ENERGY AND GREENHOUSE MANAGEMENT INFORMATION SHEET FOR TERRITORY MANUFACTURERS

Territory Manufacturers can reduce costs and greenhouse gas emissions through more effective management of their energy use.

Evidence shows that most businesses can reduce energy consumption by 20% through equipment maintenance and upgrades, smarter building systems and materials and energy efficient technology. This is usually achieved using tried and tested technologies that are widely available from a range of suppliers.

Investment in energy efficiency can often pay for itself in just a few months through energy bill savings. Even a three year investment recovery from an equipment upgrade with a ten year working life means that the initial investment has made a 30% return and has seven years of working life in which to make continuous savings.

Below are some fundamentals to assist with managing your energy use.

Organisational Energy Management
- Appoint an Energy Manager/Team
- Obtain top level support for an energy management policy
- Monitor and report on energy use to management and staff
- Commission an energy audit
- Develop a plan of actions to be implemented

Lighting
- Turn lights off when not needed
- Install energy efficient lighting technology
- Don't over light an area, light it to the requirements in the Australian Standards
- Install occupancy sensors or time delay buttons in rooms that have irregular use
- Take advantage of natural light. For example, consider the installation of translucent roof sheets in non-air conditioned warehouses and sensors that turn lights off or down in proportion to the available daylight.
- Reduce the number of lights.
- Ensure lighting system is properly maintained.
- Install daylight sensors to control reduce unnecessary lighting

Energy Recovery/Synergies
- Use heat exchangers wherever possible – one processes' waste heat may be another's energy source!
- Look for synergies - Can multiple outcomes be achieved through single process stages?

Heating, Ventilation and Air Conditioning (HVAC)
- Consider naturally ventilating facilities and use of fans
- Consider HVAC issues in building selection or design process.
- Zone similar usage pattern areas together
- Use the most efficient equipment possible (e.g. consider magnetic bearing chillers)
- Have the building commissioned after construction
- Don't over-heat/cool – consider high set points and use of fans
- Reduce heating or cooling of unoccupied spaces.
- Regularly maintain equipment.
- Ensure space is sealed
- Automate HVAC where possible (e.g. switch on as late as possible and off as early as possible and/or use time delay switches)
- Minimise outside air loads at start up and as a function of occupancy through carbon dioxide monitoring
- Consider heat exchange between exhaust and fresh air

Air Compressors
- Turn off equipment when not in use (consider time delay switches).
- Perform regular checks for leaks and undertake maintenance throughout the compressor system.
- Reduce air pressure settings to the minimum.
- Reduce the temperature of the air taken in by the compressor.
- Check that the size of your compressor meets current needs.

Domestic Hot Water

- Question where warm/hot water is really needed
- Install a solar hot water system, gas water heating, electric heat pump and process heat exchange options
- Regularly maintain your hot water system.
- Reduce water use.
- Reduce water temperature to 60 degrees.
- Insulate the tank, pipe work and fittings.
- Install flow restrictors.
- Locate the system as close as possible to the main point of use of hot water.

General Equipment Issues

- Match number, size and type of equipment to the to loads required, selecting to ensure each item of equipment spends most of its time at the most efficient operating load point
- Install computer controls to allow automatic sequencing such that equipment operates at the most efficient combined load settings
- Consider temperature and pressure controls carefully (don't over-cool, over-heat or over-pressurise)
- Insulate process vessels and all pipes and valves in temperature sensitive processes
- Design pipe work and material movement systems for minimal friction losses
- Use high efficiency motors – refer www.greenhouse.gov.au/motors
- Where variable demands exist, install variable speed drives on motors and control through demand feedback loops
- Regularly maintain equipment

Automatically switch off equipment when it is not needed and check for stand-by losses

Office Equipment

- Turn all equipment off when not in use, either manually or with time switches.
- Turn off computer monitors where not in use
- Consider running costs in purchase decisions
- Enable Energy Star® power management feature

Transport

- Reduce travel requirements.
- Choose the right vehicle and the right fuel for the job.
- Maintain your vehicles.
- Train staff to drive vehicles efficiently

A more detailed 'Energy and Greenhouse Management Toolkit' has been developed by Sustainability Victoria in partnership with EPA Victoria to assist businesses reduce their energy consumption and achieve real cost savings as well as improved productivity: http://www.sustainability.vic.gov.au/www/html/1938-energy-and-greenhouse-management-toolkit.asp

To find and compare the most energy efficient appliances and commercial and industrial equipment for sale in Australia, go to http://www.energyallstars.gov.au/. This website includes a calculator to determine the running costs and total lifetime cost (if you know the purchase price) of its listed products.