

Efficiency, sustainability, profitability

How energy efficiency & sustainability go hand-in-hand, and why retailers & wholesalers need to embrace both for survival

The cost of electricity continues to rise. The production of that electricity and its use has an undeniable impact on the environment. And as we know, FMCG retail and wholesale stores use a staggering amount of electricity – which means that energy efficiency is a vital component of any store's success.

Small yet impactful changes combined with big-ticket investments to provide long-term solutions and significant cost savings, as well as efficiency gains.

Lighting, heating, cooling, and ventilation.

Simple changes include switching to LED lighting, labelling light switches, making use of natural light and ventilation sources, and ensuring competing systems such as heating and cooling are not running simultaneously.

Preventative and predictive maintenance.

More time-intensive interventions include preventative and predictive maintenance, replacing all outdated fittings, and creating temperature zones in-store to make the most of operating hours versus shutdown times.

Image courtesy of Deiso.co.jp. www.canva.com



High-tech and smart or automated solutions

are some of the best ways to manage efficiency. Look at installing light timers and light sensors, as well as smart heating controls and heating timers.

Data collection and data analysis are essential weapons in your efficiency arsenal. You can't know where to save energy if you don't know where it's going and what's using it. Understanding when and where you need the most HVAC input is important for optimum management of this system.

Equipment monitoring and real-time electricity usage monitoring, data capture and analysis, and a clear understanding of the energy requirements and operational outputs of your store are necessary for developing a sustainable and energy efficient programme.

Alternative energy sources. Solar is a viable option in sunny South Africa, and the increase in demand globally has had a positive effect on both supply and cost. Retrofitting existing systems to tie in with a new

solar solution requires a good understanding of both installations, what is and required in terms of equipment and power demand. It isn't the return on investment makes this a worthwhile and logical step.

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South African retailers are futureproofing their business

Some of South Africa's biggest retailers have committed serious investment to renewable energy and energy efficient solutions and practices, according to an article by Mark Freeman in Bizcommunity.

Freeman says, "Massmart is one such group, installing Schneider Electric's EcoStruxure Building Operation (EBO) Building Management System (BMS) at retail chains Makro, Game, Builders Warehouse, as well as Massmart Distribution Centres situated throughout the country."

He adds, "In 2022 alone, Massmart achieved annualised energy savings of at least R15 million, recouping its entire investment within 12 months."

BusinessTech reports that, "The Shoprite Group has almost doubled the amount of renewable energy used in its operations to 103,234MWh (FY 2022: 54,138 MWh) over the past year."

This feat was achieved by increasing the amount of renewable energy bought from landlords and other suppliers by 91%.

"We have also reduced electricity consumption by 161 million kWh through our LED lamp replacement project, and our network of solar-panel installations now covers the equivalent of more than 26 soccer fields," notes the Shoprite Group's CSI & Sustainability Manager, Sanjeev Raghubir. The group also acknowledged the importance of increased efficiency, and with this in mind, embarked on a refrigeration project at the end of 2023.



Retail giant SPAR was investing in sustainability in 2022. The group announced they would be moving their KZN Distribution Centre (DC) away from sole reliance on Eskom and shifted to a combination of energy-saving initiatives and solar to "lighten the load."

SPAR reports that the installation of solar panels at both their Perishables and Dry Goods Warehouses resulted in an 80% reduction in energy usage from Eskom.

In addition, they invested in LED lights throughout both DCs for further energy consumption reduction, while in the Perishables DC, the LEDs were linked to an intelligent lighting system. The resulting oscillation resulted in a 60% energy reduction. An article on South African Business shares



Solly Engelbrecht

meaningful insights from Solly Engelbrecht, National Logistics Executive at The SPAR Group, about "the future of distribution in the retail sector."

In the article, Engelbrecht says, "Considering we service SPAR stores nationwide and across borders, our goal of transitioning all six [SPAR] DCs to operate entirely off the grid will require continuous innovation to find ways to supplement our current solar rollout."

Engelbrecht says solar energy alone cannot sufficiently sustain the uninterrupted, 24-hour operation that is essential for [SPARs] refrigeration units, storage centres and other critical equipment.



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Images, above & left: www.bcg.com/

The environmental cost of retail

Retailers and wholesalers need to be concerned about energy consumption. Research shared in a report by Boston Consulting Group (BCG) and the World Retail Congress (WRC) suggests that retailers are responsible for more than 25% of global emissions.

That's a vast amount, and despite international pledges to reach net zero, government incentives, and new legislation, many retail groups admit that they are falling far short of their objectives and, concerningly, are unsure how to get back on track.

