Energy Efficiency Checklist

Maintenance and optimisation checklist for gas users

Cost-saving measures, productivity enhancements, and optimisation opportunities

Well-maintained equipment runs more efficiently, lasts longer, and avoids costly breakdowns. At the same time, small adjustments in how and when you use energy can quickly cut costs.

This checklist gives you practical, low- or no-cost actions to help reduce your gas use and includes advice for lower electricity bills too - without major investment.

Who should use this checklist?

General gas users - any business that relies on gas will find useful actions here.

Sector-specific users - if you belong to one of the sectors below, you can also check out the tailored checklists designed for your industry:

- Manufacturing
- Industrial
- Meat Processing
- Hotels
- Food & Beverage Service
- Aged Care & Retirement Living
- Brewing
- Coffee Roasting
- Commercial Baking
- Covered Cropping
- Wood Processing & Manufacturing

What this checklist for gas users covers

- General management and maintenance
- HVAC
- Lighting
- Building and office equipment
- Kitchen and laundry equipment
- Motors and drive systems
- Pumps
- Fans
- Steam generation
- Compressed air
- Refrigeration

General principles

Before diving into the details, keep these fundamentals in mind:

Switch off when not in use - cut costs instantly by not paying for idle equipment.

Maintain regularly - clean, service, and tune equipment to keep it efficient and reliable.

Insulate and seal - stop heat and energy losses from pipes, ducts, buildings, and steam lines.

Use smart controls - timers, sensors, and automation save energy without extra effort.

Optimise processes - avoid peaks, idle running, and oversizing.

ACTION	DETAIL	COMPLETE?
General management and maintenance	Turn off lights, heaters, conveyors, and other electrical equipment when not in use. Put time switches on lighting and heating.	☐
	Minimise idle running (conveyors, boilers, lighting, heaters).	☐
	Choose the power tariff that best suits the electricity load profiles in the plant.	☐
	Reduce peak electricity loads by rescheduling processes so that they do not coincide with peak times.	☐
	Schedule regular energy maintenance by a qualified technician.	☐
	Check for leaks (hot water, refrigerant, compressed air).	☐
	Keep lights and temperature sensors clean and free from dust.	☐
	Maintain and service motors to save energy and reduce wear and tear (air conditioners, refrigeration, pumps, ovens, dryers, and conveyors).	☐
	Insulate hot pipes, valves, and equipment. Replace damaged insulation.	☐
	Create an asset register (make, model, year, power rating, efficiency, operating temps).	☐
	Implement an asset replacement strategy (utilise the opportunity to identify energy efficient replacements).	☐
	Streamline material flows to reduce production time and energy use.	☐
	Allocate budget for preventative maintenance.	☐
Heating Ventilation and Air Conditioning - HVAC	Turn off the HVAC when not needed.	☐
	Use timers to turn the HVAC on before staff arrive in the morning and off after business hours.	☐
	Maintain radiators and heating/cooling equipment in good working order.	☐
	Clean/replace air filters, fans, and coils regularly.	☐
	Clean heat pump ducting systems annually.	☐
	Clean evaporator and condenser coils (dirty coils can lower the efficiency by up to 15%).	☐
	Adjust temperature setpoints to avoid overcooling or overheating.	☐

NOTES

ACTION	DETAIL	COMPLETE?
Lighting	Install timers on main circuits to automatically turn off all lighting (e.g. at night-time or weekends).	☐
	Use occupancy sensors to automatically turn lights off in unoccupied rooms.	☐
	Modernise old fluorescent lighting (refit with high-efficiency T5 fluorescent fittings).	☐
	Check and adjust lux levels - many applications are typically much higher than required for the task.	☐
	Replace high-bay warehouse lighting with improved-efficiency options (such as T5 fittings).	☐
	Investigate daylight-based controls where skylights or large windows are present.	☐
	Replace incandescent lamps with compact fluorescent lamps (CFLs).	☐
	Replace MR16 halogen lamps with high-efficiency halogens, CFLs or LEDs.	☐
Building and office equipment	Use a building management system to track energy use in real time, and manage intensive systems like heating, cooling and lighting.	☐
	Ensure heating, cooling and lighting respond to reduced occupancy, public holidays, daylight savings, and seasonal changes.	☐
	Use natural ventilation where possible.	☐
	Activate light-sensing in occupancy sensors (daylight harvesting).	☐
	Consider double glazing or low-emissivity coatings for windows.	☐
	Install self-closing or revolving doors to outdoor spaces.	☐
	Install automatic doors, air curtains, or strip doors between conditioned and unconditioned spaces.	☐
	Insulate outdoor ducting and apply corrosion prevention coating to outdoor units.	☐
	Install exterior shading (e.g. blinds, awnings) or plant trees to create shade.	☐
	Seal the building envelope (seal joints and air chases), and replace broken or missing windows or door weather stripping.	☐
	Enable automatic sleep/power-off on office equipment.	☐

