



Energy and environment SME toolkit

reduce costs
maximise your profits



FEDERATION OF SMALL BUSINESSES
IN SCOTLAND



SCOTTISH EXECUTIVE

toolkit contents

- **01** foreword
- 02** energy
- 08** waste
- 14** water
- 18** transport
- 22** environmental legislation
- 26** further advice

foreword

THE TOOLKIT BENEFITS

- **REDUCE ENERGY USE**
- **CUT WATER BILLS**
- **MINIMISE WASTE**
- **LOWER TRANSPORT COSTS**
- **COMPLY WITH LEGISLATION**

For some time the Federation of Small Businesses in Scotland has been concerned about the increasing costs to our members of environmental resources such as energy, waste, water and fuel.

This is an especially important issue for Scottish businesses, given our colder climate, short winter days and extensive rural areas. The FSB's 2002 Barriers to Growth survey has also shown that Scottish businesses are finding it more and more difficult to keep up with relevant environmental regulations.

After discussing these concerns with the Scottish Energy Efficiency Office, we decided to produce the Energy and Environment SME Toolkit to save our members money. With chapters on cutting energy, waste, water and transport costs and complying with environmental legislation, the toolkit is designed to help you cut your business running costs, and ensure you operate within all the regulations that may apply to you.

Each chapter contains a step-by-step guide to identifying where you can make savings, as well as individual case studies of companies who have benefited from the kind of advice contained in the toolkit. The final chapter contains contact details for a host of organisations which can give you more information or financial assistance to invest in cost saving measures for your business.

I hope you find the toolkit a valuable reference and can use the information it contains to save your business money.



Andy Willox
Scottish Policy Convener

chapter one

energy

Most businesses could use less energy and make significant savings by a few simple actions – this chapter will help you get started. It focuses on areas where small businesses use most of their energy:

- Heating
- Lighting
- Office equipment
- Compressed air
- Motors, drives, fans and pumps

If you use more specialised equipment, more specific information is available from Action Energy – call **0800 585794** or go to **www.actionenergy.org.uk**

ACTION PLAN

Before working out where to look for savings you need to know how much energy your business is currently using:

Check your meters

Regularly check how much electricity and gas you are using. Monitoring helps you assess your improvements and enables you to check that you are being billed correctly.

Tariffs and bills

Check your bills. Even the largest providers can make errors on your bill – don't pay for their mistakes. Check to make sure your bills relate to what you use, rather than an estimate.

You may be able to save money by changing tariffs. It is worth carrying out a yearly check.

Energywatch, the independent gas and electricity consumer watchdog, gives information and advice to consumers and deals with complaints against energy suppliers. It also lists a number of websites which allow you to compare business supplier prices.

As a business consumer of energy you should also read the Energywatch fact sheet on contractual terms which is available on Energywatch's website at **www.energywatch.org.uk**

Conduct energy walk rounds

See where and when energy is being used by your business. Use the opportunities listed in this chapter as a tick list. It's important to vary the times of your walk rounds, as energy use varies during the day and at weekends.



HEATING

Heating can be a significant part of your energy bill. There are often opportunities for savings:

Too hot?

- The maximum recommended heating level is 19°C. For each extra 1°C, costs rise by 8%. This can be as much as £200 a year for a small office.

Use thermostats properly

- Set thermostats and radiator valves correctly and check they are in a sensible location – not somewhere too draughty or unusually hot or cold.

Obstructed radiators

- Blocking radiators with furniture reduces their output and takes longer to warm up the room.

Stop draughts

- They are uncomfortable, and they waste energy – draught-proof windows and doors.

Unwanted heating

- Uninsulated pipework wastes heat and therefore energy. Where you are attempting to cool an area, this can mean cooling systems need to work harder to compensate, wasting more energy.

Heating and air conditioning

- If heating and air conditioning units run at the same time, they waste lots of energy - and therefore lots of your money!

Portable heating

- Portable electric heaters are expensive to run, so should only be used as a last resort – add a timer to switch them off automatically.

Service your boiler system

- Heating costs can increase by 30% or more if the boiler is poorly maintained. Remember to regularly check your system for leaks too.

Unnecessary heating

- Reduce the heating in areas, such as store rooms, which need less heat. If your heating is timed, make sure it corresponds to when the building is occupied.
- Don't heat an empty building when you are on holiday – reduce the thermostat temperature to frost protection mode.

Open windows?

- Opening windows or doors if the heating is on wastes money. Turn down the heating instead.



LIGHTING

Lighting can account for 50% of the money spent in an office on electricity. The following tips can help you cut costs:

Why light empty rooms?

- Encourage staff to turn off lights when they leave a room and when they go home at the end of the day.
- Do not light unused, locked, areas.

Switch off

- A fluorescent tube uses over 500 times more energy in 15 minutes than it takes to restart it – switch it off if it's not needed.
- Have you got enough light switches? Consider installing pullcord switches to enable improved control of individual light fittings or groups of fittings. Approximate cost £15 per switch.

Too bright

- You may be able to reduce lighting in places such as corridors. One way to do this is to remove tubes from alternate fluorescent fittings.

Don't block the light

- People often prefer to work in natural light.
- Make sure windows and skylights are cleaned at least once a year.
- Clean light fittings once a year too.

High ceiling

- High pressure discharge lighting is more efficient than most fluorescent systems and saves money.

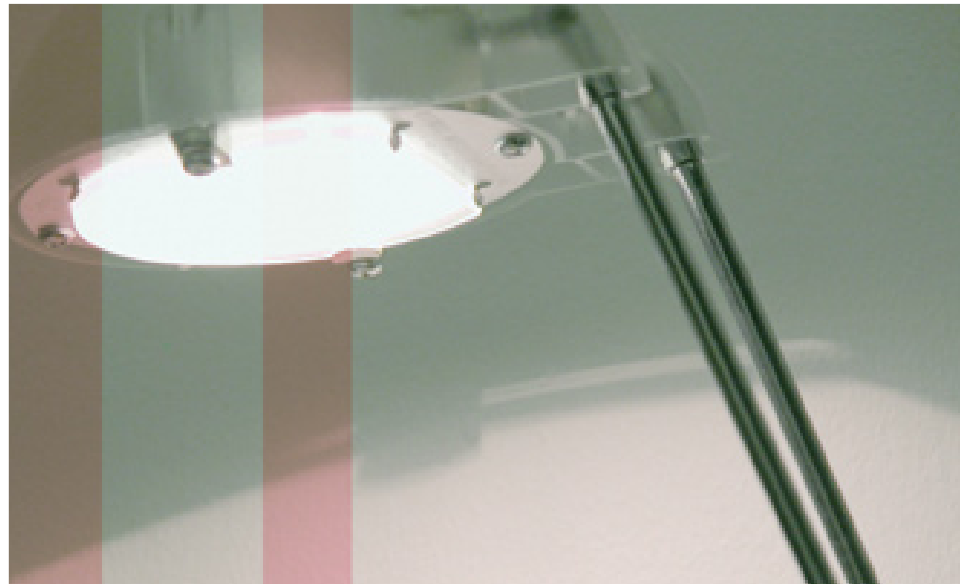
Outside lighting









- You only need outside lighting when it is dark. Even then, you may not need it throughout the night – fit timeclocks with photocells to cut costs, or fit movement sensors for security lighting. Approximate cost £60 per photocell.

