

9 August 2024

Position statement

Domestic Biogas can be delivered to existing users faster than imported LNG

The solution to New Zealand's gas shortage sits on the country's doorstep and can come on stream far quicker than imported LNG options suggested by government ministers this week.

Brian Cox of the Bioenergy Association said importing Liquid Natural Gas (LNG) fails to provide New Zealand communities with the economic and wellbeing benefits that can come almost immediately from investing in this country's own long term biogas production.

Biogas is sourced from amassing waste streams including the likes of food, crop and wood, and when broken down release gas suitable for combustion, usually methane. Methane can also be captured from existing landfills and is often wasted by being burnt off into the atmosphere, also contributing to global warming in the process.

"Indications are that the production and supply of gaseous biofuels is likely to be a similar cost to imported LNG. Even the gas produced from existing landfills can be refined and simply injected into our existing gas pipeline," he said.

Importing LNG would mean New Zealand steps away from being self-sufficient for its gas supply and immediately becomes reliant upon overseas market prices, supply routes and availability in an increasingly energy hungry world.

Cox said biomethane produced from the likes of food waste and agricultural crop residues meets the same quality standards as gas extracted from the ground as a fossil fuel.

"Anywhere natural gas is used it can be used without any conversion costs for consumers. Any current natural gas equipment can continue to be used."

Estimates are almost ten percent of New Zealand's current renewable energy could be sourced simply by taking the biogas from waste processes and piping it into the gas grid. This would be split evenly between both the North and South Islands.

The recently commissioned Ecogas Reporoa Organics Recycling facility in the central North Island is proving the viability of biogas as a high value energy option.

"Last month Ecogas sold its first supply of biomethane to Nova Energy. The sector is well on the path for expansion, and support from Government would speed this up significantly."

Cox said an investment in domestic biogas not only saved valuable dollars being invested offshore. It also integrated well with other policies including waste minimisation, job creation, and climate change response.

“If tapped, it means NZ could produce enough biogas to represent a reduction of 3.7 million tonnes of CO2 emissions and equates to as much as 27% of NZ’s lower end of targeted gas reduction of 14m tonnes of CO2.

“None of these benefits would be achieved by importing LNG.”

The Bioenergy Association has calculated 40% of fossil gases in New Zealand could be replaced by biogases by 2050.

Cox said New Zealand has been slow to adopt the waste policies widely employed in many other countries which involve food waste being processed to make other products, rather than left for landfill.

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Additional information

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Bioenergy and biofuels sector

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1. Bioenergy has a unique point of difference from other forms of renewable energy as it is the most flexible and versatile form of renewable energy and contributes widely to the New Zealand economy. The use of biomass for energy (bioenergy) provides a fundamentally different least cost approach to achieving a low carbon economy compared to all other renewable energy forms. Biomass use and bioenergy can:
 - substitute for all fossil fuel uses for any energy application and is carbon neutral,
 - contribute to carbon storage (remove GHG from the atmosphere)
 - provides significant opportunities to address environmental issues arising from optimisation of land use (eg pastoral intensification and landfilling)
 - Provide many opportunities for regional economic growth and employment based on our under-utilised land resource.
2. Focusing on use of biomass as a valuable resource leads to new business opportunities, improved business resilience of landowners, and extraction of value from waste. Energy is often the co-product of higher value products such as regional employment, bio-based materials and more resilient land use.
3. Bioenergy is from a fully renewable resource, using proven technologies and has extreme flexibility. The processing of biomass can produce a wide range of revenue streams from application of heat; generation of electricity; use as transport fuel;

extraction of chemicals and manufacture of bio-based materials; use as bio-fertiliser; and purification of water.

