

BIM CONTINUES INNOVATING WITH ELECTRICAL DISTRIBUTION PRODUCTS

When electrician Asogan Moodley took over the reins as managing director at Johannesburg manufacturer Busbar Installations in mid-2019, he rebranded and merged the different divisions, and now the company trades under the Busbar Installations & Manufacturers (BIM) brand. He says that he did not



BIM managing director Asogan Moodley with his mentor and BIM's founder, Bob Boyd.

expect to be entering into agreements with international clients a few years later. "We are currently involved with an exciting build that is going to make headlines in 2024."

While BIM's business can be simplified to the term 'specialised power distribution systems', there is nothing simple about the work itself. "We are fully in-house with what we do. We very rarely subcontract as that could lead to a drop in standards," explains the managing director. "Our busbar business is very, very niche. In terms of competition, some other guys have dabbled and imported equipment, but they do not measure up to our levels of service. We are pretty much the largest busbar manufacturer in the country and even in Africa, there is no other manufacturer who does what we do."

BIM manufactures, supplies and installs a range of products, from LV & MV busbar ducting systems and resin encapsulated busbars, to sandwich-type systems, water-cooled cables and more. "Our busbar power distribution products provide a great alternative to traditional cable distribution systems," says Moodley. One of the company's stand-out solutions is its resin encapsulated busbar system, which is a 1 000 Volt-rated maintenance-free system where the conductor is encapsulated in a fire-

retardant, self-extinguishing, homogenous polymer concrete. "This particular system guarantees our clients' peace of mind as it has a high resistance to fire, water, moisture, mechanical loads, chemicals and extreme temperatures."

The Research & Development team at BIM go all out when it comes to testing their products, with the managing director explaining, "We regularly test our products at the SABS to ensure compliance to the latest SANS/IEC guidelines. We are confident that we hold the most certification and have the widest range of busbar products when compared to any other local company both in SA

and Africa. We do more than just type-test our busbar systems. We have tested our resin products against 33 industry related chemicals so that we know with confidence that our product is suited to almost all environments."

On the way to the top

BIM's managing director has a long history in the electrical business. "I am an electrician by trade. I do not have a complex background, but it is quite lengthy. I worked as a contractor for electrical manufacturer ABB for many years, from 2000 to about 2009. While I was there, a close friend pushed me into

CONTINUED ON PAGE 10



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Comtest wire tracers add accuracy and safety to the jobsite

Electrical manufacturer and distributor Comtest has introduced two new wire tracing systems to the South African market from US-based electrical giant Fluke. The 2052 Advanced Wire Tracer and 2062 Advanced Pro Wire Tracer will simplify the process of tracing electrical wires in residential, commercial and industrial buildings and make troubleshooting easier.

Hans-Dieter Schuessele, Application & Technology Expert from Fluke, says, "Whether fixing equipment to walls or wanting to find cable routings, electricians and contractors need to detect electric cables quickly and accurately. These two new Advanced Wire Tracers make this process simpler and easier, while ensuring operator safety. Offering such options as embedded help screens for easy-to-read, error-free set-up (on the Fluke 2062), we believe these kits will be welcomed by everybody who is tasked with locating energised and de-energised wires and those who are looking for an easy-to-use solution."

The kits consist of the receiver and transmitter, as well as Fluke's i400 AC current clamp accessory that allows users to safely induce a tracing signal to the cables without contacting live wires. Also included are standard components like test leads, alligator clips, outlet adapters, magnetic hanger and batteries.

The Fluke tracer systems detect signals transmitted via an electromagnetic field rather than locating metal parts or voltage. This allows for superior accuracy and safety levels for users, who are also able to find out if there are any breaks or opens and shorts, as well as to identify breakers and fuses

in the circuit. The 2052 and 2062 tracers can also be used to trace non-metallic pipes and conduits, as well as low-voltage wires and data cables.

"We have incorporated two detection methods into our kits," explains Schuessele. "Passive tracing without a transmitter for non-contact voltage detection, and active tracing with the Fluke 2000T transmitter for all other modes. The transmitter automatically senses whether the system is energised or de-energised and selects a 6.25kHz or 32.768kHz output signal frequency accordingly." He adds that "following Fluke's philosophy of offering the maximum number of features and capabilities at an affordable price, the new wire tracer kits feature three transmitter modes (high signal, low signal and loop), four receiver tracing modes, and eight sensitivity levels for greater flexibility and accuracy when tracing wires."

The tracers feature the same modes: Breaker Mode, which allows for easy breaker and fuse identification based on the highest recorded signal detected; Non-contact Voltage Detection Mode, which allows users to trace energised wires without the use of the transmitter; Quick Scan Mode for quick signal identification; and Precision Mode for more precise detection of a wire. The Fluke 2062 Pro Wire Tracer features Fluke's patented Smart Sensor that can identify the orientation of located energised wires which is then displayed on a 9cm TFT LCD colour display. The 2062's tip sensor makes it easy for users to trace wires in corners, tight spaces and junction boxes.

Enquiries: www.comtest.co.za



Smith Power increases offering from famous Japanese engine manufacturer

South African distributor Smith Power Equipment has expanded its distribution deal with famous Japanese engine manufacturer Kubota – local users will now have access to the brand's full range of engines, ranging from 5kW motors for pump and lawnmower applications, to powerful 160kW motors for large tractors and bespoke industrial applications.

Smith Power Equipment Sales Specialist Clement Ngamlana says, "Kubota's engines are industrial variable speed motors that are particularly good for agriculture equipment, construction machines, fire pumps, chippers, crushers, air compressors and factory applications. There is no end to what the engines can be used for because they are so easy to install, along with the variety of configurations that are available." Smith Power Equipment has been Kubota's South African representative for more than 30 years, and the company has built a reputation for not only great service and

sales, its after-sales services are of the highest quality too. "In most instances, spare parts and direct engine swaps are available to support machines with Kubota engines, except in instances where original equipment manufacturers (OEMs) enter into specific agreements or modify engines not to accept standard Kubota parts," explains Ngamlana. "In the case of new builds or where the engine is required to replace another manufacturer's engine, the Smith Power Equipment team is also technically trained to assist with design-specific requirements to ensure the Kubota engine is installed and fit-for-purpose."

There are other benefits to using Kubota engines besides the service from Smith Power Equipment. "The main reason our customers specify the product is the peace of mind arising from its long and proven track record spanning decades. Our Kubota engines are also comprehensively covered by a two-year/2 000-hour manufacturer's warranty. They also run at low revs for low fuel efficiency and less strain, which



equates to lower emissions," explains the sales specialist.

Smith Power Equipment has a full team of engineers and servicing agents on standby, making the maintenance of the already easy-to-service Japanese engines a pleasant and relatively quick experience. "Buying a Kubota engine is all about uptime, and we are available to make sure that our engines keep running reliably for as long as required. Whether specifying Kubota for an entire range of equipment or just buying one to use in a standalone application, it is a well-supported and competitively priced investment in quality for the South African market," adds Ngamlana.

Enquiries: www.smithpower.co.za

Caterpillar puts portable demolition power in your hands

Construction giant Caterpillar is adding a new DX29 jackhammer to its product line-up, featuring 1 750W of power in a compact body that makes it portable and perfect for any demolition project on site. The unit replaces the DX28, which provided 1 100W of hammering power.

The DX29 comes with a 30mm Hex chuck that allows for easy and efficient swapping out of chisels and bits on site, while new softer grips give operators a comfortable hold during operation and transportation. The DX29's motor features a built-in speed controller that means you do not need to hold a trigger while hammering, and the system also prolongs the motor life by controlling the impact sent through the jackhammer's engine.

Weighing just 15kg, it is incredible to see the amount of technology that has been put into the jackhammer. The DX29 has a built-in triple anti-vibration system that minimises stress on the operator's arms and body during use, meaning

you can use the jackhammer longer in less discomfort.

The demolition tool has added features that make operation safer and easier than before – there is a service reminder light that warns users when the jackhammer needs to be mechanically assessed and serviced. New auto-stop carbon brushes and a lock-on switch, as well as a super strong and efficient magnesium gearbox add to the DX29's durability and enhanced performance. The tool comes with an auxiliary handle, cleaning cloth, grease and two chisels (a pointed and flat head).

Enquiries: www.catpowertools.com.



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Making jobsite safety easy to understand

Keeping clients and workers safe is as important as the job itself. But having everyone on the same page when it comes to safety and safety protocols can be a tricky task... until now. Here are a couple of easy-to-implement tips from skills advancement website besmart.ie on how to prevent unsafe situations, and how to communicate important, life-saving safety information.

1. There is always time for a meeting and briefing. Managers or department heads and team leaders should regularly hold safety meetings with teams and staff. This serves a two-fold purpose. First, everyone is reminded of safety protocols and there is no reason not to listen. Second, meetings are a great platform for people to make suggestions and raise issues. If a team member, for example, is concerned about a specific piece of equipment, they can alert their manager to the situation and action can be taken to remedy any issue.
2. Education puts power in users' hands.

Safety managers should not be the only people sent on courses and given education when it comes to safety protocols. You can even compile your own test to check what your staff know and understand about safety, then improve their knowledge with courses that educate and train them on safety measures. This does not only include theoretical education – staff should know how to use all equipment safely, as well as what to do in an emergency (for example, know where the kill switch is on a machine) and what safety gear should be worn.

