

Load shedding

The cost of keeping the lights on

What is it costing local retailers in South Africa to keep the lights on and the fridges and ovens running? The cost, it is turning out, is astronomical. Shoprite Holdings' operational update for the six months ended 1 January 2023 reports that, "The Group's additional spend on diesel to operate generators across our Supermarkets RSA store base in order to trade uninterrupted during loadshedding stages five and six amounted to R560 million for the period."

Meanwhile Reuters reported on 14 March 2023 that property developer Attacq is planning to reduce its reliance on diesel generators used to power its shopping malls while Business Tech notes that due to load shedding over the six months to January 2023, diesel costs across pharmacy and healthcare retailer Dis-Chem stores had increased by 54% to R36 million.

In an eye-opening article by Nick Wilson for News24 Business, South African retail giant Woolworths announced that load shedding was costing the business R15 million per month. Admittedly the country has seen very high levels of load shedding over the last few months, and this number does reflect the impact of stage 5 and 6 (or higher) load shedding, but that is still a significant outlay. The retailer also noted that it expected an even



Image courtesy of Pixabay, Pexels

more challenging landscape as higher inflation and interest rates continue to affect consumers, and that "an imminent resolution to the debilitating power crisis ... appears remote."

The latest national budget speech from the South African Minister of Finance brought some

relief and certain concessions from government, which acknowledged the impact of load shedding on food prices across the country. However, there was a notable omission as the diesel-related price relief measures were aimed solely at manufacturers, even as food retailers have been spending huge sums of money on diesel to fuel freight vehicles and generators to keep shelves stocked, their stores operating, and consumers happy. As reported by Business Tech, the CEOs of South Africa's three largest food and grocery retailers

shared their disappointment that the South African government chose not to extend the diesel fuel levy refund to food retailers. The article (CEOs from South Africa's biggest retailers slam government's 'half-job' load shedding relief ([businesstech.co.za](https://www.businesstech.co.za)) shares comments from Pick n Pay's Pieter Boone,

SOLLATEK PREVENTS LOAD SHEDDING FROM DAMAGING YOUR APPLIANCES

Due to load shedding becoming so frequent in South Africa, you need to ensure your electrical and electronics equipment are protected. The Sollatek Voltshield range features products that **will protect** your equipment from the dangers caused by load shedding.

Whether you are looking to protect your business or your home, Sollatek provides solutions to every voltage power problem.

THE DANGERS OF LOAD SHEDDING

- **Sudden loss of power** can damage electrical appliances specifically those with a motor. Computers can be damaged and data loss and corruption can also occur.
- **Power back surges/spikes** can cause serious damage to electrical equipment.
- **Loss of neutral** can be due to cable theft or accidental damage and leads to a significant imbalance in the electrical system which results in your appliances being subjected to very high voltage up of 415V and higher.

AVS protects against:

- High voltage
- Low voltage
- Spikes/surges
- Powerbacks surges
- Loss Of Neutral (LoN)

WHY DO YOU NEED A SOLLATEK AVS?

- The Sollatek (AVS) Range is the ultimate shield against damages caused by over and undervoltage as well as power-back surges.
- With our Voltshield products, you won't have to worry when the load shedding hour strikes, knowing your appliances are fully protected.

HOW DOES THE AVS FUNCTION WORK?

The AVS works by monitoring the voltage of the electrical supply and when it detects a voltage fluctuation or surge, it automatically switches off power supply to the equipment.

When the Mains voltage returns to normal, the AVS will reconnect the power automatically, after a short delay to ensure stability. The AVS will filter out surges and spikes as well and will even withstand LoN high voltages of over 415V. All these features means the Sollatek AVS provides 100% against power problems.



ALL SOLLATEK VOLTSHIELD PRODUCTS ARE AVAILABLE FOR A VARIETY OF APPLIANCES

- **AVS15 micro:** A plug in solution for all loads plugged into a wall socket upto 16Amps.
- **AVS30 micro:** For single phase loads running up to 30Amps. The AVS30 micro can accommodate an inrush current of 110Amps associated with start-up. (The AVS30 micro can be used to switch a contactor if load runs at more than 30Amp).
- **AVS3P-0 micro:** For 3-phase loads designed to switch an appropriately sized contactor.

For more info visit- www.sollatek.com

Email: sales@sollatek.com

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Image courtesy of Businesstech.co.za_CEOs from SA retailers



Spar's Mike Bosman, and Shoprite Checkers Pieter Engelbrecht. The article says ...

“ The government has accepted the logic that the food industry should not be penalised for the energy crisis but has only done half the job. Our supermarkets are on the front line in keeping the lights on, and the shelves and chillers stacked, for customers during load shedding. ”

All three CEOs maintained that although they have absorbed as much of the cost of keeping the lights and fridges on as possible, they would not be able to continue indefinitely, and these costs will have to be passed on to the public eventually.