Sustainability and energy efficiency are strongly associated, as one invariably impacts the other. A more sustainable approach is less energy-intensive. Less energy consumption equals less waste and fewer emissions, and a good sustainability programme will include measures to reduce energy consumption, boost efficiency, and implement energy saving measures in all aspects of the store, from refrigeration and lighting to HVAC and transport.

How retailers can achieve a comprehensive sustainability programme



Image: www.hussmann.com/en



Taylor Thompson

Emissions reduction. In an article called How retailers can reduce carbon emissions, Normative (<https://normative.io/>) says, "After calculating their full carbon footprints – including their value chain emissions – retailers can drive impactful decarbonisation by swapping high-emission products with more sustainable alternatives, by engaging suppliers in emissions reduction initiatives, and influencing their customers to make more environmentally conscious choices."

Energy management. Taylor Thompson, a Digital PR Specialist representing MicroTouch, wrote a blog titled 3 Ways to Be More Energy Efficient with Retail Equipment. In it, she states that "Energy management has become an essential part of operating a successful retail business. Retailers are increasingly looking for ways to reduce their energy costs and improve their sustainability efforts, and energy management is a critical tool in achieving these goals. Effective energy management can help retailers identify areas of energy waste and inefficiency and implement solutions to reduce energy consumption and costs. In addition to cost savings, energy management can also improve a retailer's brand image by demonstrating a commitment to sustainability and reducing the environmental impact of their operations."

Creating a successful sustainability programme is central to this. In addition to senior management buy-in and clear objectives, retailers and wholesalers need to ensure that the values and tenets of sustainability and sustainable operations are embedded in day-to-day processes throughout the organisation.



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For those retailers still struggling to put these processes in place, consider the advantages of artificial intelligence, and engage the services of experts in energy monitoring, energy audits, and efficient solutions. The Artificial Intelligence of Things (aiot) can be used to improve efficiency, reduce waste, and provide innovative solutions. AI can also be used to build a clean energy infrastructure.

Leading the way with innovation and determination

Meeting sustainability goals and maximising energy efficiency in the retail and wholesale space will require innovative solutions across the board, upstream and down. Plan A is an international leader in sustainability solutions, as well as corporate carbon accounting, decarbonisation, and ESG (environmental, social and governance) reporting. Plan A content writer Tara Bernoville says ...



Tara Bernoville

“ Global initiatives such as IKEA’s ambition for zero-carbon container shipping by 2040 exemplify the sector’s commitment to decarbonisation, emphasising the potential for significant industry-wide impacts through innovative solutions like ‘power-to-x’ for green liquid fuel production. ”



Whether your incoming order rate is putting a strain on your in-store picking model or you want the most optimised picking process to grow your online business, consider moving to an automated solution. www.husmann.com/en.

Pioneering carbon accounting software is just one of the ways in which retailers can begin to understand and reduce their environmental impact.

An international leader in display merchandisers, refrigeration systems, installation and services to food retailers, Hussmann has long been a champion of sustainability and energy efficiency. The company has spent considerable time and talent in developing energy efficient solutions and investing in innovations that safeguard the planet as well as business. Hussmann’s new microDS refrigeration system is charged with propane R290, a natural, non-toxic fuel, and uses 90-95% less refrigerant than other refrigeration systems that are charged by hydrofluorocarbons.

Positioned as a “major scientific and technological achievement,” Hussmann says microDS is capable of providing excellent refrigeration in full-sized grocery merchandisers, even open multi-deck, with

a small propane charge. It can be used to sustainably refrigerate perishable foods, such as meat, produce and dairy products, and because it has an ozone depletion potential of zero, it has the potential for long-term sustainability, despite changing regulations and legislation.

www.sollatek.com/



Sustainability as an advantage

Setting goals that are compliant with legislation or that just meet the expectations of shareholders and customers is a good place to start. Goals and objectives are necessary when it comes to putting new processes in place. However, Boston Consulting Group suggests that the ultimate goal should be understanding how sustainability can be more than a business basic or even an integral part of your company culture – it can create tangible and lasting value.

The BCG report states, “The respondents are nearly unanimous in the belief that sustainability initiatives will drive value in the next five to 10 years (and about half believe their companies will invest ‘whatever it takes’ to reach their stated goals).



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The retailers that align with that belief know that harnessing sustainability as a competitive advantage can unlock sources of value, reduce costs, grant access to new revenue pools, and reduce the cost of capital.”

Protecting your assets: The reality of an unstable power supply

Energy efficiency and sustainability are necessary objectives given South Africa’s ongoing energy crisis. But in addition, local retailers and wholesalers also need to invest in solutions that protect their assets from the potential dangers of an unreliable and unstable national power grid.

