

# Power from biomass residues in WA

By Sustainability Matters Staff

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A Western Australian oat miller is using the Organic Rankine Cycle (ORC) turbogenerator system from Italian company Turboden to generate clean electricity using oat husks as fuel to power its Wagin facility.

Previously, the residues from the processing of the oats had been used to generate steam that was used only in the milling process itself. With the introduction of the turbogenerator, the steam is used to generate power and displace a significant portion of the internal demand of electricity at the facility, which is located 230 km from Perth.

Carlo Minini, Turboden business development manager for Oceania, explained that: “ORC systems are particularly suitable for distributed power generation and have now reached a level of full maturity in biomass and waste-to-energy applications.” He said that in Europe and North America, over 200 ORC units are in operation using biomass, and this is actually the company’s second Aussie plant, “as the

company installed its very first turbogenerator 30 years ago in Perth — a small solar thermal ORC back then”.

The relatively small generator installed in WA — 600 kWe is the full load capacity — is not set to export unused electricity to the grid and for the time being will only be fed with the steam excess from the milling process: the combination of these two operating conditions means that the turbine will be subject to variable load patterns.



“The beauty of the ORC technology lies exactly in its flexibility and good efficiencies retained even at very partial load — and the fact that the ORC is fully automatic and doesn’t need permanent attendance, which translates into highly reduced operation and maintenance costs.

“Interestingly enough, the other two major components of this station — the biomass boiler and the aircooler — are also made in Italy, by companies Uniconfort and Lu-Ve Contardo respectively,” Minini concluded.

**Online:** [www.turboden.eu/en](http://www.turboden.eu/en)

**Phone:** 0488 584 955