NATIONAL BUSINESS INITIATIVE

PSE
PRIVATE SECTOR ENERGY EFFICIENCY

RETAIL ENERGY MANAGEMENT

New profit centre for retail businesses.

Contents

Preface

Reducing energy use makes perfect business sense; it saves money, enhances corporate reputation and helps everyone lead the fight against climate change.

Plug into energy efficiency with the Private Sector Energy Efficiency (PSEE) project and get simple, effective advice to help your business take action to improve energy efficiency and reduce carbon emissions.

This overview for retailers introduces the main energy saving opportunities for businesses within the sector and demonstrates how simple actions save energy, cut costs and increase profit margins.

Introduction

A 20% cut in energy costs represents the same bottom line benefit as a 5% increase in sales.

Saving energy is one of the simplest ways to increase profits. In retail businesses, energy costs may only be a small percentage of turnover but reducing them can directly increase margins without the need to increase sales.

In addition to economic benefits, there are of course, social and environmental advantages to reducing energy consumption, such as preserving fossil fuel supply and minimising climate change. Customers are increasingly aware of these issues and many are choosing retailers who are taking positive steps for the environment.

Who is this publication for?

Managers in most retail organisations – from local convenience stores to larger stores and supermarkets – can benefit from the advice in this publication. Focusing on low and no-cost measures and actions which will have the quickest payback, this overview demonstrates the best energy saving opportunities for retailers and will help managers to:

- Assess the potential for energy savings in-store and indicate key areas for improvement.
- Raise awareness of energy conservation amongst staff and motivate them to reduce waste.
- Appraise the overall performance of a store.

Controlling energy usage will also make conditions more comfortable for staff and customers – and comfortable customers will want to spend more time in-store.

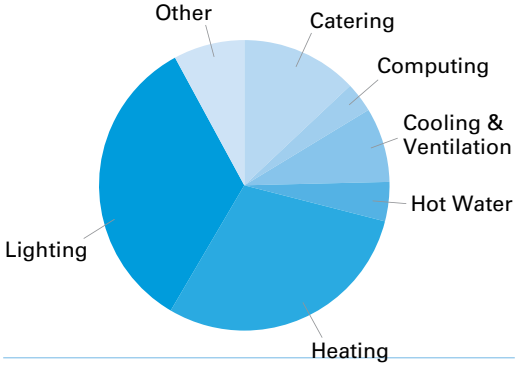
Energy consumption in retail

Although retail is a diverse sector, there are several areas where energy is commonly wasted.

MENU

The chart below shows where retailers use most energy and where the biggest savings can be made: in lighting, heating, ventilation, air conditioning and refrigeration.

Figure 1 ***Breakdown of energy use in the average retail environment***



Note that proportions of energy use will vary according to the type of store. For example, food retailers tend to have higher refrigeration costs than shown here, while others will notice that their air conditioning costs are more significant.

In each of the areas identified above, there are three main opportunities to save energy:

Switching off – All energy consuming equipment should be switched off when not required. This can be done by staff, by timer switches or by adjusting building control systems and need not cost any money.

Maintenance – A number of energy efficiency measures can be carried out as part of routine maintenance procedures for no extra cost.

Refurbishment – When planning major store refurbishment, energy saving measures taken at this time can be extremely cost effective.

HELP

Key opportunities for energy saving

Lighting

The retail industry demands bright, attractive lighting to draw customers and maximise sales but this is often not very energy efficient. There are, however, many simple and inexpensive ways to reduce the energy consumption and costs associated with lighting without compromising profit.

Lighting plays a critical role in the retail environment and has to satisfy a variety of business needs:

- General lighting to retail areas
- Display lighting
- Signage
- Theme or mood lighting
- Lighting for cleaning and stock replenishment
- Security and safety lighting
- External and car park lighting

Low-cost quick wins

'Switch off' policy – involve staff and increase awareness

Staff at all levels should be involved in making savings –this can be achieved by conducting regular meetings, placing stickers above light switches and posters around in-store service areas (available from the PSEE website). Failing lamps should be reported by staff and replaced. This will help maintain the desired light output and in turn, provide a safer working environment.

Label light switches

Light switches should be clearly labelled to help employees to select only those lights they need for the work being carried out (for example when cleaning or restocking the store out of hours). Lights in unoccupied areas should be switched off but remember to consider health and safety implications, particularly in corridors and stairwells.

Maintenance

Lighting is essential for providing a pleasant shopping environment so it is important to keep windows, skylights and light fittings clean. Replace old, dim lamps and keep controls in good working order by ensuring timers are set to match trading hours and that occupancy sensors are clean. Without regular maintenance, light levels can fall by at least 30% in 2-3 years. Establishing a basic lighting maintenance programme can reduce costs by up to 15% as well as improving in-store appearance.

