** Regularly monitor the voltage and current of machinery with the Fluke T6-1000 PRO to ensure efficient operation and prevent downtime.
7. **Troubleshooting residential electrical issues:** Homeowners and electricians can use the Fluke 1AC II or T5-1000 to check for live wires during installation or repair of electrical fixtures.
8. **Testing automotive electrical circuits:** Use the Fluke T5-1000 to diagnose electrical issues in vehicles by measuring voltage in various automotive circuits.
9. **Maintaining HVAC systems:** Ensure HVAC systems are receiving the correct voltage and function properly with the Fluke T6-1000 PRO.
10. **Complete safety inspections:** Conduct regular safety inspections in residential, commercial, and industrial settings using the Fluke 1AC II to detect any live wires or faulty installations.

Conclusion

Voltage testers are essential tools for ensuring electrical safety and efficiency when testing current sources. By understanding how to use these devices and recognising their applications, you can enhance your electrical testing and troubleshooting capabilities.

Fluke's range of voltage testers, including the Fluke T6-1000 PRO, T5-1000, and 1AC II, provides reliable and accurate measurements for a variety of tasks.

Whether you are verifying power supply, troubleshooting circuit breakers, or conducting safety inspections, these tools help you perform your work safely and efficiently.

Enquiries: www.comtest.co.za

Good vibes only for 2026

I don't know how things are going on your side, but over here, 2026 has started with a bang! It's like someone suddenly took their finger off the pause button and hit fast-forward instead. So much excitement in the air.

January was all about Happy Holidays for me. With my box of hopeful entries in tow, I stopped by each sponsor to draw the prize winners for our annual competition. After all, why should December be the only time you get presents? It's great to spread a little cheer at the start of the year too.

What I enjoyed just as much was touching base with the various sponsors and chatting about their 2026 plans. Despite the uncertainty in the global political and economic landscape, everyone I spoke to seemed overwhelmingly positive about the coming year. You can't get a South African down, hey; we are resilient.

Wherever I stopped with my box full of competition entries, I was greeted with wide smiles and big plans. The local electrical and lighting companies have been hard at work bringing new and exciting opportunities to market this year and beyond. It gives me hope. Perhaps all is not lost. Perhaps we can still have a great year filled with growth and achievement.

Scrap that "perhaps" actually. I know all is not lost. Because if there is one thing we know how to do as a country, it's make a plan and rise above our circumstances. If anyone can have a great year despite all the instability and uncertainty, it's the "Saffas", as they call us.

We all have choices. You can sit and bemoan the fact that the world isn't perfect right now, or you can accept that fact and give 2026 your all anyway. Who knows, maybe this is the year everything changes for you.

Speaking of good things happening, who did win those Happy Holidays prizes? Check out our spread on pages 4 and 5 to see who is starting their year with a bit of cheer. Thanks again to our amazing sponsors for making this happen.

Our feature themes for this edition are Energy Efficiency and Solar (from page 7), Distribution Boards, Switches, and Sockets (from page 13), and our regular Lighting section (from page 15). A diverse range of articles across industry interests to make sure you start your year off right.

There's plenty to dig into, so whether you read our magazine in print or online, or just follow our LinkedIn stories, don't miss out.

Let's make February awesome!

For now, happy reading.

Ilana Koegelenberg

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Understanding 3CCT lighting: concept, functionality, and energy-saving benefits

Lighting has evolved well beyond a simple choice between "warm" and "cool". One of the most practical recent developments is 3CCT lighting, which adds flexibility without unnecessary complexity or cost. It reflects how spaces are actually used and how lighting requirements often change over time. MCE Electric explores this topic further.

CCT, or Correlated Colour Temperature, describes the appearance of light and is measured in Kelvin (K). Lower values, such as 3000 K, create a warm, comfortable atmosphere, while higher values like 6500 K produce a cooler, daylight-style output.

Traditionally, luminaires were supplied with a fixed CCT. Once installed, the colour could not be altered, and if the space was repurposed or the result felt unsuitable, replacement was often the only option.

3CCT fittings overcome this limitation by providing three colour temperatures in a single luminaire, typically 3000 K, 4000 K, and 6500 K. A simple switch on the fitting allows the installer or end user to select the most appropriate setting, either at installation or later if requirements change.

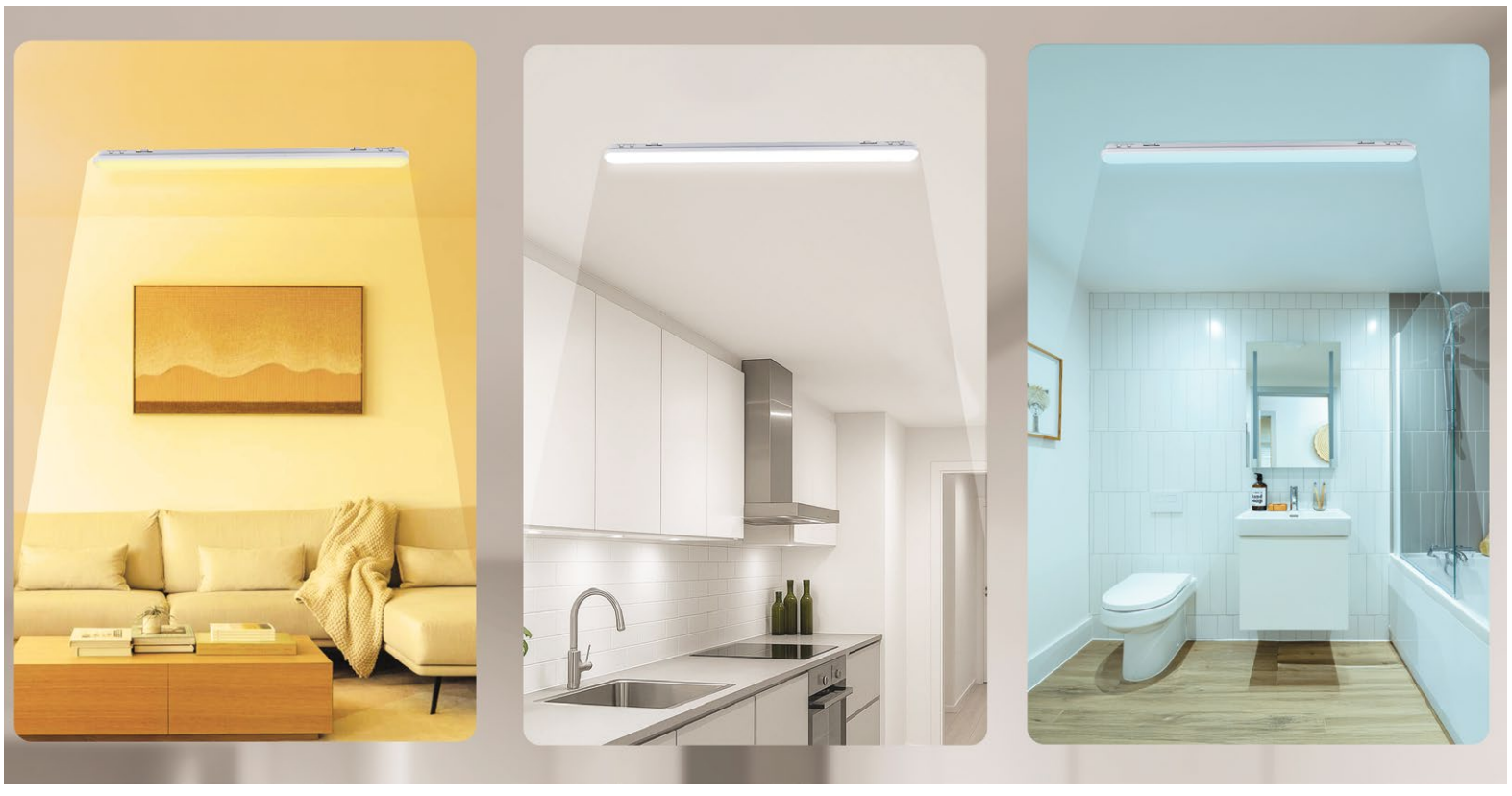
From a technical standpoint, 3CCT effectively leverages the inherent flexibility of LED technology. Instead of full colour tuning, which can be costly and unnecessary for many applications, 3CCT focuses on three carefully selected presets that suit most real-world environments. This keeps electronics straightforward and reliable while still delivering meaningful choice. For installers and specifiers, it reduces uncertainty at the selection stage, as one product can cover a wide range of applications.

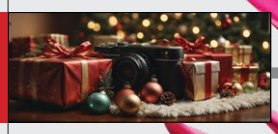
There are also clear maintenance advantages. If one colour temperature degrades over time, the fitting does not need to be replaced immediately. Switching to an alternative setting can extend the luminaire's usable life, reducing waste and long-term costs.

Energy efficiency is equally straightforward. Choosing an appropriate colour temperature helps avoid over-lighting. Warmer light suits relaxed, low-activity areas and typically requires less output than cooler light used in task-focused spaces. When combined with dimming or occupancy controls, energy savings increase further. As LED-based products, 3CCT fittings also offer long operating lives, often exceeding 50,000 hours.

Available across downlights, panels, battens and linear fixtures, 3CCT lighting is suitable for residential, commercial and light-industrial settings. It supports better lighting outcomes without increasing wattage or complexity. As energy costs rise and efficiency expectations grow, 3CCT represents a balanced solution that is flexible, efficient and practical for modern spaces. For many projects, it is simply the most logical, adaptable approach to lighting design available today across diverse applications and budgets worldwide right now.

Enquiries: www.mce.co.za





Congratulat

Happy Holidays competition: who won?

New year, new winners! *Sparks Electrical News* kicked off 2026 on a high note by partnering with eight leading electrical and lighting companies for another exciting giveaway event. Thanks to the generosity of our sponsors, we had an impressive selection of prizes up for grabs, from tools and equipment to hampers and more.