3. Be clear and concise with documents so everyone can read and understand the contents. If staff have difficulty reading a document because it is poorly written or is filled with jargon, they tend to switch off and ignore the contents of the document. By having clear points that are easy to read and understand, the chances of a safe environment are greatly increased.
4. Remind, remind and remind. Whether it is posters or weekly emails, remind



workers of safety protocols, news and updates. While they may read and delete emails, the message will be remembered. Likewise, posters on display in communal areas, such as kitchens, are visible messages that will

be seen and acknowledged repeatedly. Even something as simple as a sign saying "have you checked your safety goggles?" placed prominently in front of a machine can be an important message that promotes safety.

Give your grease a cleanse now to save later

Specialist condition monitoring company WearCheck has launched its own dedicated grease testing kit to help machine and equipment owners maintain their assets in top working condition. Steven Lumley, WearCheck Technical Manager, says, "With nearly 90% of all bearings being lubricated with grease, routine grease analysis is a vital part of a good predictive maintenance strategy."

In addition to elemental analysis and particle quantifier tests, grease that undergoes analysis as part of the new test kits also undergoes these assessments – Water by Karl Fischer, FTIR (Fourier Transform Infrared), microscopic particle examination – and an image is taken of the grease.

"WearCheck's grease analysis programme is effectively used for a broad range of grease-lubricated systems operating in a wide variety of applications, including industrial bearings, grease-lubricated gearboxes and hubs," explains Lumley. "Monitoring grease condition is a vital part of maintaining and tracking equipment reliability. It can detect lubricant break-down and aid in identifying potential problems before serious mechanical damage occurs. Corrective action can be taken before other signs of deterioration begin to show, such as increases in operating temperatures, noise and vibrations."

Monitoring grease, among other machine lubricants, can also provide important information on the quality of the grease, how it is performing, as well as help adjust relubrication intervals.

WearCheck's comprehensive grease testing programme includes:

1. Elemental analysis

An inductively coupled plasma spectrometer measures the level of wear

metals such as iron, lubricant additives like phosphorus, thickeners like lithium and contaminants such as silicon, that are present in the grease.

2. Particle quantifier index

The PQ test measures the total ferrous content in a sample, which allows the total amount of ferrous (iron) debris in the grease to be determined. The sample can be of any size.

3. Fourier transform infrared

The FTIR produces an infrared spectrum that is considered the grease's 'fingerprint' as it features specific features of the lubricant's chemical composition. This can be used to identify types of additives and trend oxidation by-products that could form because of high operating temperatures and thermal degradation.

4. Karl Fisher Moisture test

Water can be a catastrophic problem when it comes to any lubricant, and contamination can significantly accelerate wear, thereby shortening the machine's service life.

5. Microscopic Particle Examination (MPE)

The grease is filtered through a membrane patch with a known micron rating. Any debris is investigated under a microscope, and the membrane patch is examined for wear, contamination and colour.

"Our grease analysis programme monitors the health of the lubricant, the machine and levels of contamination through a series of chemical and physical tests," concludes Lumley. "With routine monitoring, effective grease analysis can minimise unplanned repairs and downtime, while extending the life of your machinery."

Enquiries: www.wearcheck.co.za



Kress hits home with its cordless max hammer drill

With over 90 years of manufacturing and developing power tools under its belt, German brand Kress, which was sold to the US-based Positec Group in 2022, knows how to build tools for working professionals who demand extreme performance. Kress's new KUC35.9 20V brushless max hammer drill delivers on every level.

"Our new team has done exceptionally well, and we are delighted to bring brands like Kress to the South African market," says Positec SA's General Manager, Greg de Villiers. "In addition to existing products, we are proud of upgrades and updates, such as this hammer drill. Contractors and tradespeople are going to love working with tools like this."

The KUC35.9 has been designed to be more compact than traditional hammer drills, with a 10-times longer-lasting motor life, a new

technology battery that gives 50% more runtime from full charge, as well as Kress's anti-kickback feature for added operational safety. The drill drives home with a powerful 140Nm of torque, 2 000rpm, and a hammer action of 38 000bpm, which is well above the norm. This increased hammer action means users can drill into materials far denser than normal without breaking a sweat.

To accommodate the drill's increased hammer performance, Kress has added an innovative anti-kickback mechanism – should a bit get stuck during operation, the kickback action is minimised and the user's chance of injury is reduced. A brighter LED light with smart technology allows users to use the drill in dark areas or when there is no power for lighting.

Enquiries: www.global.positecgroup.com





Digital marketing tools to improve your online strategy

Companies, no matter their size, need to embrace the digital world – that includes everything from apps and websites, to social media and invoicing. One of the best ways to maximise your online presence is to have synergy between your social media platforms, as well as your website. Here are some handy tips from ledlightingsupply.com to make sure that your digital environment works as well as your team...

- Be visual. Do not have a bland, boring white-only or “vanilla” colour scheme. Take the colour scheme from your logo and have your web designer use those shades to build your website elements. Also make sure that the font that is being used is legible, crisp and clear. While it is easy to change fonts, there are so many to choose from that it can be overwhelming – a plainer font like Arial or Bahnschrift is easy on the eyes.
- Be phone-friendly. This does not mean have an app developed for your business, but your website does need to be tested with functionality for all major cellphone platforms. Your website designer will know how to do this, but you will need to check it on

your own phone before going live.

- Be connected. Social media platforms Facebook and Instagram are owned by Meta, which is why you can connect the two when it comes to posting content. Whatever you post on Facebook, for example, will automatically populate to your Instagram feed, so you do not have to spend extra time posting to two platforms. You will however need to make sure that the actual posts look

correct once they go live – Instagram has different sizing and cropping profiles for images, so you may find that an image from Facebook does not display correctly on Instagram.

- Be simple. While there are hundreds of different plug-ins that you can use on your website to make browsing “more fun”, they may impair a user’s browsing experience by slowing down the loading time. On average, a website should load in three seconds or less – you can use a tool such as PageSpeed Insights to assess your site and pinpoint the problem that is slowing



browsing.

- Be logical. Before designing your website and planning your social media posts, you need to have a clear blueprint of how the platforms will flow. Users need to be able to navigate your site with ease, ultimately leading to them contacting you for a sale. If they get confused while browsing your site, chances are they will find someone else to help them.

Smart clothing connects you with the tech world

While safety clothes and equipment such as goggles and helmets have not changed much over the years, there are a host of new wearable smart clothing items that are digitised to make your work life both easier and safer. Here are some of the top new tech safety items that you can wear on the site, says sbci.com:

1. **Safety glasses:** While site glasses are manufactured to protect your eyes while providing unobstructed vision, there has been an advancement or two along the way. US-based brand XOEye Technologies manufactures smart glasses that feature built-in cameras that can be used to map schematics in a 3D real-time environment. Instead of having to stop work to refer to the plans, wearers can now have the plans displayed on their glasses, which are made with shatterproof enhanced acrylic frames and lens panels.
2. **Halo lamp:** Hands-free headlamps have been around for years, but there is a new lighting solution on the market that provides 360° light supply – Illumagear’s Halo Light. The headlamp is designed to fit snugly to any hard-hat design, features a battery that can provide 34 hours of operational time, and can light up to 200m on high setting. There is also a built-in spotlight that illuminates 20m directly ahead.
3. **Smart clothes:** German brand Fraunhofer, for example, has protective jobsite gloves that change colour when they come into contact with toxic substances. This alerts wearers to a problem so that they can react. Brands like DeWalt have gone a step further when it comes to comfort on the jobsite – their reflective heated jackets feature battery packs that power a heating system so that anyone working in freezing temperatures can maintain a warm body temperature. There are also cooling jackets that pump liquid through a piping system to keep wearers cool in high temperature workplaces.



SEW-Eurodrive launches online purchasing platform in SA

Online shopping has moved into the industrial world, with manufacturing giant SEW-Eurodrive streamlining product procurement through its digital platform, be it low-, medium or high-voltage products and spares. In addition to various useful tools and functions, SEW-Eurodrive’s Training Manager Zander Claassens points out that the service also has in-person support to meet customer requirements.

“The portal allows customers to do more than just purchase machinery, equipment and spares – they can also find support in the form of documentation and CAD data. To maintain the personal touch, there is even a dedicated person to assist customers with their online requests from

7am to 9pm daily.”