Light bulbs

Some light bulbs are much more efficient than others. The table opposite illustrates different types. A smart choice of light bulbs can reduce your energy bills:

- Slim line (26 mm) fluorescent tubes use 8% less electricity and are cheaper than the older 38mm tubes.
- Installing high frequency fluorescent lighting eliminates hum and flicker, and can reduce electricity consumption by between 30% to 60%, compared to conventional incandescent bulbs.
- Replace tungsten bulbs with compact fluorescent lamps – as well as saving energy they have a longer life.



Type	Pros	Cons	Application	Visual
Tungsten filament	Good light quality Cheap Easy to dim	Inefficient	General lighting Hotels, pubs historic buildings	
Tungsten halogen	Higher light output and longer life than a tungsten filament	None	Security lighting Floodlighting (if very low annual operating hours)	
Low voltage tungsten halogen / dichroic	Smaller than a tungsten halogen and gives off less heat	None	Display and effect lighting in hotels, retails, etc	
Compact fluorescent	Use only 20 – 25% of energy used by normal tungsten filament bulbs	Not always suitable for dimming	Lower wattages for amenity and display lighting. Higher wattages for general lighting of offices etc	
Linear fluorescent (identified by not needing a 'starter' in the fitting)	HF (high frequency) are 20% more efficient than normal tungsten energy bulbs	Some types very inefficient. Replace T12 tubes (37mm diameter) with 26mm, T8, tubes	Offices Industrial Retail	
High pressure sodium	Low running cost Very long life. Operates at low temperatures	Long warm-up and restart times	Industrial, area, flood & street lighting Office uplighting	
Low pressure sodium	Most efficient of all lamps	'Orange' colour. Long warm-up time. Often delayed restart	Street/security lighting where lack of colour recognition is ok	
Metal halide	Available in many types & wattages	Some must be enclosed. Some have restricted operating positions	Industrial. Retail. display effect lighting Outdoor area and floodlighting	
High pressure mercury	Strong light Long life	High energy consumption Expensive	Industrial Outdoor	
Induction	Long life	Very expensive	Low maintenance applications	



IN THE OFFICE

You may be spending considerably more on electricity for your office equipment than it cost to buy originally!

Do you have a computer?

Save energy by:

Switching off at night and weekends

- This cuts running costs by 75%. For 3 computers and monitors this would cut costs from about £180 a year to less than £50.

Turning the monitor off

- If you switch the monitor off when it is not being used (e.g. lunchtime) and activate standby options, energy consumption can be cut by 90% a year. Forget a screensaver – most don't save energy, only the screen phosphors.

Or a photocopier?

Switch it off at night

Leaving a photocopier on overnight uses enough energy to print over 5000 A4 copies.

Locate it wisely

- Try to put it in a naturally ventilated area – this will avoid air conditioning having to work hard to compensate for the heat from the machine.
- Remember health and safety – photocopiers should not be closer than 3 metres from anyone's desk.

Switching off other office machinery (such as laser printers) overnight can also reduce their energy consumption by 75%. Similarly, vending machines and water coolers, can be switched off at evenings and weekends.

COMPRESSED AIR

Compressed air is very expensive to produce – 10 times more than electricity!

Stop the leaks!

- Leaks are responsible for the biggest energy losses – a leak the size of a match head uses 1 kW of compressor power.
- It is important to spot and repair all leaks at once – this can lead to big savings.
- It is easiest to check for leaks during periods when there is no demand for air. During quiet periods listen for obvious leaks and repair immediately.
- Smaller leaks can be detected using a soap-water solution.
- Check all joints, connectors and other fittings.
- Schedule a quarterly test programme.
- Unused pipe work should be isolated to reduce the risk of leaks.

Operating pressure

- If you can lower the operating pressure you can save energy – a reduction of 1 bar (15 psi) will save around 7% of the energy.

Air supply

- Efficiency improves if the intake air is cool – reducing the intake temperature by 4°C increases efficiency by 1%.

Alternatives

- If you are using compressed air to clean machinery, could you use a brush instead?
- Could the job be done directly using electricity?

MACHINERY – E.G. MOTORS, DRIVES, FANS OR PUMPS

Only run it – if you need to

Even if there is no load, a motor can still use as much as 40% of the full load power.

- Turn off machinery that is idling and switch it off during lunch breaks if it is not needed.

Maintenance matters

- A badly maintained system costs more to run.

Higher efficiency motors

- These now cost the same as standard efficiency motors.
- Installing a higher efficiency motor could mean payback of the purchase price in less than 3 months of operation.

Remember, more detailed help and advice is available from the organisations listed in the further advice chapter.



FOLLOW THEIR LEAD

Uig Pottery

A small pottery on North Skye, with an annual energy bill of £4,200, Uig Pottery has identified savings worth £1,800 – over 40% of their energy bill. These can be achieved by fitting a modern Low Pressure Hot Water (LPHW) system to replace electric storage heaters and by replacing kilns with modern energy efficient types.

Pumpmasters Ltd

A small fluid engineering and pump supply business in Edinburgh with 5 employees. Their energy bill is about £700 a year, yet they have managed to identify savings of £220 – 30% of their energy bill – through primarily low cost and no cost measures, such as effective monitoring and targeting of electricity and gas use and replacing existing 100W tungsten lamps with compact fluorescent lamps.

Chisholm's Highland Dress

Manufactures and sells Highland Dress from city centre premises in Inverness. Annual energy bills are £4,250. Savings of almost £2,000 – 47% of the total bill – have been identified. These can be achieved by various measures, including the installation of an LPHW heating system, draughtproofing, insulation of steam pipework and use of the Carbon Trust's capital allowances scheme to fund replacement appliance purchases.

Gill Orde in Catering Ltd

A family run business in Kelso with an annual energy bill of £1,617. Implementation of some simple measures, such as more effective monitoring of energy usage, and replacement of the existing boiler with a modern high efficiency unit could achieve savings of £370 – 23% of the total fuel bill.

Edward Leitch

Sign manufacturers with 30 employees, Edward Leitch has identified cost savings amounting to 50% of their electricity bill! They saved £3,000 a year by:

- Installing a blanket of hollow plastic spheres to insulate the surface of heated chemical tanks.
- Installing insulating slabs on the mild steel surfaces of the tanks to prevent heat being transferred between hot tanks and neighbouring colder tanks.

chapter two

waste

Reducing waste at source means more profits and less pollution. Each pound saved on material costs goes straight to the bottom line. The cost of waste disposal will significantly increase in the near future, not least because the landfill tax is due to nearly treble from £14 per tonne to £35 a tonne over the next decade. Now is the time to start reducing waste.

Remember, waste is not just what is discarded into a bin or skip. When you consider the raw materials wasted, and the cost of processing or wasted labour, the real cost of waste is often 5 to 20 times the cost of its disposal. Through the effective use of raw materials, it is possible to save as much as £1000 per employee, but many businesses continue to throw away profit in the form of avoidable waste.

The good news is that many waste reducing steps can be taken quickly, don't cost much money and give paybacks in months, not years.

ACTION PLAN

The following sections in this guide will help you work out your priority areas by following the waste hierarchy:

Eliminate

Avoid creating waste in the first place – the most cost effective approach. Recycling or treating costs you money but dumping or discharging costs even more!

Reduce the amount of waste

There are often opportunities to reduce the amount of waste produced.



Re-use

Use items as many times as possible.

Recycle

Recycle what you can, after you have re-used it.

Dispose

Dispose of what's left in a responsible way.

Take stock

As you work through the action plan, note down the amount of raw materials you consume and waste you produce, so you can track the opportunities to improve and see how much you have saved.

Paper and other office wastes are often good places to start, particularly if your office is a large part of your business.

Do it!

Make sure that everyone understands what you want to do and why and is onboard with your plan, before moving on to more complex changes.