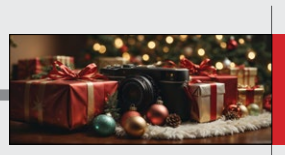
Over December, entries poured in from across the country, with readers eager to try their luck. Our editor then visited each sponsor last month to conduct the prize draws in person, picking the lucky winners from the box of hopeful entries. Is your name on the winners' list?

Richard Egenrieder of CED.

Leanne Cole of Comtest.

Pieter Knoetze of Crabtree.

Monde Sibeso of ElectroMechanica.



And the winners are...

CED
- **Prize:** 8 kW AC combiner and 2in 2out DC combiner
- **Winner:** Janet Gillespie (freelance engineer)

Comtest
- **Prize:** 2 x Amprobe 2100 Delta units
- **Winner 1:** Wilfred George Young (WDY Electrical)
- **Winner 2:** Mark Roberson (Corridor Electrical cc)

Crabtree
- **Prize:** Crabtree products hamper
- **Winner:** Willie Hugo (Hugo Elektries)
-

ElectroMechanica
- **Prize:** Hager screwdriver set, Cembre pouch toolkit, and Jokari stripper
- **Winner:** Henry Campbell (Henry's Electrical)

Eurolux
- **Prize:** Rechargeable portable mist fan with LED emergency light F83
- **Winner:** Zaakir Kalla (Mzanzi Pro Solutions)

HellermannTyton
- **Prize:** HellermannTyton PVC tape (black); Insulok cable ties 500 mm x 4.6 mm
- Insulated screwdriver set, 1,000 V; 6-in-1 utility knife; Digital multimeter; 14-piece electrical toolkit; Ottawa wireless charger and desk lamp; HellermannTyton water bottle; Alex Varga Pen; HellermannTyton coffee mug; HellermannTyton keyring; Lanyard; USB; mints; and A5 notebook
- **Winner:** Gerhard Pool (electrical engineer)

Synerji Electrical
- **Prize:** 3D flame effect panel heater
- **Winner:** Jafta Swarts (Allround Outdoor)

Vermont Sales
- **Prize:** Tork Craft 172pc Cantilever toolbox
- **Winner:** Akeel Budram (Sonic Electrical Services)

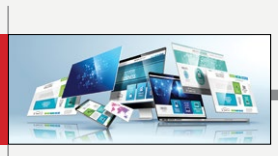
Enquiries: sparks@crown.co.za

Beverley Potgieter of Eurolux.

Sibongile Ndlovu (left) and Natasha Van De Loo of HellermannTyton.

Alwyn du Plessis of Synerji Electrical.

Jaco Fourie of Vermont Sales.



Britehouse collaborates with Palota to build the Wetility app

Palotas has transformed from a small contractor to the creator of the award-winning Wetility app – an AI-powered platform that helps users optimise solar energy use, cut costs, and reduce grid dependence.

As a highly impactful way to create employment opportunities and empower South African entrepreneurs, enterprise development plays a critical role in addressing the country's unique and severe socio-economic challenges.

When implemented with the right structure, mentorship, and ongoing support, enterprise development becomes far more than a necessary compliance exercise to align with worthwhile and meaningful empowerment legislation; it becomes a powerful catalyst for inclusive economic growth and mutually beneficial business collaborations.

The success story of Palota, a diversified technology company supported by the Britehouse enterprise development programme, illustrates the powerful downstream benefits that focused investment can deliver, including shared business value when the process comes full circle.

Founded in 2016 by Kholofelo Moyaba, Palota was brought into the Britehouse ecosystem after identifying the entrepreneur's technical acumen and business flair.

"We conduct thousands of interviews with university graduates each year to find emerging tech skills, and Moyaba's entrepreneurial spirit, passion, and unique focus areas stood out to us," explains Britehouse's chief executive officer, Gerard Sofianos.

Having qualified with a degree in Electrical and Computer Engineering from the University of Cape Town, Moyaba gained some experience working at the South African Reserve Bank as an innovation specialist and showed a keen interest in emerging technologies like machine learning (ML).

Upon joining Britehouse, Moyaba received mentorship and guidance while working as a contractor through Palota, gaining confidence and additional experience by working on numerous projects across industries, from mining and retail to education and local government contracts.

"After six months, Moyaba came to me to share his desire to blaze his own trail. However, he knew he loved working with Britehouse and wanted to deepen the working relationship," recalls Sofianos.

To support his entrepreneurial vision so he could make a bigger impact in the economy by starting his own business, Palota was converted from a contractor to a supplier. Britehouse subcontracted Palota on various projects and helped source an anchor client to get the business off the ground.

The Britehouse team guided Moyaba through the startup phase with tailored strategic business and financial advisory services that helped him navigate complex market dynamics and optimise operational efficiencies.

"Complementing this expertise, we provided access to essential resources, including shared services, operational tools and industry networks to support sustainable growth," continues Sofianos.

This holistic approach empowered Moyaba to rapidly scale his business, and within 12 months, he gained clients outside the Britehouse ecosystem.

Palota has since grown into an African technology company based in Bryanston, Johannesburg, that employs 15 people, offering a range of services to local and international companies, including artificial intelligence (AI), ML, IoT, cloud solution architecture, mobile app and web development, and user experience (UX) design.

As the ultimate sign of success, the Britehouse enterprise development programme achieved a strategic full circle when Palota subcontracted Britehouse to co-create an award-winning app for solar energy provider Wetility.

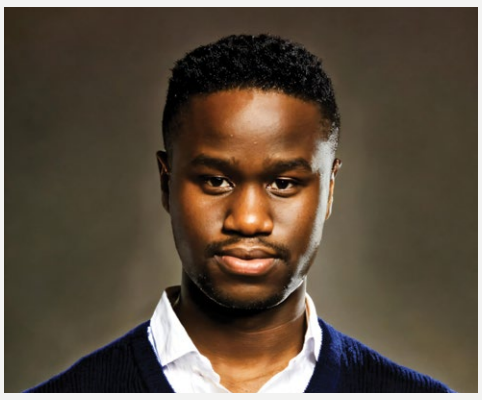
Palota handled the app development and back-end technical infrastructure, AI and data engineering to enable the customer journey and integrate intelligent energy usage with AI-driven automation, while Britehouse shaped the UX with an intuitive and sleek user interface.

"We no longer just support Palota. The business has matured into a collaborative partner that drives shared business value by including Britehouse in projects," states Sofianos.

"Coming full circle underscores Britehouse's dedication to building enduring partnerships through an impactful enterprise development program that drives meaningful, long-term value for all stakeholders," he concludes.

Enquiries: https://britehouse.dev/

Gerard Sofianos, Britehouse CEO.



Kholofelo Moyaba, founder of Palota.

New Vertiv report explores AI and data centre trends

Data centre innovation continues to be shaped by macro forces and AI-related technology trends, according to a report from Vertiv, a global leader in critical digital infrastructure. The Vertiv Frontiers report, which draws on expertise from across the organisation, details the technology trends driving current and future innovation, from powering up for AI to digital twins and adaptive liquid cooling.

"The data centre industry is continuing to rapidly evolve how it designs, builds, operates and services data centres, in response to the density and speed of deployment demands of AI factories," said Vertiv chief product and technology officer Scott Armul. "We see cross-technology forces, including extreme densification, driving transformative trends such as higher voltage DC power architectures and advanced liquid cooling that are important to deliver the gigawatt scaling that is critical for AI innovation. On-site energy generation and digital twin technology are also expected to help advance the scale and speed of AI adoption."

The Vertiv Frontiers report builds on and expands Vertiv's previous annual Data Centre Trends 2025 predictions. The report identifies macro forces driving data centre innovation:

- extreme densification – accelerated by AI and HPC workloads;
- gigawatt scaling at speed – data centres are now being deployed rapidly and at unprecedented scale;
- data centre as a unit of compute – the AI era requires facilities to be built and operated as a single system; and
- silicon diversification – data centre infrastructure must adapt to an increasing range of chips and compute.

The report details how these macro forces have, in turn, shaped five key trends impacting specific areas of the data centre landscape.

1. Powering up for AI

Most current data centres still rely on hybrid AC/ DC power distribution from the grid to the IT racks, with three to four conversion stages and associated inefficiencies. This existing approach is under strain as power densities increase, largely driven by AI workloads. The shift to higher-voltage DC architectures enables significant reductions in current, conductor size, and the number of conversion stages while centralising power conversion at the room level. Hybrid AC and DC systems are pervasive, but as full DC standards and equipment mature, higher voltage DC is likely to become more prevalent as rack densities increase. On-site generation and microgrids will also drive the adoption of higher voltage DC.

2. Distributed AI

The billions of dollars invested in AI data centres to support large language models (LLMs) to date have been aimed at supporting widespread adoption of AI tools by consumers and businesses. Vertiv believes AI is becoming increasingly critical to businesses but how, and from where, those inference services are delivered will depend on the specific requirements and conditions of the organisation. While this will impact businesses of all types, highly regulated industries, such as finance, defence, and healthcare, may need to maintain private or hybrid AI environments via on-premise data centres, due to data residency, security, or latency requirements. Flexible, scalable, high-density power and liquid cooling systems could enable capacity through new builds or retrofitting of existing facilities.

3. Energy autonomy accelerates

Short-term on-site energy generation capacity has been essential for most standalone data centres for decades to support resiliency. However, widespread power availability challenges are creating conditions to adopt extended energy autonomy, especially for AI data centres. Investment in on-site power generation, via natural gas turbines and other technologies, does have several intrinsic benefits but is primarily driven by power availability challenges. Technology strategies such as Bring Your Own Power (and Cooling) are likely to be part of ongoing energy autonomy plans.