On 8 February 2023, retail group Pick n Pay announced that load shedding has been having a profound impact on its business practices – racking up a bill of R60 million a month to run diesel generators. The group said that the current energy crisis is a new permanent reality for the

retail sector, and immediate interventions are being planned, including solar installation and reducing energy consumption. Over the 2022 period, the

group said it had spent an additional R346 million year-on-year to run diesel generators for the first 10 months.



Image courtesy of Pixabay, Pexels

An unpredictable electricity supply continues to impact business

Nick Wilson's News24 Business article says that Woolworths was responding to the erratic electricity supply by “focusing on developing a longer-term business solution to mitigate both upstream and downstream impacts to this challenge.”

Woolworths added, “This includes the impacts on our suppliers, and particularly those where the costs required to manage the breakdown in infrastructure have become prohibitive.” Despite the fuel levy relief, food manufacturers are facing an ever-growing challenge. For many, an erratic

power supply is severely impacting their processes. The human toll is also real as many businesses are having to consider changing their operating hours to accommodate load shedding.

The same is true for smaller retailers who simply cannot afford to run generators or invest in renewable energy. Two to four or more hours of downtime every day is hardly a model for economic success.

Lena Le Roux, MD of locally based Staycold International, is fully aware of the impact of load shedding, as well as other supply chain challenges, that are currently putting pressure on the South African retail market. Staycold is committed to reach net zero (reaching zero greenhouse gas emissions) and, says Le Roux, the business is passionate about creating a product that is as energy efficient as possible, as sustainably as possible. Their efforts have been successful as they were recently recognised internationally as being in the top 3% of the supply base ‘for energy efficiency by a global brand’.

Graphene supercapacitors can solve loadshedding woes

Affordable, efficient battery storage technology is a **gamechanger** for business

Challenged by escalating electricity costs and an unstable power supply, businesses must harness South Africa's abundant solar energy. While the grid-tied solar systems favoured as a cost-effective solution can provide energy cost savings, they don't shield against the disruption of loadshedding. The real gamechanger is incorporating new affordable, efficient energy storage systems that enable hybrid solar solutions for business, says Frank Rovelli of power and energy solutions company Probe.

"As batteries become more efficient, long-lasting, faster charging, affordable and take up less space – the business case for large-scale hybrid solar installations improves," says Rovelli. "We're seeing huge leaps in energy storage capacity and round-trip efficiency, while the investment and space required for battery banks reduces. Modular set-ups further enable businesses to scale up systems by adding additional battery storage as needed, like lego."

Rovelli says the right energy storage solution with a solar PV installation can not only ensure businesses have consistent power, a major issue as loadshedding continues, but will also create major utility savings over time. "Businesses with efficient energy storage are able to draw power from stored solar energy during peak times, avoiding higher peak demand charges which form a significant portion of total electricity costs."

Graphene supersedes lithium-ion

Graphene supercapacitors are the future of large grid-scale and solar energy, offering the most efficient, durable, stable and scaleable battery investment for commercial solar on the market, according to Rovelli.



Frank Rovelli of power and energy solutions company Probe.

"Graphene supercapacitors offer a more energy-dense, lighter form of storage than lithium-ion batteries, delivering four times the power and lasting seven times longer," says Rovelli. "They are fully recyclable and far less hazardous, and can be charged and discharged at least three to five times faster."

Solid-state graphene supercapacitors deliver at least 43 000 cycles with a maximum degradation loss of 5% during their life span and no loss of efficiency, while lithium-ion offers 6 000 max cycles, losing efficiency and capacity over time. Importantly, they can be joined in parallel and in series with any type of battery, making them compatible with existing systems and flexible for future additions.

Containerised solutions

The potential of supercapacitors is maximised when it comes to containerised solutions, says Rovelli. "We can now deliver up to 8 MWh in a customised, integrated 40ft container, making these solutions economically viable."

While the total cost of ownership simply can't be matched, the initial capital outlay can be challenging. Probe offers rent-to-own and leasing solutions. "The right financial solution turns CAPEX into manageable OPEX,



enabling businesses to access the most appropriate, scaleable technologies. Graphene supercapacitors allow for accurate pricing of the storage solution over the life of the system, with limited maintenance costs."

The Probenergy range of solutions includes graphene supercapacitors from Mint Energy, the first commercially available graphene pure-play battery made from abundant sources of carbon. The construction of the supercapacitor module allows for localised grid-scale production. Plans are underway for South African production facilities of 1GW monthly in collaboration with OEMs.

Rovelli says that it is critical that businesses turn to reputable providers as a first step. "Providers should offer the latest battery technologies, well-priced Tier One products, energy assessments, ongoing service, and financing options. At Probe, we are battery experts, and we're committed to taking the best power solutions across Africa."