Invest to save

Occupancy sensors

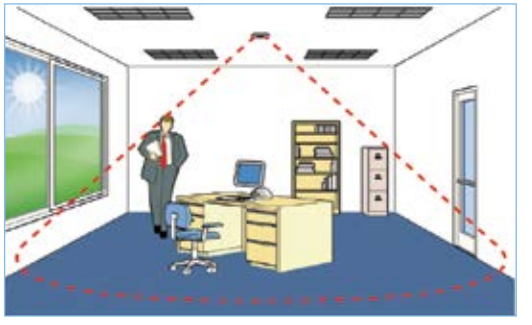
A store where cleaning or security staff work late would benefit from occupancy sensors. These automatically turn lights on when there is somebody there to require them and turn them off after a period of vacancy. Sensors can achieve savings of up to 50% on lighting costs and are especially useful in:

- Stockrooms and storerooms
- Toilets
- Meeting rooms
- Areas where lighting is zoned

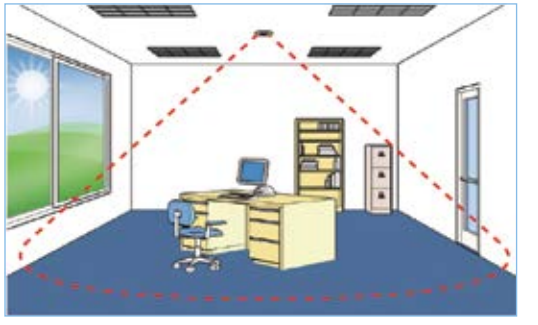
Daylight sensors

Light sensors or 'photocells' can be used to control artificial lighting when there is sufficient natural daylight. As daylight hours vary throughout the year, sensors help to provide closer control and thus, substantial savings. They can be particularly useful externally for lighting car parks or signage and can often pay back their costs in less than a year. Both types of control are sometimes combined with time switches.

Figure 2 Use of an occupancy sensor with a photocell override to give the option of keeping lights off on bright days

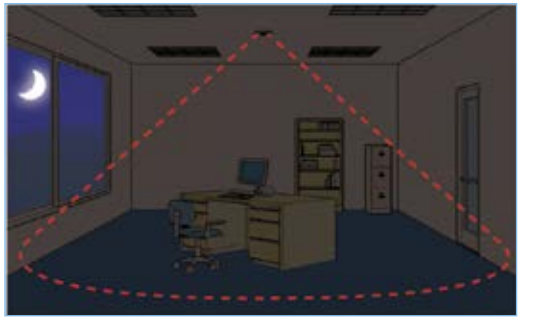


Enough daylight, occupied – lighting OFF



Enough daylight, unoccupied — lighting OFF

Night, occupied — lighting ON



Night, unoccupied — lighting OFF

Illustrations supplied courtesy of Danlers Limited

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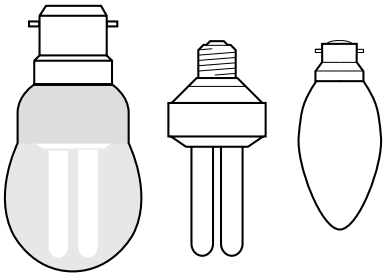
Install low energy lighting

Lighting must be selected to provide the required brightness and colour levels for given tasks. Sales areas are generally lit to high levels whereas other sections can be lower but must still meet business and health and safety requirements.

Compact fluorescent lamps (CFLs) will last up to eight times longer than conventional tungsten light bulbs, which means less time spent replacing them. CFLs have a similar light output to their tungsten counterparts and use only 20-25% of the energy.

Replace blackened, flickering, dim or failed fluorescent tubes with tri-phosphor coated ones. Tri-phosphor coating provides a more natural, brighter light for the whole life of the tube. If the tubes are 38mm (1.5 inch) in diameter, they should be replaced with slimmer 26mm (1 inch) tubes.

Figure 3 ***Low energy lighting***



Lighting technology advances very quickly and modern low energy bulbs are available that look attractive and provide good light output. Trial a few different types to see which best suit your store. Perhaps a mixture of low energy and traditional tungsten or halogen bulbs will give the right effect but save money.

Refurbishment

When replacing older fluorescent lights, specify modern highfrequency fittings. These reduce energy use and heat output, eliminate flicker and hum, extend lamp life and can allow dimming – all of which can make a store more attractive to customers.

Always consult a qualified lighting technician before upgrading lighting systems.

For further advice download:

Lighting overview guide.

