

Key concerns answered and technical information

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TECHNICAL EXPERT REPORTS UNDERTAKEN TO SUPPORT THE RESOURCE CONSENT APPLICATION INCLUDE:

These can be read at <https://www.projectkea.co.nz/about>.

- Human health risk assessment
- Air quality assessment
- Traffic assessment
- Landscape, visual and noise assessment
- Acoustic assessment
- Transportation assessment
- Economic impact assessment
- Waste assessment criteria
- Lifecycle assessment of the project
- Flood risk assessment
- Stormwater assessment
- Earthworks
- Operational and technical overview
- Preliminary site investigation
- Hazardous substances
- Landscape assessment
- Domestic wastewater
- Electrical safe distance
- Waste acceptance
- Groundwater and surface water assessment

Currently being undertaken

- Ecological report
- Cultural impact assessment

KEY CONCERNS PEOPLE HAVE EXPRESSED:

Air quality and emissions from the Project Kea Energy-from-Waste plant are a risk to human health and the local food chain.

Air emissions from the processing at the plant will meet the strict air quality standards set by the New Zealand Government and regional councils. Project Kea will also use the best available technology, which will include a 7-step flue gas treatment system to ensure that it comfortably meets both New Zealand's Air Quality standards and European Standards on industrial emissions.

An independent expert assessment of potential risk to human health concluded that in respect to inhalation exposures "... All risks to human health are considered negligible for the duration of the proposed plant."

They also concluded that in respect to multi-pathway exposures "All chronic risks to human health are considered negligible* for the duration of the proposed plant."

**Negligible is defined by the Oxford Dictionary as having little or no significance/impact to make a difference.*

Emissions from the plant will have a negative impact on water quality and crops grown in the area.

Expert evidence concluded: "Emissions from the proposed plant would have a negligible impact on water quality in rainwater tanks used for drinking water (and) emissions from the proposed plant would have a negligible impact on crops and produce grown in the area."



The plant is using the same technology as the one proposed for Feilding in the North Island.

The plant and its technology have no connection to any other New Zealand-based proposals, this includes recent plans to develop a pyrolysis plant in Feilding, in the Manawatū.

Water from the plant will contaminate streams and waterways.

The plant has no industrial wastewater discharge. All industrial wastewater is cleaned and recycled within the plant. It will achieve this through two separate wastewater treatment systems:

1. The treatment of **domestic wastewater**, such as showers, toilets etc., will be biologically treated and discharged into consent-approved drip fields and/or used for local irrigation around the facility landscape. This is a common, approved practice in New Zealand and is used in many businesses and homes.
2. The treatment of **industrial wastewater** will undergo stringent treatment to remove contaminants (which are then fed into the furnace) and is then 100% recycled back into the industrial process. The industrial wastewater never leaves the plant.

The plant's processes will produce considerable quantities of ash, of which some will end up in landfill.

The proposed Energy-from-Waste plant will mean annually 365,000 tonnes of rubbish will not go to landfill. In resource consent documentation we have stated 100,000 tonnes of ash produced by the plant annually will be landfilled, but only for the short term until recycled uses for ash are confirmed. The Energy-from-Waste plant will have provision for the safe recovery of recyclable metals from the bottom ash.

The fly-ash will be treated with Plasma thermal technology and the resulting inert 'glass-like slag' will be crushed and added to the bottom-ash, for potential use as roading aggregate. This material is used effectively overseas, and we are in discussions with organisations who are currently undertaking research and development on the use of the plasma treated fly ash and bottom ash in the construction industry. This will save 100,000 tonnes of ash being buried in the landfills.

Glenavy and Waimate will become a smelly rubbish dump if the plant goes ahead.

No smell will come from the plant. The waste bunker that holds the waste material for disposal is well contained in the heart of the building under negative pressure. There will be no smell emitting outside this structure.

Also, the receival hall of the plant (where the delivery vehicle unloads the waste material) is permanently under negative pressure to ensure all odours cannot escape but are drawn with the combustion air into the furnace, thus incinerating any odour elements.

CO2 emissions will only increase and any greenhouse gas savings will be cancelled out by those emissions from "...trucking the waste down to Waimate."