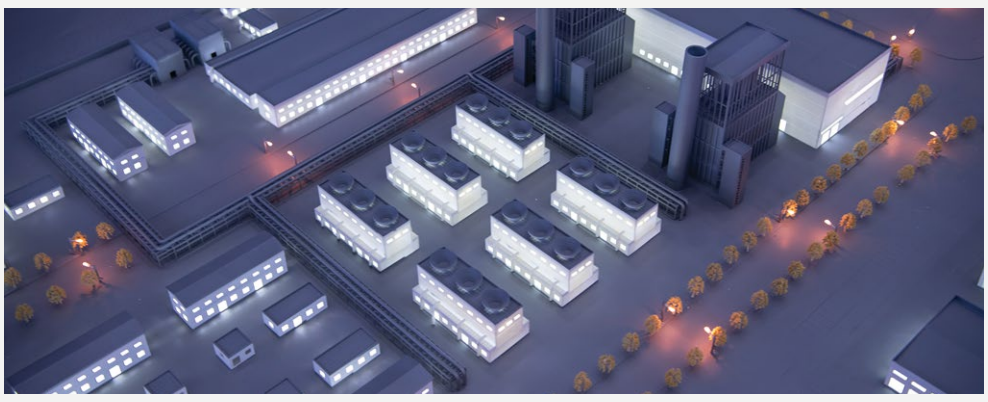
4. Digital twin-driven design and operations

With increasingly dense AI workloads and more powerful GPUs also come a demand to deploy these complex AI factories with speed. Using AI-based tools, data centres can be mapped and specified virtually, via digital twins, and the IT and critical digital infrastructure can be integrated, often as prefabricated modular designs, and deployed as units of compute, reducing time-to-token by up to 50%. This approach will be important to efficiently achieve the gigawatt-scale buildouts required for future AI advancements.

5. Adaptive, resilient liquid cooling

AI workloads and infrastructure have accelerated the adoption of liquid cooling. But conversely, AI can also be used to further refine and optimise liquid cooling solutions. Liquid cooling has become mission-critical for a growing number of operators but AI could provide ways to further enhance its capabilities. AI, in conjunction with additional monitoring and control systems, has the potential to make liquid cooling systems smarter and even more robust by predicting potential failures and effectively managing fluid and components. This trend should lead to increasing reliability and uptime for high-value hardware and associated data/ workloads.

Enquiries: www.vertiv.com



How to avoid the pain of motor replacement procrastination

WEG Africa shares seven tips to get the most benefit and value from the updated Minimum Energy Performance Standards (MEPS) for electric motors.

Electric motors consume nearly half of the world's electricity. From heavy-duty cranes and pumps to conveyor belts and air conditioning, the world literally moves on electric motors. Improving efficiency will deliver significant cost savings and energy gains, which is why numerous countries, including South Africa, have established 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 require 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, 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, it 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.

Conduct motor inventories: You can use MEPS to motivate a survey of your 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 your 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. You are more likely to enjoy a lower total cost of ownership (TCO) when you replace an old motor 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 you rely on could overwhelm your 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 you replace those first, they maximise short-term savings while getting more mileage from less impactful motors. The 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, you can strategically retire motors and spread out your capital investments.

Selectively redeploy motors: While MEPS covers a wide range of motor uses, you can redeploy some IE1 and IE2 motors 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.

Enquiries: www.weg.net

Fanie Steyn, LV&HV executive of WEG's Electric Motor division.

> **My advice to electric motor operators is, 'Don't procrastinate!'. You either take advantage of the change, or it will force you to act.**
>
> **– Fanie Steyn, WEG**

The future of work in the renewable energy economy

By: Alicia Dean, head of People and Group Services at SOLA Group

The renewable energy sector stepped up when legacy infrastructure struggled to keep pace. Now, this sector is changing the industry in South Africa at multiple levels. From employment to innovation to global best practice, South Africa's renewable energy economy is transforming the industry. And yet, when it comes to employment and skills development, the sector continues to grapple with some serious gaps.

The first is permanence. The industry hasn't fundamentally transformed net job creation, with only 6,000 permanent jobs created. The rest are temporary. Many people are working on the initial construction phases of a project, but their skills aren't translating into long-term roles.

Another challenge is how the country's exceptionally high unemployment rate is affecting how intelligent technologies can be adopted – automation and robotics that may make sense in other regions can't be replicated in South Africa without displacing people who rely on jobs for their livelihoods. There is a constant need to find a delicate balance between the need to evolve and advance, alongside ensuring people aren't left behind.

This dynamic has created a uniquely South African version of the clean energy transition. The industry continues to modernise, but it does so in a way that supports employment and economic participation. In practice, this has widened the definition of what the renewable energy workforce looks like, bringing a different emphasis to roles and attributes that weren't essential a decade ago.

Looking into the future, the introduction of the South African Wholesale Electricity Market (SAWEM) is going to change the demand for talent even more. Energy trading, day-ahead forecasting and financial modelling are already well-established careers in the UK and Europe, but are relatively new locally. South Africa's move towards a more open electricity market will make these skills increasingly important, presenting an opportunity for skills transfer between the financial services and energy sectors.

The sector is also attracting experienced professionals from mining, oil and other heavy industries who are looking for work that carries more meaning. Many want to contribute to long-term energy security and climate resilience, and renewable energy offers a way to do that. Internal engagement data consistently shows that people working in the sector feel connected to the mission of building a cleaner, more stable future, although this is not their only motivation. The rapid change of pace in the sector is alluring for people who enjoy problem-solving and rapid innovation.

This is where balance is key. The sector needs to build a long-term talent pipeline that recognises all parts of society, creating opportunities for skills development and career growth. Skills development often happens in shorter-term, community-based interventions aligned with project locations and partnerships with universities and TVET colleges. Internship and vacation work opportunities help create exposure, but do not yet meet the scale of national demand for specialised renewable energy skills.

The sector relies on scarce skills in high-pressure delivery environments, and companies must create workplaces where people can thrive. At SOLA, values are embedded into the performance system so that how work is done carries equal weight to what is delivered. Much of the industry's strength lies in the mix of deep technical expertise alongside curiosity and the willingness to take on complex challenges.

The clean energy transition is creating new job categories and redefining old ones. It is expanding opportunities while demanding new skills, new mindsets and new forms of collaboration. It also asks that companies prioritise skills development across South Africa because right now, the door is open and there is plenty of opportunity.

Enquiries: www.solagroup.co.za

> **The sector relies on scarce skills in high-pressure delivery environments, and companies must create workplaces where people can thrive.**
>
> **– By: Alicia Dean, SOLA Group**

Alicia Dean, head of People and Group Services at SOLA Group.

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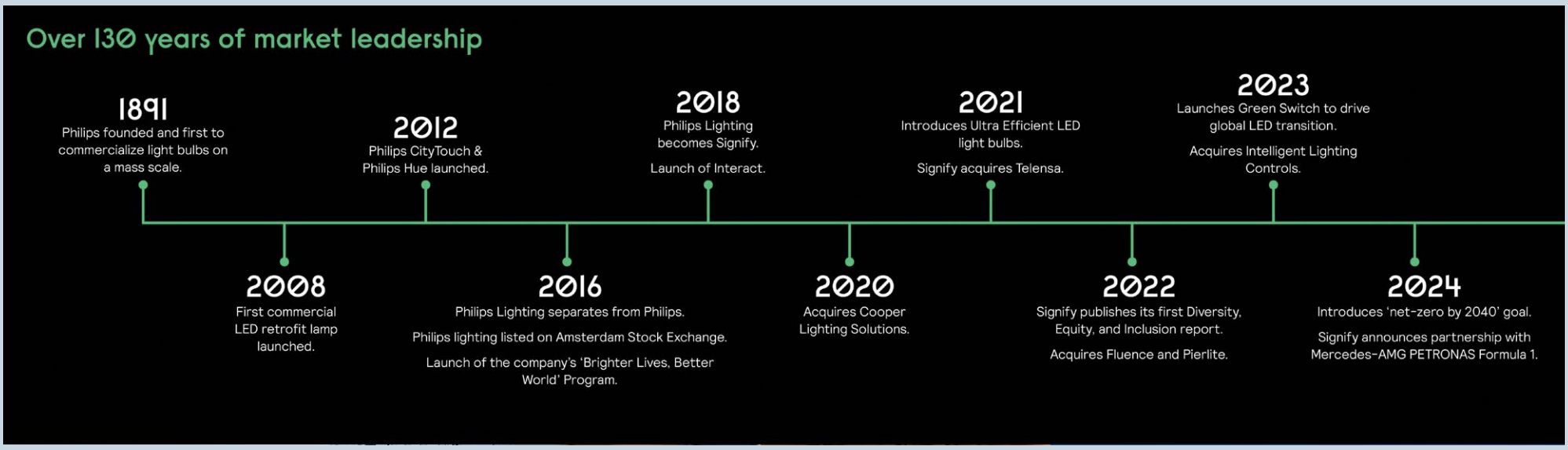