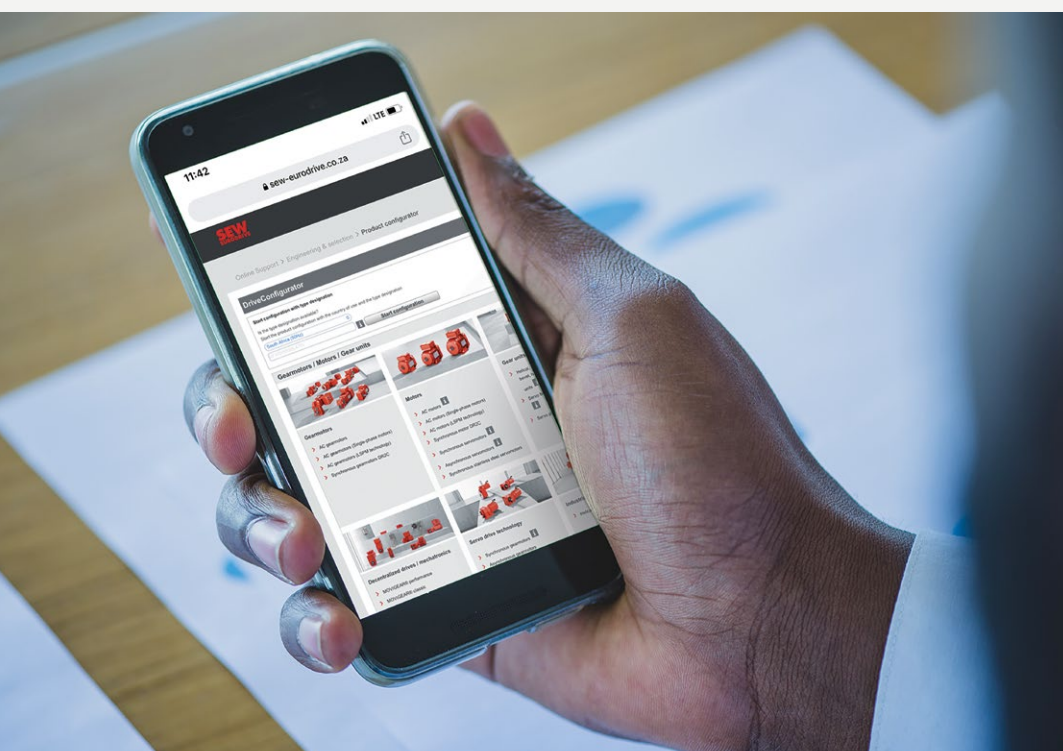
The online purchasing portal offers users useful tools and functions, valuable information and practical assistance, adds the training manager. “Customers are embracing online procurement platforms, especially since the Covid-19 lockdowns, and we are excited to further enhance our sales and support channels in this way,” explains Claassens.

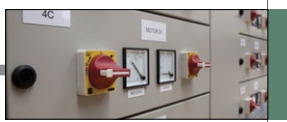
“We have developed four functions that customers can choose from when adding a product to the shopping cart. Our product configurator guides customers in configuring their equipment using drop-down options from our range,” says Claassens. “The second function is using the spare parts or replacement product

selection function, where the customer uses the serial number on the product nameplate to request a replacement – and ensuring that the exact configuration is replicated. Users can also find a SEW-Eurodrive replacement product for a third-party drive that is not a SEW-Eurodrive item. Our online tool will not understand the non-SEW-EURODRIVE serial number, of course, but if the specific criteria are supplied, we will know what the customer needs and we will supply.”

Registered customers can use the brand’s transaction overview to help select what they are looking for. When they log into the online purchasing portal, they will be able to view their history of quotations and orders. This makes it simple to re-order a component that has been purchased before, says Claassens. “Lastly, customers can use the drive selection assistant – a smart online tool that guides the user through three simple steps to find the right drive,” he says. “The first step is to select the application, and the second requires more application-related information; the third step then presents the customer with product configurations and suggestions – from which they can choose. Customers should remember that there is support from our team on the portal, who provide hands-on advice and assistance. Customers can also rest easy that the security of the portal is world class and that their SEW-Eurodrive purchasing experience will be pleasant.”

Enquiries: www.sew-eurodrive.co.za





South Africa's solar energy landscape: Opportunities & missteps

After 16 years of loadshedding, the energy crisis in South Africa is continuing seemingly unchecked. This has been a positive for the renewables and solar photovoltaic (PV) industry, with installations increasing exponentially every year – 2023 saw a 350% increase in the imports of PV components over 2022 alone. With that in mind, Svilen Voychev, the Chief Executive Officer (CEO) of solar suppliers Valsa Trading, explores the state of the PV market in South Africa.

"You would think that our renewables market would be further along in its development, given how long we have been experiencing loadshedding and grid instability," says Voychev. "What we have seen is that the crisis has given our industry a boost as the loadshedding phenomena has worsened. The realisation is that the challenge will not be solved in the short-term and there are increased concerns on climate change – the extensive uptake of PV systems has meant that component prices for solar installations have become more affordable."

Loadshedding started as a minor inconvenience, but it has spiralled into an economy-killing national crisis and international embarrassment. "This has had a significant impact on our country's GDP (gross domestic product), exports and businesses' ability to carry out day-to-day trading. It has had a major impact on just about all aspects of our lives, and without doubt, contributed to a steep rise in the cost of living – a good example is supermarkets having to recover the hundreds of millions of Rands spent on diesel for generators, just to keep the lights on, refrigeration equipment and tills operating," explains Valsa's CEO.

South Africa however is the perfect country to have solar PV installations, either as back-up and emergency power systems or as a complete replacement for national energy provider Eskom. "Our climate favours PV installations. South Africa has lots of space for large-scale solar farms, and the nature of solar energy generation means that there have been advances in battery storage to ensure continuity of supply when the sun does not shine," adds Voychev.

Solar has become the new "it" industry in the country, with service providers popping up on a weekly basis. This does not mean that the market has become saturated yet, adds Voychev. "There is space for newcomers to the industry, especially in the residential market. There is a downside, though – due to low barriers to entry, lack of regulation and consumer ignorance, the solar industry is fertile ground for the 'bakkie brigade' of opportunists." The solar industry is worth billions and like most "new" endeavours, it has attracted its fair share of people who are hoping to cash in

on what they think is a quick buck.

"To address the lack of regulation, many of the larger suppliers of quality components, including ourselves, have either singly or in collaboration with others, established grass roots installer training courses to add some professionalism to the industry. In some cases, established and would-be installers are provided with incentives such as discounts on quality components upon

successfully completing training courses," explains Voychev.

"Established companies in the electrical industry have embarked upon local manufacturing, but at this stage there is no government support, and we are unlikely to counter the massive production and research and development capabilities of mainly Chinese manufacturers – some good and others providing products of

questionable quality. There needs to be a regulatory framework that protects local manufacturers to stop the profits from flowing out of the country – that would be an incentive for businesses to invest and create jobs through local manufacture."

To read the full article, visit www.sparkselectricalnewsmagazine.co.za

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Svilen Voychev, Valsa Trading's CEO.

South Africa's solar boom is just beginning

As we end another year of loadshedding shocks and horror, new information paints a bright picture for the country's solar installation industry. "Consumers have installed more rooftop and on-site solar contracted to private consumers in the last year-and-a-half than in the past 10 years under government programmes," explains Dominic Goncalves, a Decarbonisation Advisor at Cresco Project Finance. "For industry experts, this is a staggering figure – what took almost 10 years under public programmes took little over a year once regulations were lifted and loadshedding incentivised the private residential, commercial, industrial and agricultural sectors to build their own resilience and get off the grid."

In 2010, South Africa set up the Renewable Energy Independent Power Producer Procurement Programme (REIPPP), which on a global level was hailed as one of the 'best practice' ways of implementing renewable energy. Goncalves was involved in three massive-scale projects at the time – Khi, Kaxu and Xina Solar One, which produce about 250MW of solar power into the grid in the Northern Cape. "Ninety-two of these projects were installed between 2011 and 2016, which account for about 6 300MW of solar and wind generation. Those projects unfortunately came to a grinding halt as Eskom and government forces put a stop to the programme, arguably to force through a nuclear deal with Russia instead," says Goncalves.



The programme was restarted in 2019, with the current installed base sitting at 3 500MW of wind-generated power and 2 300MW of solar-generated power as of August 2023. However, the burden and grid strain caused by increased loadshedding since mid-2022 to date has caused nearly every progressive-thinking South African to explore ways to get off Eskom's grid and have their electricity supply as much 'in their own hands' as possible, explains the energy efficiency expert. "Diesel generators are expensive – more than Eskom's power – but solar power has become cheaper than Eskom, in almost every application. Although it only works roughly 30% of the year (when the sun is shining) during this 30% you can have your own power at a cheaper rate than what you'd pay for Eskom when there's no loadshedding, and in off-peak hours," says Goncalves.

In the space of a year, the installed base of private solar power systems went from 981MW in March 2022 to 4 750MW by August this year. "Once regulations were opened for businesses and homeowners, solar installations shot past government programmes in one tenth of the time it took to establish the government installations. This can be attributed to three factors, says Goncalves. "The price of solar systems decreased more than 90% from 2008 to 2023. Solar is cheaper than Eskom power, meaning consumers can achieve savings on installing a system versus not having such an installation. There is an increasingly lower payback period, and the business case makes sense.

"Regulations prevented private consumers from installing projects above 1MW until 2021. Once permitted, a flurry of demand from mines, smelters, industrial facilities, data centres, hospitals, shopping malls and other larger loads all began developing solar projects – ideally on their roofs and on-site if there was enough space. If space was limited, power was 'wheeled in' from other parts of the country, using Eskom's grid to transport it.

"Increased loadshedding. Diesel is approximately 10 times the cost of solar power. Diesel works 100% of the time, while solar works 30% of the time. The best way you can get your diesel cost down is to install solar to offset your diesel when the solar is operating," says Goncalves.