Don't forget

Put posters up as a reminder to follow good practice. If you have a computer, the Government's Action Energy programme offers a good selection of free clipart you can customise. Call **0800 575894** for details.

Get the backup you need

If at any time you need assistance to work out the best way forward, or for help with any waste issue, call the Environment and Energy Helpline, free, on **0800 585794**.

Celebrate your successes

Keep track of your success – check the progress you have made, perhaps six months and a year after you start. There is nothing like seeing the savings you have made to justify your efforts and to encourage you to move forward confidently.



PAPER

Almost all businesses use paper. Despite talk of the paperless office, paper consumption continues to grow by about 20% a year. By implementing some of these easy actions you can start making small savings that will soon add up:

Only use what you need

- Only print and photocopy where necessary.
- If you have to print, or photocopy, use both sides of the paper.

Stop unwanted faxes

- Set up fax machines so they don't print unnecessary header or report sheets.
- Register with the Fax Preference Service to stop junk faxes (www.fpsonline.org.uk, telephone: **020 72913330**).

No more junk mail

- Cancel unwanted publications.
- Register with the Mail Preference Service (www.mpsonline.org.uk, **020 72913310**) to stop junk mail.

Re-use paper

Paper that has only been printed on one side makes great scrap paper pads for notes and can be used to print draft documents.

Use recycled paper

- Ask your supplier if they stock locally produced, recycled paper. Paper can be recycled up to 5 times, reducing the environmental impact of paper production. (Make sure service and maintenance warranties are not adversely affected by using recycled paper. There is no valid reason why they should be.)

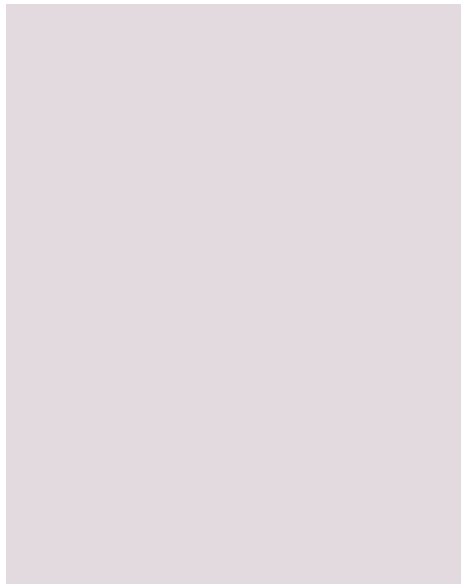
Re-use envelopes

- This is often possible, especially for internal use in your business.

Recycle

- This is often cheaper than paying to have waste disposed of. Check the Yellow Pages for details of paper recycling companies in your area.
- Make paper recycling bins widely available and label them clearly. Let staff know where they are and what can be put in them.

A best practice office can use as little as seven reams of paper per person per year. How many do you use?



IN THE OFFICE

As well as paper, there are many opportunities to reduce waste and save money in the office:

Buy recycled cartridges

- High quality re-manufactured toner cartridges are available with the same performance as new ones, at a lower price

Return cartridges

- Return your toner cartridges for re-manufacture. This can be done by pre-paid envelope through specialist companies. This is free and often schemes pay you or give money to charity.

Mobile phones and their batteries

- Can be returned for recycling. Again, often schemes either pay you, or give money to charity.

Coffee time

- Avoid buying disposable cups and catering goods like sugar sachets and paper plates.

Renovate furniture

This can save up to 50% of the cost of new products.

Or buy secondhand

Again, much cheaper than new, and benefits the environment.

BUY WHAT YOU NEED

What you buy has a strong effect on how much waste you produce. Before you buy any product ask yourself the following:

Necessary

- Do I need to buy it?

Quantity

- Am I buying more than I need?

Re-cycled

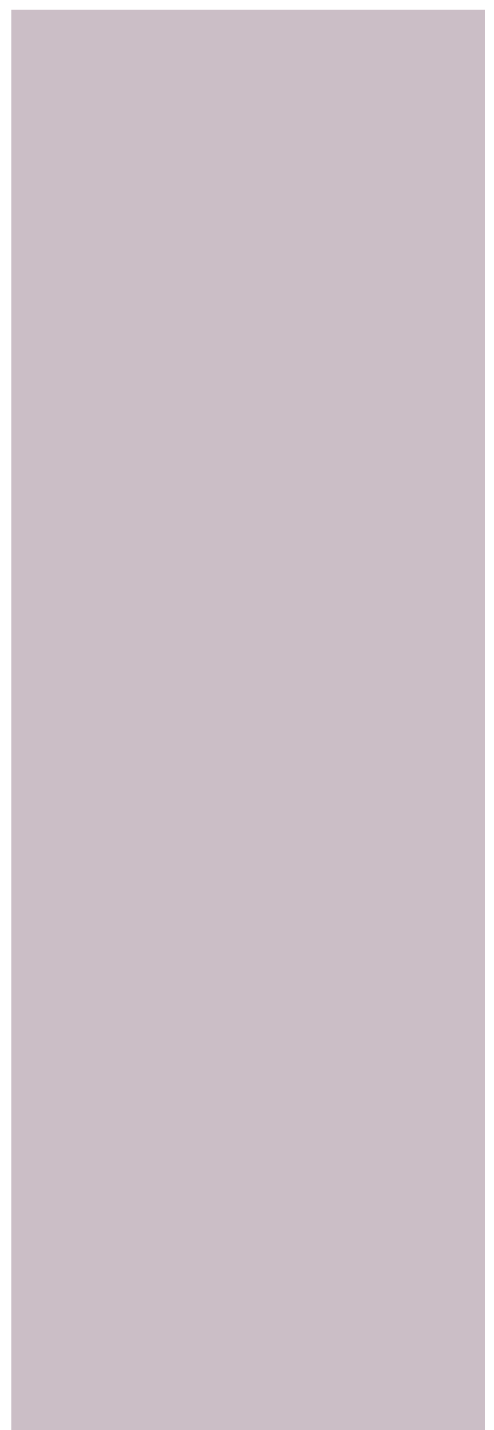
- Is it made from recycled materials?
- Can it be recycled?

Packaging

- Is it heavily packaged?
- Can the packaging be recycled?

Re-use

- Can it be re-used?





PACKAGING TIPS

If you receive packaged goods it is your responsibility to dispose of that packaging. There is strict legislation covering businesses that handle packaging – for more information see www.netregs.gov.uk. Here are some tips for reducing packaging waste:

As a user of packaging:

Less packaging

- Speak to your supplier to see if they can supply goods with less packaging, whilst maintaining the integrity of the goods.

Re-usable/returnable packaging

- Ask your suppliers to use re-usable packaging where possible.

Don't damage the packaging

- Avoid contaminating packaging with other materials, such as glue, so the packaging can be recycled more easily.

Re-use

- Re-use materials such as bubble wrap, boxes, pallets and crates for regular deliveries.

If you produce packaging or packaged goods:

Use smart design

- Minimise the use of materials in the packaging, whilst still protecting your products.
- Try to design packaging so that the components can be easily segregated for re-use or recycling.

FOLLOW THEIR LEAD:

Highlander Snacks Ltd

The snack food manufacturer, with 60 employees, carried out a waste minimisation review of their plant and identified annual savings over £14,000 through reducing product waste and £2,000 per year income from the sale of waste materials. The project has reduced effluent discharge, energy use and the volume of waste sent to landfill as well as raising environmental awareness within the company.