Probenergy
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Le Roux explains that their manufacturing plant is based in a rural area with an intensely loyal employee base who are willing to work odd hours around load shedding. Despite operating on solar as far as they are able, load shedding is still incredibly disruptive and, despite their flexible workforce, Le Roux says they can see the toll load shedding is taking on the human side of things.

Managing the impact of load shedding

For larger retailers and supermarket groups, investing in alternative energy supplies is the only way forward. With the South African government pledging to reach net zero by 2050 and the current legal and moral demands around sustainability and cutting carbon emissions, renewable energy certainly makes the most sense – for those who can afford it. Woolworths reports that its “significant past investments in its energy supply capabilities have proven beneficial, with 99% of its stores and all its distribution centres already equipped with generator capacity.” In an article for Business Tech, Luke Fraser writes ...

“Attacq, the owners of Mall of Africa and Glenfair Boulevard, is the latest prominent retail space owner to invest heavily in solar in an attempt to escape Eskom.”

He adds, “According to Attacq, during stage 2 load shedding, the company spends R170 526 daily to keep the lights on in its retail space. When rolling blackouts go to stage 6, these costs rise to over



Shoppers walk during the opening of the 'Mall of Africa' in Midrand outside Johannesburg.
Courtesy of Siphwe Sibeko, Reuters

R511 500 – and this is before even counting the costs of lost business and sales as a result.”

Attacq has signed a Power Purchase agreement (PPA) for a 15MWp power supply in 2023 and has started construction on four new rooftop solar power projects.

“R17 million worth of retrofit projects are also underway in the country, with plans to invest further. Resilience principles will also be introduced, such as rooftop solar installations that are being grid-tied to their generator capacity. Other measures, like lighting retrofits that reduce energy use from common area lights, and generators with data panels that switch off during load-shedding hours, are also part of these resilience principles”

(Business Tech, 29 December 2022).

Other mall owners are also investing heavily in solar projects. The Redefine Group, which owns amongst others the South Coast Mall, East Rand Mall, Centurion Mall, Kenilworth Shopping Centre, Maponye Mall, and the Golden Walk Shopping Centre, is investing R194 million in solar photovoltaic projects, smart

metering, and water and energy efficiency across its portfolio).

Shoprite has also increased its solar photovoltaic system capacity by “82% to 26,606kWp from the previous year –achieved via 20 soccer fields worth of solar panels.” The group has focused on solutions to improve energy efficiency, reduce its carbon footprint, and reduce electricity consumption overall. By installing LED lights at its sites, the group has saved “399 million kWh to date,” says Fraser.

Energy efficiency, energy conservation, and alternative energy sources

Tygue Theron, Head of Business Development at Energy Partners Intelligence – a division of Energy Partners and part of the PSG group of



*Reducing
energy costs
by more than 30%*

Hydrocarbon Range

*In keeping with reducing the impact of our units on the environment and our commitment to enabling the race to Net-Zero, many of our units are available with **Hydrocarbon refrigerant gas** either as standard or as an option.*



For more information on our products and how we are constantly striving to reduce their impact on the environment, please contact us on 056 819 8097 or by mail to info@staycold.co.za

www.staycold.co.za



Trust the Experience

companies – believes that a comprehensive energy strategy is crucial for cutting energy spend and carbon emissions. For Theron, energy efficiency encompasses not only solutions that help you use less electricity, but also those that help “manage costs, secure the best sources of energy supply, and address any risks that may leave the business without power at crucial times.”

Theron says that effective data collection is the only way to ensure a solution that is effective and fit for use across multiple store locations and to cover all their needs. Integral to this is the ability to “accurately measure and assess current energy usage and monitor progress in real time.” Theron argues that you would need a minimum of 12 months’ worth of data for an accurate assessment. The next step is managing that energy strategy. For Energy Partners, removing the human element and using technology, including IOT-enabled devices, automated controllers, and AI to control energy usage makes the most sense. Theron emphasises that accurate reporting is an absolute necessity. For this to work, you need the right resources and skills. This is why Theron advises using a dedicated outsourced service provider to structure the most effective solution for your needs.

Daniel De Beer, Regional Manager for Sub Saharan Africa at Emerson Commercial & Residential Solutions, is no stranger to the quest for ultimate energy efficiency, as Emerson has been manufacturing and installing energy-efficient technology for several years now, utilising highly effective compressors and condensing units.



skills, knowledge, and expertise needed for success. As he points out, retailers are often working with a range of equipment that has different operating requirements and different voltages. “Your solutions are only ever as good as the other tech in the system, and it needs to work together in harmony and seamlessly. If you are going invest in electronic controllers and smart tech – and it does come

He says ...

“ On average, retailers are using 70% of their energy consumption for refrigeration alone, and roughly 50% of that usage can be attributed to compressors. ”

Although there is some significant capital outlay, by Emerson’s calculations, a saving of 20% on electricity consumption is very achievable. Pay-back, in fact, was measured at 3 weeks to 6 months, depending on the size of the installation.