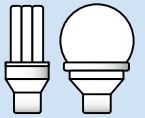
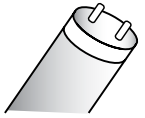
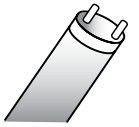
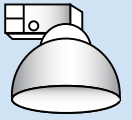
Case study

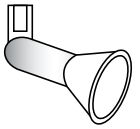
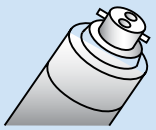
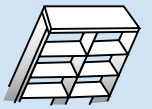
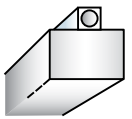
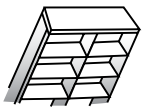
What are other retailers doing?

- At one major retailer, lights are switched on one minute before opening time and switched off when the shop closes. Separate circuits with reduced lighting levels are used for cleaning and re-stocking. Background light levels are kept deliberately low so display spotlights provide adequate contrast without being excessively bright. These energy saving measures save tens of thousands of rands annually.
- A shopping centre in the reduced service area lighting levels by two thirds simply by removing extra fittings. Staff found that their spaces were lit to a comfortable level but not overly bright. They also saved R40 000 per year by switching off half of the lights in the centre outside opening hours – this allowed enough light for cleaning and security functions whilst achieving substantial savings.

How to spot different types of lighting

Make sure that you have the most efficient type of lighting installed. The following table will help you identify different types of bulbs and whether there might be a more efficient alternative.

Existing lamp type	Energy-efficient option	Energy saving/ benefits	Application notes
 Tungsten light bulbs	 Replace with compact fluorescent lamps (CFLs) or LEDs in the same fitting	75-80% saving plus longer lamp life	General lighting – modern LED and CFL replacements may also be acceptable for display lighting
 38mm (T12) fluorescent tubes in switch-start fittings	 Replace with equivalent 26mm (T8) triphosphor fluorescent tubes of lower wattage	Up to 15-20% saving plus longer lamp life	General lighting, but even better use with modern fittings (see below)
 High-wattage filament lamps or tungsten halogen lamps as used in floodlights	 Replace with metal halide, LED, or high wattage compact fluorescent lighting	65-75% saving plus longer lamp life	Flood lighting and some general lighting situations

Existing lamp type	Energy-efficient option	Energy saving/ benefits	Application notes
 Mains voltage reflector lamps, filament spot and flood types	 Replace with LEDs or compact metal halide discharge lighting	50-80% saving for equivalent lighting performance	Where compact metal halide or LEDs are not appropriate the low voltage tungsten halogen spotlights can reduce lighting energy use by 30%, with further savings available by using 35W infrared coated (IRC) bulbs instead of standard 50W bulbs
 Fluorescent fittings with the old 2ft 40W, and 8ft 125W fluorescent lamps	 Replace with modern efficient fittings using reflectors/louvres or efficient prismatic controllers with high-frequency electronic or low loss control gear and triphosphor lamps	30-45% saving with much improved lighting quality. The use of high frequency electronic control gear eliminates flicker, hum and stroboscopic effect	General lighting
 Fluorescent fittings with opal diffusers or prismatic controllers which are permanently discoloured	 Replace with new prismatic controllers or replace complete fittings as above	No reduction in energy consumption but increases the amount of light by between 30% and 60%	General lighting

Heating, ventilation and air conditioning

Providing customers with perfect temperatures and fresh air whilst maximising profit margins is easily achievable.

Although heating, ventilation and air conditioning (HVAC) can all be separate systems, it is worth considering them together because they interact with each other when providing a conditioned environment for the building. By looking at how each element of an HVAC system complements the other, it should be possible to fine-tune the system to save energy and money.

Heating

Hvac can account for up to 47% energy use in non-domestic buildings which means that there are big opportunities to make savings. Most retailers recognise the importance of keeping customers and staff comfortable, but many do not realise that it is possible to minimise the cost of heating, regardless of which system is in place. Some businesses have shaved up to a third off their heating costs through the implementation of some simple energy saving measures.

Low-cost quick wins

Consider outside temperatures
Customers will be wearing warmer clothing if it is cold outside, so in-store temperatures should be set so they do not become uncomfortably hot while in-store. Some retailers waste energy by heating the area to accommodate staff wearing short sleeved uniforms. Always provide practical staff uniforms so appropriate, comfortable temperatures can be maintained. Reducing heating temperatures by just 1°C can cut fuel consumption by 8%. Listen to staff, especially after making changes and act on any feedback.

Open all hours?
Check system operating hours match the times when heating, ventilation and cooling are required, as needs vary throughout the day. It is often possible to shut down heating or air conditioning an hour before store closing without any noticeable difference to staff or customers. Use simple time switches in smaller stores to help to automate this process so that nobody forgets – and ensure time settings are reviewed every month or so to check that they are correct. Many systems function inefficiently because someone made a short term adjustment and then forgot about it.

Case study

What are other retailers doing?