Pentland Precision Engineering

Pentland Precision Engineering undertakes precision engineering work for a wide variety of clients and have 15 employees. Pentland has managed to achieve cost savings in the region of £10,000 to £15,000 per year as a result of identifying, documenting and re-using metal off-cuts wherever possible. A similar system has been established for the re-use of consumables such as grinding disks and sanding belts.

Lynch McQueen

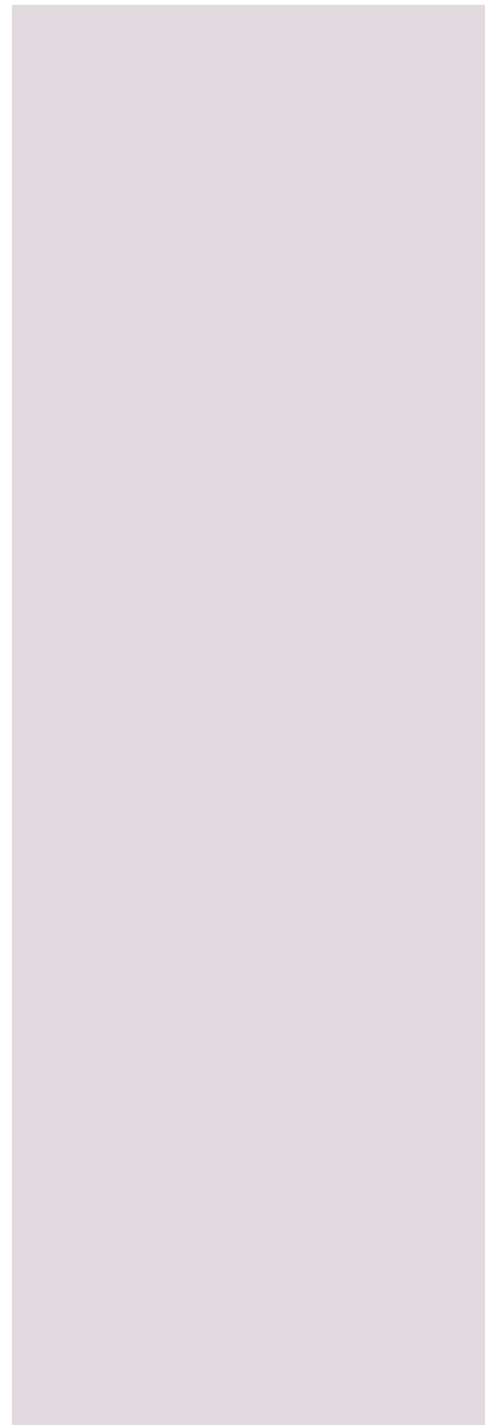
An office furniture and stationery supplier with 45 employees, Lynch McQueen has realised £4,000 a year cost savings through waste minimisation through the re-use of packaging materials, improved energy efficiency and the installation of water meters.



Cookson Electronics PC FAB Ltd

With 15 employees, Cookson Electronics PC FAB Ltd operates in the electronics sector and has achieved significant cost savings of around £5,000 per year as a result of waste minimisation and energy efficiency improvements. The factory manager, Mr Bill Vallely, described the work as:

"the best value for money project Cookson Electronics PC Fab has ever undertaken...our environmental targeted savings will far outweigh the costs".



chapter three

water

Water supply and waste water disposal cost your business money. Managing your business's water usage effectively is one of the easiest ways to reduce costs.

Good housekeeping is often all that is required to achieve substantial savings – you do not need to spend a great deal of time or money. The more water you use, the greater the potential for savings.

This chapter helps you work out an action plan, checking where you are using your water, and then giving you ideas to help you make real savings.

ACTION PLAN

The first steps are to determine the amount of water used and waste water produced by your business in the last 12 months and how much this cost. Check your invoice from Scottish Water. It is important to know how much water you use, so you can maximise your savings by taking the most appropriate action.

Meter it

If you have a water meter, check your meter readings and make sure they agree with the bill – do not pay for someone else's mistake. Regular monthly meter readings will show a pattern of usage. Plotting the readings on a graph will give a visual impression of trends.

Scottish Water can assess whether your meter is the appropriate size for your business's current water usage and needs. If this assessment shows that you could downsize the size of the meter, your business could qualify for a reduction in the fixed element of the meter charges. To enquire about water metering, call the Scottish Water Business Customer Helpline: **0845 6028855**.

If you do not have a water meter, Scottish Water can help you assess whether installing a meter would be a viable option to reduce your business's water and waste water charges.

If you don't have a water meter and cannot get one, you should still estimate water use – see Section 3 'Where are you using water?' This will help you work out where to focus your water saving efforts.

Waste water

You should also establish the amount of waste water discharged by your business in the same period. This figure is usually estimated on your water bill, although if you have a water meter fitted then this will provide an exact charge on your bill relating to the volume of water your business uses.

You can check this data is accurate by comparing the consumption and discharge volumes. Remember, the volume of discharge may not exactly mirror the consumption volume as it is necessary to take account of the volume of water used in business process or production, or from additional rainfall or contaminant. Certain types of business may receive a non-return to sewer allowance on their waste water charge. Again, Scottish Water can provide assistance in determining the right non-return to sewer allowance.



Conduct water walk rounds

See where, how and when water is being used by your business.

Meter it to check it

Leaks in visible pipes are obvious, but leaks in hidden sections (including sections underground) can go undetected for years. Monitoring your water meter by noting meter readings regularly, will help show up leaks.

These will be detected as sudden jumps in consumption assuming no great changes in demand have been instigated.

Do you use water at weekends? Again this emphasises how important a water meter is – if you think that you don't, check your meter to make sure.

If you have processes that use large amounts of water, consider installing sub meters – they will help you target reductions for particular processes.

Focus on the major water users first

Estimate the amount of water used in different activities to identify where you need to focus on. If your total estimates of water consumption are much less than your overall total consumption as indicated by your bills, you may have missed a major water use.

Follow the water saving hierarchy to help you save money

Having determined the main uses of water, focus your attention on these. Identify the most appropriate ways of minimising water consumption in each area/activity of your business. In order of priority:

- **Stop leaks and spills** (and ensure that your pipes are well insulated to protect against frost damage). Dripping taps and leaking pipes can cost a lot of money.
- **Eliminate unnecessary water use.** Is the process or activity really necessary? Does it make most sense to use water, or is there a more cost effective alternative?
- **Reduce water use.** Could water be used more efficiently? Is there an alternative process or activity that would be better?
- **Re-use water.** Could the water be treated or filtered and re-used?
- **Re-cycle the water.** Can the water be recycled for use elsewhere? (e.g flushing toilets).



IN THE OFFICE

You may be spending considerably more on water for your office than you need to. Save water by:

Toilets

- Using a cistern volume reducer. These small bags of water are inserted into toilet cisterns and save water with every flush. (Note these should not be used with dual flush systems.)
Approximate cost £3 to £5 per cistern.

- For men's toilets, consider installing a flush control system – these are now fitted as standard in new commercial buildings.
Approximate cost £150 per controller.

Taps

- Stop dripping taps – they waste a lot of water. Often fitting a new washer is all that is needed. Keep a stock of washers – they only cost a few pence.
- Forgotten to turn off a tap? Most building suppliers stock self closing taps, which slowly close if abandoned. They often fit existing tap bodies, so you needn't disturb the pipework.
Approximate cost £20 each.
- Many taps give an unnecessarily high flow after only a quarter turn – a flow restrictor reduces this.
Approximate cost £3 each.

Sinks

- Make sure plugs are available for washing hands, dishes or food.
- If you need a certain depth of water to wash something small, but only have a very large sink, use a bowl.