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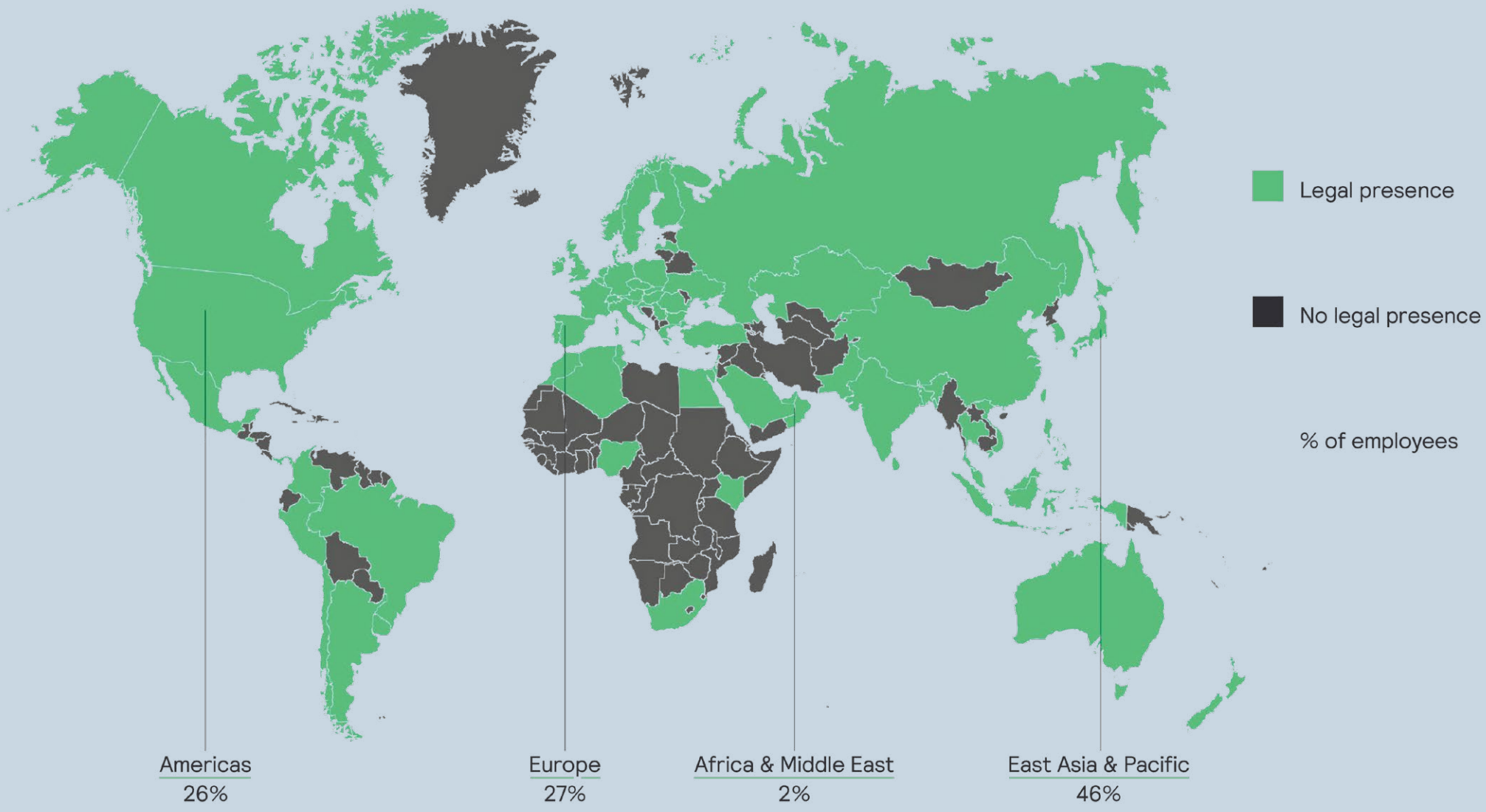

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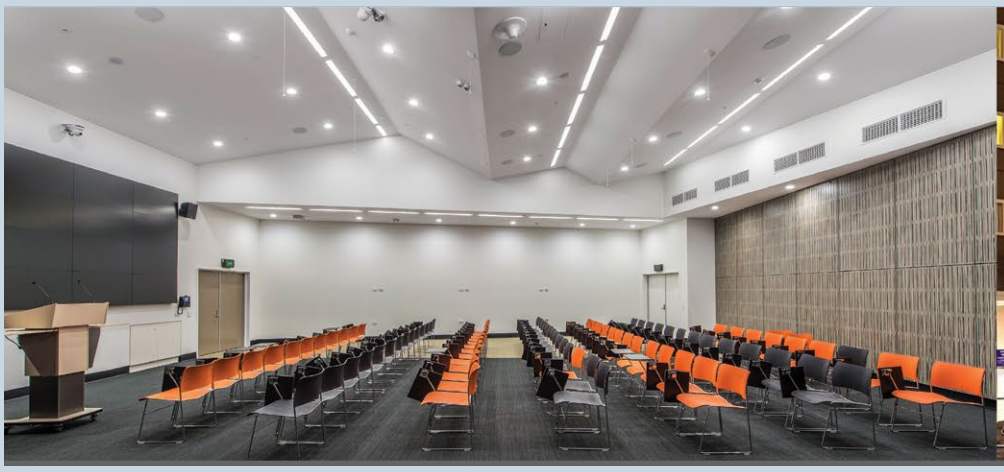

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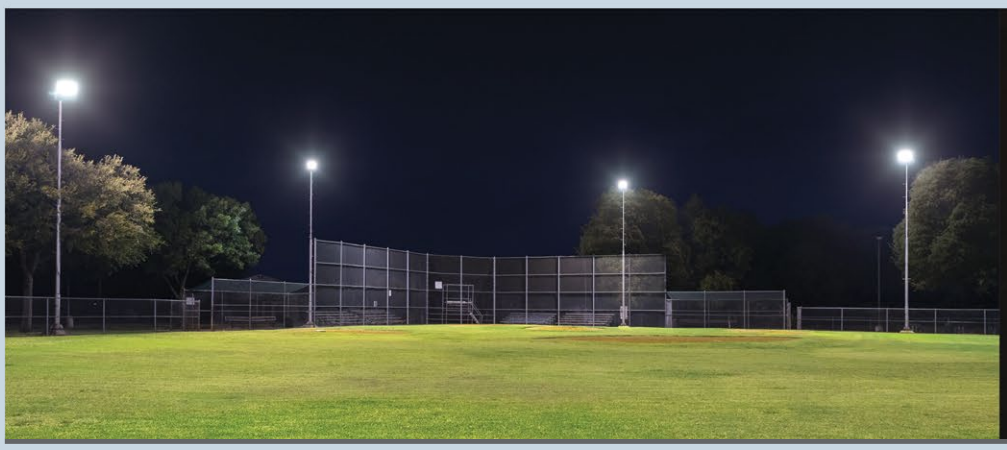

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100 unemployed youths trained for local green economy

The DLO Energy Skills Initiative, a black female-owned social enterprise developing entrepreneurs for the green economy, is celebrating the graduation of 100 unemployed youth and township-based entrepreneurs who have successfully completed the Solar Panel Cleaning, Maintenance and Green Enterprise Training Programme.

This programme is a pioneering initiative aimed at preparing young South Africans to participate meaningfully in the country's rapidly expanding green economy. The graduation ceremony, which took place in December 2025, marked the culmination of a three-month (90-day) accredited training programme that equipped participants with hands-on solar panel cleaning, system maintenance, and fault detection skills, as well as enterprise development modules designed to help them launch and operate viable green businesses within their communities.

This programme builds on the success of the inaugural 2024 cohort in De Aar, Northern Cape, where the DLO initiative trained the first group of 100 youth in solar panel cleaning and maintenance. The programme continues to expand its reach, ensuring that young people, particularly those from township and rural areas, are empowered with the technical and entrepreneurial capabilities required by the renewable energy sector.

Linda Mabhena-Olagunju, CEO of DLO Energy Group, said: "South Africa's energy transition requires a skilled and future-ready workforce. This programme is not only about producing technicians; it is about developing entrepreneurs who can create jobs, drive local economic development, and help reduce youth unemployment. Corporate South Africa has a critical role in supporting government to tackle this crisis, which is why we are proud to have partnered with ABSA for the delivery of this programme. This initiative demonstrates what is possible when we collectively invest in skills development and enterprise growth."

The 2025 programme has been delivered in partnership with ABSA Bank, whose support has been instrumental in providing high-quality training, mentorship, and enterprise development resources to participants. This partnership demonstrates the powerful impact of public-private collaboration in advancing South Africa's just energy transition.

The graduation arrives at a crucial time. South Africa's unemployment rate rose to 33.2% in Q2 2025, with youth unemployment remaining at crisis levels. While 19,000 jobs were created, over 140,000 were lost, leaving 8.4 million people unemployed, according to Stats SA. The DLO Energy Skills Initiative responds directly to these challenges by creating pathways into the renewable energy economy for individuals who have historically been excluded.

By equipping young people with both technical skills and entrepreneurial training, the programme is developing a pipeline of enterprise-ready talent capable of supporting solar project deployment, maintenance services, and green micro-enterprises across the country.

Enquiries: https://www.dloskillsinitiative.com/

> **This programme is not only about producing technicians; it is about developing entrepreneurs who can create jobs, drive local economic development, and help reduce youth unemployment.**
>
> **– DLO Energy Skills**

Battery stockpiles are damaging industry and hurting customers

By: Lance Dickerson, MD REVOV South Africa

Everyone will remember the mad rush to buy uninterruptible power supplies (UPSs), portable inverter and battery trolleys, and rooftop solar installations with battery backup. It was all driven by loadshedding. While everyone enjoys the respite, there is an ever-real risk, accompanied by the same fear, that it will return with the flip of a switch.

Many words have been written about the reasons for the current respite from loadshedding. Some will have us believe that Eskom has finally turned the corner, others will point out the eye-watering amounts of diesel being burned to hide the generation problems, while others draw our attention to the massive behind-the-meter solar investments that have reduced demand. The truth probably lies in some combination of the second two, with some tentative openness to hearing more about the first. The fact is, since the national elections last year, loadshedding has barely been mentioned.

This is important to recognise because it has unleashed a silent ticking time bomb in the battery industry. One with massive consequences.

It wasn't long before everyone realised that lead acid was well and truly something of the past. Lithium batteries are fit for purpose and far superior in every metric. And so, in the midst of the loadshedding panic and the energy back-up industry boom, companies brought in thousands upon thousands of batteries to try to keep up with the anticipated demand. When the surging demand retracted quickly, it resulted in scores of new batteries sitting in warehouses for months on end.

These batteries, which will eventually be sold, present a massive risk to the industry unless battery suppliers prioritise robust processes that safeguard battery quality.

Degrading batteries

When batteries sit idle for months, they degrade. However, when they are sold, they are shipped off with a performance promise that the battery simply cannot match. This isn't just a technical glitch; it is a systemic issue eroding trust in the renewable energy sector, and it is costing consumers dearly. Every household or business that currently has a battery setup will understand that if their batteries are not cycled, they will degrade and, in some instances, give out completely. It is no different for brand-new batteries that have been waiting in warehouses.

Without proper maintenance, inventory degrades over time and then ends up at customers' sites with reduced capacity leading to premature failures, a surge in warranty claims, and frustration.