A small retailer installed a simple extension timer because staff frequently worked outside the core daily business hours replenishing stock. This enabled heating times to be extended by a pre-set period whenever required, and avoided the need to reset the main time controls. As a result, staff comfort levels were increased during late night working while the retailer saved thousands of rands and a great deal of effort.

Open door policy?
Shoppers and suppliers require easy store access but open doors allow warmed air to escape and cold air to enter. The thermostat then senses a temperature decrease and automatically switches on heating which may be unnecessary. The same happens with cooled air in warmer months. If you

have an open door policy, try to keep external doors open only at busy times or try one of the following:

- Install automatic or revolving doors to help to maintain the inside temperature while ensuring that shoppers and delivery personnel have easy access.
- Install a draught lobby to reduce the amount of hot or cool air lost through open doors.

Controlling systems
Many businesses find that controlling temperature is difficult. Some signs of poor control include:

- Heating being on when the building is unoccupied, because timers are not set correctly.
- Heating being too high or not high enough, because the thermostat is located where sunlight, radiators or office equipment affect its reading.

Often, simple adjustments to the location and setting of controls can reduce costs without affecting staff and customer comfort.

Maintain boilers and pipe work
Have boilers serviced regularly by a reputable firm. Gas-fired boilers should be serviced once a year; oil boilers twice a year. A regularly serviced boiler can save as much as 5% on annual heating costs.

Boilers, hot water tanks, pipes and valves should be insulated to prevent heat escaping. Payback can usually be expected within a few months of installation, with additional savings in subsequent years.

Invest to save

Consider weather compensation and optimum start controls
Technology has made it possible for heating systems to adjust themselves in line with the climate.

A **compensator** is a form of control for heating systems that automatically regulates the building temperature based on the weather. An optimum start controller learns how quickly the building reaches the desired temperature and brings the heating on at the optimum time prior to building occupancy.

These types of controls can save tens of thousands of rands and will pay back their investment in just a couple of years. Consult a qualified heating technician to discuss the range of options available.

Ventilation and air conditioning

Ventilation and air conditioning in retail are becoming commonplace due to an increase in heat-gains from lighting, staff, customers and equipment. The more heat that is generated, the harder the air conditioning system has to work to maintain the desired temperature.

It takes energy to heat and cool the air inside a building. If that air is mechanically removed then the money used to heat and cool it is also lost. The lost air then has to be replaced with the same amount of air from outside which again needs to be heated or cooled to match inside temperatures – and that also costs money.

Low-cost quick wins

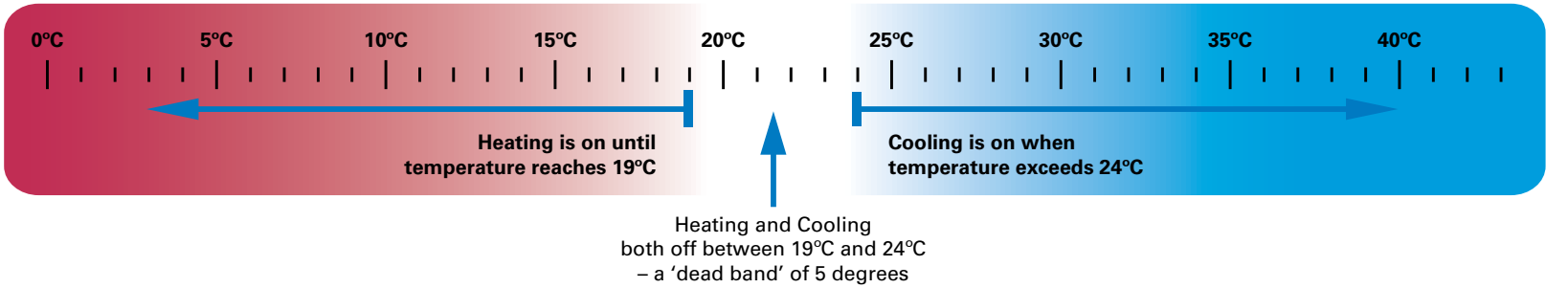
Take advantage of natural ventilation and free cooling to halve energy costs
As simple as it sounds, natural ventilation and cooling relies on natural air flow between openings on opposite sides of a room or building – or rising warm air being replaced with cooler air sucked in through windows or vents. It may be possible to use windows and doors to provide good levels of natural ventilation in-store, allowing mechanical ventilation to be switched off or turned down to save money. When opening vents, doors and windows, always consider security implications.

Maintain system components to ensure efficiency
Regular cleaning of ventilation systems can increase efficiency by as much as 25% compared with un-maintained systems. Dirty or faulty fans, air ducts and components directly affect system efficiency and will increase running costs and risk of breakdown. The performance of the whole system should be reviewed annually and replacement parts ordered as necessary. Always consult a maintenance technician.

Stay cool at night
In some cases, ventilation fans can be run overnight to cool a shopping centre or large store, thus delaying the switching on of air conditioning. This is known as 'night cooling'.