Dish wash efficiently

- Only use the dishwasher when you have a full load.

Showers

- Consider switching to low flow, high velocity showers which use less water than standard power showers.

FACTORY/WORKSHOP/TRANSPORT

There are many opportunities to save water here:

Cleaning

- Scrapers, squeegees and brushes can often reduce the time and water needed to clean an area. They can also reduce the amount of solid waste that is flushed down your drain, and so reduce the volume of effluent you discharge.

Rinsing

- It is often more water efficient to rinse a product in stages (e.g. in a series of tanks). You can rinse the product in the dirtiest water first, and then in progressively cleaner water. At the same time, move the water gradually from the last rinse to the first rinse.

Shut it off!

- Items that don't need water continuously can be isolated with a simple switch, preventing water running continuously down the drain. Another way to do this is to fit trigger nozzles to all hoses.
Approximate cost £50 each.

Re-use it

Careful examination of the quality and availability of used water, together with an understanding of your water requirements, may suggest opportunities for re-use, such as first washdown of floors and containers. If there is a large amount of water, it may be worth treating it to enable re-use.

BOILERS

Check it

- Regularly check your boiler and associated system for leaks. Water supplied to boilers often has to be treated, e.g. softened. This adds value to the water (£2 to 3/m³) so there is an added incentive to reduce leaks and losses.

Maintenance matters

- Make sure your boiler system is well maintained. As well as reducing the chance of leaks, it will save you energy.

Remember, free help and advice is available from the Environment and Energy Helpline on **0800 585794**.



FOLLOW THEIR LEAD:

Highlander Snacks Ltd

The snack food manufacturer, with 60 employees, carried out a review to improve efficiency and reduce the environmental impact of the food manufacturing process. They calculate that reducing their water consumption should save them £10,000 a year, and also reduce the effluent they discharge.

Capito Group

Computer equipment specialists with over 70 employees found water savings were a key contributor to the £4,000 per year savings they achieved, when they focused on the environmental areas where the greatest commercial benefits could be gained.

Hygiene Design Systems

Has 6 employees and design and manufacture their own pressure washer systems. The incorporation of environmental considerations into the design of their washing systems has won them the Motorola Award for Environmental Achievement. Their thinking has reduced water and detergent usage, as well as increasing energy efficiency.

SCA Packaging

Paper and Packaging manufacturer SCA Packaging has managed to make big savings at its two main Scottish plants by improving its water efficiency and downsizing its water meter.

The business looked at its water bills for the last five years to assess the level of water use and associated expenditure for water and trade effluent. Permanent meters were fitted on key processes, with sub metering for complex processes. They then studied the balance of water use and effluent produced to indicate where water was being used or lost on site. SCA set a 5% water use reduction target in the year 2000, and achieved a reduction of 27% – £13,320 per annum.

Savings were achieved by:

- Good housekeeping measures, including reporting and repairing leaks.
- Installing flow restrictors on inlet pipes.
- Changing urinal settings, and installing push top taps.
- Reducing steam leaks by checking the system daily and repairing leaks as soon as possible.
- Reducing wastage caused by hoses running unnecessarily, by improved reel use and increasing operator awareness. This halved water use for some printing machines!
- Checking the amount of ink left at the end of print runs, to save both ink and washdown water.
- Improving water management in the boiler and condensate systems.

Getting the commitment of the staff has been a key factor in this success story. For example, operators were given responsibility for water use. Throughout the focus on saving water, SCA made sure that the reduced water use did not adversely affect the quality of manufactured products.

Following a survey it was agreed that the meter was oversized for current requirements. The water suppliers agreed to downsize the meter from 80 mm to 40 mm, gaining annual savings of £15,000 through reduced fixed charges.

chapter four

transport



Whether you run just two vehicles or dozens of cars and vans, transport costs can represent a significant financial cost to your business. And if your fleet of vehicles is not well run, excess running costs can be up to 35%, hitting the bottom line.

Not only can your choice of vehicles and the way in which you use them be a source of savings, but so too can the fuel they use. Cleaner fuels can save you up to a third on your fuels bills, cut your road tax and reduce company car tax...

...And that's only half the story. Road transport accounts for 22% of the CO₂ emissions in the UK and is one of the main contributors to poor air quality. Showing your commitment to the environment and the health of the local community by improving your businesses environmental credentials can also be good for customer relations, ensuring your fleet never costs you dear in terms of your reputation or repeat business.

ACTION PLAN

Before you can start saving money, you need to assess the actual performance of your fleet. Identify the number and type of vehicles used, mileage patterns, overall costs and fuel consumption. Improvements can then be measured against this baseline.

Logistics

By considering the way in which you use your vehicles, you may be able to identify more cost effective and efficient methods of carrying out your core business activity. You should consider:

- Improved route planning for visits and deliveries etc.
- Taking advantage of e-commerce opportunities.
- Tele/video conferencing.
- Optimum diary planning for customer visits/meetings.
- Reduction of delivery frequencies and use of larger vehicles.
- Car sharing and increased use of public transport for staff.



Vehicles

Selecting the correct vehicle for the job is fundamental to efficient and cost effective fleet management. Necessary load space, fuel efficiency, reliability and exhaust emissions should all be considered when purchasing vehicles for your fleet.

Regular servicing not only improves the lifespan and efficiency of your vehicles but also reduces emissions. Lower emissions result in lower road tax and company car tax – savings that go straight to the bottom line.

Fuel

Different fuel types have different running costs and environmental benefits. Diesel, petrol, liquid petroleum gas (LPG), compressed natural gas (CNG), dual fuel, electric or hybrid vehicles all yield different results.

- LPG is more than 50% cheaper and CNG 25% cheaper than petrol or diesel, with no effect on performance.
- Vehicle Excise Duty is based on emissions so road tax on vehicles using cleaner fuel is lower.
- Most vehicles converted to LPG are bi-fuel so they can be switched between fuels whilst driving.

It is therefore necessary to evaluate all new vehicles and also consider converting your existing vehicles to cleaner fuels.

GRANT FUNDING

The Scottish Executive and UK Government offer a number of programmes that provide grants aimed at helping individuals or businesses that use vehicles to:

- Purchase emissions reduction technologies.
- Convert their vehicle to an alternative fuel source, such as liquefied petroleum gas (LPG) or natural gas.
- Purchase an electric or petrol/electric hybrid vehicle.

PowerShift

The PowerShift Programme provides grants to individuals and fleet owners who wish to convert to, or purchase as new, cleaner fuelled vehicles. The programme also helps purchasers of petrol/electric hybrid vehicles and electric vehicles.

What level of grant funding is available?

- Grants of up to 75% towards the additional/premium cost of converting to LPG or natural gas.
- Fixed grant of £1000 to help toward the cost of purchasing a petrol/electric hybrid vehicle.
- A 75% grant towards the battery leasing costs for electric vehicles.

What vehicles are eligible?

Please visit the PowerShift Register where you will find detailed those vehicles, and accompanying conversion kit/converter eligible for grant assistance. You can find the PowerShift Register by following the links on PowerShift website.

How do you apply?

There are three different ways of applying for a PowerShift grant. Please contact the PowerShift Hotline or visit the website who will help you decide which application route to choose.

Contact

PowerShift Hotline: **0845 6021425**
Website: **www.powershift.org.uk**



AUTOGAS+

Autogas+ aims to encourage the uptake of liquefied petroleum gas (LPG) by motorists in Scotland through the distribution of grants.

What level of grant funding is available?

