



Energy audit checklist

For any organisation to begin reducing its energy use, and therefore costs, a good understanding of how you currently use your energy is essential.

The first step towards identifying and prioritising reduction opportunities is to carry out an energy audit.

This template energy audit checklist will allow you to deliver a systematic audit of all areas of your organisation to ensure you can identify and prioritise the areas your organisation can save energy and money. Some observations may be rectified by simply communicating with staff and changing some practices, where others may require repair or replacement of equipment or the installation of something completely new.

The checklist is divided into the main elements that can be included in a full energy audit. You can choose which sections of this template, and which checks within them, apply to your organisation and which don't.

If you would like a comprehensive guide to using this checklist, then we have produced **How to conduct an energy audit** which can be found [here](#).

Safety first

Make sure you have carried out an assessment of any risks that may be present, and follow the safety procedures and methods that are in use. Always wear protective clothing and equipment where appropriate, and call in an expert when needed.

Audit date: _____

Completed by: _____



Growth that doesn't cost the earth

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	Completed	Observation	Opportunity
What is the age and condition of your boiler or other heat source? Would it be beneficial to upgrade?	<input type="checkbox"/>		
Is the system regularly serviced/maintained?	<input type="checkbox"/>		
Is the heating system appropriately designed? Could it be simplified?	<input type="checkbox"/>		
Is the boiler and associated pipework well insulated?	<input type="checkbox"/>		
Are radiators fitted with thermostatic radiator valves (TRVS)?	<input type="checkbox"/>		
Have variable speed drives been fitted where possible?	<input type="checkbox"/>		
Are all heat emitters such as radiators, fan units and storage heaters unobstructed (for example, are filters and grills clean, and is furniture clear of radiators)?	<input type="checkbox"/>		
Are there any areas of over or under heating?	<input type="checkbox"/>		
Are any staff supplementing the heating with electric heaters?	<input type="checkbox"/>		
Are local thermostatic controls appropriately set (including frost protection)?	<input type="checkbox"/>		
Are thermostatic controls placed in sensible places (not in direct sunlight/behind furniture, etc)?	<input type="checkbox"/>		
Have timers been set to match the hours of occupancy?	<input type="checkbox"/>		
Have heating and ventilation controls been set to provide a dead-band?	<input type="checkbox"/>		
Is there a risk of heating and cooling operating in the same area?	<input type="checkbox"/>		
Are any unoccupied areas being heated?	<input type="checkbox"/>		
Are windows and doors often left open in air-conditioned spaces?	<input type="checkbox"/>		
Does your building have heated high-bay spaces?	<input type="checkbox"/>		
Are ventilation fans and motors as efficient as possible?	<input type="checkbox"/>		
Does extract ventilation run when not needed?	<input type="checkbox"/>		
Are ventilation fans properly maintained and cleaned?	<input type="checkbox"/>		
Is exhaust-air heat recovery installed?	<input type="checkbox"/>		
Are air flow rates effectively controlled (for example, variable speed drives rather than manual dampers)?	<input type="checkbox"/>		
Does the building have ventilation and air-conditioning systems in place?	<input type="checkbox"/>		
Is the air-conditioning used below 24°C?	<input type="checkbox"/>		
Are air-conditioned spaces thermally separated from spaces that are not air-conditioned?	<input type="checkbox"/>		
Are windows left open in air-conditioned spaces?	<input type="checkbox"/>		

	Completed	Observation	Potential action
What is the age and condition of water heating equipment?	<input type="checkbox"/>		
Have controls been set to match occupancy?	<input type="checkbox"/>		
Are hot water cylinders and valves fully insulated?	<input type="checkbox"/>		
Are all hot water distribution pipes insulated?	<input type="checkbox"/>		
Have efficient taps and shower heads been fitted?	<input type="checkbox"/>		
Are electric immersion heaters used (usually in summer)? Are these effectively controlled?	<input type="checkbox"/>		
Is the volume of storage/number of tanks suitable for the demand?	<input type="checkbox"/>		
Is the temperature of hot water suitable (consider legionella requirements)?	<input type="checkbox"/>		

Building fabric

	Completed	Observation	Potential action
Is the roof insulated to modern thermal standards?	<input type="checkbox"/>		
Are there any uninsulated cavity walls?	<input type="checkbox"/>		
Are there signs of dampness anywhere?	<input type="checkbox"/>		
Are windows at least double-glazed or secondary glazed?	<input type="checkbox"/>		
Are there any air leaks at windows and doors or other openings?	<input type="checkbox"/>		
Are windows and roof lights clean?	<input type="checkbox"/>		
Do all doors close automatically and quickly?	<input type="checkbox"/>		
Is the space available used in an efficient way?	<input type="checkbox"/>		
Do you have loading areas with doors left open (potentially for vehicle access)?	<input type="checkbox"/>		
Are there any areas of solar gain? Is this capitalised on or does it cause an overheating issue?	<input type="checkbox"/>		

	Completed	Observation	Potential action
Are there any areas of over-lighting or under-lighting?	<input type="checkbox"/>		
Are there any tungsten lamps still in use (for example, in desk lights)?	<input type="checkbox"/>		
Have T12 or T8 fluorescent lamps been replaced by lower energy alternatives?	<input type="checkbox"/>		
Can halogen lamps be replaced by CFL or LED versions?	<input type="checkbox"/>		
Can light output be reduced in any exterior lamps?	<input type="checkbox"/>		
Are lamps and reflectors/shades dirty or discoloured?	<input type="checkbox"/>		