For Emerson, to be energy efficient is to also consider the responsible and effective use of electricity, as well as reducing consumption.

De Beer does, however, caution against throwing money at the problem without investing in the

at a premium price – it must be installed and managed by professionals who understand both the end-user needs and requirements, as well as the specifics of the technology being implemented.”

Staycold’s Le Roux says energy efficiency and surge protection are essential when it comes to coolers and refrigerated units. “Surge protection has become a standard necessity in the face of an unpredictable power supply and the electrical surges that occur with load shedding.”

Le Roux points out that even their standard protection has limits, however, withstanding about 80% of the surges currently being seen, as the company reports massive spikes are becoming a far more common occurrence. The same digital controller that provides surge protection also



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Successful retrofit examples:



Heat exchanger

Highly-efficient ZPlus units with ECblue motors. **Estimated savings/year: 25.6% energy savings***



Supply air system

Efficient space-saving centrifugal fan formation with ECblue motors. **Estimated savings/year: 37% energy savings***

* Results vary depending on application, load cycle, the control and installed equipment etc. with many of our RETROfit customers experiencing >60% energy savings

The Royal League in ventilation, control and drive technology

comes with an eco-mode that is triggered if the cooler doors haven't been opened for a certain amount of time. Once this sleep mode is triggered, the lights and fans are turned off automatically and the temperature is maintained statically until the door opens again.

As Le Roux says, "We have been using this design for the last eight or nine years, and this level of energy efficiency does come at a cost – for which the retailer receives a high level of longevity, protection, and energy savings."

The sentiment amongst the experts is clear – while capex may be your priority, high-quality tech that is energy efficient, effective, and sustainable is not cheap. By running the numbers, asking the hard questions, and doing your research, retailers are investing in solutions that are looking increasingly necessary for their survival.

Solar outpaces coal as a cheaper alternative

In an article titled How solar power became cheaper than coal (www.mybroadband.co.za), writer Miles Illidge states, "Fossil fuels dominate the world's energy generation, but research shows that solar energy is now cheaper than coal." He goes on to say:

“The study found that electricity from solar generation is approximately 63% cheaper per megawatt-hour (MWh) than fossil fuels, and according to the World Energy Outlook for 2021, solar photovoltaic and wind power are the cheapest sources of new electricity generation. ”

Image courtesy of Kindel Media, Pexels



The cost of electricity from coal dropped \$2 (R31) per MWh between 2009 and 2019, while prices associated with the generation of solar power decreased by 89% over the same period. In 2009, electricity generated from solar sources cost \$359 (R5 503) per MWh. By 2019, costs had dropped to \$40 (R613) per MWh."

This has occurred for several reasons. Most notably, demand has increased, allowing solar technology and hardware manufacturers to achieve economies of scale. In addition, the technology driving solar power production has improved due to increased interest in sustainable and renewable energy sources.

Most importantly, solar power requires no fuel and has markedly fewer running costs than those associated with coal or nuclear power plants.

This is good news for those who have invested in or are in the process of investing in solar as a renewable power source. Demand is on the rise globally. As such, despite challenges related to raw materials and certain technologies due to the Covid-19

lockdown and the war in Ukraine, the cost of solar-produced electricity is notably lower than that of traditional power producers. The bad news is that South Africa is in the middle of a crisis of government, and political interference versus political support is, as yet undecided.

“Despite South Africa pledging to reach Net Zero by 2050 and the recent introduction of a Minister for Electricity, political interference and stonewalling when it comes to fully embracing and deploying renewable energy sources is concerning. ”



Clean, free, natural energy with a high ROI & payback <36 months ... and a projected lifespan in excess of other systems.

Just add sun ... and the free thermodynamics improve the already enviable performance of our unit by up to 60%. Nothing can match that efficiency.

- The hotter it gets, the less the compressor works.
- Saves vast amounts of energy.
- Considerably reduces CO₂ emissions.
- Eliminates compressor failure due to over-heating.
- Substantially increases compressor lifespan.



- Phenomenal ROI with an unprecedented lifespan.
- COP figures (cooling capacity versus power consumption) of over 8 are possible on our multi-stage compression systems – just by adding the free energy provided by the sun.
- Retrofit systems are available on most types of refrigeration.

Testimonials

"After testing a single system for 3 months, we are now looking at installing this system on all process cooling, freezing and chillers throughout the building. Assuming the test figures are realised throughout, we will save in excess of €78 000 p.a. – and we will have our investment back with 14 months!"

Angelo Aquilina
Engineering Plant Maintenance,
Golden Harvest

"At the time the ambient temperature begins to warm up around 8:00am, the power of the machine starts a surprising decline into a 6Kw position, and remains there throughout the day's hottest phase."