There is a fixed grant of £800 to Scottish motorists towards the conversion of their existing petrol vehicle (cars and light vans) to run on both LPG and petrol. It can also offer £800 towards the cost of buying a new bi-fuel vehicle, where a vehicle is not listed on the PowerShift Register.

What vehicles are eligible?

- Petrol vehicles (cars and light vans) based in Scotland which are less than six years old at the time of applying.
- Conversion must be carried out by an autogas+ approved installer. You can find details of these on the autogas+ website, and from the autogas+ Hotline.
- Vehicles must pass a standard MOT emission test on petrol prior to conversion and on both petrol and LPG after conversion.

How do you apply?

Applicants must complete an application form available from the autogas+ Hotline.

Contact

autogas+ Hotline: **0870 2406296**
Website: **www.autogasplus.co.uk**.

CLEANUP

The CleanUp Programme aims to reduce exhaust emissions from diesel engines. It primarily focuses on reducing the emissions of larger diesel vehicles over 3.5 tonnes (such as lorries and buses) and black cabs, either by converting their engines to run on alternative fuels, or by fitting emissions reduction equipment to the exhausts of diesel vehicles.

What level of grant funding is available?

- Grants worth up to 75% of the cost of fitting your vehicle with emissions reduction technologies or conversion to natural gas.
- Grants of up to 50% for replacement engines.
- Grants of up to 65% for Black Cab conversion to LPG.

What vehicles are eligible?

For comprehensive details of the vehicles/equipment types that can receive grant funding, please consult the CleanUp Register or contact the Transport Energy Hotline: **0845 6021425**

Please note that awards are dependent on the vehicle's current level of emissions. There is no limit on the age of the vehicle, however it must be guaranteed to be in service for another three years.

How do you apply?

Applicants must complete an application form available from the CleanUp Hotline, or downloadable from the CleanUp website.

Contact

CleanUp Hotline: **0845 6021425**
Website: **www.cleanup.org.uk**

SUMMARY

The table opposite summarises the grants available through the listed grant schemes.



Fuel	Vehicle Type	New / Conversion	Grant	Programme
LPG	Cars, taxis and vans up to 3 tonnes	New	50% to 70%	PowerShift
		Converted from petrol	30% to 50%	PowerShift
		Converted from petrol	£800	Autogas+
		Converted from diesel	65%	CleanUp
	Heavy goods vehicles > 3.5 tonnes	New	40% to 75%	CleanUp
		Converted from petrol	40% to 75%	CleanUp
Natural Gas	Cars and vans up to 3.5 tonnes	New	40% to 70%	PowerShift
		Converted from petrol	30% to 50%	PowerShift
	Heavy goods vehicles > 3.5 tonnes	New	40% to 75%	CleanUp
		Converted from petrol	40% to 75%	CleanUp
Electric	All	New	75%	PowerShift
Hybrid	Cars	New	£1000 grant direct from dealer	PowerShift

FOLLOW THEIR LEAD

Martin Walton spends much of his working life seeking to reduce pollution in the water industry. He was therefore keen to go 'green' when it came to replacing his car.

Martin said "I travel around 17,000 miles a year on business and pleasure in two cars. I was keen to run the car on Liquefied Petroleum Gas (LPG) to reduce the amount of harmful greenhouse gases which all petrol-driven cars emit".

"Qualifying for an £800 grant under the **autogas+** programme made the conver-

sion financially viable, and I went ahead last November. Based on the mileage I am doing, I expect the payback period to be about two years".

Martin continued "I have been very impressed by the conversion and subsequent experience of using the car. Before conversion I got about 32 mpg while running on petrol, and now I get about 28 mpg while on LPG. But, as a litre of LPG costs around half the cost of a litre of petrol, I am saving around four pence a mile on LPG and have seen my total fuel bill reduce by 40 per cent. The car runs brilliantly and there is no loss in power,

with it being just as smooth as before conversion, and, if anything, even quieter."

He finished by adding "The application process was also quick and easy, with approval given within a few days of sending in the form. The grant cheque arrived a week or so after I collected the car from the installer and sent in the invoice to prove the work had been successfully completed".

chapter five

environmental legislation

Previous chapters of the toolkit have examined what actions small business can take to save money and the environment. But it's not all about cost savings – compliance with environmental obligations offers real commercial benefits, such as increased competitiveness and an ability to secure new contracts and orders on the basis of good environmental credentials...

...Perhaps more importantly, non-compliance may lead to costly enforcement action.

To make it easier for small business to access environmental information, the Scottish Environment Protection Agency (SEPA) and its counterparts in England, Wales and Northern Ireland have developed NetRegs, a unique web resource designed to guide small and medium-sized businesses through environmental regulations in a clear, step-by-step manner. NetRegs draws on the extensive knowledge of the agencies, is free, anonymous and can be consulted 24 hours a day.

Many businesses recognise the potential commercial benefits of compliance with environmental regulation and good practice as outlined in the other chapters of this toolkit. In a recent survey, small businesses in Scotland identified better customer relations (72%) and increased competitiveness (54%) as key business benefits from good environmental practice.

However, awareness of environmental legislation amongst the small business community remains low, with only 20% of Scottish businesses being able to name any piece of environmental legislation. Nevertheless, nearly half of small businesses in Scotland want more information and advice on environmental issues.



GETTING STARTED

Finding out where your business stands in relation to environmental legislation on topics as diverse as packaging waste, energy efficient equipment or emissions has never been easier. Now, all the information you need is at your fingertips in a logical and easy to understand format.

Simply click on www.netregs.gov.uk and see for yourself!

TIME FOR ACTION

When you log on to www.netregs.gov.uk, your attention will be drawn to the centre of the screen where the Management Guidelines and Sector Guidelines are located. In addition to these guidelines, there are a further two main areas to the site:

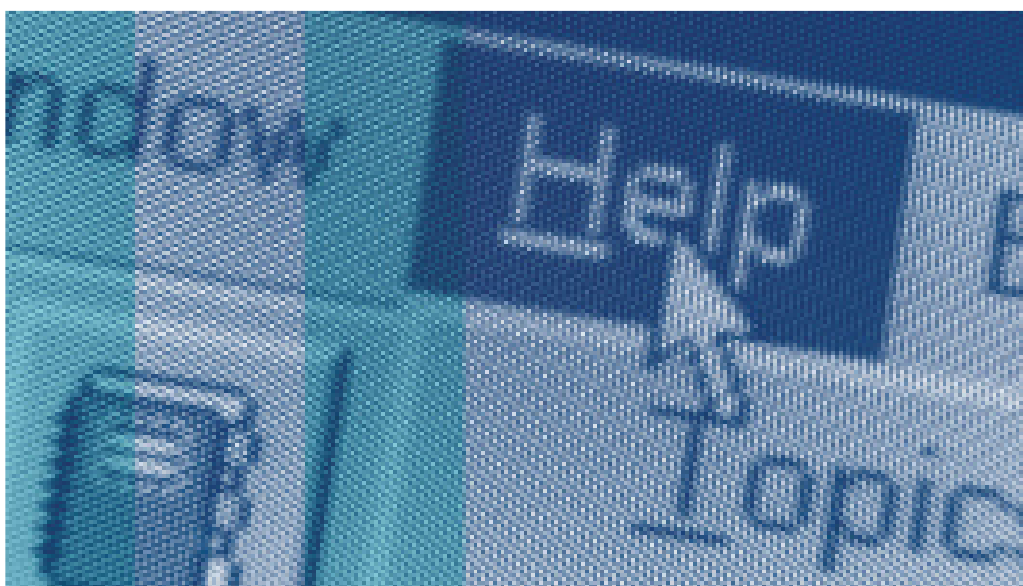
- Legislation
- More Resources

These can be found in the menu options which sit below the partner logos.