The core principle here is simple: batteries are not inert objects like shoes or gadgets that can sit on a shelf indefinitely. Batteries are dynamic systems with internal chemistry that require ongoing care and cycling to maintain efficiency. This is coded into the very mechanics of how ions behave within the individual cells. If left uncycled for extended periods, the individual cells in LiFePO4 batteries can discharge by as much as 3% each month. Bear in mind that a LiFePO4 battery can only legally be shipped at 33% charge, so a 12-month-old battery could very likely arrive at your installation flat. Now, bear in mind that not all cells will depreciate at the same rate, meaning that over the course of time, what started as a high-quality product becomes a liability for battery suppliers and customers alike. Failures aren't always immediate, but they do occur, and they are highly damaging to the industry's reputation as a whole.

Residential and commercial customers navigating the battery market should look for suppliers that:

- **Can demonstrate manufacturing and recharge histories of their inventory:** Customers would do well to enquire about a battery's production date and when it was last recharged or cycled. Reputable suppliers track this data meticulously. If a supplier cannot answer these questions, there's a real risk the stock could have been languishing in warehouses, either here or abroad, for a long time.
- **Have pre-dispatch quality assurance protocols in place:** Customers should insist on evidence of rigorous testing before shipment. Reputable suppliers will unpack, inspect, discharge, and recharge every single unit – even during high-volume periods such as Black Friday – to ensure quality. This conditioning process ensures batteries leave their facilities in peak condition. Typical distributors who drop-ship containers lack the engineering expertise, facilities and skills to ensure this quality assurance.
- **Offer local support and accountability:** Customers should prioritise on-the-ground presence in the country, including offices, support teams, field engineering teams and warranty support. Typical fly-by-night operators who sprang up during the massive market demand don't have this expertise. Unfortunately, in these instances, many of the subpar batteries are being sent into neighbouring countries, which will naturally have a knock-on effect across the region. Established players invest in fixing problems, not shipping them out.

It's time to stop seeing batteries as boxes. At a molecular level, they are "thinking systems" requiring proactive care, transforming them from mere commodities into dependable investments.

By focusing on these three principles when choosing suppliers, consumers can avoid the pitfalls of the "stockpile and sell" model that is plaguing the industry. In the end, the power behind your progress isn't just in the battery; it lies in choosing a supplier who understands how to keep it alive.

Enquiries: https://revov.co.za/

Engineering confidence in DC protection for South Africa: introducing the FMB DC breaker range from ACDC Dynamics

South Africa's rapid adoption of solar photovoltaic (PV) systems, battery energy storage, and hybrid power solutions has fundamentally changed the way electrical protection is specified. From residential rooftop PV to large commercial and agricultural installations, DC systems now operate at higher voltages and currents than ever before, often in harsh environmental conditions.

In this environment, reliable DC protection is not optional. It is essential.

To support this growing market, ACDC Dynamics has introduced the FMB DC breaker range, a PV-compliant series of DC miniature circuit breakers engineered specifically for South African operating conditions.

Designed for real-world DC fault conditions

Unlike alternating current, direct current does not pass through zero, making arc interruption far more demanding. In solar PV and battery systems commonly installed across South Africa, incorrect or underspecified DC protection can lead to persistent arcing, equipment damage, or fire risk.

The FMB range DC MCBs are purpose-designed to handle these fault conditions safely and predictably. The range provides reliable protection against overload and short-circuit events across current ratings from 6 A to 125 A and operating voltages from 12 V DC up to 1,000 V DC. This makes the range suitable for residential battery systems, commercial PV strings, agricultural solar pumping, and utility-scale installations.

Optimised for the South African energy landscape

South African DC installations are diverse and often demanding. Systems may be installed on exposed rooftops, in plant rooms, shipping containers, or outdoor enclosures in high ambient temperatures.

The FMB range is ideally suited for use in:

- Residential and commercial solar PV installations;
- Off-grid and hybrid systems supporting loadshedding resilience;
- Battery energy storage systems in homes, businesses, and telecom sites;
- Agricultural and borehole solar pumping systems; and
- Industrial DC distribution and renewable energy projects.

Whether installed in a PV combiner box, battery cabinet, or DC distribution board, the FMB range delivers consistent and dependable protection under fluctuating load and environmental conditions.

Engineered for harsh local environments

South African solar and storage systems are frequently exposed to heat, dust, and electrical stress. To address this, FMB DC breakers feature a fire-resistant, high-strength enclosure designed to maintain insulation integrity and mechanical stability under elevated temperatures and high DC voltages.

This robust construction supports long service life, even in remote or unattended installations where reliability is critical.

Simplified installation for local contractors

Incorrect polarity remains a common cause of DC breaker failure in the field. To reduce installation risk, the FMB range is designed for bidirectional connection, allowing installers to connect the breaker without concern for positive or negative orientation.

This design simplifies installation, reduces wiring errors, and supports faster commissioning, particularly valuable in time-sensitive projects.

All breakers are manufactured in a standard modular DIN-rail format, making them easy to integrate into locally manufactured enclosures, combiner boxes, and distribution boards commonly used in South Africa.

Reliable protection with manual reset control

In the event of an overload or short-circuit condition, the FMB DC breaker interrupts the circuit safely, protecting connected equipment and cabling. Once the fault has been identified and resolved, the breaker can be manually reset, restoring system operation without replacing components.

This practical, service-friendly approach is well-suited to South African installations where rapid restoration of power is often essential.

A trusted DC protection solution from ACDC Dynamics

With the introduction of the FMB DC breaker range, ACDC Dynamics continues its commitment to supplying engineered, fit-for-purpose electrical solutions to the South African market. Backed by local availability, technical support, and a deep understanding of renewable energy applications, the FMB range delivers dependable DC protection for a rapidly evolving energy sector.

For South African engineers, installers, and system integrators, the choice is clear. When DC protection must perform reliably in demanding local conditions, the FMB range from ACDC Dynamics is engineered to deliver.

Enquiries: sales@acdc.co.za

Why your 2026 business strategy needs battery energy storage

Commercial and industrial businesses face a critical decision for 2026: integrate battery energy storage systems (BESS) or fall behind competitors, according to Sungrow. For shopping malls, mines, manufacturing plants, and hospitality venues, several converging trends are making BESS essential to remain competitive, maximise profits, and secure reliable power.

This urgency reflects a fundamental market shift. As renewable energy proliferates globally, BESS has become the critical technology that transforms intermittent solar and wind into reliable business power. For commercial enterprises, this means BESS delivers triple value: it ensures operational continuity despite grid instability, reduces energy costs through strategic storage and deployment, and generates additional revenue by selling excess power during peak pricing periods. Companies delaying adoption concede these advantages to competitors.

The foundation for this transformation was laid in 2025, a watershed year for renewable energy and grid infrastructure reform. Global momentum accelerated as grid modernisation initiatives gained traction, regulatory frameworks evolved to accommodate distributed energy resources and financing mechanisms matured to support large-scale deployments. This convergence created ideal conditions for rapid BESS adoption. Businesses entering 2026 inherit this momentum, benefiting from proven technologies, established supply chains, and clear implementation pathways.

"The commercial and industrial sectors are at an inflection point," says Nigel Sun, head of Sungrow Sub-Saharan Africa. "Businesses that strategically deploy BESS in 2026 won't just be managing energy costs. They'll be securing competitive advantages through enhanced reliability, operational flexibility, and revenue optimisation that their competitors will struggle to match."

Four critical trends defining BESS adoption in 2026

Sungrow recently convened more than 200 South African industry leaders at its C&I Summit to showcase innovations reshaping business energy strategy. Four trends emerged as particularly critical for business decision-making.

1. **Modular scalability eliminates over-investment:** AC-coupled solutions now provide scalable capacity from 257 kWh to 514 kWh, allowing businesses to expand as needed without wasteful initial investment. These systems integrate seamlessly with existing solar installations, delivering high round-trip efficiency while supporting single-phase unbalanced loads without requiring isolation transformers. This translates to lower installation costs and faster deployment timelines. These are critical factors for finance directors evaluating capital allocation.
2. **Long-duration storage transforms operational independence:** DC-coupled solutions now enable multi-hour or multi-day independent operation, positioning BESS as a genuine grid alternative rather than mere backup. These systems support multiple layout options and allow for greater solar capacity to achieve higher energy yield. The modular designs offer extended-duration storage tailored to evolving business needs, whether a manufacturing plant requires continuous overnight operations or a retail centre needs weekend coverage during maintenance periods.
3. **AI integration drives profitability:** Artificial intelligence (AI) is now extending its reach into BESS, making it smarter and more profitable. These systems predict failures, optimise operations based on pricing and demand, and automatically sell excess energy during peak periods for additional revenue. Advanced thermal management reduces auxiliary power consumption, directly improving operational margins. Factory pre-commissioning speeds up installation and system readiness, allowing businesses to achieve earlier returns on their energy investment.
4. **Safety innovations address risk concerns:** Modern systems feature multi-layer protection approaches covering prevention, detection, suppression and isolation. Patented pressure-relief structures enhance safety while advanced thermal runaway detection systems provide early warnings. These innovations address previous lithium-ion concerns while ensuring stable performance under varying operating conditions, meeting increasingly stringent insurance and regulatory requirements.

A fundamental market shift

Global trends support swift action. Renewable energy investment hit a record $386 billion in the first half of 2025, according to BloombergNEF, marking a fundamental market shift. This surge in investment explains why BESS adoption is becoming essential for businesses: as renewables proliferate globally, storage becomes the critical technology required to stabilise grids and ensure reliable power. Without storage, intermittent solar and wind generation creates instability; with it, renewables become dependable baseload power. South Africa's advantage is compelling: more than 2,500 hours of annual sunshine in many regions, paired with proven BESS technology, positions local businesses to lead rather than follow.

Nigel Sun, head of Sungrow Sub-Saharan Africa.