Nick Allen, General Manager at Sollatek South Africa, explains why we need to look at the immediate effects of loadshedding and the state of the local power supply in order to avoid the potentially catastrophic pitfalls that go hand-in-hand with the current landscape. Sollatek is an international leader in voltage protection, power control and energy saving, focusing primarily on protecting electrical and electronic equipment against unstable and unreliable voltages.

Allen says, “As necessary as loadshedding is, given the discrepancy between energy supply and demand, it has not solved our problems. Instead, it has presented us with a new set of challenges – those associated with an unreliable power supply.”

Certain power events can cause equipment powered by an electrical source, such as a store’s refrigeration system and HVAC, to have a shortened operational life, suffer serious damage, or even

be destroyed beyond repair. This can happen gradually over time, or in one catastrophic event. The power events include spikes and surges, over or high voltage, low voltage (under voltage or ‘brownouts’), and loss of neutral (LoN).

Allen explains ...

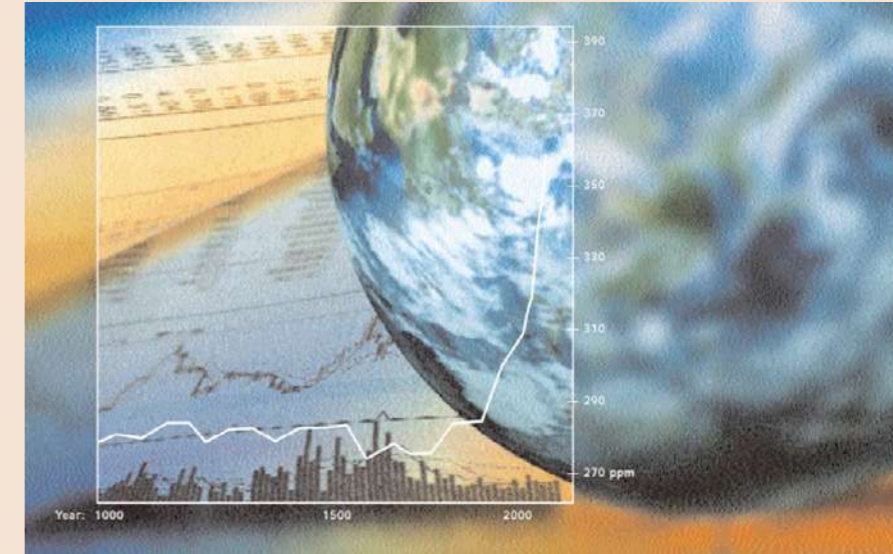
<https://blog.constellation.com/>



Nick Allen

“Spikes and surges are abnormally high waves of voltage lasting for a short duration of up to one cycle. Due to the potentially devastating impact surges can have, protecting systems from voltage surges should be considered extremely important.”

Surge protector devices work by monitoring the electrical charge entering the system. In cases where surges or spikes are experienced, the excess voltage is removed by being earthed, for example, preventing it from reaching the equipment. Allen advises that when choosing a surge suppressor, several points need to be taken into consideration. Look for an option that offers protection against



<https://ghgprotocol.org/>

Understanding emission scopes

The Greenhouse Gas Protocol Corporate Standard classifies a company’s GHG emissions into three scopes:

- **Scope 1 emissions:** direct emissions from owned or controlled sources.
- **Scope 2 emissions:** indirect emissions from the generation of purchased energy.
- **Scope 3 emissions:** all indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

Scope 3 emissions usually account for between 70% and 90% of a retailer’s total environmental impact. This includes emissions generated from the purchase of electricity, as well as upstream and downstream business activities such as procurement, transportation and distribution, and end-of-life processing.

a broad range of voltages around the anticipated mean. Find out how quickly the surge protector can eliminate unwanted excess current, and as a result, how long the system will experience a sub-optimal load. The quicker the elimination, the lower the risk of burnout.

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Over or high voltage conditions are typically caused by higher-than-normal voltage but lower than a surge or spike, and for a longer duration. Allen explains, "These conditions can last for seconds or hours, and if voltages are high enough or of long duration, damage can result immediately or over time. Anything exceeding 230V can have a long-term effect on the ongoing maintenance of that equipment. Sensitive electronic components such as transistors, capacitors, and integrated circuits are mostly affected, and over time, this degrades the components, leading to premature failure of the device."

Loss of neutral occurs when the neutral connection in the circuit becomes disconnected or broken, resulting in an unbalanced voltage and current distribution in the system. This often leads to voltage fluctuations and extremely high voltage, which can result in damage to electrical equipment and electrical fires. Typically, loss of neutral is caused by bad weather, accidents such as a tree falling onto power lines, and theft of copper wires.

Low voltage or brownouts happen when the average voltage of a power system drops below the nominal voltage of 230V. These are caused by an increased demand on the system, often during peak consumption times, and usually because of a lack of grid power causes a shortage in network capacity.