For first time visitors to the NetRegs site, the Management Guidelines are a good place to start because they are generic and apply to every business.

By clicking on Management Guidelines in the centre of the screen, you will be invited to select guidelines on a number of areas from emissions and energy to noise and packaging. You can select the guidelines by clicking on the part of the image you want to find out about, or by using the text links located underneath the diagram.

If you want to know about areas of the law specific to your actual business activities, then choose Sector Guidelines. These offer a logical process through to the main business areas under each of the business sector headings. Following the links will take you to a series of both mandatory and good practice guidelines that should be followed.



The Four Main Areas

1. Management Guidelines

The Management Guidelines are relevant to most businesses. They are aimed at helping you to identify key environmental legislation that may apply to the different aspects of your business, from raw material inputs through to wastes.

They also offer practical tips to help businesses comply with the legislation identified.

After you've clicked on an area of the diagram, the next screen will ask a series of questions about your business and the selected topic (e.g. disposal of packaging). Each question then indicates the area(s) of environmental legislation your business should research more fully. Relevant hyperlinks from the "SEE ALSO" box will guide you to an easy-to-follow guideline to help you comply with each area of law (e.g. Duty of Care for Waste). Finally, if you want to read the legislation itself, there is a link at the bottom of the guideline.

2. Sector guidelines

The Sector Guidelines section on NetRegs contains specific guidance on the environmental legislation affecting individual industry sectors. Guidelines are already online for business sectors ranging from construction and agriculture to printing & publishing and a range of manufacturing industries. They outline the environmental regulations and provide good practice tips relevant to the different processes in specific businesses.

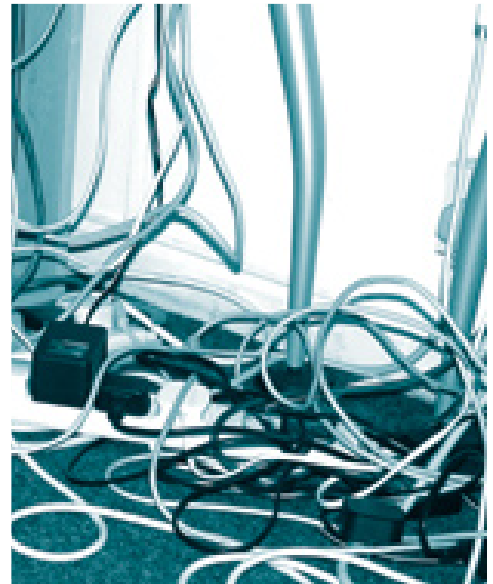
3. Legislation

There are two parts to the Legislation section of the site.

The Current Legislation section is beneficial if you've read and understood the guideline(s) and would now like to consult the applicable legislation. Clicking on the legislation link on the homepage (underneath the partner logos) will allow you to view environmental legislation broken down by country. Legislation changes periodically, so when researching an Act, it's worthwhile to check for any amendments to it.

The site also has a facility for you to keep track of legislation in the pipeline through the Future Legislation section. Here, you can be kept up-to-date on 'incoming' legislation which may affect your business, which in turn, will help you:

- plan for any changes in investment that you may need to undertake to comply
- take advantage of potential commercial opportunities



4. Further help

Your business has researched all of the applicable guidelines and you may now have identified some areas where assistance or further advice is required. Where do you go now?

Many of the practical tips contained in this toolkit can help in this regard and there are also other sources of information detailed in the Advice / Contacts Chapter. The More Resources section of the NetRegs website can also help you take things further.

More Resources provides links to a variety of useful organisations including business support services, trade associations and environmental experts.

Visit www.netregs.gov.uk and check out your environmental obligations today.

DID YOU KNOW?

- Only 20% of small businesses surveyed could name any environmental legislation.
- Only 17% of businesses have heard of the Duty of Care Regulations, which are applicable to all businesses.
- Just a quarter of businesses have an environmental policy in place.
- Appointing a member of staff to be responsible for environmental issues is the most common green measure taken by businesses.

BUSINESS BENEFITS

Many businesses already recognise the potential commercial benefits of environmental good practice. When asked to consider whether a link existed between green behaviour and key business benefits, these results emerged:

- 72% agreed that good practice benefited customer relations.
- 57% agreed that good practice could reduce operating costs.
- 54% thought that good practice could improve competitiveness .
- 46% agreed that good practice could help to win orders.

All statistics in this chapter are from the SME-Environment 2003 survey conducted with 785 Scottish businesses across 28 industries on behalf of the NetRegs website.

chapter six

further advice

Throughout this toolkit reference has been made to the various sources of information, help and advice – both practical and financial – that is available to assist small businesses to take advantage of cost savings through environmental improvements. This section provides a summary of the help available and where to find it.

CHAPTER 1 – ENERGY Scottish Energy Efficiency Office - (SEEO)

The Scottish Executive's Energy Efficiency Office (SEEO) is the main provider to Scotland's business and public sectors of energy efficiency & environmental advice. This service is free, confidential and includes:

- Energy and Environmental Helpline, offering instant technical assistance on **0800 585794**.
- Loan Action Scotland (LAS) – Interest-free loans of between £5,000 and £50,000 for smaller companies (up to 250 employees) to invest in energy-saving equipment. More details at – **www.energy-efficiency.org.uk** or from the LAS Hotline on **0800 0929002**.
- A comprehensive Scottish programme of energy and environmental seminars.
- A regional network of representatives who will visit your business to advise of the range of services on offer and help with the application process:

Aberdeen/North East	01224 213005
Ayr	01292 280109
Edinburgh	0131 4688668
Glasgow	0141 5520799
Inverness	01463 703505
Orkney	01856 870534
- Energy and waste/water minimisation site audits (normally only available to businesses with energy bills in excess of £10k per annum).

For more information phone SEEO direct on **0141 2425835** or check the website at **www.energy-efficiency.org**

Carbon Trust

The Carbon Trust works with businesses and the public sector to help them to move to a low carbon future and exploit the commercial opportunities this represents. Find out more at **www.thecarbon-trust.co.uk** or e-mail **info@thecarbontrust.co.uk**.

Action Energy

Action Energy is a programme managed by the Carbon Trust on behalf of the Scottish Executive. It provides a range of products and services for UK business and the public sector to help reduce energy consumption. These include:

- Free helpline – **0800 585794**.
- Free online advice at **www.actionenergy.org.uk**.
- Free on-site energy surveys specifically tailored for small businesses with energy bills between £5,000 & £50,000.
- Free publications – many specifically tailored to small businesses in particular sectors.
- Free events – see **www.actionenergy.org.uk/ActionEnergy/Events**
- The Enhanced Capital Allowance (ECA) scheme at **www.eca.gov.uk**, which enables businesses to claim 100% first year capital allowances on investments in energy-saving technologies & products.



CHAPTER 2 – WASTE

Envirowise

Envirowise is a UK Government programme offering free, independent advice on practical ways to minimise waste through a range of products and services to business. These range from free telephone advice, free publications, free on-site waste reviews and free training seminars. The services provided are as follows:

- The Environment and Energy Helpline – **0800 585794** – One hour of free advice and on-site consultancy from Envirowise experts for small businesses and up to 2 hours free telephone consulting on specific problems.
- FastTrack Visits – Free, on site waste reviews to help you identify and realise savings.
- Designtrack – Free confidential site visits by a specialist design consultant to help manufacturers reduce the environmental impact of a specific product.
- Waste Minimisation Clubs – A chance for local or regional companies to meet regularly and share best practice in waste minimisation.
- Publications – Case studies, best practice guides and reference notes written by experts provide up-to-date information on waste minimisation issues, methods and successes.
- Events – Best practice seminars and practical workshops.

