



# Energy Management Guidelines for Printing and Finishing Businesses

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Perth Region NRM is a not-for-profit Natural Resource Management Association committed to assisting small and medium sized Australian businesses minimise their Environmental footprint.

Perth Region NRM, with the support of the Office of Energy and in conjunction with principal energy consultants Eco Advance and the management and staff of S & F Finishing, have produced this Guideline for Food Manufacturing Businesses keen to reduce their energy use and Greenhouse Gas (GHG) Emissions.

For details on how Energy Management Action Planning (EMAP) can be applied to your business, first read the *Energy Management Guide for Business*.

This Guideline is based on the pilot of Energy Management Action Planning at S & F Finishing Services/Malaga Copy Centre. It builds on the process outlined in the *Energy Management Guide for Business* by identifying areas of energy use in the printing industry and identifying where further investigation may be warranted or where energy efficiency improvements could be targeted and realised.

The following information is provided as general advice however it should be recognised that businesses operate in different ways and in different circumstances. You should make your own inquiries as to the appropriateness and suitability of the information as it relates to your particular business.

## *Energy use in the Printing & Finishing sector*

Business operators should have a good understanding of where energy is used in business processes. The following systems are typically used in most printing businesses:

- Production
- Lighting
- Heating, Ventilation & Air Conditioning
- Office & Amenity Equipment

Reducing energy use in these areas can lead to financial savings for your business as well as a reduction in Greenhouse Gas emissions from operations. This Guide applies both for operational businesses as well as for design stages for new or expanding businesses.



## Production

- Typically one of the main users of electricity, the energy use and on-going operation costs of printing presses and other production related equipment should be considered
- Plan production runs so that equipment is not left idling for long periods. This applies especially to equipment which generates heat or cooling (air conditioned) or which uses compressed air as these can use a significant amount of electricity even when idle
- Turn equipment off after use – encourage staff to turn off equipment which is not being used
- Where available, utilise the power saving features on new electronic equipment
- ~~Modern~~Newer electronic equipment is generally more efficient to operate than older electromechanical-electromagnetic equipment-

## Lighting

- Turn lights off in unused areas - Install separate switching or motion sensors for areas that are infrequently occupied. E.g. store rooms, amenity areas and individual offices
- Avoid over lighting - Recommended interior light levels are provided by Australian Standard 1680 and are quite high (>600 lux) for areas where printing jobs are checked or designed. Remove excessive lights from areas with lower lighting requirements.
- Use natural lighting - Provide sky-lighting and separate switching (with optional photo sensor) so that all or banks of lights can be turned off during the day
- Use energy efficient lights in low ceiling areas like offices - LED and T5 Fluorescent lighting systems are generally the most efficient and should be used to replace incandescent, halogen and old ~~er magnetically ballasted~~ fluorescent lamps with magnetic ballasts
- Locate lights closer to work areas - High bay lighting is required for areas where clearance is necessary for equipment such as forklifts. It may be possible to lower the height at which lights are suspended and use smaller, more efficient lights
- Use energy efficient lights in medium to high ceiling areas and for security lighting - Consider the use of Magnetic Induction Fluorescent and LED lights in lieu of traditional sodium vapour, metal halide and mercury vapour lamps for medium to high bay situations. These lamps use significantly less electricity and last twice as long so they don't need to be changed as often
- Provide task orientated lighting – Ensure that lighting is provided above task areas. It is not necessary to provide high levels of lighting for all areas of the business. Lights should be located directly over areas where it is required

## Heating, Ventilation & Air Conditioning (HVAC)

- Invest in building improvements – This includes insulation, improving ventilation, efficient lighting and external shading to reduce HVAC requirements. An architect experienced in thermal modelling can identify areas of heat gain/loss in your business and determine load reductions from insulation or the use of thermal reflective paint on steel workshop roofs which can result in significantly less use of HVAC systems
- Ensure that equipment is regularly maintained. Clean filters and check ducting, belts and pressure regularly



- Set reasonable thermostat settings – Setting lower (19°C) thermostat settings in winter and higher (24°C) settings in summer will reduce the load on your HVAC unit, resulting in energy savings
- Only turn HVAC systems on when required – Use zone control for unoccupied areas and timers to ensure that HVAC units are not left on overnight
- Seal openings in areas serviced by refrigerative air conditioners - Doors and windows should be kept closed and have good seals to keep out draughts. Consider the use of automatic door closing devices for openings to air conditioned areas
- Use the most efficient compressors. Check star ratings [www.energyrating.gov.au](http://www.energyrating.gov.au) and select an appropriately sized unit with the highest efficiency rating
- It is generally cheaper to remove heat using exhaust fans ~~s-rather~~ than using air conditioning

### *Office & Amenity Equipment*

- Enable energy saving modes on equipment – Most new electronic equipment have energy saving modes that can be enabled to turn on at the earliest opportunity
- Use timers to reduce energy use – Timers fitter to hot water urns, vending machines, drink fridges and cold water dispensers can eliminate energy wastage
- Turn equipment off after hours – While some equipment such as refrigerators, security systems, servers and fax machines need to be kept on, most equipment can be turned off at night
- Avoid installing oversized or inefficient hot water services – Consider the different benefits of solar, instant gas/electric, storage and heat pump units when determining hot water provisions
- Consolidate equipment use – Avoid duplicating equipment where possible e.g. providing each office with an individual printer, photocopier or bar fridge
- Ensure that energy efficient ~~refrigerators~~fridges are used – Select staff fridges with a high energy star rating<sup>1</sup> and avoid the use of commercial (large glass display) refrigerators where possible. Keep refrigerators full so that energy is not spent chilling air that is lost whenever the door is opened

*For more information on Energy Management, visit [www.perthregionnrm.com](http://www.perthregionnrm.com) or contact Perth Region NRM via e-mail – [info@perthregionnrm.com](mailto:info@perthregionnrm.com) or telephone – 9374 3323.*

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<sup>1</sup> For a comprehensive list of energy efficient whitegoods, check out the Australian Government Energy Rating website: [www.energyrating.gov.au](http://www.energyrating.gov.au)