Solar's pros and cons

Eskom, along with most power utility providers around the world, considers solar installations as somewhat of a double-edged sword. "Solar is variable. It is great when it is producing power. But even with batteries,

solar installations cannot store power for long periods. This means that during winter months, when there are extended periods of no sun, all that fleet of gigawatts of solar power – for a week at a time, for example – can be of no use at all. It is during these times that the power is often needed most. It is well known prior to installing a system that solar will only work 30% of the time, during daylight hours and with high seasonality – more in summer, less in winter. This can be planned and worked around," explains Goncalves.

What solar does do is to free up electricity demand and strain on the grid, which allows Eskom to (hopefully) perform much-needed maintenance. "Solar relieves the consumer of the need to burn diesel generators, which are much more expensive. It enables consumers – whether residential or commercial or industrial – to retain some autonomy of their electricity supply in their homes and their businesses in a country where public service delivery, especially electricity, has a very poor track record with little expectation of improvement in the short to medium term," adds the expert.

Solar sales and installations are booming in South Africa – and around the world. It is good for the climate and good for the environment, and there are few if any drawbacks from installing a photovoltaic system to become more in control of own your electricity supply. "It will be interesting to see, in five years' time, how much more solar is installed – considering the past year-and-a-half's record figures – how much load that takes off Eskom's grid and how much loadshedding it will avoid. It may not be the silver bullet against loadshedding, but it is certainly one of the main ones that consumers, for a change, are in control of," says Goncalves.

Enquiries: www.crescogroup.africa

ABB Electrification unveils its series of new mini circuit breakers

Swiss-based electrical manufacturer ABB has launched its new 3kA SR200T miniature circuit breakers that are aimed at the light commercial and residential markets, says Etienne Delpont, Product Marketing Director at ABB South Africa. "To date, these segments have been largely dominated by low-cost products that have been imported from countries such as India and China. End customers for the new range include contractors, property developers and architects."

While mini circuit breakers have been on the market for some time, ABB's SR200T range offers a complete high-end solution to its customers. "It is a high-volume product that is incredibly price-sensitive, but it opens up a whole new market for us in that we can offer additional products required by contractors," says Delpont.

The range complies fully with all relevant local standards – circuit breakers of 10kA and lower must be certified in terms of the SANS 10142-1 for the Wiring of Premises, Part 1: Low Voltage Installations, as well as having a Letter of Authority (LOA) to VC8036 and a Regulatory Certificate of Compliance (RCC) to VC8035 in terms of earth leakages. "Our products comply with every mandatory standard of the South African market. They have been tested and third-party approved, with the LOA and RCC number appearing in our catalogue to assist contractors in terms of CoC certification," notes Delpont. "We aim to make life as simple as possible for contractors by offering a quality European brand."

The SR200Ts can be used in conjunction with FGH201 earth leakage devices, timers and Mistral 41F distribution boards from ABB's System Pro M compact range. "This provides protection and control against overload and short-circuit conditions, catering for both resistive and inductive loads with low inrush current," says Delpont. "The SR200T is available in single-, double-, triple- and four-pole configurations. With a rating selection starting as low as 1A and increasing to 63A, providing protection for the circuit you are installing could not be more convenient. ABB's first-class quality DIN rail 3kA MCBs guarantee safe and reliable electrical protection," says Delpont, adding, "We are looking forward to our product providing safety, quality and guaranteed performance of the highest level. Mini circuit breakers are becoming more important in the industry, and ABB wants to be a key figure."

Enquiries: www.abb.com



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Trafo Power Solutions supplies more dry-type transformers to DRC mine

Local power specialist Trafo Power Solutions has supplied a further three modular substations, equipped with dry-type transformers, to Alphamin Resources' remote Bisie tin mine in the Democratic Republic of Congo (DRC). The company previously supplied two similar units to the mining operation in 2018, "Which have performed well," explains Trafo Power Solutions' co-founding managing director David Claassen.

"This latest order is testament to the operational performance of our dry-type transformers at Bisie mine over the past five years," says Claassen. "There were many challenges that our design had to accommodate, not least of which was an arduous section of road in the journey to the mine that is located in the remote Walikale Territory of DRC, about 180km northwest of Goma and more than 30km from the national route linking Walikale with Kisangani."

The new units are 3 000kVA, 400V/11kV substations that are supplied in standard 6m-long containers to facilitate their transportation. However, specialised steel bracing is required within the substation module to withstand the challenging road conditions, especially over the last part the journey. "These conditions make the road almost impassable by any vehicle other than a six-wheeled Unimog," says Claassen. "There is intense vibration and tilting of the cargo on these trailers, so our design and bracing is done with this in mind."

He adds, "The mine had considerable foresight in specifying the first dry-type transformers, especially given the relative novelty of this option at the time. At that stage, it tended to be standard practice to use oil-filled transformers for this type of application. Apart from the logistics, the substation

solution also had to withstand the equatorial climate and frequent lightning strikes. The region where the mine is located is ranked in the top-five most vulnerable to lightning strikes, so there is a high risk of damage to equipment related to electrical surge. We therefore designed robust surge protection solutions on both the medium-voltage and low-voltage sides of the substations and for the transformers."

More adaptations have been made to the new power units. "Given the warm climate in the DRC, we have designed a fully redundant N+2 cooling system for the transformers – basically each transformer is cooled by two fans, with another two fans on standby. Among the advantages of dry-type transformers in this climate is that the MV winding is completely cast in resin, so is highly resistant to humidity," concludes Claassen.

Enquiries: www.trafo.co.za



A 3 000kVA dry-type transformer fitted in one of the modular substations that is heading to the DRC's Bisie Mine.

Riken adds protection via auto phase sequence correction product

Riken Electric is a well-established brand and a customer-centric business with a strong focus on creating a positive customer experience. "We place enormous emphasis on building technical skill and knowledge within our staff as this enables us to deliver superior value to our customers," says Brendyn Meyer, Chief Executive Officer (CEO) of Riken Electric. "We place a huge focus on reliability both in terms of the quality of our products, as well as the service we offer. Our products have international certification and are backed by a two-year warranty."

Riken Electric has recently custom-designed various surge protection devices for some of its customers who have experienced over- and under-voltage, or who have experienced issues associated with phase failure protection. This has helped these customers to avoid huge insurance claims caused by loadshedding issues as well as the problems associated with the current dirty power sources we are experiencing in South Africa on an ongoing day-to-day basis.

"Another problem our customers experience is due to phase rotation when the grid is restored after power outages," explains Meyer. "These outages are commonly caused by electrical surges, cable theft during loadshedding, mini-sub blowouts or the malfunctioning of switchgear due to poor maintenance."

When power is restored, the phases are reconnected in the wrong sequence, leading to reverse phasing. This can cause damage to machinery and equipment such as conveyers, refrigeration compressors, inverters or any other three-phase motor applications.

In the case of inverters, the inverter will sense the incorrect phase sequence and will automatically switch off. "On many occasions, the technicians must then be called out to adjust the inverter to accommodate reverse phase. This delay comes at a cost as the customer has by this stage been without power for a lengthy period of time," says Meyer. "The next morning, the municipality or Eskom will realise that the phases were swapped the night before and will then restore them to a clockwise rotation. This results in the inverter sensing a reverse phase as the phases have now been swapped back to the original (clockwise) rotation and switched off. Once again, the technicians must be called out to attend to the inverter. This leads to financial losses due to down-time and repairs."

Riken's technical team has now designed a low-voltage solution to address phase failures for its customers. "The unit automatically maintains a clockwise rotation irrespective of the upstream phase configuration. It de-energises or isolates the circuit with over- and under-voltage or phase failure conditions, which is critical for the protection of the load and equipment. The unit is also equipped with ultimate surge and lightning protection that responds within a nanosecond to Class I + II surges (switching and lightning) and honours a 10-year replacement warranty. This advantage contributes to a longer life span for all electronic and electrical equipment connected to the Auto Phase Sequence Correction unit," concludes Meyer.

Enquiries: www.riken.co.za



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BIM continues innovating with electrical distribution products

opening my own contracting business, so I did just that. We specialised in the assembly and wiring of motor control centres. There was change in policy where ABB decided to reduce the local manufacturing of low-voltage switchgear, so we went from having about 20 or 30 guys on the floor to having five. That was when I realised that the business was no longer viable, so we needed to diversify."

Moodley moved to Durban and changed his company name for somewhat of a fresh start. "My business was originally called Ask Switchgear, but not many people understand what switchgear is and how it is linked to everyday business and life. So I changed the name to Global Electrical Solutions in 2013 and business picked up almost overnight because people were now able to link our brand to electrical work."

The real change was around the corner, says the businessman. "In about 2011, I met Bob Boyd from Busbar Installations. I used to contract for them and do a lot of projects with them. Then at the start of 2018, I found out that Bob, who is an industry icon and my mentor, was looking for a key investor. He had people in mind, but it just was not working out for him at the time. I asked Bob for the opportunity to buy his business and he happily agreed, which has worked out well for me," explains Moodley, who adds that the daily challenge of running a business only makes him and his team more determined. "We set the standards, and we push ourselves to be the best at what we do. We are specialising in managing low- and high-power distribution applications. We have done many commercial and residential projects throughout the country such the Discovery Building, Ernest & Young and Time Square in Johannesburg, The Rockefeller, 16 on Bree and Harbour Arch in Cape Town and The Oceans, The Pearls of Umhlanga and

Gateway Shopping Mall in Durban to name a few. In the industrial sector we service the petrochemical, mining, paper and pulping industries. We are currently leading the data centre space in South Africa and are fortunate to have many well-established clients. Our company has done work in over 16 African countries, as well completed high-rise projects in Dubai. This is our field of expertise."

