



# Assessing the energy use at your industrial site

Energy Saving Fact Sheet



Making business sense  
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# What is an energy walk round?

A walk round is an assessment of energy use at your site and is one of the key techniques in energy management.

The aim of a walk round is to identify bad practice, inefficient equipment and poor energy habits. This will help you to form a plan to fix them.

Energy is one of the largest controllable costs in most organisations. Because there is usually considerable scope for reducing consumption at industrial sites, identifying where the saving opportunities lie is often a good way to save money.

In most cases, finding and acting on just one energy saving opportunity can justify the cost of your entire assessment process

Being energy efficient is proven to lead to improved profitability. Whether you take low-cost actions, or invest in long-term solutions, all cost savings go straight onto the 'bottom line' — that is, these savings are pure profit.

Many companies can save up to 10% of their energy costs by carrying out these assessments on a regular basis. So, self-assessment is *always* worthwhile, if just to prove to yourself that you are doing a good job. This fact sheet provides a guide to conducting a walk round and identifying energy saving opportunities.

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### What to look for — simple checks and opportunities

- ▶ **Poor housekeeping.** Are there signs that operators aren't undertaking simple maintenance, such as cleaning nozzles? Are there any other maintenance tasks that need to be done?
- ▶ **Poor operation.** Is equipment running needlessly when there is no demand or is equipment not set up correctly?
- ▶ **Equipment misuse.** Are operators using equipment inappropriately; for example, using a compressed air hose to blow dust from machinery, or opening oven doors too often?
- ▶ **Heating control.** Are settings on heating systems set to standard guidelines? Heating controls are frequently misused or poorly set
- ▶ **Light fittings.** Are your light fixtures old? Chances are there is a more efficient product out there
- ▶ **Look to automate it.** Watch your processes in operation. Can you find opportunities to tighten them up through automation?
- ▶ **Waste heat.** Could the waste heat expelled by equipment (such as air compressors, or in process exhaust gases or steam) be captured and used usefully for space or process heating? Heat recovery techniques need not be costly
- ▶ **Metering.** Look at any instrumentation you currently have in your electrical switch room, such as ammeters, hours-run meters or power factor metering. Monitoring can give vital information about energy use and waste. Do you have enough meters and are they in the right places?

# Preparing for a walk round

In order to maximise the value of the walk-round spend some time beforehand preparing:

- 1 **Plan and agree your assessment.** Get agreement from relevant people and allocate time to carry out the assessment. Think about the timing of the assessment and arrange with key people (see next page). Familiarise yourself with your site and the key machinery/appliances.
- 2 **Prepare your assessment toolkit.** What do you need to take with you? The checklist in this fact sheet has some ideas.
- 3 **Assemble paperwork.** Get hold of utility bills, any sub-metering data, and maintenance records. After reviewing this paperwork, you may be able to spot areas that require your attention before you even start your site walk round.
- 4 **Identify and prioritise key energy centres.** Prioritise high energy consuming processes for particular attention during your assessment. You will probably be able to guess which are the 'highest consumers'. You could also plan to do the assessment when these processes are operating at peak – or meant to be off!

## ...and once you've completed your walk round...

Report the assessment findings and follow up with an action plan. A good report will thoroughly justify any recommended actions, and will stimulate the reader into action.

### fact:

An energy assessment identifies maintenance issues and can help to avoid costly breakdowns

site

## What to look for – maintenance of buildings and energy using equipment

- ▶ **Repair all leaks** – Check compressed air, steam and refrigeration systems for leaks. Fixing them can lead to impressive savings
- ▶ **Repair any cracks** – Replace any broken windows and fill any damage in the walls and roofs as soon as you notice them
- ▶ **Check insulation** – Replace any damaged or damp insulation, especially hot or refrigerated pipes. Use removable covers on flanges to encourage their replacement after any maintenance
- ▶ **Listen and touch.** Listen to your motors and gearboxes and touch them. If they are noisy, rough-sounding or are uncomfortably hot, they may require maintenance or replacement
- ▶ **Failure of controls.** Check settings of controls against the actual operation of the equipment. Controls may be worn or poorly calibrated
- ▶ **Free the air** – Keep filters clean and replace them at manufacturer's recommended intervals. Do not block grills, fans or vents
- ▶ **Healthy flames** – Yellow or smoky flames on burners and in boilers are generally inefficient flames. Make sure your flames all burn blue and cleanly. Ask your boiler/machine maintenance engineer to check your fuel/air ratios
- ▶ **Spillages** – Look for raw material or product spillage. This will point you towards waste. A misaligned or torn batch conveyor can cost valuable raw materials as well as waste energy.