Francisco Javier Vadillo
Chief Engineer, Pizza Hut

"Having collectively reduced the energy usage in seven of our sites by an average in excess of 36%, they were clearly the right partner for this project."

Richard Cos
Managing Director, Kay Group





Is solar all it's cracked up to be?

Emerson's De Beer firmly believes that solar as a renewable energy source is a viable option for South Africa. The company has spent considerable time investigating renewable energy sources such as solar.

While it is not necessarily about the payback, De Beer does believe that the positive impact it has in mitigating the impact of load shedding cannot be overstated. And, he adds, if the government approves Eskom's NERSA application to allow solar producers to push electricity back into the grid for significant incentives (which include the possibility of payment for selling excess electricity back into the grid), the demand will see the country achieve economies of scale that will continue to drive down the cost of solar installations.

Image courtesy of <https://mybroadband.co.za/>



Phase 1 of Solar Capital's De Aar Solar Farm, the biggest solar farm in Southern Africa.

For Le Roux, solar has its pros and its cons. She believes that generic solar is currently too expensive to be a viable solution for anyone but the biggest chains and franchises. She says, "We need the European supply chain to come up with affordable, practical solutions that will then work their way into our market."

While she does believe the use of solar will become the norm, and costs will therefore stabilise, she also says that we need clever tech solutions to be able to offer solar as an alternative for many franchise retailers and smaller stores. That innovation, she believes, is still coming.

Le Roux believes that slotting commodities into an existing solar stream is far more feasible, although it needs to be done by an expert. "It is an extremely complex process as each of the commodities must be considered in isolation,

“ There is no perfect solution. There can't be, the challenges are too great and the practicalities too complex. What we can focus on is energy consumption and our carbon footprint. We can work to reduce both of those, and also work with renewable or sustainable energy where possible. ”

the applications are all different, and this needs to be accommodated in the design phase. There is no perfect solution. There can't be, the challenges are too great and the practicalities too complex. What we can focus on is energy consumption and our carbon footprint. We can work to reduce both of those, and also work with renewable or sustainable energy where possible.”

The worst thing you can do is do nothing. **SR**

Sources:

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www.engineeringnews.co.za/article/define-well-positioned-for-growth-with-new-simplified-asset-platform



Ann Baker-Keulemans writes on topics related to business, lifestyle, technology, and health, with extensive knowledge on the SA retail and wholesale landscape. Contact annbk@wilkinsross.co.za | www.wilkinsrossglobal.com



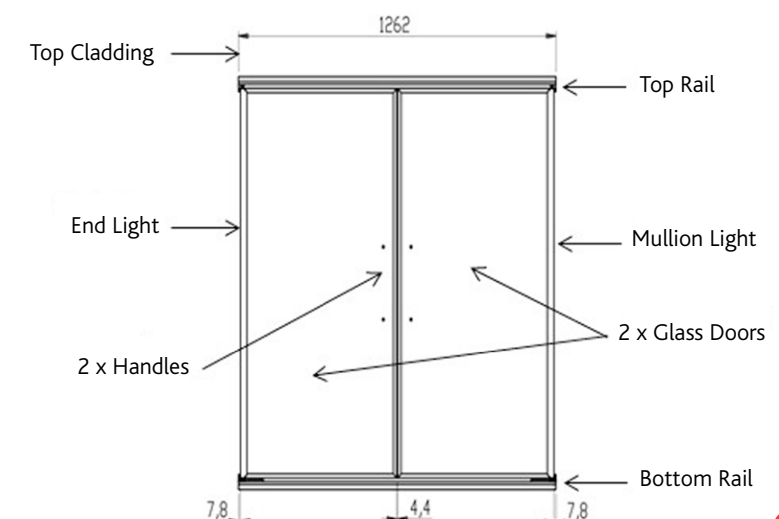
Close The Case

Designed as a retrofit solution for existing Supermarket display cases, the Glacier Air Shield Glass Doors offer up to a 40% energy saving in an ever-increasing energy cost environment as well as improved cabinet temperatures and product benefits.



Features and Benefits

- Reduced energy consumption.
- Extended product shelf life.
- Double glazed Argon Gas filled void for superior insulation.
- Optimal product temperatures.
- Spring loaded glass doors.
- Solutions for new cabinets or retrofitted on existing cabinets.
- Less cold air spillage – warmer aisles.
- Optional Mullion LED lights and door hold-open brackets.
- Heated option on our Standard Airshield Doors to suit coastal conditions.
- Integrated (full length) handle option.



Infinity / Infinity Integrate Glass Doors

The new Infinity Glass Door is designed with edge-to-edge glass and screen print border. This door offers increased visibility and a more modernised look and feel. Glacier has also launched their new Integrated Glass Door which incorporates a full length profiled handle.