Lighting: controls

	Completed	Observation	Potential action
Are there any unused areas being lit?	<input type="checkbox"/>		
Can occupancy sensors control intermittently used areas?	<input type="checkbox"/>		
Are there large banks of lighting controlled by single switches?	<input type="checkbox"/>		
Can daylight sensors be fitted to lights adjacent to windows?	<input type="checkbox"/>		
Are windows and skylights cleaned regularly?	<input type="checkbox"/>		
Are manual switches accessible and clearly labelled? Are staff aware of which switches control which lights?	<input type="checkbox"/>		
Is there a switch-off policy in place?	<input type="checkbox"/>		
Are all exterior lights controlled by timers or daylight sensors?	<input type="checkbox"/>		

	Completed	Observation	Potential action
Are compressed-air leak checks carried out regularly and any leaks fixed? Are there any leaks now? Pay special care to connectors and flanges.	<input type="checkbox"/>		
Is compressed air used only where there are no other alternatives?	<input type="checkbox"/>		
Is the compressor taking in the coolest possible air?	<input type="checkbox"/>		
Is the pressure as low as it can be? Most cylinders can operate at 6 bar and some tools are designed to be operated at 4 bar or less.	<input type="checkbox"/>		
Is the heat generated by the compressor used for heating in another area (for example, space heating or process heating)?	<input type="checkbox"/>		
Is the compressor only switched on when there is demand for compressed air? (Leaving equipment idling costs money).	<input type="checkbox"/>		
Are there any distribution pipe runs that are not in use?	<input type="checkbox"/>		
Are there any manual condensate drains? Are they properly controlled?	<input type="checkbox"/>		
Could the distribution network be zonally controlled?	<input type="checkbox"/>		

Electric motors

	Completed	Observation	Potential action
Is all driven machinery serving a useful purpose?	<input type="checkbox"/>		
Are motors correctly sized for purpose?	<input type="checkbox"/>		
Are any motors left running when the process demands have stopped? (Idling motors can still use a significant proportion of their rated capacity and hence waste energy).	<input type="checkbox"/>		
Are inverters or variable speed drives used for any motors that drive variable process loads? (The best examples are often found in fan and pump applications).	<input type="checkbox"/>		
Are motors with high annual operating hours energy efficient motors, such as Efficiency Class I (Eff1) or IE3?	<input type="checkbox"/>		
Are motors kept clean? (When their cooling fins are kept clean, motors run cooler, more efficiently and will be less prone to breakdown).	<input type="checkbox"/>		
Are transmission systems well maintained and in working order? (Such systems can include transmission belts, gearboxes, bearings and pulleys).	<input type="checkbox"/>		
Are voltages properly balanced? Is the power factor as high as possible? (You'll need electrical instruments to measure these).	<input type="checkbox"/>		

	Completed	Observation	Potential action
Are steam leak checks carried out regularly and any leaks fixed? Are there any leaks now? It is also important to have regular steam trap tests conducted as these can leak steam into the condensate return pipework.	<input type="checkbox"/>		
Is the insulation on steam pipework, valves and fittings complete and in good order?	<input type="checkbox"/>		
Check that the burners are operating efficiently by having a combustion efficiency test carried out. Compare the results against the manufacturer's specification. Too much air results in increased energy consumption and running costs.	<input type="checkbox"/>		
Are automatic temperature controls installed on process machines?	<input type="checkbox"/>		
Is all condensate returned to the boiler? Is the condensate pipework insulated properly?	<input type="checkbox"/>		
Is appropriate heat recovery equipment installed in the boiler flue?	<input type="checkbox"/>		
Does the system have automatic total dissolved solids (TDS) control?	<input type="checkbox"/>		
Are there any distribution pipe runs that are not in use?	<input type="checkbox"/>		
Is flash steam re-used?	<input type="checkbox"/>		

Other equipment (for example IT and refrigeration)

	Completed	Observation	Potential action
Is all equipment as new and energy efficient as possible?	<input type="checkbox"/>		
Does all IT equipment have energy saving features enabled?	<input type="checkbox"/>		
Is all other equipment switched off when not in use?	<input type="checkbox"/>		
Have lifts been assessed by an expert in lift energy efficiency?	<input type="checkbox"/>		
Is all refrigeration equipment A-rated or better?	<input type="checkbox"/>		
Is refrigeration equipment properly cleaned and maintained?	<input type="checkbox"/>		
Is refrigeration equipment properly used (for example, is it running at an appropriate temperature and filled to right levels)?	<input type="checkbox"/>		
Are vending machines and coolers fitted with timers?	<input type="checkbox"/>		

	Completed	Observation	Potential action
Are there posters/guidance displayed to remind staff of good practice?	<input type="checkbox"/>		
Is energy efficiency included in staff induction training and regularly revisited?	<input type="checkbox"/>		

The answers to the questions raised in this Energy Audit Checklist should leave you with a list of observations and potential actions to investigate further.

If you would like to see some example observations and resulting opportunities then please refer to the **How to conduct an energy audit** found [here](#).

For further information on any of these topics, or any assistance with your energy audit, contact the Resource Efficient Scotland team at www.resourceefficientscotland.com or call our Helpline on 0808 808 2268.