# Take action!

## Measures so you can start saving energy today:

- ▶ Carry out the site walk round (see over for a checklist you can use)
- ▶ Engage your staff wherever possible in the walk round process
- ▶ Take good housekeeping actions as you go along and record the issues you find on your checklist
- ▶ Analyse your results and prioritise findings on the basis of business benefit against cost and payback
- ▶ Report the walk round results to staff and management
- ▶ Produce a plan of action, with expected due-by dates and named individuals responsible for them
- ▶ Implement quick wins and report success
- ▶ Keep the momentum going, keep people informed of progress and continue to raise awareness of energy use and consequences
- ▶ Follow up on the outstanding actions, implementing them over a time-frame according to your action plan
- ▶ Keep and maintain a list of the actions still outstanding
- ▶ Schedule the next walk round
- ▶ Feed the findings from further walk rounds into your current plans and activities.

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## When to conduct an energy walk round

It is a good idea to walk round your site at different times of the day to get a feel for how energy use changes.

Conduct a non-production check during the day to see what equipment operators feel is appropriate to leave on out of production. For example, during a tea break or job change, take meter readings.

Conduct a non-production check at night/weekends (if applicable) to see what the differences are. This will highlight equipment that is running out of production hours. Any equipment left on should be absolutely necessary.

Conduct a full production check. This will show you what is happening during normal operating conditions. Your production operators can also give you feedback on their particular equipment/area along with any issues or suggestions of improvement – they may even be able to demonstrate these to you.

It is also a good idea to walk round at different times of the year to find out if there is a seasonal pattern to the way energy is used and wasted.

### How often should you do these walk rounds?

As often as you feel it is necessary, but at least once per year and preferably every three to six months. For larger sites, you may want to do this more regularly.

# Example energy walk round checklist

Date of energy walk round

Checked by

	Complete y/n	Action/Comment
Compressed air leaks		
Steam leaks		
Refrigerant leaks		
Other leaks (product/oil/water)		
Old light fittings		
Open windows/doors (ask why, check temperature controls)		
Incorrect operation of equipment (e.g. wrong speeds, temperatures)		
Equipment running e.g. motors, lights (with no production, or no one there)		
Dirty equipment (ask why/will it affect performance?)		
Check all filtration (dirty filters block flow)		
Listen for rough noises (can indicate poor maintenance or imminent equipment failure)		
Check temperatures (hot motors use more energy)		
Yellow flames (this can indicate poor combustion)		
Consider replacing equipment (can equipment be replaced with more efficient/effective equipment?)		

Assessment toolkit (Handy equipment to take with you or have standing by)	Check ✓
Notepad and pencil	
Marker tags or stickers (to identify faults/leaks)	
Torch	
Relevant safety equipment	
Ultrasonic leak detector (to detect leaks in a compressed air system. Alternatively, a solution of soapy water painted onto pipework will point to leaks where bubbles come up)	
Thermometer (digital or infra-red)	
Clamp-on ammeter (can be useful for comparing energy consumption of similar equipment)	
Digital camera (very handy for reporting)	
Stopwatch (good for timing operations)	
Tape measure	
Calculator (for quick estimates)	
Ladders	



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**The Carbon Trust helps businesses and public sector organisations cut their energy costs to combat climate change through the provision of free, professional advice and assistance.**

### **Safety First!**

Always have safety uppermost when conducting a site walk round. Make sure that all safety procedures are followed and take particular care around hot or hazardous machinery. Always wear recommended protective clothing such as gloves, goggles and headgear, and call in an expert when needed.

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