Battery energy storage has moved from emerging technology to a business imperative. Companies integrating BESS in 2026 will control their energy destiny while competitors remain vulnerable to grid instability and rising costs. The foundation exists, the technology delivers, and early adopters are already realising returns.

"The solutions available today are designed not only to meet current power challenges but also to equip companies with systems that grow alongside their operational needs," concludes Sun.

Enquiries: https://sa.sungrowpower.com/

Why technical and vocational skills are SA's growth engine

As matric results and the new school year take centre stage, Kagiso Trust urges learners to look beyond degrees and consider skills-based pathways that lead directly to employment.

With the 2026 school year getting underway, hundreds of thousands of young people face crucial decisions about their future. The automatic assumption that university is the only path to success needs urgent re-examination.

The reality is stark: nearly three out of every five 15- to 24-year-olds are out of work, and Kagiso Trust CEO Mankodi Moitse says it's time for an honest national conversation about the relationship between education and employment and the pressing need for more technical and vocational skills.

"For too long, we've operated under the assumption that everyone should pursue a university degree. The result is unemployed graduates on one hand and critical skills shortages on the other," Moitse says.

The Department of Higher Education and Training's latest list of occupations in high demand tells a sobering story: more than half of South African workers are in jobs for which they do not have the correct education level, and a third are in jobs that don't match their highest qualification.

Meanwhile, the economy is crying out for artisans, technicians and skilled workers. A third of the demand list comprises vocational occupations at NQF Level 5 (one level above matric) and below, many of which require practical skills. "This mismatch between what we're training people to do and what the economy actually needs is costing us dearly," says Moitse. "It's trapping young people in unemployment while businesses struggle to find the skills they need to grow."

Revolutionary reforms

Moitse points to significant reforms in the area of technical and vocational training. For example, the Quality Council for Trades and Occupations (QCTO) has introduced new qualifications that place greater emphasis on practical skills. Instead of writing four theoretical exams at each level, students now face integrated assessments that simultaneously test theoretical knowledge and practical ability.

Crucially, Technical and Vocational Education and Training (TVET) institutions will no longer offer courses for which there is no labour market demand. "If we can develop enough qualifications that industry demands, we can guarantee a higher uptake of learners into industry," QCTO CEO Vijayen Naidoo recently explained.

Another game-changer is that students will only need the appropriate level of mathematics and science to practise their chosen trade. "We want to get people through from learning to earning as soon as possible," Naidoo says. Kagiso Trust, one of South Africa's leading development agencies, says vocational training isn't limited to traditional trades and it is playing its part in developing skills needed for the digital economy. In Limpopo's Sekhukhune East Education District, the Trust has trained teachers in coding and robotics, established dedicated robotics labs and equipped schools with ICT infrastructure.

It has also supported the Department of Basic Education's curriculum-strengthening programme, which prioritises skills-based learning and projects.

"Technical vocational education encompasses both traditional artisan skills and cutting-edge digital competencies," says Moitse. "Whether you're learning to weld or to code, you're developing practical skills that lead directly to employment or entrepreneurship."

A message to matrics

For school-leavers awaiting their results and for the class of 2026 thinking about their post-school options, Moitse has clear advice: "Consider your strengths honestly. Not everyone is suited to academic study and that's perfectly okay. Research your options thoroughly. Look at what skills are in demand. Remember that vocational skills can lead to better jobs, higher earnings and greater job security than many degrees."

"Technical and vocational education offers a direct pathway to meaningful employment.

Mankodi Moitse, Kagiso Trust CEO.

In a country with an unemployment crisis, we cannot afford to ignore the skills economy."

According to Moitse, Kagiso Trust will continue its advocacy for technical and vocational education throughout 2026, working to break down stigma, highlight success stories and support reforms that align education with economic needs.

"The skills economy is South Africa's growth engine," she says. "It's time we recognised that, invested in it, and guided our young people towards the opportunities that exist. This is the way to Ignite Human Capacity."

Enquiries: www.kagiso.co.za

Powering South Africa's energy transition through skills development in battery storage

By: Maureen Phiri, director at Oxyon People Solutions

South Africa's renewable energy landscape is evolving quickly, and battery energy storage systems (BESS) are emerging as a critical enabler of this transition. However, 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.

The importance of 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.

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 a 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.

Collaborating to build 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 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.

Strengthening South Africa's 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. At the end of the day, this transition is creating incredible opportunities for South African engineers, not just to fill jobs, but to shape the future of renewable energy here. The more we invest in upskilling, the stronger our local talent pipeline becomes.

Enquiries: https://oxyon.co.za/

Maureen Phiri, director at Oxyon People Solutions.

New appliances, old wiring: the safety risk in SA homes

After the year-end shopping period, many South Africans are starting the year with new appliances and gadgets, from gaming consoles and upgraded TVs to air fryers, fridges, and more. As these go into daily use, the added demand can expose weaknesses in older home wiring and electrical systems.

"Most families don't think twice about their distribution board (DB board) until something goes wrong, and by then it's often too late," says Dr Andrew Dickson, engineering executive at CBi-electric: low voltage.

Why your DB board matters

Your DB board is designed to cut the power when something goes wrong, whether it's a faulty kettle, an overloaded plug point or a lightning strike. But many South African homes still rely on DB boards installed in the 1990s. Back then, a typical household had a TV, a fridge, and perhaps a microwave. Today, it's multiple TVs, computers, chargers, Wi-Fi routers, air conditioners, washing machines, and other high-demand devices, often running simultaneously.

That mismatch between old infrastructure and new energy use is exactly where problems begin.

Warning signs to look out for

According to Dickson, several indicators suggest your DB board or wiring may be unsafe. These include burn marks around switches, any faint burning smell, rust or corrosion, loose or exposed wires, lights dimming when appliances switch on, frequent power trips, warm switches or outlets, buzzing sounds from the board, and unmarked switches you cannot identify. Noticing any of these signals means it's time to contact a qualified electrician.

The life-saving test

"It is important to consider your earth leakage; look for the button marked 'TEST' on your DB board and press it. The unit should trip immediately. If it doesn't, your earth leakage protection has failed, and that's the device designed to save you from electrocution," he warns. "It is crucial to get this replaced immediately if it does not operate."

When to consider an upgrade

A DB board may need replacing if:

- Your home is more than 25 years old, and the board has never been upgraded;
- You still have an old fuse box instead of modern circuit breakers;
- You've added high-demand appliances such as an EV charger, heat pump, or multiple air conditioners;
- Power trips regularly during normal household use; or
- Your board has no earth leakage protection.

A standard replacement costs between R3,500 and R7,000, with major upgrades reaching R12,000. "Compare that to rebuilding after an electrical fire," says Dickson.

He encourages South Africans to take ten minutes to check their DB board. "It's a small step that can prevent a far bigger problem down the line."

Enquiries: https://cbi-lowvoltage.co.za/

New Arteor USB Type-C sockets now available locally

Legrand SA has expanded its Arteor wiring device range with the launch of new two-module USB Type-C charging sockets, designed for high-performance charging of laptops, tablets, smartphones, and other portable electronic devices.

The new Arteor USB Type-C socket range represents the next generation of built-in charging technology. The introduction of the Arteor 45 W USB Type-C socket – with advanced technology and enhanced aesthetics – strengthens Legrand's local offering, in line with the global shift towards USB-C as the standard charging interface for digital devices.

These 45 W USB Type-C modules provide high-power delivery and fast-charging solutions for residential, commercial, and hospitality installations, where users expect convenient access to fast charging without the need for bulky adapters.

Arteor USBs enable a faster charging level than conventional technologies, operating via an exchange between the charger and the connected device to ensure the correct voltage and current for each application.

Each charger includes a single USB Type-C outlet with output stages from 5 V up to 20 V, automatically adjusted according to device requirements. The unit supports the latest power delivery and quick charge protocols used by Apple, Google, and other leading manufacturers, ensuring compatibility with iOS and Android devices. Terminals accept conductors up to 2.5 mm² and use secure screw-type connections for reliable electrical contact.

The modules fit into standard Arteor support frames and plates and are available in finishes including white, magnesium, champagne, and soft aluminium. Seamless integration of the USB Type-C charger directly into the existing Arteor modular system allows installation within the same Arteor design lines and finishes as switches, sockets, and dimmers in the range.

The robust construction and consistent modular dimensions of Arteor components provide flexibility for a wide range of applications – from modern residential developments and co-working spaces to hotels, airports, and healthcare facilities – where a combination of performance, design, and safety compliance is required.

All Legrand products are designed and tested to stringent international standards, providing installers and specifiers with the assurance of high performance, safety, flexibility, and enhanced aesthetics.

Enquiries: www.legrand.co.za

A breakthrough anti-vandal copper-aluminium busbar solution

South African original equipment manufacturer (OEM) Power Process Systems (PPS), with more than three decades of innovation in electrical infrastructure protection, has introduced AV-CAB, a purpose-engineered, anti-vandal copper–aluminium busbar designed to combat copper theft while maintaining high electrical performance.

Copper theft continues to place enormous strain on utilities, municipalities, and industry, often resulting in costly damage, downtime, and unsafe electrical environments. AV-CAB directly addresses this challenge by combining the conductivity benefits of copper with the affordability and lightness of aluminium, while removing the scrap value that drives theft.

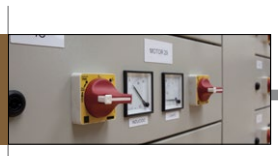
AV-CAB is a high-performance solid bar conductor in which 20–30% copper by weight is permanently fused to an aluminium core. This metallurgical bond is created through heat and pressure, forming a single, inseparable composite rather than a surface plating that could be stripped. Since AV-CAB cannot be separated, stripped, or melted down for recovery, it holds no illicit resale value and therefore significantly reduces the risk of vandalism and theft.

"Copper theft continues to undermine infrastructure reliability and service delivery across South Africa. AV-CAB gives utilities, municipalities, and industrial clients a practical way to protect critical assets without compromising on electrical performance," says Nhlanhla Zondo, director at PPS. "It delivers copper-level performance at a lower cost, and because it has no scrap value, it removes the incentive for vandalism. This is a meaningful step forward for infrastructure resilience."