NOTES

ACTION	DETAIL	COMPLETE?
Kitchen and laundry equipment	Run dishwashers and ovens at full capacity only.	☐
	Use variable speed extraction fans in kitchens.	☐
	Run low-temperature washes where possible.	☐
	Maximise spin cycles to reduce dryer energy.	☐
	Run full loads in washers/dryers.	☐
	Ensure ovens, dishwashers, chillers, freezers, and burners are maintained in good condition.	☐
	Check taps, showers, and valves regularly for leaks.	☐
	Regularly clean filters and maintain laundry machines according to manufacturer instructions.	☐
Motors and drive systems	Install high efficiency (Minimum Energy Performance Standard) motors.	☐
	Replace standard V-belts with more efficient cogged or synchronous belts.	☐
	Regularly service gearboxes - worn gearbox seals can leak oil, increasing friction and lowering efficiency.	☐
	Bypass soft starter units (they waste around 3% of power, dissipated as heat).	☐
Pumps	Replace pumps if system changes make them oversized.	☐
	Install variable speed control for pumps with varying loads.	☐
	Trim pump impellers to match demand (in line with manufacturers' guidance).	☐
	Isolate circulation loops when not required - either manually or automatically using solenoid valves.	☐
	Install pressure switch control for intermittent demand.	☐
	Install level control (for dewatering or tank-filling applications), to ensure the pump only operates when necessary.	☐
Fans	Investigate variable speed drives (VSD) for varying load applications.	☐
	Isolate circuits when not required, as moving air unnecessarily can significantly increase the load on a fan.	☐
	If the fan is controlled by VSD, reducing the fan system's airflow gives even greater saving.	☐

NOTES

ACTION	DETAIL	COMPLETE?
Steam generation	Operate the minimum number of boilers required and reschedule peak loads.	☐
	Regularly tune your boiler using a qualified technician (see our Best Practice Boiler Tuning Procedure guide here).	☐
	Clean boiler at regular intervals (fire- and water-side).	☐
	Identify and repair steam leaks.	☐
	Test and repair steam traps to maintain the steam system's efficiency and performance.	☐
	Insulate all steam and condensate lines; use removable thermal jackets for valves and fittings if cladding prevents easy access.	☐
	Maximise condensate return with economisers (5-10% efficiency savings).	☐
	Install automatic blowdown control. Automatic controllers measure the total dissolved solids (TDS) level and blow down at the optimum rate.	☐
	Recover heat from blowdown water (often above 150°C so ideal for heat recovery).	☐
	Optimise boiler blowdown and cycle rates.	☐
	Test boiler combustion efficiency regularly.	☐
	Install automatic air-fuel controls.	☐
Compressed air	Review and reduce minimum pressure set point.	☐
	Identify and repair leaks (often as simple as tightening a loose connector).	☐
	Eliminate compressed air misuse - replace with more efficient technologies.	☐
	Clean and maintain intercoolers.	☐
	Draw air from the coolest possible location.	☐
	Optimise compressor schedule and use advanced sequencing control systems (if multiple compressors are present).	☐
	Install a variable speed drive (VSD) on compressors.	☐
	Reduce distribution pressure drops (excessive pressure drops can result from installing too much equipment on an undersized compressed air line).	☐
	Improve capacity control (with variable speed or variable displacement compressors).	☐
	Improve intake design, ensuring there are no inlet restrictions (e.g. blocked filters) and that the compressor receives clean, cool air.	☐
	Recover waste heat (many manufacturers sell kits to recover heat for water heating).	☐

ACTION	DETAIL	COMPLETE?
Refrigeration	Ensure good door discipline in cold rooms - keep doors shut when not in use.	☐
	Maintain seals around cold room doors.	☐
	Optimise evaporating temperatures and condensing pressures.	☐
	Set freezer fan speeds to minimum required speeds (per specifications).	☐
	Install a second refrigerant storage tank to increase buffer capacity.	☐
	Review condenser fan design - axial fans may be more efficient.	☐
	Install automatic purge to remove contaminants in refrigerant lines.	☐
	Install variable speed drives (VSDs) on compressors and fans.	☐
	Install automated compressor staging and capacity control.	☐
	Check out the full Refrigeration energy efficiency checklist.	☐

NOTES