TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

Energy Efficiency Checklist

Wood Processing & Manufacturing

Cost-saving measures, productivity enhancements, and optimisation opportunities

May 2025

This checklist is a practical guide to help wood processers and manufacturers identify opportunities for improved energy efficiency.

This checklist sets out of variety of opportunities with a wide range of costs (including many that are no-cost).

It includes the following areas:

1. HVAC (Heating, Ventilation and Air Conditioning) for offices/work spaces
2. Lighting
3. IT and office equipment
4. Motors and drive systems
5. Pumps
6. Fans
7. Boiler management
8. Air Compressors

Before you start this guide, you can set the foundations and start with purpose by:

1. Putting in place a climate action plan with regular feedback from stakeholders and staff around how to improve your performance.
2. Assign energy management responsibilities to include all staff and provide training.
3. Maintain an updated action list of energy efficient opportunities.
4. Meet regularly and report on actions – provide the opportunity for staff feedback.
5. Start with a few simple actions from the low-cost list to see what savings you can make and then progress towards more complex actions as you feel comfortable.

ACTION	DETAIL	COMPLETE?
GETTING STARTED		
Measure Energy Usage	Monitor energy consumption (electricity, diesel, petrol, gas, biofuel) regularly to identify and investigate any unexpected increases.	☐
	Use EECA's Energy Intensity Calculator to measure and track energy use and emissions.	☐
	Compare monthly energy consumption data to the same month a year prior and on a rolling 12-month basis to identify trends (i.e., increasing/decreasing energy consumption).	☐
Staff Engagement	Educate staff about the importance of being as energy efficient as possible and turning off equipment when not in use. • Run an introductory session to update staff about why it's important to save energy. You can also integrate information about your energy programme into your site's induction training. • Create a mechanism for contractors and staff to share their suggestions with you. • Ensure you take action on feedback where improvements can be made. • Keep staff updated on progress and consider a rewards programme for improvements and engagement.	☐
Energy Management & Maintenance	Choose the best power tariff that best suits the electricity load profiles in the plant. Similarly, look to shift peak electricity loads by rescheduling processes so that they do not coincide with peak power prices.	☐
	Minimise idle running - turn off equipment, conveyors, boilers and other equipment when not in use.	☐
	Turn off lights and heaters when not in use, utilise time switches.	☐
	Implement appropriate scheduling to regularly perform basic energy maintenance by a qualified technician.	☐
	Detect and repair leaking utilities such as compressed air, water, steam.	☐
	Check lights are regularly cleaned.	☐
	Maintain and service motors used for HVAC, pumps, fans, and air compressors.	☐
	Reduce heat losses. Lag all hot pipes and consider removable valve covers. Minimise long pipe runs where possible.	☐
	Operate the minimum number of boilers needed and look to reschedule heat loads so that the capacity of those boilers is not exceeded.	☐
Process Change	Optimise material flows through the site. Linear processes may reduce production time, energy and cost.	☐
	Size boilers and heaters according to their use (a correctly sized boiler may operate at 85+% efficiency compared with 60-70%; a second-hand boiler may cost more than a new one due to inefficient operation).	☐
	Allocate budget for preventative maintenance to save energy and prevent disruptions from breakdowns and unscheduled maintenance.	☐

ACTION	DETAIL	COMPLETE?
GETTING STARTED		
Asset register	Develop an asset register capturing key details, such as: • Make • Model • Type of unit (e.g., screw or reciprocating) • Age/year of install • Power rating • Efficiency • Operating temperatures	☐
	Develop and implement an asset replacement strategy focusing on more energy efficient replacements.	☐

TYPE	OPTIMISE	COMPLETE?
HVAC	Clean evaporator and condenser coils.	☐
	Turn off the HVAC systems when not needed.	☐
	Adjust temperature setpoints.	☐
Lights	Replace all non-LEDs with LEDs.	☐
	Install occupancy timers and divide your lighting up into different areas with separate switches or sensors, so you don't waste light in unused areas.	☐
	Where skylights or large windows are present, install automated dimming or switching systems on indoor lighting.	☐
Office	Check power management settings of PCs and laptops.	☐
	Check power management settings of printers and photocopiers.	☐
Motors and drive systems	Install high- efficiency motors and consider undertaking an audit check motors and drive systems are operating efficiently and effectively.	☐
	Replace standard V-belts with cogged or synchronous belts.	☐
	Regularly service gearboxes.	☐
	Install soft starter bypass technology to bypass soft starter units once the motor is running at full speed, as soft starters typically have high losses. Many new soft starters already have internal bypass contactors.	☐
Pumps	Check that pumps are correctly sized. Oversized pumps can sometimes be remedied by trimming the pumps impeller. Ensure this is done in line with manufacturers' guidance.	☐
	Investigate variable speed control for pumps with varying loads, and pressure switch control for pumps with intermittent demand.	☐
Fans	Investigate variable speed drives for fans that have varying loads.	☐
	Isolate air extraction or supply ducts when they not required using manual or automatic closing dampers.	☐

TYPE	OPTIMISE	COMPLETE?
Boilers	Conduct regular boiler combustion efficiency testing.	☐
	Install automatic air-fuel controls on boilers with large burners. These can automatically adjust the burner's air-fuel ratio for maximum efficiency.	☐
	Clean boilers at regular intervals. Regular fire-and water-side tube cleaning ensures good heat transfer is maintained.	
	Install flue gas isolation dampers. A flue-gas isolation damper that closes when the boiler is not firing reduces natural convection heat losses, lowering the standby losses.	
	Install an economiser to preheat feed water with the waste heat from flue gases. If you have an economiser on your boiler system, check that it is working correctly.	
Air Compressors	Identify and repair compressed air leaks.	
	Reduce unnecessary compressed air use. Compressed air systems are only about 12.5% efficient, so reduction of unnecessary use is a good way to save electricity.	
	Consider installing variable speed or variable displacement compressors.	
	Ensure air intakes are clear, the filters cleaned regularly, and that the compressor receives clean, cool air to improve compressor efficiency.	
	Install heat recovery on compressors. This heat can used directly for space heating or indirectly for heating water or as boiler feedwater.	

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