Low Temp Eco Leaf (Energy Saving) Doors Aluminium Frames:

- Heated Door and Architrave
- Natural 15 micron anodized or black textured powder coating (Coating to SABS standards).

Glass

- Safety toughened 4mm glass inside and outside standard on all doors. (Toughened to SABS standards).
- All Glass Doors are Argon Gas filled for superior insulation.
- Low temperature doors are fitted with a heated front glass and a clear rear glass, both safety toughened.

Normal Temp Doors Aluminium Frames:

- Door and heated Architrave
- Natural 15 micron anodized or black textured powder coating (Coating to SABS standards)
- There is a thermal break on the inside of the door frame.
- All architraves are fitted with anti-sweat heaters.

Glass

- Safety toughened 4mm glass inside and outside standard on all doors. (Toughened to SABS standards)
- All Glass Doors are Argon Gas filled for superior insulation.
- Normal temperature doors are fitted with Low emission front glass and a clear rear glass, both safety toughened.

Lights (LED)

Energy Saving LED 22W, 6000K, LED Light fitted on the inside of the architrave in a closed polycarbonate light diffuser.



Lights (LED)

Energy Saving LED 22W, 6000K, LED Light fitted on the inside of the architrave in a closed polycarbonate light diffuser.

Switching on ...



Mike Smollan
Chief Growth and
Innovation Officer
Smollan

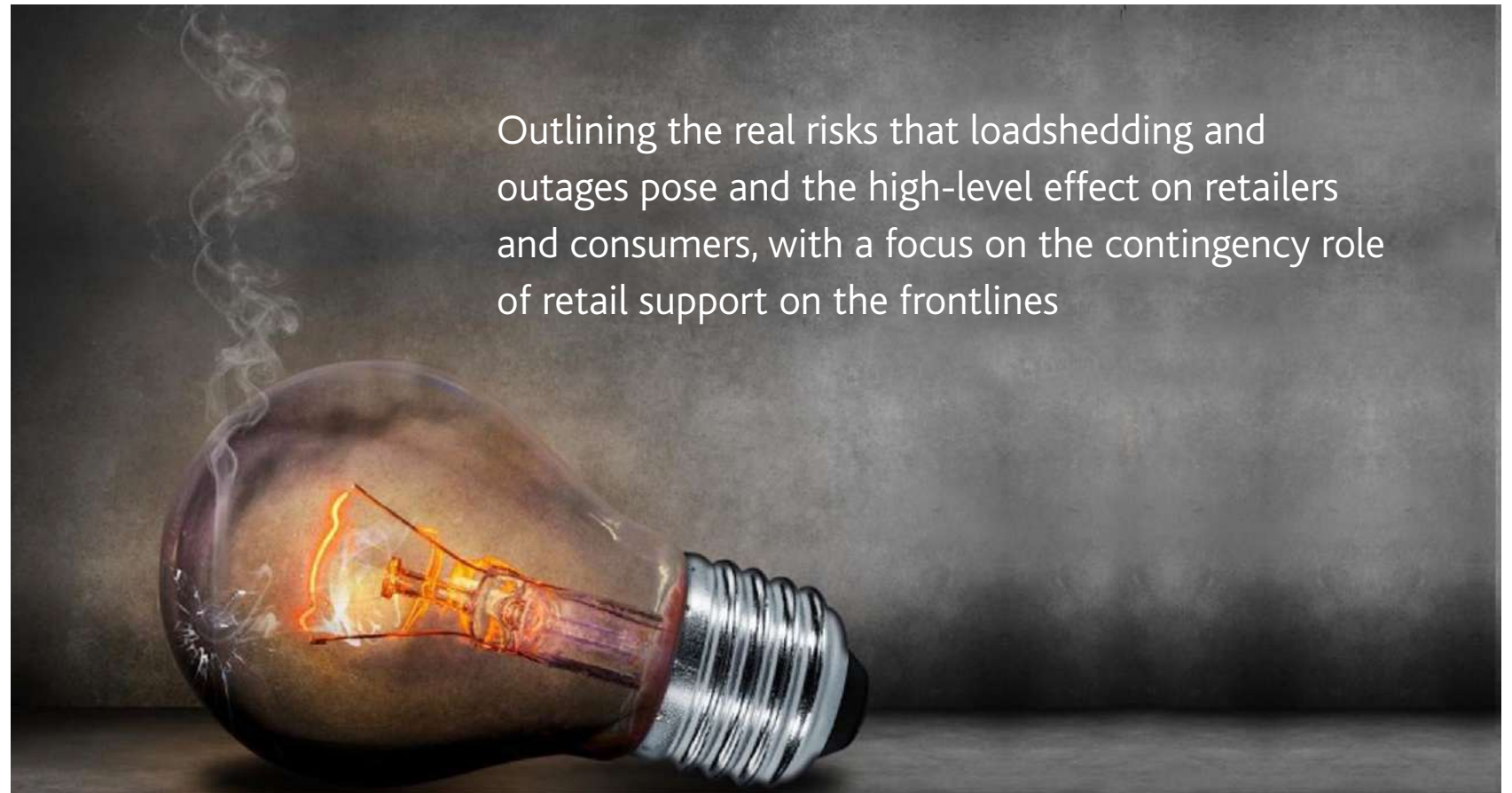
The role of retail in loadshedding

Admittedly seeing another loadshedding article can mean lights out for many – turn the page – next, as the hum of generators trigger a fragile sense of ‘normality’ when all we want is power plays, not dark delays. Despite the severity of the current status quo, humour typically prevails ...