Being hands on

Moodley is not a leader who sits back and watches his followers get on with their work – he is a hands-on kind of managing director. "I love my work. I am an electrician, and we work with our hands. I have an excellent team and together we ensure that every product is manufactured to the highest standards. Every component that goes into our product is responsibly sourced, and we never compromise on compliance or quality on our projects. All our materials are sourced directly from original equipment manufacturer (OEMs). We don't use middle-men. Our aluminium and copper is supplied directly from the mills."

There are one or two minor elements of the business that BIM does outsource, but that will not be for too long. "We are expanding. BIM is a somewhat small business in terms of our factories. Our 4 000m² Johannesburg manufacturing facility is limited in terms of space, so we outsource specialised steelwork and powdercoating. We are in the process of expanding, which includes our Cape Town and Durban branches, so we will be adding some new services soon."

Moodley says that unlike many other contractors and installers, he does not believe in bringing outside people in unless it is critical. "We provide complete turnkey solutions for projects, and our in-house engineers and licensed electricians can assist clients with any

situation, from project design, to installation and after-sales service. We have many products and specifications available. For example, replacing cables can start from 400 amps up to 10 000 amps. You tell us what you want, where you want it and when – and we make sure that you get the best service."

Seal of approval

"Originally, the company's founder (Bob Boyd) did not have the opportunities to expand the business to where it is now. Even in terms of our certifications, since taking over I have pushed our teams and products. We have completed our full ISO certification with the complete ISO management system in place. We are also in the process of attaining our SABS certification," says Moodley, adding that all of BIM's products are fully type-tested to the 61439.6 standard.

The managing director says that he is incredibly proud of his team and the work his company does, more so because "one of the biggest challenges in the industry is cost versus compliance. Some of the consultants and the senior people don't really look deep into the compliance aspect, but more into the cost aspects. Some companies are sitting with type-testing certification that was done in the 1980s, which may now have been superseded. Just because a company is well established does not mean that they are always compliant."

"I am currently talking to the Electrical Contractors Association of South Africa (regarding compliance and certifications). I have the South African Bureau of Standards coming to our premises soon, we have started the permit application, and lab testing will follow that. We are looking ahead to an incredible 2024 after what has been an amazing year already," he concludes.

Enquiries: www.sabusbar.com

SolarAfrica heads continent's list of top solar energy performers

The Africa Solar Industry Association (AFSIA) has awarded South African business SolarAfrica the 2023 African Solar Company of the Year award. The event, held on 5 November in Nairobi, Kenya, acknowledges leaders in categories such as Utility-scale Solar Project of the Year, Productive Use of the Year, Solar Entrepreneur/SME of the Year and many more, recognising achievements made both by companies and individuals who have contributed to promoting and advancing the use of solar across the African continent.

"This is quite an achievement," says David McDonald, the Chief Executive Officer (CEO) of SolarAfrica, "as we are the only company to receive this award twice" – SolarAfrica won the award in 2021 as well. The brand's win is in recognition of the product transformation journey that it has taken over the past two years, with the company going from a single-solution provider of solar Power Purchase Agreements, to offering a comprehensive suite of energy solutions designed to address businesses' energy needs today while setting them up for a greener future tomorrow.

The company offers a variety of energy solutions that include solar, battery storage, wheeling, electricity trading, gas-to-power, biogas and renewable energy certificates. "SolarAfrica is leading the way by enabling businesses in Southern Africa to advance in their green energy journeys and become

more sustainable operations," explains McDonald. "To be recognised once again as the African Solar Company of the Year makes me incredibly proud of the impact, we are making to South Africa's sustainable energy mix." He adds, "What I am most proud of is how we have maintained our coveted culture and core values during a period of extreme growth. This is a challenge for many businesses."

The achievement comes soon after SolarAfrica's merger with Nigeria-based Starsight Energy. SolarAfrica serves as the group's Southern African market segment, with SolarAfrica's Chief Investment Officer (CIO), Charl Alheit, saying, "As a group, our mission is to take more customers across Africa on a green energy journey that solves their power requirements and enables a sustainable future. This award is one of many significant achievements that continues to position us as leaders in our field."

At present, SolarAfrica has more than 270 employees who have helped work on over 800 projects across sub-Saharan Africa. "Our portfolio is expanding on a month-to-month basis," says McDonald, "already consisting of 520MW worth of solar power generation, 60MWh worth of battery storage, and 19 115 horsepower of cooling capacity. This has provided more than 360 000 tonnes in carbon reduction to our customers to date."

Enquiries: www.solarafrica.com



Schneider Electric leads smart meter roll-out project with new architecture

Global electrical manufacturer and distributor Schneider Electric has now made available its vendor neutral EcoStruxure Grid Metering Operations (GMO) architecture as it prepares for the South African government's advanced metering infrastructure project.

"Our EcoStruxure GMO architecture puts our information management services expertise to work not only to achieve effective AMI deployment but also to maximise subsequent smart metering returns," explains Dwibin Thomas, Cluster Automation Leader at Schneider Electric. "The solution is a meter-agnostic platform and offers advanced deployment, management and integration of AMI systems. It will enable utilities across the country to make their meters 'smarter', including now prepaid meters."

Schneider Electric was recently named one of the Global Top 10 Smart Meter Companies by global energy research organisation Blackridge Research &

Consulting, which Thomas says is due in part to its GMO. "EcoStruxure's integration capabilities are a major feature. We are incredibly proud of our product". He adds, "Smart meters and smart prepaid meters offer real-time data on power consumption via a smart energy management system. This data can be accessed remotely, allowing utilities to accurately gauge usage, obtain billing information and general consumer consumption patterns."

Schneider Electric's EcoStruxure GMO provides effective large-scale deployment, efficient operation and rollout management, among other benefits that Thomas says "will make meter rollout projects easier to manage, both during and after completion. There are also improved end-customer services and lower operational costs that make implementation easier".

According to the manufacturer, smart meters offer important benefits to consumers as they allow the consumers to actively track their own power consumption

and adjust their usage according to peak-time tariffs. "EcoStruxure GMO also allows consumers to remotely access prepaid meters to monitor top up units. This is particularly beneficial to households and businesses that use hybrid solar/grid power systems," says Thomas. "A common complaint by prepaid users is that when they do switch over to a hybrid system, they don't have real-time insight into the status of their prepaid account i.e., how many units are left."

He adds, "EcoStruxure GMO is a complete offering. It manages meters, concentrator, modem, HAN (home area network) device asset information and relationships, device lifecycle and field service logistics. It can also execute remote operations that include configuration, connect/disconnect and on-demand reads, while collecting and integrating readings and events such as power outages and quality, errors, tampers."

Enquiries: www.se.com/za



Dwibin Thomas, Cluster Automation Leader at Schneider Electric.

SOCO Energy: Spearheading commercial solutions while honouring residential roots

From its base in Johannesburg, SOCO Energy has grown to be a key player in commercial solar installations. Starting in 2016 with an initial focus on residential projects, the company has since expanded into the commercial solar and battery market.

Chief Executive Officer (CEO) Amit Abraham, with a solid background in electrical engineering, sheds light on SOCO's journey. "When we began, our focus was on homeowners who were often trying to find balance between quality and affordability with their solar systems. They sometimes faced challenges with inexperienced installers delivering sub-standard and non-compliant installations. We aimed to change that, and as we moved into larger commercial projects, our commitment to quality remained just as strong."

One significant concern Abraham points out is the rising appearance of counterfeit products in the market. "It is a real challenge out there with counterfeit products. Thankfully, we have been fortunate to avoid them so far. We have built strong relationships with a select few trusted manufacturers and suppliers, ensuring that what we install for our clients is genuine." Abraham emphasises the meticulous approach SOCO Energy adopts before deploying any product, saying that "before using any component, our dedicated in-house team thoroughly tests it. While we are not keen on jumping on every new brand that comes out, we do value our partnerships with known and trusted suppliers. But trust does not mean we skip the quality check. Every product must pass our tests."

The key to any successful company is teamwork, which the SOCO Energy CEO says is something he values above all else. "Our strength lies in our

cohesive team. We manage everything in-house and refrain from outsourcing. From the initial site check, to final repairs, we oversee every step of our projects. Outsourcing can often lead to a drop in quality control, leaving clients dissatisfied. We treat every project with equal importance, ensuring quality delivery from the start," he says.

It is no secret that South Africa's solar industry is going through a major boom thanks to loadshedding, grid instability and the overall cost of electricity – 2023's import of solar products was a 350% increase on 2022. Abraham notes, "We are currently witnessing a tremendous boom in the renewable energy sector. The past year alone has seen remarkable growth, driven in part by loadshedding but also by the global shift towards carbon neutrality. Large businesses are actively seeking sustainable energy solutions to stabilise their costs and supply. Our team is immersed in several high-impact projects that promise to yield significant impact to our customers, not least of which includes partnerships with major brands like Anglo American." He adds that BESS is a big plus for solar photovoltaics installations. "A Battery Energy Storage System doesn't just act as a back-up. It boosts the efficiency of solar systems. Solar photovoltaic installations that were previously losing up to 25% of their daily output capability due to power cuts now show improved photovoltaics production."