Designed to replace traditional copper busbars, AV-CAB is suitable for electrical distribution panels, substations, kiosks, and industrial switchboards, and is fully compatible with existing installations. Its lightweight construction also simplifies handling and installation.

Since 1993, PPS has evolved from a small local manufacturer into a trusted OEM known for robust electrical enclosures and breakthrough innovations such as the intelligent I-Kiosk. AV-CAB builds on this legacy by supporting safer energy delivery, revenue protection, and long-term infrastructure sustainability across the country.

Enquiries: www.ppspower.co.za



Powering the present, protecting the future

Solar energy and energy efficiency are no longer fringe conversations reserved for early adopters. They are now central to how homes, businesses, and municipalities plan for resilience, affordability, and sustainability, says Voltex. In today's climate of rising energy costs, grid constraints, and environmental accountability, the way we generate and use power matters more than ever.

South Africa's energy landscape has forced consumers to become more energy literate. True progress lies in pairing renewable energy with smarter, more efficient electrical infrastructure. This is where modern electrical design, quality components, and future-ready thinking come into play.

Energy efficiency begins at the distribution point. Well-designed distribution boards, correctly rated protection devices, and intelligently planned circuits ensure that power is delivered safely and with minimal losses. As solar installations become more common, DBs are evolving to accommodate bidirectional power flow, battery integration, and surge protection that can handle increasingly complex systems. A poorly specified board can undermine even the most advanced solar setup.

Equally important is what happens at the endpoint. Switches, sockets, and control systems are no longer passive accessories; they are active contributors to energy management. Smart switches, timers, and occupancy sensors reduce unnecessary consumption, while robust sockets designed for modern loads improve safety and longevity. When efficiency is designed into everyday touchpoints, energy savings become effortless rather than behavioural.

For installers, electricians, and specifiers, this shift demands a higher standard. Products must not only comply with regulations but also support the realities of modern living: home offices, electric vehicles, backup power, and decentralised generation. Reliability is non-negotiable because in a world that depends on uninterrupted connectivity and productivity, electrical failure carries real economic and social costs.

Voltex's role in this evolving ecosystem is to support the industry with solutions that balance innovation, compliance, and practicality. From solar-ready distribution equipment to durable wiring accessories, the focus is on products that perform today while remaining adaptable for tomorrow. Energy efficiency is not achieved through a single product or technology, but through systems that work together seamlessly.

Looking ahead, the conversation around energy will only intensify. Carbon reduction targets, cost pressures, and technological advances will continue to shape how power is generated and consumed. The opportunity lies in designing electrical systems that are efficient by default, resilient by design, and scalable for future needs.

Solar energy may be the headline, but efficiency is the quiet enabler that makes the transition sustainable. By investing in quality electrical infrastructure now, we are not just keeping the lights on; we are building a smarter, more secure energy future for generations to come.

Enquiries: www.voltex.co.za

RS Group retains its place on the CDP A List

Andrea Barrett, chief sustainability officer, RS Group.

RS Group has retained its place on the CDP A List for 2025, once again placing it in the top 4% of companies globally for climate leadership.

CDP is the most extensive and prestigious benchmark of climate action and disclosure globally, with two-thirds of global market capitalisation, from 130 countries, disclosing critical environmental data through CDP.

The A List is reserved for those companies showing advanced climate leadership, and this recognition reflects the progress RS is making across its 2030 ESG action plan, from cutting carbon and decarbonising logistics, to expanding the Better World product range, and working closely with suppliers to build a more sustainable industrial value chain for its customers.

Key highlights driving this achievement at H1 2025/ 26 include:

Carbon emissions: Down 64% since its 2019/ 20 baseline, thanks to net-zero initiatives in its distribution centres and fleet. A number of key sites are powered by solar panels and almost half of RS's global fleet is now electric or hybrid.

Greener packaging: 89% of packaging now includes over 50% recycled content, and 95% is recyclable. RS has also introduced a bio-based polymer into plastic carriers used for small electronic items at its Corby site – helping to cut single-use plastic and support circular solutions.

Logistics decarbonisation: Product transport emissions intensity is down 35% since the 2019/ 20 baseline, supported by logistics optimisation to reduce distance travelled and the switch to electric last-mile – all enabled by the regional distribution model and logistics carriers prioritising sustainability.

Better World products: RS's flagship sustainability initiative now includes c. 33,000 products from more than 140 suppliers, and it has plans to expand the range even further in 2026 via Better World solutions, which help customers run their businesses more sustainably.

Supplier collaboration: RS works in partnership with its suppliers to prioritise carbon reductions, optimise sourcing and distribution routes, and improve the sustainability benefits and features of their products. 40% have set science-based targets, 57% have joined EcoVadis, and 78% of RS PRO suppliers are Sedex members.

Andrea Barrett, chief sustainability officer, said: "Being on the CDP A List reflects our leadership on climate change and the efforts of our teams and partners across the global industrial value chain to reduce environmental impacts while creating long-term value for our stakeholders."

"There's still more to do, and we're working closely with suppliers to drive value for the environment and our stakeholders through sustainable products, carbon reductions, and greater transparency."

Enquiries: https://za.rs-online.com/web/

> **There's still more to do, and we're working closely with suppliers to drive value for the environment and our stakeholders through sustainable products, carbon reductions, and greater transparency.'**
>
> **– Andrea Barrett, RS Group**

High-visibility signage for when every second counts

Safety signage is one of the most overlooked parts of a workplace – until a fire breaks out. SafeQuip delivers high-quality safety signage that protects people, property, and productivity across all workplace environments.

When fire breaks out and smoke fills the air, clear signage can mean the difference between life and death. In an emergency, there's no time to read fine print or guess where to go. Across all industries, SafeQuip's compliant, high-visibility signage provides clear direction to exits, extinguishers, hydrants, and assembly points, helping people reach safety quickly and enabling emergency teams to locate critical fire-fighting equipment without delay.

Visibility in the dark

When a fire breaks out, heat, smoke, or damaged wiring can cause electrical systems to fail. With visibility reduced, it's easy to lose your sense of direction, even in familiar spaces. In high-rise buildings, industrial plants, and public facilities, photoluminescent, or glow-in-the-dark, signage from SafeQuip guides people safely out of danger.

The technology requires no electricity. It charges naturally from existing light sources and remains visible for extended periods. It meets emergency safety standards, performs reliably, and ensures escape routes remain visible, even when everything else goes dark.

Safety that fits the space

Every environment is different, which is why SafeQuip offers a full range of signage solutions for any application. From heavy-duty, weather-resistant options for industrial sites to sleek, modern finishes for offices, the goal remains clear: compliant communication that saves lives.

For businesses that want their safety signage to reflect their brand, SafeQuip offers fully customisable options. Companies can include their own logo, colours, and messaging while still meeting all safety and compliance standards.

Framing safety

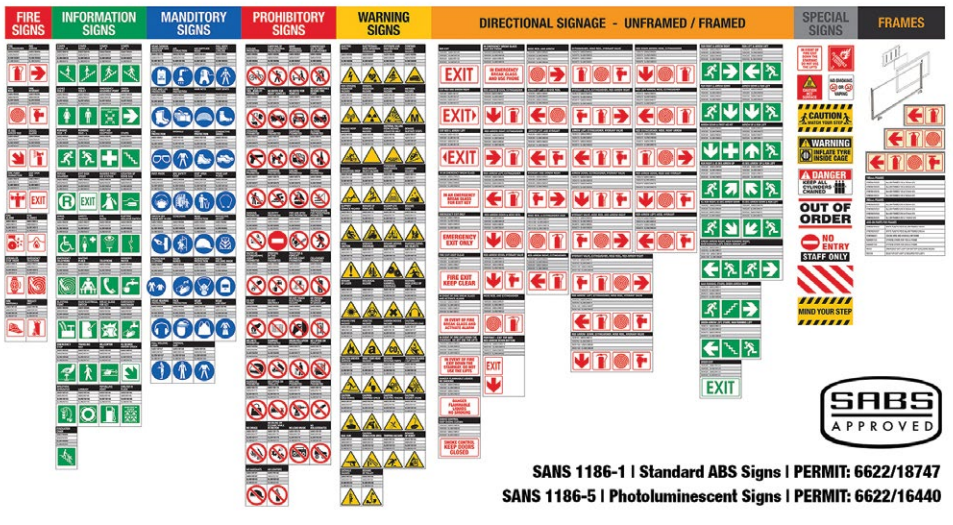
Safety communication doesn't end with signs. Details such as evacuation routes, emergency numbers, and fire procedures should always be easy to find and well-protected. Yet in many workplaces, these notices end up taped to doors or bathroom cubicles, curling at the edges and only replaced when inspections are due.

SafeQuip's framed display systems fix that problem. Built to last, these frames keep safety documents protected and easy to read. They help workplaces stay organised and professional while ensuring vital information is always close at hand.

From compliance to commitment

As technology changes the way we work, safety standards have to change with it. SafeQuip's signage may not speak, but it communicates a powerful message: people matter and safety comes first.

Enquiries: https://safequip.co.za/



Total cost of ownership: the real economics of LED lighting

When LED lighting first entered the African market, the conversation was dominated by one question: How much does it cost? Today, that question has evolved. As businesses, municipalities, and developers become more experienced lighting buyers, the smarter question is no longer about upfront price, but about total cost of ownership (TCO), the true measure of long-term value, according to Aurora Lighting Africa.

TCO looks beyond the initial purchase and considers the full lifecycle of a lighting system: energy consumption, maintenance, replacement, downtime, and operational risk. When viewed through this lens, LED lighting is not just an efficient alternative; it is a strategic investment.

Energy savings are the most visible part of the equation. Lighting can account for up to 40% of electricity consumption in commercial and industrial buildings across Africa. High-quality LED solutions dramatically reduce this load, often cutting energy use by 50–70% compared to legacy technologies. In regions where electricity costs continue to rise and supply reliability remains a challenge, these savings are not marginal; they are transformative.