- Tools – A range of presentations, spreadsheets and databases to help you implement waste minimisation successfully.

Envirowise Hotline: **0800 585794**.
Webpage: **www.envirowise.gov.uk**.

Local Authorities

- Most local authorities provide supportive waste services, including recycling. Check your telephone directory for your local council contact. Alternatively, many local authority websites have sections on waste management and/or recycling.

Local Businesses

- Local businesses may also provide competitive waste management services and offer other resource efficient products and services. Check the Yellow Pages or your local business directory for details.



CHAPTER 3 – WATER **Scottish Water**

Scottish Water is the sole provider of water and waste water services to household and business customers in Scotland. If you don't have a water meter, Scottish Water will install one free of charge. If you have a meter already, Scottish Water will check it to ensure that it is the right size for your business.

Business Customer Helpline:
0845 6028855
Email:
customer.service@scottishwater.co.uk
Website:
www.scottishwater.co.uk

Envirowise

Envirowise can advise you on how to cut your water bill as part of its free waste audit.

Envirowise Hotline:
0800 585794
Website: **www.envirowise.gov.uk/tow-ternet**.

Enhanced Capital Allowances (ECAs)

ECAs are now available to enable businesses to claim 100% first year capital allowances in investment on water efficiency technology and products.

Website:
www.eca-water.gov.uk

CHAPTER 4 –TRANSPORT **PowerShift**

The PowerShift programme provides grants to individuals and fleet owners who wish to convert to or purchase new clean-fuelled vehicles. The grant allows vehicle owners to convert to liquefied petroleum gas (LPG), natural gas, hybrid electric/petrol or electric vehicles etc.

Powershift Hotline:
0845 6021425
Website:
www.powershift.org.uk

Autogas+

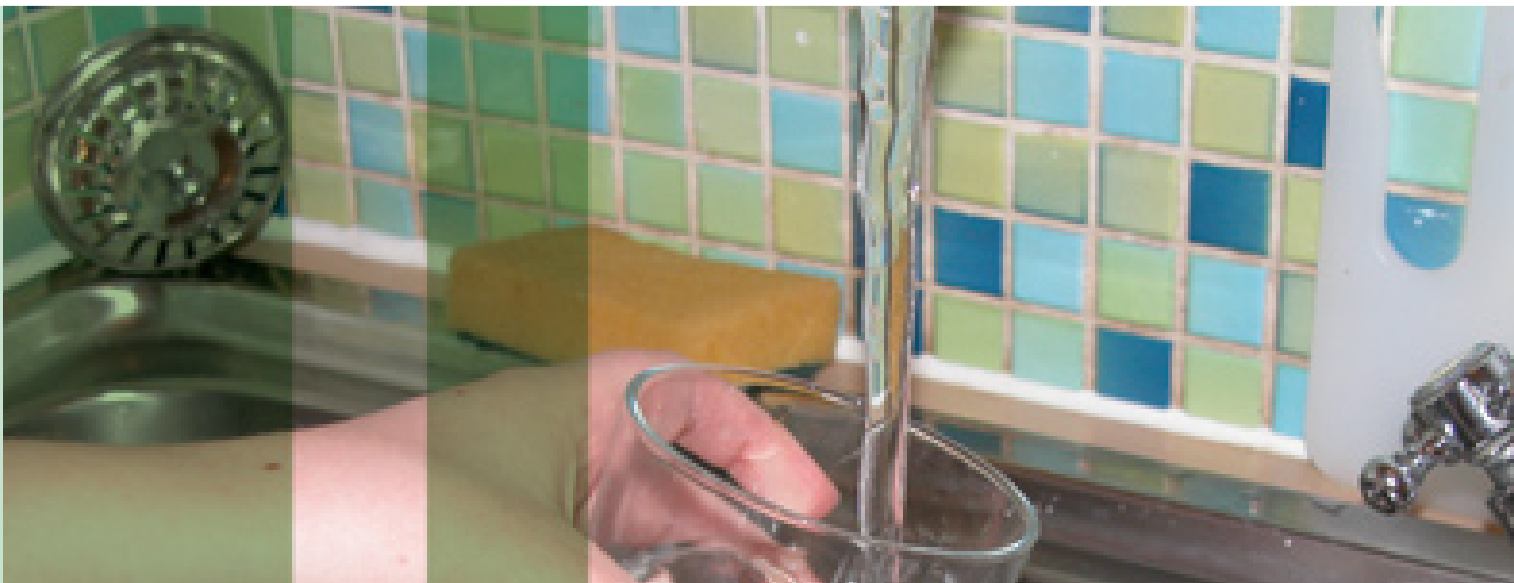
autogas+ provides a grant of £800 to encourage Scottish motorists to convert to liquefied petroleum gas (LPG). It is funded by the Scottish Executive. The scheme is open to individual car and light van (below 3.5 tonnes) owners.

autogas+ Hotline:
0870 2406296
Website:
www.autogasplus.co.uk

CleanUp

CleanUp is aimed at reducing exhaust emissions from diesel engines. It provides grants worth up to 75% of the cost to help fit your vehicle with equipment that reduces particular emissions. This scheme is only open to vehicles above 3.5 tonnes and black taxi owners.

CleanUp Hotline
0845 6021425
Website:
www.cleanup.org.uk



TransportEnergy

TransportEnergy is a programme mainly funded by the UK Government that aims to improve the environmental performance and cost effectiveness of transport operations in the UK, in partnership with the transport sector, corporate fleet sector and public sector.

TransportEnergy Best Practice offers practical advice and solutions to help you improve the environmental performance and cost effectiveness of your transport operations by providing information in the following key areas:

- Fleet Management – improving fuel efficiency and minimising vehicle use.
- Freight – fuel management and improved logistics efficiency.
- Travel plans – a package of measures to reduce dependency on single-occupancy car travel for business and commuter travel and to schools.

Free assistance in all these areas is available from:

TransportEnergy Hotline:

0845 6021425

TransportEnergy Best Practice Website:

www.transportenergy.org.uk/bestpractice

CHAPTER 5 – ENVIRONMENTAL LEGISLATION

Scottish Environment Protection Agency (SEPA)

SEPA is tasked with the protection of the environment in Scotland. Its main functions include prevention of activities that may pollute the water or air, appropriate storage, transport and disposal of waste and the keeping and disposal of radioactive materials.

SEPA Website:

www.sepa.org.uk

Waste Action Line:

0800 3895270

Floodline:

0845 9881188

NetRegs

NetRegs – **www.netregs.gov.uk** – is a website designed to help small and medium-sized businesses navigate through the maze of environmental legislation. Further information is available from the NetRegs Team in Scotland:

Email:

netregs@sepa.org.uk

NetRegs

SEPA Corporate Office

Erskine Court

Castle Business Park

Stirling FK9 4TR

For more information and advice on cutting energy bills and minimising waste and water costs call the Environment and Energy Helpline on 0800 585794

Alternatively, visit the Scottish Energy Efficiency Office's website at www.energy-efficiency.org or Envirowise at www.envirowise.gov.uk

Energy and environment SME toolkit

Published by the Federation of Small Businesses in Scotland and the Scottish Energy Efficiency Office of the Scottish Executive

FSB Scotland Press & Parliamentary Office 74 Berkeley St Glasgow G3 7DS

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