

NZTE Investment Leads	s9(2)(a)
Sector	Green Field
Sub-sector	Waste to Energy
Sector story and objectives/desired outcomes	<p>Waste Transformation Limited (WTL) is a technology developer for the diversion and re-processing of organic and carbon based municipal and industrial waste. WTL's core technology is small scale pyrolysis which is the thermal degradation of organics in the absence of oxygen to produce charcoal and Steam from heat, electricity from producer gas, bio-oil from tar, activated carbon, wax from plastics, fuel/chemicals from tyres, soil additive from paper.</p> <p>WTL was formed in 2008 as a merger of Kilnz Bio Energy Limited and Spectionz Limited. WTL developed the technology to allow small scale pyrolysis. An opportunity to establish a Timaru plant arose from significant building waste following the redevelopment of Christchurch airport. The plant was built in late 2014 and commenced operations in 2015.</p> <p>While other products have been trialled, WTL's current focus commercially is the processing of waste timber. In New Zealand just over 3 million tonnes of waste goes to landfills annually of which 14% or 442,000 tonnes is timber (MFE 2007).</p> <p>WTL currently has one plant operating in Timaru at the landfill. Currently 30 tonnes of wood converts into 10 tonnes of charcoal and 20 tonnes of producer gas. Paper trial just complete and 1 tonne paper = 800kg carbon.</p> <p>The current plant processes around 360 tonnes of waste timber p.a. into 120 tonnes of charcoal and producer gas. Markets for these key outputs require further development.</p> <p>The Company is at the end of a lengthy research and development process. The equipment has been refined and now commissioned and meets an international standard for this type of equipment. The shareholders have invested heavily to reach this point and now require capital assistance to in the first instance complete the feasibility study then secondly secure capital to meet the objective of critical mass.</p> <p>The Study will assess the market, develop options, develop a financial model, assess risks, and bringing this all together, will make a recommendation as to whether the commercialisation should be rolled out, and if so, in what form. They currently believe there are 5 sites the Company is investigating (Dunedin, Christchurch, Nelson, Blenheim and Hamilton).</p> <ul style="list-style-type: none"> <li>• <b>Operationally</b> – development of multiple waste wood pyrolysis plants around New Zealand. New products / services based on the core technology.</li> <li>• <b>Environmentally</b> – reduction in waste, reduction in green house gas emissions (from use of charcoal, when blended with coal or woodchip), extending the life of landfills.</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Economically</b> – improved returns to investors, including iwi, improved business resilience.</li> <li>• <b>Community</b> – creation of new jobs – each plant is expected to have approximately three to four employees. There will also be employees created at the head office level in sales, management and R&amp;D.</li> </ul>
<p><b>Why NZTE?</b></p>	<p>The shareholders have invested heavily to reach this point and now require capital assistance to in the first instance complete the feasibility study then secondly secure capital to meet the objective of critical mass.</p> <p>How can NZTE best support them?</p> <ul style="list-style-type: none"> <li>• Business model development and iteration support</li> <li>• Assistance with Capital Raising</li> <li>• Identifying Export markets.</li> </ul>
<p><b>Director's support</b></p>	<p>The Pre Feasibility Study will assess the market, develop options, develop a financial model, assess risks, and bringing this all together, will make a recommendation as to whether the commercialisation should be rolled out, and if so, in what form.</p> <p>This project meets a number of Greenfield cornerstones (Maori, Market Gap, Value-add).</p> <p><b>Intended impacts are as follows:</b></p> <ul style="list-style-type: none"> <li>• <b>Operationally</b> – development of multiple waste wood pyrolysis plants around New Zealand. New products / services based on the core technology.</li> <li>• <b>Environmentally</b> – reduction in waste, reduction in green house gas emissions (from use of charcoal, when blended with coal or woodchip), extending the life of landfills.</li> </ul>

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<b>Detailed scope</b>	Please see attached.			
<b>Timeframes</b>	To be completed by no later than 30 November 2020			
<b>Anticipated cost</b>	\$NZ100,000 (excl. GST)			
<b>Potential consultant</b>	s9(2)(b)(ii)			
<b>What third parties will benefit</b>	Major shareholders (over 10%)			
	RAUKAWA KI TE TONGA AHC LIMITED	Shareholder	NZ	35%
	Pari Patrick RIKIHANA	Shareholder	NZ	24%
	KILNZ BIO ENERGY LTD	Shareholder	NZ	11%
	SPECTIONZ LIMITED	Shareholder	NZ	16%

Approved:

s9(2)(a) [redacted]  
Investment Director, Greenfield

Date signed:

s9(2)(a) [redacted]  
GM Investment

Date signed:

Released under the Official Information Act 1982

Appendix – Pre Feasibility Scope

Description	Start	End	Output		Consultant	Amount	NZTE %	NZTE Funding
<b>TECHNICAL AND FEEDSTOCK FEASIBILITY</b> <ul style="list-style-type: none"> <li>Market analysis and research (product and pyrolysis equipment).</li> <li>Will include sizing and assessing the market for waste wood pyrolysis by-products (notably charcoal), as well as the market for the pyrolysis equipment itself.</li> <li>Will also include consideration of the market for deploying the technology for other waste streams.</li> </ul>	1-Sep-20	1-Dec-20	First section of feasibility study setting out findings.	External	s9(2)(b)(ii)	20,370	80%	16,296
				Internal				
<b>COMMERCIAL MODEL AND STRUCTURE</b> <ul style="list-style-type: none"> <li>Review of existing operations and scalability.</li> <li>Analysis of comparable external business models.</li> <li>Situation analysis (external and internal), confirmation of objectives.</li> <li>Will include company SWOT analysis, company history, what has been tried previously, why the company is not cash flow positive and shareholder perspectives</li> </ul>	1-Sep-2020	1-Dec-20	Second section of feasibility study setting out findings.	External	s9(2)(b)(ii)	17,850	80%	14,280
				Internal				
<b>Phase 1 totals:</b>				External	s9(2)(b)(ii)	38,220	80%	30,576
				Internal				0
				Total amount		38,220	80%	30,576

Description	Start	End	Output		Consultant	Amount	NZTE %	NZTE Funding
<b>PRODUCT</b>	1-Oct-20	15-Dec-20	Third section	External	s9(2)(b)(ii)	26,040	80%	20,832

Assessment of the product against market			of feasibility study setting out findings.	Internal				0
<b>OPTIONS</b> Development of options for the commercialisation of the technology, including commercial models, product specifications and markets to focus on, as well as funding models.	1-Oct-20	15-Dec-20	Fourth section of feasibility study setting out findings.	External	s9(2)(b)(ii)	21,630	80%	17,304
				Internal				0
<b>FEASIBILITY AND THE WAY FORWARD</b> Assessment of the feasibility of the options developed.	1 Oct 020	15-Dec-20	Fifth section of feasibility study setting out findings.	External	s9(2)(b)(ii)	31,920	80%	25,536
				Internal				0
<b>Phase 2 totals:</b>				External		79,590	80%	63,672
				Internal				0
				Total amount		79,590	80%	63,672

<b>Total feasibility study</b>	External	117,810		80%	94,248
	Internal				0
	Total amount	117,810		80%	94,248