Don't let heating and cooling operate at the same time
This can be avoided by setting a temperature 'dead band' – a wide gap between the temperatures at which heating and cooling cut in. In a retail environment, the heating should switch off when a temperature of 19°C has been reached and cooling should not come on until the temperature exceeds 24°C.

Figure 4 Diagram of 'dead band' control providing recommended temperatures



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Invest to save

Minimise the cooling load – reduce overheating from sunlight, equipment, lighting and refrigeration.

Lighting and refrigeration generate large amounts of heat in-store. Generally, the more energy efficient these are, the less heat they produce, so install low energy lighting and keep refrigeration operating at peak efficiency to reduce cooling costs. Direct sunshine through large windows can also lead to overheating. Consider replacing window panes with special heat reflective glass or partition off the window display area to prevent heat build-up in-store. Awnings can be useful for shading main windows.

Switch off space-heating boilers in summer and chillers in winter, if possible. Then you will know you are in control.

Did you know?

To save money and increase comfort, it is better to reduce the amount of heat produced in an area than to raise ventilation rates. Don't be afraid to ask – if you are concerned that your system isn't operating correctly, or if staff complain about draughts from ventilation fans, talk to your maintenance technician.

Case study

What are other retailers doing?

- A shopping centre achieves the most effective natural ventilation using a combination of low and high level openings (e.g. secured windows and roof vents). This is especially useful at night when stored heat that has accumulated in the building during the day can be removed, reducing the need for mechanical ventilation.
- Another large shopping centre maximises natural ventilation by drawing in fresh air through its atrium rooflights. Sensors have been installed to automatically close the rooflights when it rains. Using natural ventilation has lowered energy costs and proved to be a success with both management and customers.

Refrigeration

Food retailers do not always realise how much energy is used by refrigerators and freezers, or that there are big savings to be made.

Since the energy used by refrigeration in a small retail outlet can account for half of the total electricity bill, it pays to look carefully at ways to improve equipment efficiency. Furthermore, refrigerators and freezers also produce heat which adds to the cost of maintaining comfortable temperatures. The hotter the environment, the more work refrigeration equipment has to do to keep products cool – so effective management can reap significant benefits.

Did you know?

The installation of transparent strip curtains to chilled or frozen food cabinets helps to prevent warm air from the shop entering the cabinets while still allowing easy access for customers. Strip curtains are cheap to install and could save your business over 40% of the pre-installation energy costs. Speak to your refrigeration equipment supplier or service technician for more information.

Low-cost, quick wins

Operating at peak efficiency

The way equipment is operated has a big effect on the costs of running it:

- Avoid over-filling shelves. Apart from the danger of spillage, over-filling may mean that set temperatures have to be lowered in order to maintain safe product conditions.
- Ensure that insulating covers and blinds are used as intended. Leaving them off can increase energy use for both refrigeration and store heating.
- Ensure that lighting in cabinets is switched off outside trading hours and that cold-store lights are used only when necessary. This saves on electricity for lighting and refrigeration which has to remove heat generated by the light.
- Ensure that staff keep chiller doors shut. It may be helpful to put up energy awareness reminders.

Regular maintenance for optimum performance

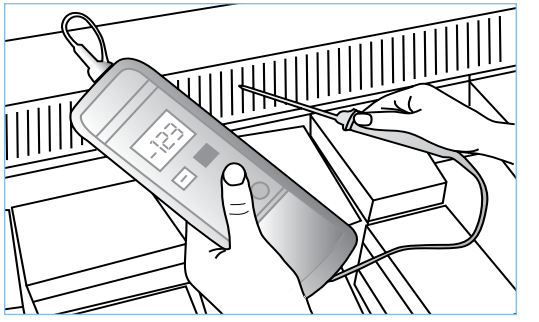
Refrigerators that are not properly maintained will gradually use more energy and increase the risk of breakdown. Establishing a simple in-store maintenance schedule will save on energy and costs.

- Ensure that defrost procedures are followed.
- Check door seals on cold rooms, fridges and frozen food stores.
- Keep condensers clean and free of dust.
- Check systems have the correct amount of refrigerant.

Maintain correct temperatures and avoid over-cooling

Keeping refrigerated produce at the correct temperature is better for food and for cost savings. Energy consumption can be reduced by 2-4% if the set cooling temperature can be safely increased by 1°C. Ensure that the manufacturer's recommended operating temperature is set accordingly.

Figure 5 A thermometer detecting appropriate temperatures in a freezer



Store drinks and other non-perishable chilled goods in a cool place
Avoid direct sunlight and heat emitting equipment to ensure stored products are as cool as possible before being put into cabinets. This means that the product will take less time to reach the desired temperature which will also reduce cooling equipment load.

