



## Pacific Pyrolysis is Deploying Proven Technology

Pacific Pyrolysis (PacPyro) has developed slow-pyrolysis technology that converts organic waste and low grade organic biomass into renewable energy and biochar, offsetting and sequestering a significant amount of carbon in the process.

PacPyro is reverse listing on the ASX via WAG Limited (ASX:WAG) in tandem with raising \$4m in new equity. PacPyro will use the funds raised to commence development on its first commercial scale project located in Melbourne, and to support further development of PacPyro's pipeline of projects across Australia and NZ.

The Melbourne project will utilise a recently awarded \$4.5m Victorian Government grant to scale up PacPyro's existing pilot plant located in Somersby NSW. The project brings together key partners including a major waste management company and a listed engineering firm

Company: WAG Limited

ASX Code: [WAG](#)

[www.pacpyro.com](http://www.pacpyro.com)

Targeted Post Consolidation Market

Capitalisation: AUD\$10.2

Proposed Raising: Up to AUD\$4 million

Post Consolidation and Capital Raising

Shares on Issue: 50.94 million

Proposed Board

Chairman: Dr Keiran Wuff

Chief Executive Officer: John Glen

Directors: Peter Mann, Adam Townley,  
Dr Michael Ottaviano

- Process ~30,000 tonnes pa of municipal greenwaste and waste wood;
- Generate 1 to 1.3 MW of 'grid-connected' renewable electricity;
- Produce the first commercial quantity (~5,000 tonnes pa) of high grade agricultural biochar for the Australian market ; and
- Create a significant quantity of carbon offsets hence producing 'carbon negative electricity'.

The Melbourne project is a major step in commercialising a ~\$7m R&D investment over several years and has positioned PacPyro as a world leader in slow-pyrolysis technology. The Melbourne Project will require additional funding of ~\$6M by early 2013. PacPyro intends to seek to raise these funds in the third calendar quarter of 2012.

## PACPYRO DELIVERS SOLUTIONS IN THE FOLLOWING AREAS

<b>Waste Management</b>	<ul style="list-style-type: none"> <li>• Processes a wide range of source separated organic waste into high value products</li> <li>• Decreases mass and volume of wet organics by 70- 90% and reduces any haulage costs</li> <li>• Avoids waste levies by diverting organic waste destined for landfill</li> </ul>
<b>Energy Security</b>	<ul style="list-style-type: none"> <li>• Generates 1-5MW distributed baseload renewable electricity</li> <li>• Delivers competitively priced energy (as low as \$50/MWh<sub>e</sub>) that reduces impact of escalating fossil fuel costs</li> <li>• Produces renewable energy from sustainable local project resources</li> <li>• Replaces of diesel generation in regional areas at substantially cheaper pricing</li> </ul>
<b>Food Security</b>	<ul style="list-style-type: none"> <li>• Increases crop yields (up to 300%)</li> <li>• Reduces nitrogen fertiliser usage (up to 50%)</li> <li>• Improves water security by increasing water holding capacity in soil (up to 30%)</li> </ul>
<b>Carbon &amp; Greenhouse Gases</b>	<ul style="list-style-type: none"> <li>• Sequesters carbon into long term terrestrial sinks through production of biochar</li> <li>• Mitigates emissions from fossil fuel energy generation (qualifies for renewable energy credits)</li> <li>• Mitigates landfill emissions by diverting organic waste from landfill</li> <li>• Reduces N<sub>2</sub>O emissions from soil (up to 90%)</li> </ul>
<b>Minimise Environmental Rents</b>	<ul style="list-style-type: none"> <li>• Reduces carbon liability through generation of carbon offsets and use of renewable energy</li> <li>• Reduces run-off and nutrient leaching (from fertiliser usage) into water ways</li> </ul>
<b>Green Credentials</b>	<ul style="list-style-type: none"> <li>• Improves environmental footprint</li> <li>• Improves sustainability credentials for products</li> </ul>
<b>Land Use</b>	<ul style="list-style-type: none"> <li>• Extends the life of landfills via resource recovery</li> <li>• Increases agricultural productivity per hectare thereby reducing land required</li> <li>• Delivers land remediation and rehabilitation</li> <li>• Decreases the requirement to mine fossil fuels and new energy resources</li> </ul>



**PACPYRO** has an operational pilot demonstration facility at Somersby, north of Sydney.

The pilot demonstration facility has a capacity of ~300kg/hr of bio-mass material and powers a 250 kW electrical generator.



Investment opportunity  
please contact

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## SLOW PYROLYSIS

Slow-pyrolysis is the heating up of biomass (also known as 'organic material') in the absence of oxygen so that it thermally decomposes, without burning. The volatile components of the biomass create a combustible gas referred to as syngas. PacPyro has developed proprietary syngas clean-up technology to 'crack' any tars or condensable hydro-carbons in the gas stream, which ensures the 'clean' gas stream can run a reciprocating gas engine to generate electricity.

The solid remaining after the de-volatilisation of the biomass is char (also known as 'charcoal'). PacPyro's process results in a char with a dense carbon structure, of conjugated aromatic rings, that has a highly developed surface area. When this char product is utilised as a soil amendment, it is referred to as biochar.

## CARBON NEGATIVE TECHNOLOGY

The greenhouse gas balances across PacPyro's slow-pyrolysis projects have garnered significant interest due to their potential to be carbon negative – that is to remove carbon from the atmosphere.

Approximately half of the carbon in the biomass is converted to syngas, with the other half of the carbon stabilised in the biochar. Biochar is very recalcitrant in soils and is not susceptible to degradation in the environment by biological (soil microbes) or chemical pathways. Thus, across the life of a project, more carbon is taken up by the plants than is released back to the atmosphere and hence a net removal of carbon is achieved.

## TECHNICAL EDGE

**PacPyro's unique technical edge comes from an integrated system that :**

- Provides highly flexible and robust feedstock processing across many feedstocks including (but not limited to) municipal greenwaste, woodwaste, biosolids, manures, crop residues such as bagasse and industrial sludges;
- Produces clean 'syngas' via proprietary gas clean-up and tar cracker to meet engine specifications to generate 1 to 5 MW of baseload renewable electricity;
- Produces an engineered biochar product via its char conditioner that has been demonstrated to improve soils via extensive research trials (over 5 years);
- Meets international emissions control standards; and
- Operates continuously at low temperature and pressure, to reduce risk.

## How the PACPYRO system works