4. Communities and business adopting a circular economy approach by matching local wood and waste residues as feedstock as an input to creation of products, optimises the financial viability of the business, offsets costs of waste disposal and being used to generate employment and new business that supports the local economy.
5. Bioenergy initiatives are generally highly integrated with other sectors and other activities so cross sector and all-of-government approaches are necessary. For example integrated agriculture land use for animal health management with shelter can produce revenue creating wood fuel.
6. Bioenergy could achieve greenhouse gas reductions of:
 - 1.8 Mt CO₂ -e pa from reduced use of coal and gas for process heat
 - 1.8 Mt CO₂ -e pa from reduction of methane from waste
 - 5.0 Mt CO₂ -e pa from use of biofuels in transport

These levels of greenhouse gas reduction are comparable but less cost than many of the other initiatives currently being pursued by Government.

www.bioenergy.org.nz/greenhouse-gas-reduction

7. The vision for bioenergy - Economic growth and employment built on New Zealand's capability and expertise in forestry, wood processing and bioenergy production from waste - leading to new business opportunities which by 2050 could more than double biomass energy supply up to 27% of the country's energy needs, with a consequential 15% reduction in greenhouse gas emissions*.[* compared to 2017]

Combustion of biomass for process heat

www.usewoodfuel.org.nz

1. The use of biomass fuels for process heat are proven and widely used by those with immediate access to biomass which can be used as a fuel.
2. The market for buying and selling biomass fuel by those without immediate access to their own sources of biomass builds on strong foundations.
3. The biomass fuel supply chain has a number of players but like any evolving market the New Zealand biomass fuel supply market now has cornerstone players who are expanding their supply capabilities at a fast but orderly rate so that boom/bust scenarios will be avoided.
4. Unlike fossil fuels whose quantity is finite there is potentially no reason why biomass fuel supply will be a future problem. There are many avenues for sourcing biomass such as plantation and farm forestry. The 1 billion trees programme will produce additional biomass fuel plus be a new carbon sink every 30 years by planting commercial forests. Biomass processing could be integrated at least cost (or vice-versa) with waste to energy bio-processing.

Waste to energy

www.biogas.org.nz

1. Waste-to energy results in the generation of heat and electricity through anaerobic digestion processing of residual waste streams that can not otherwise be sustainably reused or recycled and therefore diverting waste from landfill.

2. Use of residual waste streams to produce energy forms part of the circular economy.
3. New Zealand can achieve zero waste to landfill by 2040 if we start seeing residual waste as an opportunity and not a problem.
4. An ideal opportunity exists to co-locate waste to energy facilities processing organic liquid and solid waste residual waste streams with industrial heat users to displace the use of fossil fuel for the generation of heat and power.
5. An ideal opportunity exists to combine bio-processing waste with the upgrade of waste water treatment plants. These upgraded plants have the ability to generate revenue to offset operating costs for local government bodies and could progressively be developed to the point of zero residual chemical discharge to water or sludge to land.
6. Diversion of waste from landfills to waste to energy facilities reduces CO₂ and methane emissions improving air quality, enhances the economic resilience of communities through reduction in waste water treatment facility usage, reduction in landfill reliance whilst providing new offtake business opportunities through the production of electricity, heat and bio processing opportunities.
7. The technology for Bio-processing waste and waste water is well developed and the footprint is smaller than for existing sewerage processing systems employed, particularly those disposing to land.
8. Technology for treatment of both liquid and solid residual waste streams is well developed and accepted internationally and able to be utilised in New Zealand with minimal (if any) changes therefore mitigating technology risk.

Transport

www.liquidbiofuels.org.nz

1. Replacing use of petroleum for transport and manufacturing can be achieved by the extraction of biochemicals from biomass and the manufacture of new bio-based products.
2. Biofuel blends are a flexible and easily delivered renewable fuel for heavy land transport and marine engines where other renewable fuels are uneconomic or inappropriate.
3. Domestic production of gaseous and liquid biofuels from perpetually renewable natural resources will produce new employment, additional income from less productive lands, and provide future fuel supply security.
4. Storable biofuels can be used to enhance electricity security and heat demand using current proven electricity generation technologies.
5. Processing of gaseous and liquid biofuels can be readily integrated with other forms of bio-processing.