Invest to save

Install night blinds to stabilise the temperature of chiller cabinets overnight
Night blinds help maintain the quality of chilled and frozen food and reduce heating costs by preventing cold air spilling from cabinets into the store. This produces a more consistent air temperature for when the store opens each morning, therefore requiring less space-heating. Installing night blinds to existing chiller cabinets is slightly more expensive but will pay back in energy savings fairly quickly and keep making savings year on year.

Consider time switches for cabinets containing drinks and non-perishable food stuffs, switching off appliances can save energy without a detrimental effect to the products. If you have differing time requirements throughout the week, a seven-day time switch can be used to ensure units are switched off over weekends. Contrary to belief, it is not cheaper to keep them switched on.

Upgrading equipment?
The decision to buy new refrigeration equipment will be based on business needs as well as price. It is always important to choose carefully because some units have much greater running costs which end up costing more over their lifetime, despite a lower purchase price.

Case study

What are other retailers doing?

A large food retailer installed night blinds to all of their refrigerated display cabinets. The costs associated with this were paid back over three years and led to significant savings for the company. The initial cost of installation would have been halved if they had been installed at the outset, so now the company specifies night blinds and strip curtains whenever they purchase refrigeration equipment.

Building fabric

Typically, two thirds of heat in-store is lost through the building fabric, with the remaining third being lost through air infiltration and ventilation.

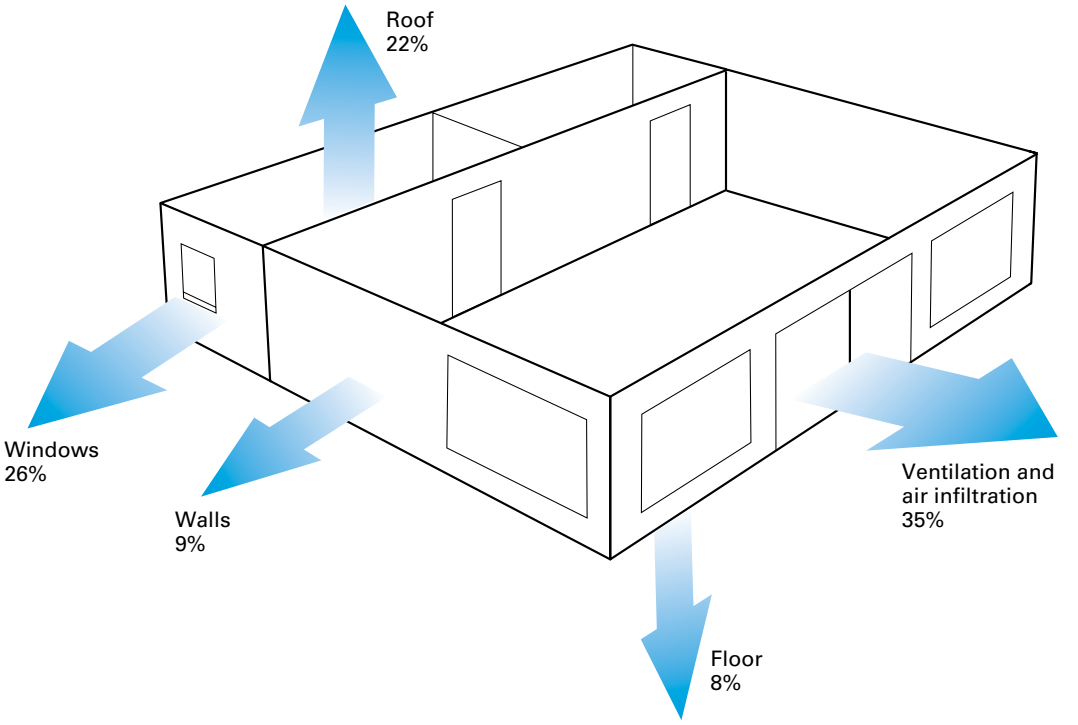
The rate at which heat is lost depends on:

- The temperature difference between inside and outside.
- The insulation properties of the building fabric.
- The amount of fresh air entering the building either by controlled ventilation or through poorly fitting windows, doors or joins in walls.

Improving a store's building fabric makes good sense for many reasons:

- Better temperature control – it can prevent overheating and lower ventilation and air conditioning costs.
- Improved productivity – staff morale and output can be enhanced by providing a more comfortable working environment through reducing draughts, solar glare, overheating and noise.

Figure 6 *Heat loss from typical building*



- Lower capital expenditure – a more efficient, well insulated store needs smaller heating and cooling plant.
- Good investment – better insulation can increase a store's value and attractiveness.

Opportunities for energy saving

Undertake regular maintenance and avoid expensive problems later on
Well maintained buildings should mean that any potential problems are identified and dealt with promptly. In particular, gaps or holes in walls, windows, doors and skylights should be repaired immediately. This provides instant savings and also improves store appearance.