“Imagine what they’re going to say about loadshedding this week on Carte Blanche – I mean we won’t be able to watch it but imagine.”

‘Permanent reality’

With businesses looking to recover millions spent on diesel and coping with the levels of flexibility required to operate daily, this ‘permanent reality’ provides the framework for the now. All large retailers are under pressure. Pick n Pay for example, reportedly spends R60 million a month to run diesel generators – making up an additional R346 million spend year-on-year on diesel alone. Costs that will be passed onto consumers in time – a tricky move so says Casparus Treurnicht,



Outlining the real risks that loadshedding and outages pose and the high-level effect on retailers and consumers, with a focus on the contingency role of retail support on the frontlines

<https://www.enca.com/news/load-shedding-schedules>

at Gryphon Asset Management as retailers will not be able to do so fully, as they are already operating in an environment with sticky inflation.

Regarding the mounting pressure on retailers to manage the diesel spike, just last week as reported by www.businesstech.co.za CEOs from SA’s biggest retailers expressed their disappointment that government had not extended the new diesel fuel levy fund to food retailers.

Managing the madness

Despite this, South African retailers and business owners’ innate superpowers around thinking on their feet and coming up with solutions to challenging situations, automatically kicks in.

We’ve seen the birth of many entrepreneurial innovations such as Brian Gadisi, Alan Gie and Themba Hadebe from Arion Power who from humble beginnings in a garage in Muizenberg,





Energy saving Refrigeration and Air-conditioning

Solar thermal – The hotter it gets, the more you save!

Introduction

LEMS Energy adopts a holistic approach to energy efficiency. This starts with measuring and monitoring to ensure opportunities are identified to demonstrate and verify opportunities for energy efficiency and savings.

Typically, at most retail sites the low-hanging fruit energy-saving opportunities have been acted upon – such as Led lighting.

Once implemented, clients usually look toward renewable energy technologies such as solar PV. However, these are best implemented once the site is completely efficient – thus allowing valuable roof estate to be used to optimal benefit.

HVAC – Heating, Ventilation and Air conditioning typically contribute 30–45% of a retail site's total energy usage. Until now, technologies to provide 20–30% energy savings have been capital-intensive with long payback periods, with the following driving forces in place ...

- Exponential, unpredictable increase in the cost of energy.
- Loadshedding driving energy sufficiency through generators and Solar PV. Here, size and capital cost can be significantly reduced by optimising energy efficiency in HVAC.
- Clients are driven to reduce carbon footprint and ESG strategy – drive to net zero.
- Banning of certain widely used refrigerant gasses.
- Southern Africa – has excellent Solar irradiance.

Locally proven technology that delivers!

LEMS Energy in association with Solar Cool has successfully implemented a number of retail and commercial sites, a renewable energy-based solar thermal technology Solar Cool, which has proven its ability to deliver 30–40% energy savings on refrigeration plants and 40–80% energy savings in air conditioning energy costs. Resulting in reduced generator consumption costs or Solar PV system size – resulting in significant reductions in capital and operational costs.

Solar Cool solar thermal technology works by replacing the heat generated by the compressor (which constitutes 80% of the total system energy usage) with solar-generated heat, allowing the compressor to work less, saving energy as well as maintenance costs. The benefit of using this technology is ...

- Solar Cool is 100% mechanical – no working parts, saving maintenance and driving reliability. Ideal for Africa
- The hotter it gets the better cooling and energy savings the system delivers.
- Reduces carbon emissions.
- Incredible ROIs, with typical payback in less than 36 months.
- Available as OEM and can be retrofitted to most refrigeration and air conditioning systems.
- Increases compressor lifespan.
- Can be installed in areas not optimal for Solar PV, leaving these spaces free for PV installation.
- Optimal usage of roof estate – one Solar Thermal collector (3.6m² of area) is equivalent to 40 (250W) solar PV panels (taking up 80–100 m²).



This technology is readily and easily installed

This technology, built for Africa, is one of few for HVAC that can drive savings from 40% and up. This energy-efficient refrigeration and air conditioning system works more efficiently the hotter it gets. Its success has grown through the demand and needs of the markets. We have added SCC – SMART Compressor Control to our HVAC efficiency offering. This allows single speed units to be retrofitted to a variable speed and control system that saves 20–30% of energy, making systems ready for Solar.

