

Energy audit Summary

1. Define scope and count electrical equipment

Decide which area your audit will cover, whether it is the entire office or a representative sample. The audit will include computers, lighting, printer, photocopiers, etc. Air conditioning could also be optional, depending on the system in your office. Count the number of each type of equipment. Computer monitors and hard disks need to be counted separately as they both draw different amounts of power. Lighting should be counted per tube/globe remembering there are normally more than one in each bank.

2. Find the average power of each piece of equipment

Use a power meter to measure the average power (W) of each type of equipment. If a power meter is not available, do some research to determine the average value (check on the equipment itself, or in the equipment documentation). Assume a power of 36 W for each fluorescent light tube.

3. Estimate the number of hours each piece of equipment is switched on each day

It may be necessary to make several assumptions about the hours of use per day for each piece of equipment. Take into account whether equipment is turned off during breaks or at night. It may be necessary to ask staff or conduct a walk-through survey to observe the usage of equipment. These assumptions need to be clearly recorded and justifiable.

4. Calculate energy consumption

To find the amount of energy used by each type of equipment, multiply the number of pieces by their average power and the daily hours of operation. For example...two 100w devices left on for eight hours will consume $2 \times 100 \times 8 = 1600$ watt hours (Wh). Add all figures to calculate the total daily energy consumption for equipment in the audit. Since energy consumption is usually expressed in kilowatt hours (kWh), you will need to divide this figure by 1000. for example, $5570 \text{ Wh} = 5.57 \text{ kWh}$. Multiply by the estimated of work days per year to calculate the annual average of energy consumption for office equipment. When calculating how many 'work days' per year the equipment is used, consider whether equipment is off over weekends and during holidays, etc.

5. Calculating your results to 'speak'

To make your results more presentable and understandable, you may want to turn them into some creative figures. Also, it may be helpful to present the results as current losses, rather than potential savings (the impact tends to be greater this way!). for example:

...Financial cost of energy

How much is energy consumption costing your company? Average domestic rates are approximately 13c per kWh, although some larger users have a discount rate!

..Kilograms of green house gas (kg Co²) emissions:

Contribution of greenhouse gases to climate change...using the following table you can calculate the amount of Carbon dioxide emissions your company is contributing. By dividing the figure by 0.5 you can convert it into the equivalent kilometres travelled in an average car...maybe match it up to how many times you could travel between Sydney & Melbourne!

...Potential energy reduction from simple behavioural change:

You may like to calculate the difference made by turning off lights for one extra hour per day or delamping one light from each light bank in each room. How much energy is currently wasted leaving lights on during staff meetings? What behavioural changes would be needed to reduce energy usage by ten percent? What are the potential savings here? Where else is there potential to save energy?

1 kWh electricity generated in...	Produces...kg Co² emissions
NSW & ACT	0.985
VIC	1.467
SA	1.007
QLD	1.155
WA	0.992
TAS	0.031
NT	0.814