Establish a housekeeping schedule and involve staff
Compile a regular checklist to address areas where energy is lost via the building structure. The larger a building, the more beneficial it would be to appoint staff to carry this out. A comprehensive schedule should include checking window panes, frames and roof lights.

Regularly check the building for damp
Damp causes significant damage to the building structure and reduces its insulating properties. Repair split downpipes, faulty gutters and leaky roof tiles. Check for signs of damp and condensation at least once a year.

Reduce energy loss via delivery doors and docking bays
There are a number of ways to prevent warm or cooled air escaping from storage areas and delivery doors, including the application of:

- Air-locks
- PVC curtains
- Warm air curtains
- High speed motorised doors with automatic opening and shutting controls

Energy management

It is important to ensure your management team is aware of the benefits that energy efficiency can bring to a store in order to get the entire workforce involved and committed to an energy management programme.

Good housekeeping

Everyone should be reminded that good energy management helps to achieve:

- Cost savings
- Healthier and more productive working conditions
- An enhanced corporate image which can be promoted to customers

All of this means an improved competitive advantage for your business.

Opportunities for energy saving

Whether starting an energy conservation programme from scratch or simply checking the effectiveness of an existing management system, there are a number of basics to consider:

Responsibility and commitment
Commitment to energy efficiency has to come from the top and should be backed up by a personalised mission statement and energy policy. It is also important to appoint an 'energy champion'. In very small businesses, this may be the owner or manager but in larger companies, appointing a staff member will often improve involvement and awareness across the whole store.

Case study

What are other retailers doing?

A leading retail store launched an energy awareness programme and achieved a 20% reduction in energy costs in the first year. Since then, energy has been included as part of the store management assessment as well as being a regular item on the staff training agenda. These initiatives, along with central monitoring of energy use, have maintained a reduction in energy consumption.

A large retail store installed a building management system (BMS) which reduced energy costs by more than 10%. A BMS is a network of heating and ventilation controllers that are interfaced with a computer. It offers closer control and monitoring of building services performance (including air conditioning) and allows settings to be changed quickly and easily. This can be monitored via computer screen in real time.

Involve staff
All staff are important in saving energy so they must be made aware of wastage areas and be trained to operate equipment and controls correctly. Motivate staff – ask their opinions and encourage them to review their own working practices to increase energy savings. The best ideas usually come from the shop floor. Competitions, campaigns and team projects are great ways to get buy-in. Reinforce the benefits of improving their work area and give them a sense of ownership of energy management.

Common barriers that lead to energy efficiency not being taken seriously in your store include misconceptions such as:

- 'Our efforts will make no difference to me'.
- 'There are more important issues to address'.
- 'It is high risk'.
- 'I only want to sell my goods. Technical stuff is too complicated for me.'

Break down these myths and attitudes by involving decision-makers and staff alike. Every staff member has a major impact on energy use and they need to be aware of this.

Set targets
Tell staff how much energy is currently being consumed. As the energy saving programme gathers momentum, it will be possible to track progress and highlight energy savings. Set targets – most businesses could reduce their energy consumption by 10-40%. However, it is important to be realistic: many companies start with 5% per year.

Undertake regular housekeeping walk arounds
Carry out regular good housekeeping walk arounds in-store. Note down and act on any maintenance measures needed in order to avoid expensive problems later on. As patterns of energy use vary throughout the day, it is advisable to carry out a series of walk arounds at different times to get a better idea of where and when energy is being wasted.

For further advice download the following publications:

Energy management guide

Fact:

Understand your energy consumption by reviewing energy invoices over the last year – you should be able to build a picture of your monthly performance. Larger stores generally have meters recording half hourly electricity consumption and this data should be available from your energy supplier. However, if your store does not have a half hourly electricity meter, check and record monthly meter readings yourself. You should also check and record any other energy expenditures the same way e.g. vehicle fuel or heating gas/oil.

Action checklist

✓	Action	Savings
☐	Switch off all non-essential lighting out of business hours. Install timers to help with this (Page 6)	10% of lighting costs
☐	Install photocell controls to switch off some lighting on brighter days (Page 7)	20% of lighting costs
☐	Replace traditional tungsten lamps with energy efficient, compact fluorescent lamps (CFLs) to reduce operating and maintenance costs (Page 8)	75% of tungsten lighting costs
☐	Experiment with switch-on times for heating and air conditioning and switch off well before closing (Page 11)	20% of heating and cooling costs
☐	Ensure thermostats are set correctly – increase temperature set-point for cooling and reduce set-point for heating (Page 12)	A 1°C reduction in temperature during the heating season can cut costs by 8%
☐	Install time controls so that equipment (such as escalators and vending machines) and HVAC systems only run during business hours (Page 13)	15% of escalator power costs
☐	Set a gap or 'dead-band' between heating and air conditioning control temperatures of about 5°C to avoid them operating at the same time (Page 13)	10% of heating costs
☐	Turn off unnecessary equipment during the day and especially out of hours to reduce heat build-up (Page 14)	5% of energy costs
☐	Check insulation levels and increase wherever practical to reduce heating requirements (Page 17)	5% of energy costs
☐	Walk around your site at different times of the day and during different seasons to see how and when heaters and coolers are working. Check time and temperature settings (Page 16)	5% of heating costs