With a brand-new year on our doorsteps, Abraham and his team are looking forward to a busy 2024. "With big collaborations and an unwavering commitment to quality and innovation, SOCO ENERGY is positioned at the heart of South Africa's renewable energy movement."

Enquiries www.soco.energy

How counterfeit solar systems are infiltrating SA's marketplace

With regards to quality-certified products, prominent suppliers of solar panels and solar systems have recently warned installers about an influx of counterfeit panels in the South African market, warns Dean March, Solar Specialist from leading distributor Voltex. "Counterfeit products are usually cheaper than the genuine products and, on close inspection, spelling and technical specification errors can be noted on the product's packaging and labels."

Users may not notice poor performance at first, but the under-delivery will quickly become apparent, explains March. "On commissioning an installation with counterfeit panels, the products may seem to perform as expected at first. However, under electrical load conditions, these products could expose installers and end-users to injury or death through electrical short circuits, or severe property damage because of fires and explosions because they simply do not perform to the level, quality and standard of the actual products."

The problem with counterfeit products is not confined to South Africa, but it has become more prevalent of late thanks to the increasing pressures of loadshedding – 2023 saw a

massive increase in the import of solar panels compared to the previous year. "The companies concerned are addressing the issues through the appropriate legal entities and they are working with law enforcement agencies and regulatory authorities to act against those who are responsible for the distribution of these counterfeit products in South Africa," adds March.

When purchasing electrical products, it is essential to consider both the supplier and the products they offer. "Make sure to research their reputation, certifications and customer reviews," March adds. "In addition, ensure that the products meet the industry standards and have the certifications for safety and quality."

With the above in mind, purchasing products from a reputable supplier such as Voltex, can be vital to ensuring safety and quality. "Voltex supplies only quality-certified products and is a founding member of the SAFEhouse Association, an industry watchdog established to protect consumers, expose unsafe products, and promote environmental protection," concludes March.

Enquiries: www.voltex.com



Rubicon brings Synapse Ultra hybrid inverters to SA marketplace

Renewable energy company Rubicon has backed up its reputation as an industry leader by unveiling an innovative new product that Rubicon hopes will help consumers avoid power-outages and loadshedding.

"The Synapse Ultra hybrid inverter and battery system is the newest addition to our Synapse family that has proven itself in the marketplace," says Dylan Schnetler, Director of New Business at Rubicon. "We initially launched with 3.6kW, 5kW, 6kW and 8kW hybrid inverters, but we are expanding the range to include up to 200kW hybrid inverters by early 2024. This move solidifies Rubicon's commitment to providing a wide spectrum of options to meet the varying needs of residential and small-to-medium commercial users."

The new inverter comes with a standard 10-year warranty, but the real powerplay is the inverter's seamless integration with leading battery manufacturers. "This compatibility ensures that consumers have the flexibility to choose the energy storage solution that best suits their unique requirements," adds Schnetler, adding that along with the new inverter product, the company has introduced the Synapse battery range, featuring a 1.3C 4.8kW battery with a 10-year warranty as well. "This high-spec combination of the Synapse Ultra hybrid inverter and the Synapse battery ensures a robust, dependable and long-term energy storage solution," says Schnetler.

Among the inverter's other benefits are:

- AC coupling: An intelligent coupling scheme for easy upgrades to existing grid-connected systems.
- Automatic UPS switching.
- Battery integration: Compatible with both lead-acid and lithium ion batteries, with multiple battery protection features.
- Bluetooth connectivity: Reception extends beyond industry standard of 20 metres.
- Flexible connection: This supports single- and three-phase connections with a maximum of 48kW in parallel (8kW).
- Generator connectivity: Multiple input methods and automatic generator on/off control.
- High charge/discharge capacity: Up to 190A max charge/discharge current (8kW).
- Loadshielding: Supports two back-up controls for loadshielding during off-grid mode.
- Peak shaving control: Supports peak control in grid and generator conditions.
- Surge power back-up: A 10-second 200% surge power overload capability.

Rubicon has added a new level of service excellence to its offering, explains Schnetler. "We have a network of branches around the country and dedicated field support teams for all our products. Now we have added a 24-hour swap-out process for Synapse Ultra, ensuring rapid response and resolution in the event of any product failure during the warranty period, providing customers with added peace of mind when they buy our brands and products."

Enquiries: www.rubicon.co.za



How to be intelligent and avoid pitfalls when it comes to photovoltaic systems



In the rush to install solar photovoltaic (PV) systems to mitigate losses due to loadshedding and the unreliability of the national grid, it is easy to overlook warning signs and end up with an investment that doesn't deliver the promised returns in electricity supply and savings. Dr Karen Surridge, Renewable Energy Project Manager of the South African National Energy Development Institute (SANEDI), shares her knowledge and a couple of things to remember when installing a PV system.

"How much can I expect to pay for a PV system and will the return on investment be worth it, are questions I get asked often, quickly followed by what can I do to not get taken for a ride?" says Dr Surridge. "Solar panels have become a feature of the South African residential landscape over the past few years as homeowners seek a measure of energy self-sufficiency. Once you have made your home as energy efficient as possible with LED lights, a solar/gas/efficient geyser, gas cooker and energy-saving habits, the time is right to invest in a PV system with battery backup to keep you going during loadshedding. But you need to do your homework first."

Dr Surridge says it is always a good idea to know your monthly electricity consumption not just in terms of monetary volume, but also of kilowatt hours. "This information is already on your municipal usage account. If you are on a prepaid system, you have this information on the voucher receipts. Once you know what you are using, you can compare that to see whether your PV installer is quoting you with specifications that will meet your needs."

Here are a couple of guidelines from Dr Surridge and SANEDI on how to ensure you have a PV system installed that will do everything you need:

1. Find the right installer

Start with a reputable installer. Do not just go by one or two references on a website – investigate and find out more about the installer. "You can find installers in your area by checking with the South African Photovoltaic Industry Association (SAPVIA) on the PV GreenCard website (<https://pvgreencard.co.za>). Registration means that the installer has had the proper safety and quality training and will issue you with proof of compliance for the installation for insurance, finance and regulatory purposes," explains Dr Surridge. A certificate of compliance (CoC) as a line item on your quote is usually an indication of capability, since only registered tradespeople can issue such a document.

2. Know what you should be paying for

A PV system consists of PV panels, an inverter, batteries and the components that tie the system into your home's electrical system. The quote from your installer should be itemised and specify all these items (including the CoC). It is important to know a bit about brands when it comes to your PV system, suggests Dr Surridge. "Go with a well-known brand that has a good reputation. Insist on your quote

indicating the brand for everything from the battery to the inverter and PV panels."

It is also suggested that you know how a PV system works. "The inverter inverts the direct current (DC) produced by the PV panels (or batteries) into alternating current (AC), which makes the electricity available to your home and appliances. An inverter on its own is of no use. Never skimp on the inverter and always choose one with a built-in surge protector. While prices differ, a good 5kVA inverter for an average four-person household should cost between R25 000 and R30 000," explains Dr Surridge.

Nowadays, PV panels have a relatively high efficiency of about 20% and it is usually a 545-555 Watt panel that comes in most systems. "You are looking at a price range of approximately R2 000-R4 500 per panel. For an average household of four, eight of these panels should be more than enough. Once again, do your research, make sure you are satisfied with the specifications on the make of panel for which you are quoted."

Dr Surridge adds, "When it comes to batteries, there are a few options from which you can choose; however, there are two factors you need to consider. The first is the depth of discharge (DOD) and the second is the number of cycles in the lifespan of the battery. Lithium Ion should be your battery of choice, but it is the most expensive option, coming in at about R25 000-R30 000 for 4.8kWh to go on your 5kW inverter. They are more energy dense than lead acid or gel batteries, meaning they last longer (up to 3 000 cycles) and have a deeper cycle discharge ability. In layman's terms, this means that a lithium ion battery can comfortably go down to 20-5% power (discharging 80-95% into your household needs) before it needs to be recharged without negatively affecting the lifespan of the battery."

3. Negotiate

Just because you have a quote from a reputable installer does not mean you must accept it. Negotiate if you feel it is unreasonable, but without skimping on either quality or safety for the equipment, safety for your home electrical system and safety for you and your family. "A PV and/or battery back-up system can add tremendous quality to your life and up the resale value of your home," says Dr Surridge. "It is therefore worth investing the time and effort to make sure you get the best value for your investment and have the peace of mind of knowing what you have paid for and have installed is going to satisfy your needs and do what you need it to do."

Don't be seduced into buying functionality and capacity that you might not use. By installing a solar PV system, you are aiming to be energy efficient while also having emergency back-up power. "Ignore the fancy things such as Wi-Fi communication. Those are great benefits, but you do not have to have them as essentials," concludes Dr Surridge.