The Glenavy land purchased is deliberately on a rail siding with the aim of eventually achieving at least 50 per cent of the waste travelling via rail rather than by heavy vehicles by road.

The Energy-from-Waste plant will avoid the uncontrolled emissions of methane gas from landfill which has a much higher (25 times higher) global warming potential than CO2. This effect is much larger than the possible extra CO2 emission from the waste transport.

Our Lifecycle Analysis confirms that the proposed plant has a significantly lower carbon burden than an equivalent sized landfill built to today's best standards.



THE KEY TECHNOLOGY:

The facility will use proven Best Available Techniques (BAT) as imposed by the Industrial Emissions Directive 2010/75/EU including:

Odour control:	Main municipal solid waste (MSW) storage held internally under negative pressure with air flow feeding furnace for destruction of odours.
Combustion:	Utilising the latest and proven feeder, grate and combustion technology from international suppliers.
Emissions control:	Seven step emission control process ensures emissions to air achieve compliance with National Environmental Standards for Air Quality (NESAQ), Canterbury Air Regional Plan (CARP) and Industrial Emissions Directive 2010/75/EU. (Note: New Zealand coal fired boilers generally use a single treatment step).
Grate ash and metal recovery:	Magnetic and eddy current separation to recover both ferrous and non-ferrous metals. Grate ash processing to convert grate ash to aggregate product.
Fly ash conversion:	Plasma furnace treatment of fly ash to convert to an inert glass product and subsequent processing to aggregate product.
Water recycling:	100% industrial wastewater recycling with impurities removed and disposed of through the furnace process.

ALIGNMENT WITH NEW ZEALAND OBJECTIVES:

- Facility will not accept sorted recyclables as a feed stock, and therefore supports recycling activities.
- Facility will consume significantly less waste than the South Island portion of the 3,000,000 tonnes per year of solid waste which is forecast to go to landfill in the year 2035 (Climate Change Commission advice to government May 2021). Thus, the facility will not 'promote' avoiding waste minimisation initiatives.
- Transitioning waste from landfill to Energy-from-Waste facilities results in a net reduction of CO2 equivalent emissions. Electricity is generated which provides opportunity for local businesses to implement de-carbonisation strategies further supporting New Zealand's goal of reducing overall greenhouse gas emissions.
- Facility will be adjacent to the main South Island rail line and will support the objective of transitioning logistics off roads and onto rail with the delivery of some waste by rail.

KEY SOCIAL BENEFITS:

- High value jobs
- Community and regional growth
- Reduced greenhouse gas emissions



KEY ENVIRONMENTAL BENEFITS:

- Elimination of short and long-term methane generating landfills with an overall reduction in CO2 equivalent emissions
- Elimination of the leachate risk that exists with landfills
- Elimination of the future exposure and clean up risk that exists with landfills
- Elimination of the odour risks that exist with landfills
- Protection of land areas and ecosystems that would otherwise be consumed or destroyed by future landfills
- Expect to recycle 100,000 tonnes per annum of aggregate otherwise sourced from consented open cut quarries
- Recovery of 5,500 tonnes per annum of metal otherwise sourced from virgin manufacture

Note: The facility will not accept hazardous waste for disposal.

KEY ECONOMIC BENEFITS:

- Supply of 30MW of electricity into the local network as an “embedded generator” close to point of use
- Supply of steam energy to local business and encourage innovative businesses to the area
- Enabling local business growth and development
- Waimate’s economy is highly concentrated in the primary sector, accounting for 41% of the district’s jobs. The proposed plant would help the district to diversify, thereby improving its overall economic resilience and potentially reducing commuting.*
- Construction is estimated to support 359 full time equivalent (FTE) jobs per year over the two-year construction period, the majority spread across contractors, subcontractors and suppliers.*
- Construction is estimated to add \$93.9m (in 2021 prices) to the gross domestic product (GDP) of Waimate, Waitaki and Timaru annually over the two-year construction period.*

**Source – Economic Impact of Energy-from-Waste of proposed plant – Infometrics (full report on Project Kea website).*

We also are constantly updating our questions and answers on the website and they can be found at <https://www.projectkea.co.nz/questionsandanswers>.