"When equipment is forced to operate on reduced power levels, it draws higher currents," explains Allen. "This means the components inside the appliance will be forced to work harder



The Shoprite Group addresses climate change through various avenues, notably by employing renewable energy through the use of solar power. The Group is South Africa's top-rated retailer for corporate disclosure, transparency and performance on climate change and water security. Africa's largest retailer achieved 'A-' Leadership Level Ratings by the global environmental non-profit, CDP (formerly Carbon Disclosure Project), for its environmental leadership and best practice in strategy and action. This double A-score marks the Group's second inclusion on the climate change A-list and fourth consecutive year on the water security A-list since 2020.

and this, over time, damages the equipment. For example, the wiring inside equipment that has motors, such as fridges, suffer substantial wear and tear. Forcing equipment to work in these conditions for a prolonged period reduces their lifespan drastically and can lead to permanent failure."

Protection from these power events plays a pivotal role in safeguarding electrical components and equipment. Voltage switches are designed to disconnect loads when voltages drop below a safe operating level, actively monitor the voltage, and automatically reconnect the loads when the voltage returns to a safe operating level. If adverse conditions last for extended periods, the situation may call for more substantial solutions, including voltage stabilisers or regulators, and potentially backup power solutions.

The goal?

Reduce your energy consumption

Wholesalers, hypers and super-market-format stores operate in an energy-intensive environment due to the need for large storage spaces, refrigeration, lighting, and other operational requirements. Making your electricity consumption more sustainable not only contributes positively to the environment but can also lead to significant cost savings.

Energy efficiency, smart energy management, renewable energy sources, demand response programmes, employee training, regular maintenance and audits, sustainable building design, and supply chain collaboration with like-minded suppliers and partners will reduce your energy consumption, lower your operational costs and contribute to a more sustainable future. **SR**

Sources:

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<https://web-assets.bcg.com/4e/32/7851688444388cfff3ae6993d9f7/wrc-bcg-sustainability-in-retail-is-possible-but-there-is-work-to-be-done-april-2022.pdf>



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





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.

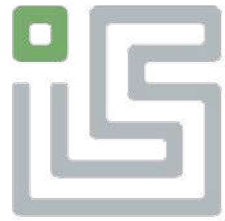


Meat Rails

- 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.



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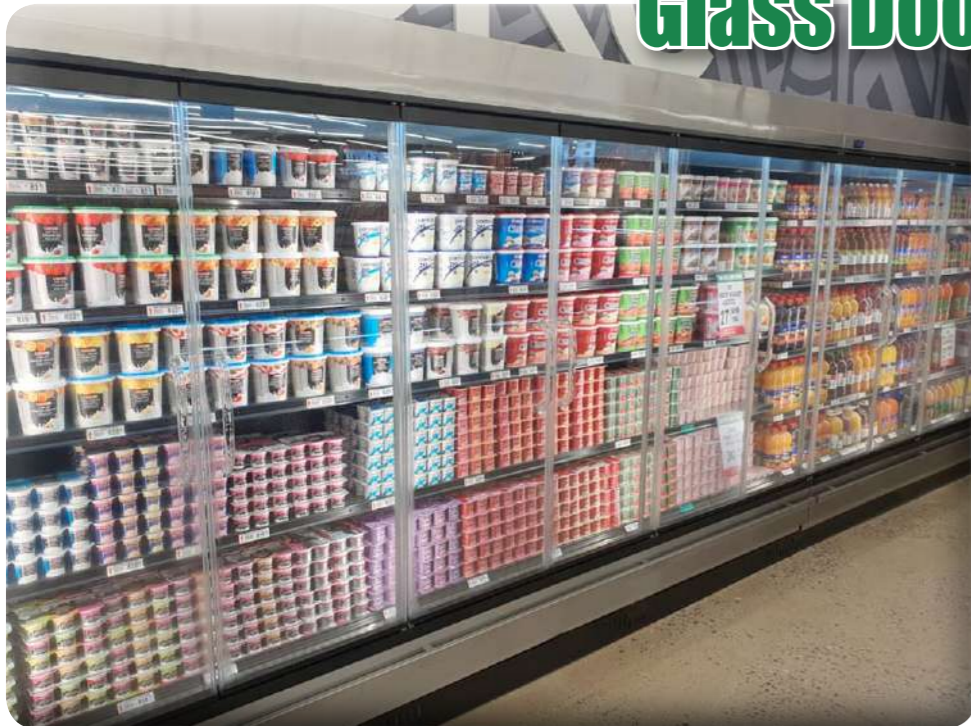


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Airshield Glass Doors



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.
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