Myths and assumptions

ASSUMPTION – Switching off an extractor fan will not have much of an effect on our cost savings.

FALSE! – A single fan may only signify a small power load yet could bring about a significant loss of heat from a store if not adequately controlled. The heating system would have to compensate which could typically increase boiler fuel consumption by around 5%.

MYTH – Leaving air conditioning on overnight reduces energy costs as the system stays at the required temperature.

FALSE! – The result is a much higher energy consumption than necessary.

REMEDY – A store only needs a fraction of overnight energy to reach adequate temperatures for the start of the day. Air conditioning may not be needed at all at this time if 'night cooling' is used.

MYTH – Retail lighting needs to be as bright as possible to attract customers.

FALSE! – Low energy lighting and automatic controls can reduce electricity bills without detracting from displays. Spotlights and other appropriate techniques can add atmosphere to a store. Do not assume that brightly lit shops are better frequented – consider the whole shopping experience.

ASSUMPTION – Our boilers have to be on all year round.

FALSE! – If you have several boilers, it is likely there is a smaller one designed to supply your hot water needs only. Switching off the other boilers, particularly during summer months, can save energy.

MYTH – Turning air conditioning thermostats as low as they can go cools a store more quickly.

FALSE! – The result is that the temperature drops at the same rate but then overshoots and reaches the heating system switch-on temperature. Both systems may then operate at the same time.

REMEDY – Set thermostats correctly and protect them to prevent tampering, where possible.

MYTH—It is better to leave fluorescent lighting on as starting them up wastes more energy than if they remain permanently switched on.

FALSE! – Fluorescent tubes use only a few seconds worth of power in start up – therefore, it is always better to switch them off when leaving a room.

Next Steps

There are many easy low and no-cost options to help save money and improve the operation of your retail business.

MENU

Step 1 Understand your energy use

Look at your store and identify the major areas of energy consumption. Check the condition and operation of equipment and monitor the power consumption over say, one week to obtain a base figure against which energy efficiency improvements can be measured.

Step 2 Identify your opportunities

Compile an energy checklist. Walk around your building and complete the checklist at different times of day (including after hours) to identify where energy savings can be made. An example checklist is on page 21.

Step 3 Prioritise your actions

Draw up an action plan detailing a schedule of improvements that need to be made and when, along with who will be responsible for them.

Step 4 Seek specialist help

It may be possible to implement some energy saving measures in-house but others may require specialist assistance. Discuss the more complex or expensive options with a qualified technician.

Step 5 Make the changes and measure the savings

Implement your energy saving actions and measure against original consumption figures. This will assist future management decisions regarding your energy priorities.

Step 6 Continue to manage your business for energy efficiency

Enforce policies, systems and procedures to ensure that your business operates efficiently and that savings are maintained in the future.

HELP

Plug into energy efficiency with PSEE

The Private Sector Energy Efficiency (PSEE) project aims to improve energy efficiency in industrial and commercial sectors across South Africa. PSEE offers a variety of services to help companies plug in to energy efficiency:

Website – Visit us at www.psee.org.za for our full range of advice and services.
www.psee.org.za

Remote advice – Call us on 0801 113 943 or visit www.psee.org.za to access independent, authoritative advice and our publications and tools.

Publications – We have a library of publications detailing energy saving techniques for a range of sectors and technologies.
www.psee.org.za/Resouces

Survey-based support – Review of energy use for medium-sized companies to identify energy savings opportunities and develop a suggested implementation plan.
www.psee.org.za/Services/Medium-Companies

Case Studies – Our case studies show that it's often easier and less expensive than you might think to bring about real change.
www.psee.org.za/Resouces

Strategic energy management – Holistic engagements for large companies to help improve operational energy efficiency and support the development of a comprehensive energy and carbon strategy.
www.psee.org.za/Services/Large-Companies

The Private Sector Energy Efficiency (PSEE) project aims to improve energy efficiency in commercial and industrial companies in South Africa through the provision of various services to assist companies in identifying and implementing energy saving measures. The PSEE project is implemented by the National Business Initiative (NBI), supported by the Department of Energy, and funded by the UK Department for International Development (DFID).

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CARBON TRUST