Thermal – reducing downtime and extending equipment life

Driven by the global drive away from HFC refrigerants, we have partnered with a company to deliver a range of natural refrigerants, giving 20–30% energy efficiency, improving equipment life – with easy retrofit, without costly oil changes and a GWP close to zero.



Contact: Craig Boyd: craig@lems.co.za

tel: **+27 79 891 4884** | <https://www.lems.co.za>

successfully launched WiBox a mini-UPS to power a router and fibre during power outages. More of that eagerly anticipated as push comes to shove.

So too, not only to keep head above water but to continue being a successful business – loadshedding schedules must be closely monitored (forewarned is forearmed); alternative energy supply considered, and new ways to trade up for review and implementation such as avoiding stockpiling items, how to pack freezers to adhere to strict quality controls along with monitoring fridges.

“ On the ground, let’s also not forget that employees are being negatively affected, losing income when they are unable to work due to loadshedding or because of supply issues. This is just the tip of the iceberg. ”

Customer experience

With the key focus on continuing to deliver excellent service to shoppers, the reality is that loadshedding brings with it annoyed customers. Research indicates that 96% of customers will not return if there is bad customer service [Forbes: *Achieving Customer Amazement Study*] – employees need to be trained in how customer

<https://www.businesslive.co.za/bd/national/>



care needs to shift specifically during loadshedding. How shopper needs must be met despite power being on and off. To get the message across that the wheels will keep turning no matter what.

How is this best achieved?

By giving those at the coal face tech and tools to optimize the way they work. Furthermore, allow for two-way feedback to that they can spot the pinch points as to what’s working and what’s not and offer solutions. Allow them to feel more in-the-loop when it comes to how things need to be managed during loadshedding cycles so they can serve customers in the best possible way. Making sure frontline staff open their minds to different ways of doing better business – where they feel empowered to bring new solutions and strategies to the table. **SR**



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Insulated Structures
Efficiency At Work

Effective solutions to reduce the cost of in-store refrigeration

Polyurethane Injected Panels

- Standard panels: Outer and inner skin of frost white Chromodek, also available in black finish.
- Polyurethane injected panels for superior insulation and adhesion.
- High-impact PVC interlock profiles on all edges provides totally sealed insulation and a perfect vapour barrier.
- Tongue and Groove panel options available.
- Easily erected.
- Optional skin finish in Stainless Steel – Grades AISI 304 AIS 403.

Cold & Freezer Rooms



Floors – Fabricated and Concrete

Fabricated Floors

- The inside floor finish is 1.5mm Aluminium tread plate glued and screwed to a marine ply base.
- Galvanised plate options available in lieu of the Aluminium Chequer Plate finish.

Concrete Floor

- Concrete floors are used for flush or step-up entry and in permanent structures. Usually a recess of 150–170mm is used to accommodate the foam slab insulation and the concrete screed.



Meat Rails

- Hot Dipped Galvanised system.
- Support structure integrated into insulated panels.
- Optional free-standing continuous galvanised system with bends and switch gear.

Aluminium Chequer Plate

- Installed as an option to protect panels from scratches and light impact damage.
- 1.5mm and 2.0mm thick options.
- Standard height 1 250mm AFFL.





Insulated Structures
Efficiency At Work



Up to 40%
Energy Saving



New or Retrofit
Existing cases



Environment
Respect

Benefits of Airshield Glass Doors

- Reduce Energy consumption.
- Extend Product shelf life.
- Double Glazed Argon filled void for better insulation.
- Optimal Product temperature.
- Glass doors have an option of Mullion lights. Quoted separate.
- Handles included.
- Up to 40% energy saving.
- Solution for new cabinets or retrofitted on existing cabinets.
- Doors are spring loaded.
- Less cold air spillage – warmer aisles.

Airshield Glass Doors



Ways to save

With energy cost rising and food retailers looking to improve the shopping experience environment for customers, Insulated Structures has developed an effective solution to reduce the cost of in-store refrigeration while enhancing the customer experience.

Insulated Structures doors are easy to retrofit on in-store cabinets to reduce the energy required to keep chilled foods at the correct temperature.

Meanwhile, customers are able to clearly see and access the products on offer. Reduced energy requirements means smaller refrigeration plant selection for new stores. These savings will off-set the initial cost of the doors. Up to 40% reduction in refrigeration requirement has been achieved.



Standard Airshield Glass Doors with a Black Frame.
Heated Hybrid also available in this design.
Heated Hybrid Glass Doors are fitted with a heater to reduce condensation on the doors in Coastal areas.
Heated Hybrid is fitted with soft closers.

Premium Airshield Glass Doors.
Frameless Door with Argon Gas filled for better insulation.



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