However, energy efficiency alone does not define strong TCO performance. Longevity and reliability are equally critical. An LED luminaire designed to last 50,000 hours only delivers value if it performs in real-world conditions, such as heat, dust, voltage fluctuations, and extended operating cycles. Inferior products may promise impressive specifications but fail prematurely, erasing savings through frequent replacements and unplanned maintenance.

Maintenance costs are frequently underestimated in lighting decisions. In warehouses, factories, retail environments, and public infrastructure projects, replacing failed fittings involves labour, access equipment, safety risks, and often operational disruption. High-quality LED systems significantly reduce these hidden costs by minimising failures and maintaining consistent light output over time.

Lighting quality and performance stability also play a critical role in TCO. Issues such as flicker, colour inconsistency, or rapid lumen depreciation can negatively affect productivity, safety, and brand perception. In commercial and retail spaces, lighting directly influences customer experience and employee well-being factors that carry real economic impact, even if they are not immediately

visible on a cost sheet.

Smart lighting controls further strengthen the business case. Occupancy sensing, daylight harvesting, and intelligent control systems can reduce energy consumption while extending luminaire life. When thoughtfully designed, these technologies enhance efficiency without adding unnecessary complexity.

Aurora Lighting Africa believes that the race to the lowest price ultimately costs more. Sustainable lighting solutions must be purpose-built for African environments, supported by credible warranties, and backed by local expertise. As Africa continues to modernise its infrastructure, lighting decisions made today will shape operational costs for years to come.

In the end, LED lighting is not about spending less upfront; it is about spending smarter over time.

As Scylagh Clunnie, managing director of Aurora Lighting Africa, explains: “When clients focus only on purchase price, they often overlook the operational burden that poor-quality lighting creates. True value comes from systems that are engineered to last, perform reliably in African conditions, and reduce long-term risk, not just initial spend.”

Enquiries: info@aurora-africa.com

Smart lighting becomes standard practice: a key lighting trend for 2026

As the lighting industry moves rapidly into 2026, one trend is no longer emerging; it is firmly established. Smart lighting has shifted from a “nice-to-have” innovation to a standard expectation across commercial, industrial, and public-sector projects, according to the Illumination Engineering Society of South Africa (IESSA).

Driven by advances in AI, IoT integration, and sensor-driven systems, smart lighting is reshaping how lighting is designed, installed, managed, and maintained. For lighting professionals, staying competitive now means understanding these technologies and adapting to a more connected, intelligent lighting ecosystem.

What is smart lighting?

At its core, smart lighting refers to lighting systems that use digital technologies to operate more efficiently, intelligently, and responsively than traditional lighting solutions.

Smart lighting systems typically combine:

- Connected luminaires;
- Sensors (motion, occupancy, daylight, temperature);
- IoT-enabled controls; and
- Data analytics and AI-driven software platforms.

These systems allow lighting to automatically adjust based on real-time conditions, such as occupancy, available natural light, time of day, or usage patterns – without manual intervention.

Rather than functioning as isolated components, smart lighting systems are often integrated into broader building management systems (BMS), smart cities infrastructure, or energy management platforms.

Why smart lighting is now standard practice

Several forces have accelerated smart lighting from innovation to expectation:

Energy efficiency and sustainability mandates

Governments, municipalities, and private developers are under increasing pressure to reduce energy consumption and carbon emissions. Smart lighting enables:

- Lower energy use through adaptive dimming and scheduling;
- Better compliance with energy efficiency standards; and
- Measurable sustainability outcomes.

In many projects, traditional “on/ off” lighting simply no longer meets compliance or ESG requirements.

Advancements in AI and IoT technology

The rapid maturity of AI and IoT has made smart lighting:

- More reliable;
- More affordable; and
- Easier to deploy at scale.

AI-driven systems can now learn usage patterns, predict maintenance needs, and optimise performance automatically, turning lighting into a data-driven asset rather than a fixed cost.

Smarter buildings and public spaces

From offices and retail environments to transport hubs and city streets, lighting is now expected to:

- Enhance user comfort and safety;
- Support productivity and wellbeing; and
- Integrate seamlessly with smart building and smart city strategies.

Lighting is no longer about illumination; it’s about experience, intelligence, and connectivity.

Benefits of smart lighting for the lighting industry

The rise of smart lighting brings significant opportunities for industry professionals, manufacturers, designers, and installers.

New revenue streams

Smart lighting opens the door to:

- Value-added services;
- System monitoring and maintenance contracts; and
- Software, analytics, and upgrades.

The industry is shifting from once-off installations to long-term solutions and partnerships.

Increased project value

Projects that incorporate smart lighting:

- Deliver higher performance outcomes;
- Offer measurable ROI for clients; and
- Future-proof infrastructure investments.

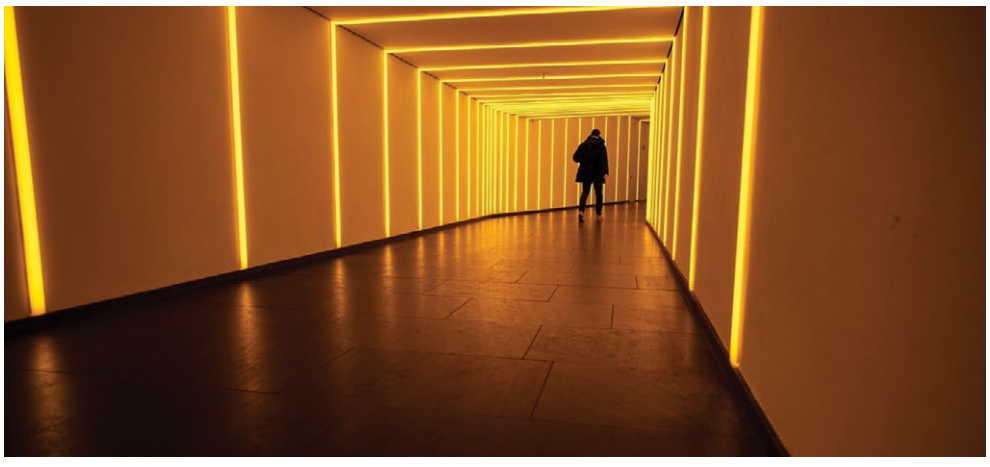
This elevates the role of lighting professionals from suppliers to strategic contributors.

Skills development and industry growth

As systems become more intelligent, the demand grows for professionals who understand:

- Digital lighting controls;
- Data and systems integration; and
- AI-enabled lighting platforms.

This evolution creates opportunities for upskilling, specialisation, and industry leadership.



Staying ahead of the curve with IESSA

As smart lighting becomes standard practice, industry knowledge and collaboration are more important than ever. This is where IESSA plays a critical role.

By becoming a member of IESSA, professionals gain:

- Access to industry insights and emerging trends;
- Opportunities for knowledge-sharing and professional development;
- Engagement with peers, suppliers, and thought leaders; and
- A platform to stay informed as technology, standards, and best practices evolve.

IESSA supports its members in navigating industry change, ensuring they are not only aware of what’s next but prepared to lead it.

Looking ahead to 2026

Smart lighting is no longer about the future; it is the present standard shaping the lighting industry in 2026 and beyond. AI-driven, connected, and sensor-enabled systems are redefining how lighting delivers value across every sector.

For lighting professionals, the question is no longer whether smart lighting will become standard practice, but how quickly they will adapt.

Enquiries: www.iessa.org.za

Solar highmast lighting for Tshepiso residents

BEKA Schréder has supplied the locally designed and manufactured LED solar lighting highmast solution at Tshepiso Ext 1 and 2 in Sharpeville, Gauteng.

Twenty 20 m high SOLARFLOOD PREMIUM highmasts, funded by the Department of Infrastructure and Development, including Human Settlements, were installed throughout Tshepiso Extensions 1 and 2. This community previously had no public lighting, leaving the area completely dark at night and contributing to safety concerns. Following the project's completion, residents expressed great excitement and appreciation for the new lighting installation.

About the SOLARFLOOD

BEKA Schréder's solar lighting highmast solution for outdoor open areas and rural applications provides a high-performing, robust option for off-grid solar lighting requirements.

The SOLARFLOOD, designed and manufactured in South Africa, provides a reliable lighting solution with a high Ingress Protection level (IP 66) that withstands high ambient temperatures. The SOLARFLOOD is a sustainable off-grid performer with a superior lumen/watt ratio. High-performing optics allow for mounting of up to 20 m, providing high-quality light where it is needed.

The photovoltaic energy conversion is optimised by highly efficient Monocrystalline solar module technology. This, in conjunction with the maximum power point tracking (MPPT) charging system and its lithium energy storage technology, provides a state-of-the-art quality system, offering the required system autonomy and providing a long-lasting solution to operate in harsh environmental conditions.

Key advantages:

- Designed and manufactured in South Africa;
- Warranty up to five years (terms and conditions apply);
- Specifically engineered for various geographical locations in Africa;
- Offers enough autonomy to maintain reliable night operation for up to two consecutive overcast or rainy days at an average 11-hour period;
- Long-life lithium (LiFePO4) energy storage technology, offering up to eight years of battery lifetime;
- Designed to withstand wind speeds of up to 144 km/h and highly corrosion resistant;
- Using the latest photometric light distributions and the highest efficient LED technology to provide maximum light levels and spacing between masts; and
- Circular economy 3-star rating.

About BEKA Schréder

BEKA Schréder develops and manufactures sustainable LED lighting products in South Africa, designed and suitable for local conditions.

"We are very proud to be associated with the Department of Infrastructure & Development, including Human Settlements, in providing a successful lighting solution for this project," a company spokesperson said.

Enquiries: gauteng@beka-schreder.co.za

MARCH 2026 FEATURES

- Tools and Tooling
- Standby, Back Up, and Emergency Power
- Lighting

APRIL 2026 FEATURES

- MCCs and Motor Protection
- Cables and Cable Accessories
- Lighting

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