Enquiries: www.sanedi.co.za

ILLUMINATING THE INDUSTRY WITH ANDREA

Understanding Nominal, Effective & Residual Lumens: What's in the Box Matters



Opinion piece: Andrea Barausse is the founder and managing director of Durban-based lighting company Energywise Systems. In 2023, he was elected as the technical chair of IESSA – the Illumination Engineering Society of South Africa.



Often the lightbulb is only half as bright as we're told.

Have you ever bought a product, only to discover that what is promised on the packaging is not what you get inside? This is a common issue in the lighting industry, especially when it comes to the quoting of 'nominal lumens'. In the real world, nominal lumens offer zero real-world value for the end-user. But why is this so, and what is the difference between Nominal, Effective and Residual lumens?

- Nominal lumens is a theoretical lumen

value that has been calculated by the LED manufacturer without considering where or how their LED board will be used. I do not mean the LED fitting – I am talking about the LED chips themselves that still need to be housed in a light.

- Effective lumens is the output value of a complete light fitting that is measured at Ta (ambient temperature) of 25°C after all the electrical and optical losses are

considered, and upon reaching thermal stability.

- Residual lumens is a function of the L&B specification over time and temperature. In other words, the remaining lumens that are available from a fitting after a predetermined time (primarily its warranty period) and temperature. It is the measure of light that your fitting will give as it ages, and it is sometimes referred to as design lumens. This is an important measurement as ambient temperature above 25°C will greatly affect the claimed performance. Allow me to use an analogy. If I sold a stand-alone car engine with a theoretical fuel consumption of 4 litres per 100km, this information would only really be valuable to a car manufacturer (this would be the nominal lumen value in a light). A car buyer, however, would have no interest in what the engine can theoretically do – buyers want to know what the car manufacturer accomplished with the engine. The effective lumen equivalent would be the engine's performance on Day 1, while residual lumens would be the engine's performance five years

down the line.

So why do some illumination companies still use nominal lumens as a measurement and on their packaging? Simple – the numbers look great, and they are banking on the end-user not knowing any better. Or less sinister but no less reckless, they cannot measure the performance of their own lights and fittings... and this is far more prevalent than you think.

Nominal lumens are useless to anyone other than manufacturers and I would question anywhere that you see this type of information stated on a finished product. Effective lumens are the only meaningful declaration to look for on a product box – keep in mind that this too is up for debate as it does not and cannot take the final application and use into account. A lighting design that indicates residual lumens offers the best available view of what your luminaire or installation is going to produce over its commercial life, and reigns supreme as a professional indicator. What is on the box should matter all the time – any industry should be able to stand alongside the claims it makes on the packaging to consumers with the functionality those consumers can expect from the fitting inside.

BEKA Schröder helps to illuminate massive industrial plant

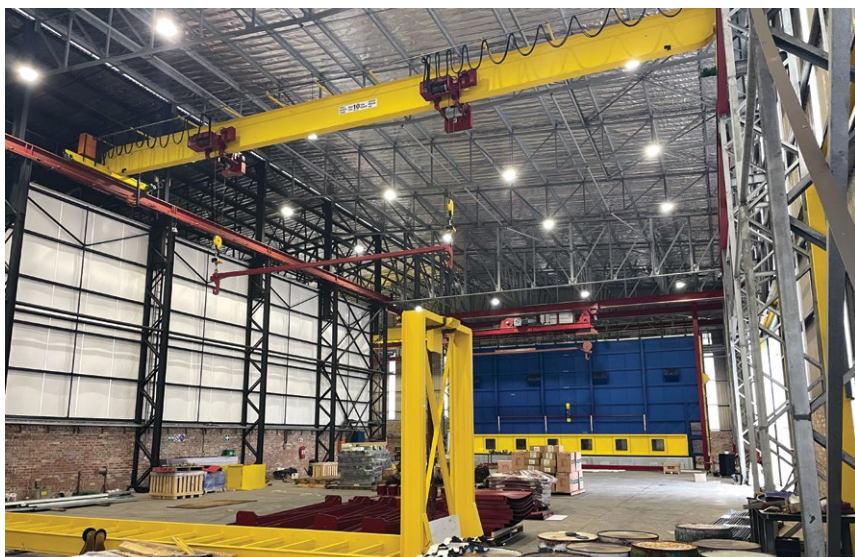
Lighting specialist BEKA Schröder recently concluded the installation of a plant-wide illumination solution for industrial giant Galvatech. "The client is located in the heart of Cape Town's industrial sector of Bellville and they specialise in corrosion protection and offer an array of other services in the industry. For that reason, we had to develop a plan that would illuminate the plant in such a way that workers are able to see exactly what they are doing so that levels of safety are maintained and that the staff are able to execute their jobs accurately," explains BEKA Schröder's Sales Engineer Grant Kemp.

For the inside of the Galvatech plant, BEKA Schröder chose its Ecobay lights. "This is the ideal luminaire for lighting up industrial facilities," explains Kemp. "The Ecobay optimises light levels and return of investment. This South African designed and manufactured luminaire delivers the best solution for lowbay and highbay applications."

The Ecobay offers substantial energy savings for users, a high performance level, and it is able to operate at high ambient temperatures that are found in a factory such as Galvatech's. "It provides reliable performance, offers various light distributions and low dust accumulation, and requires no relamping or regular maintenance," adds Kemp.

For the outside of the facility, the lighting specialist opted for its Omniblast-1-E Midi luminaire. "This boasts a five-year warranty and is the ideal tool for applications that require a lighting solution with the highest efficiency and flexibility to adapt to the different lighting needs," explains Kemp, concluding, "The Omniblast LED solution offers an alternative with proven benefits for traditional fixtures fitted with 400W to 2 000W HID lamps. The unit meets various lighting applications, which made it perfect for all external lighting for the plant."

Enquiries: www.beka-schreder.co.za



Blu2Light – more than an ecosystem

German lighting powerhouse Vossloh-Schwabe are at the forefront of some of the illumination industry's biggest advancements and among them is Blu2Light, explains Christian Lade from Vossloh-Schwabe's Business Development unit. "When developing Blu2Light, I had three major things in mind. We need the highest wireless security for the integration in Internet of Things (IoT) building applications. It must be an open system for all market partners that is based on Bluetooth Mesh. At a tiny price point, we also need very easy operation so that installers can use the commissioning app without doing a significant amount of work on it."

The company, which invests significant amounts of annual funding on its Research & Development department every year, came up with a novel approach to this update to the lighting industry, explains Lade. "We have developed the Blu2Light Bluetooth Mesh net control system because of our research. The outcome is a truly open system for IoT builders with future guarantees as all system parameters are provided via an open neutral interface on the gateway. This extends beyond lighting, so it includes IoT BMS parameters such as temperature, humidity, CO₂ and the sending/receiving of Bluetooth beacon messages."

Lade stresses that it is "a lighting control system that has been developed with more than 20 years' worth of knowledge in building lighting controls. For that reason, Blu2Light covers all basic standards like DALI and DMX, as well as new wireless driver generations as well. No matter what the installer needs, everything is in the box".

An aspect of Blu2Light that the team at Vossloh-Schwabe are most proud of is that they promised an open system when they announced Blu2Light and they have kept their word. "At the LAN side of the Vossloh-Schwabe gateway, you can build any customised solution that you like. Simply download the gateway documentation and start building your solution. With the open protocol, you can create applications that are beyond lighting – heatmapping, beaconing, asset tracking, indoor navigation and many more," explains Lade.

The lighting brand has included market partners in its development of Blu2Light, with the Business Development executive revealing, "For our partners, we developed the Connect Zero Plus module that allows them to build their own individual Bluetooth Mesh devices. The module comes in a well-shaped form factor so that it can be integrated on the fly in existing or new wireless drivers and sensors. The DNA of this module is our individual QR-Code security, so every Blu2Light device in the world has its own unique encryption." This added security is a welcomed feature as IoT has been targeted recently for system hacks and breaches."

When it comes to commissioning and operation, Lade says that "installers can download the free LiNA Connect and LiNA Touch apps that are available on the iOS and android app stores. Based on a full graphic user interface, a new system setup can be done in minutes, which includes an innovative back-up system."

Despite its complexity, users can build and configure huge installations, with full documentation being available on the Vossloh-Schwabe website. "We recommend using our gateway for complex illumination solutions with 10 000 or more devices." The company is also making Blu2Light systems more pocket friendly, says Lade. "There are companies who charge monthly or annual licence fees for special IoT functions or communication. We do not. There are no hidden fees or licences with Vossloh-Schwabe Blu2Light devices. Everything is included in the one-time payment when purchasing our product. Blu2Light is so much more than an ecosystem, and we are ready to help you with your lighting solution."

Enquiries: www.vossloh-schwabe.com/en



Vossloh-Schwabe's LAN Gateway is an important part of its Blu2Light ecosystem.

ELDC introduces light fittings that blend form and function

European Light & Design Centre is continuing its mission to bring some of the most beautiful light fittings in the world to South Africa's shores, with three new fittings being introduced to local buyers recently. "We believe that lighting should be as functional as it is beautiful," explains Marc Machtelinckx, the founder of European Light & Design Centre. "These three lamps exude beauty, and they provide illumination that creates atmosphere in any setting."

The Malamata fitting has been designed by Shulab Studio, a Jewish design company founded in 2005 by Kfir Schwalb and Orit Magia. "Our work ranges from product design and interiors, to branding and graphic design. We love the feeling of graphic combined with industrial design and that is what we try to keep at the front of our work," they say.

"The word 'malamata' means 'up and down' in Hebrew," explains the design team. "When designing, developing and manufacturing this lamp, one of our main factors was the possibility of having a variety of diffuser positions so that the user could move the lights around to



suit their needs." This functionality was achieved by using a sphere counterweight in the Malamata lights. "Pushing a button on top of the sphere releases a spring, which then frees the counterweight to slide on the stem and allows the diffuser position to be changed – up or down," explains the design studio.

The second light is the Across, which is from Italian design icons Luceplan. "This versatile suspension lamp features a distinctive 'cross' design that lets users



personalise any space. It is constructed with three interconnected axes of two different sizes that create complex compositions. The horizontal extruded body allows for direct lighting thanks to the optical group, while two hinged elements allow consumers to attach the lamp to the wall or ceiling," says Marc.

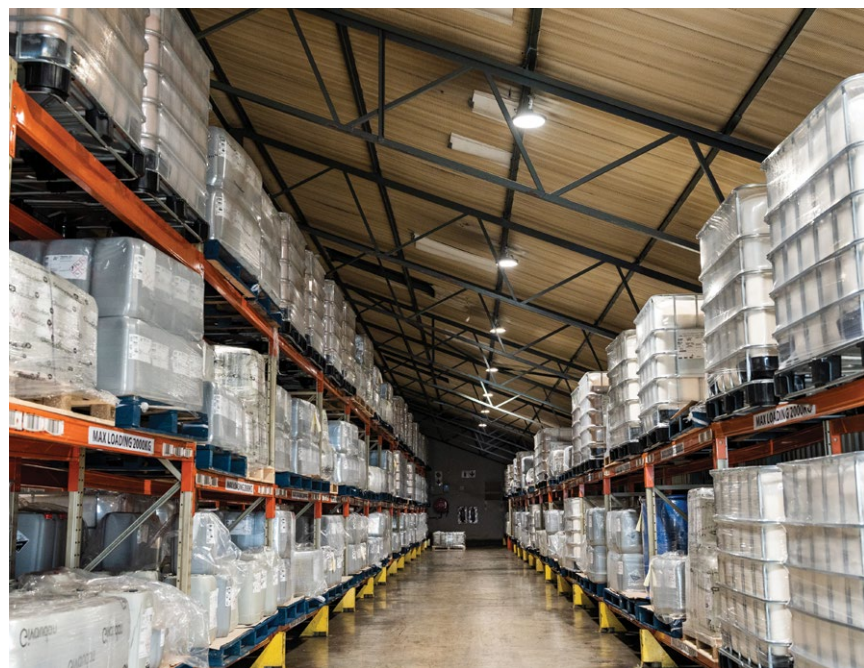
Lastly, the Levante fitting, which is from renowned Milanese designer Marco Spatti. "The lamp embodies the concept of 'lightness and wind', which are core to the design of the fitting," says Marc, adding,



"Three large fans intersect, with their design highlighting the theme of lightweight construction – they resemble rice paper, which is incredibly light. The thickness of the lamp's veils is minimal, allowing them to be attached to the central core with magnets. Keeping with the minimalist design aesthetic, the light source has been carefully hidden and symbolises an organic, beating heart."

Enquiries: www.eldc.co.za

Philips lighting solution saves energy usage costs for factory



Electrical specialist Philips and its LED efficiency partner, Energy LED, were recently brought in to help fragrance manufacturer Givaudan overhaul its lighting system at its Johannesburg South factory and warehouse, and the results speak for themselves.

The existing lighting at the facility was inefficient and had cost Givaudan an estimated R31 million over the past decade, which was cause for concern and a point where something had to be done. "There has been a reduction of almost 4 500 tons of carbon emissions alone," says Philips. "This equates to the planting of over 73 000 trees to help neutralise the company's carbon footprint."

With the lighting revamp, the client has seen its energy consumption reduced by almost 70%, which allows Givaudan to save its finances while also providing employees with correct illumination in their factory. "The project has helped Givaudan exceed its occupational health and safety lux requirements for manufacturing almost immediately," adds the lighting specialist. Over the next decade, Givaudan will see a 74% savings on usage, which equates to a staggering 651 407kwh.

"With our help and using the latest Philips LED technologies, the project was completed in just under two months with almost no disruptions to normal operations," says Philips.

Enquiries: www.lighting.philips.co.za

Save on your budget with these handy, easy-to-follow DIY tips

Illumination manufacturer Radiant Lighting knows that lighting solutions do not need to cost a fortune. There are easy ways to save money when doing room revamps or renos, with lightbulbs and innovative solutions driving pocket-friendly updates.

"Simple change can have a huge visual impact on a space," says Radiant. "Most people only change lightbulbs if they are burnt out, but it may be worth going around your home to take note of the type and colour temperature of the bulbs you have in each fixture. Fluorescents or harsh white bulbs can make a space feel uninviting. To remedy this, you can simply replace your existing bulbs with warm-tone LEDs to create a cosier, more unified feel." Here are some helpful tips and tricks on how to quickly update any room while managing to keep control on your spending.

- **It's all in the bulb.** Having bulbs in various colour temperatures can make a space feel chaotic, whereas using the same temperature bulb throughout a building, be it a home or office space, tends to have a more cohesive feel. By swapping out fluorescent and incandescent bulbs for energy efficient LEDs, you will save money in the long run thanks to LEDs' longevity, performance and intelligent energy consumption.
- **Tip-top table lamps.** A table lamp can transform a room almost instantly. They are one of the more affordable lighting options that can be positioned wherever needed, adding decorative changes and lighting at the same time. You can also play around with styling – a small table lamp can be paired with a larger design to create a cluster effect.





Ledvance looks to the future with renewed brand positioning

Founded in 2016 as a spin-off from global lighting manufacturer Osram, Ledvance has come a long way in very little time. But in the space of seven years of operation, the brand has seen its position change within the lighting industry, which has led to a shift in brand positioning, explains Margaret Maree, Ledvance's Design & Marketing Manager. "We are giving our customers the opportunity to change their lives through lighting. We have exciting products that will be introduced into the market in 2024 that are going to help South Africans better their lives."

Ledvance's evolution has been shaped by industry changes, explains Maree. "We want to stay true to our roots as industry innovators and to push forward in the search of imaginative solutions as we develop into a broader company that goes beyond just lighting." In this process, the company has also adopted a new mantra: Power Through Light. "This is our driving force and Ledvance wants to empower its customers to harness the power of light

that is in their hands. Lightbulbs are no longer just an illumination tool; they are so much more. Our intelligent energy solutions, solar technology and advanced lighting systems mean that customers benefit with real savings in energy costs. That is such an important factor in the world we live in, as well as South Africa, given the rising cost of living, combined with the uncertainty of the national power grid and loadshedding."

Ledvance is also making sure that the consumer's carbon footprint and a greener way of living is at the core of its brand evolution. "We are moving more towards a world of renewables, recyclables and more efficient lighting solutions," explains Maree. "Our newer products coming through the development

division will be more advanced in terms of recyclability, using more environmentally friendly and efficient materials in the manufacturing process."

There are more changes in the pipeline, but the marketing executive says "those are yet to be finalised, so we cannot say too much just yet. What is important right now is that Ledvance continues with its promise to the consumer that we will provide the best lighting solution for their needs as well as their budget. We are focused on the world that we live in, and we want our products to be on the frontline when it comes to innovation and performance."

Enquiries: www.ledvance.com

- **Strip lighting adds elegance.** Adding fittings such as strip lights underneath your wall-mounted kitchen cabinets finishes a look immediately. The lights not only make the space look professionally designed, they provide decorative and task illumination. The lights can also be positioned closer to the wall to accentuate and highlight a backsplash or countertop item. If illumination for tasks such as preparing food or reading recipe books is a priority, then the fixtures need to be closer to the front of the cabinet so that their lighting capacity is not restricted.
- **Move fixtures around.** Experimenting with moving your light fixtures is an easy way to elevate the look of your home and it does not cost anything. By removing a fixture from one room and placing it in another, you give the fixture new life and create a fresh look in both spaces at the same time. You can also place light fixtures in unexpected places for an interesting look. For example, a chandelier in the bathroom, a small table lamp perched on a bookshelf, or sconces flanking the bed.
- **Diffused light is best.** When installing and positioning your lights, be sure to have at least one diffused lighting fixture. This type of light is softer, warmer and more flattering, which contrasts with concentrated, direct undiffused light sources in the same space. Opaque glass, paper and fabric shades all produce diffused light.
- **Scale your fixtures correctly.** Size does matter, so if you are going to install new light fixtures, be certain of measurements. A fixture that is too large for a room can look out of place and overwhelming, while one that is too small will not provide sufficient illumination.

Enquiries: www.radiant.co.za

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TERRIFYING TIGER

On a hot Saturday afternoon, a woman was walking slowly through the savannah when she spotted a tiger in the distance. Instead of turning around, hiding, or seeking help, the woman began to run towards where the tiger was. Why wasn't she afraid and run away?

OCTOBER SOLUTION

Adam and Eve were the only people without navels. They were not born of women, so they had never had umbilical cords and, therefore, they never had navels.

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