Biomethane in Aotearoa

Biomethane is a renewable gas that can support decarbonisation and economic growth by providing an alternative to natural gas, produced using New Zealand's abundant organic waste.

The basics

Biomethane is a renewable gas that can be used as a direct replacement for natural gas without increasing New Zealand's emissions.

Organic waste is placed in an anaerobic (oxygen-free) digester.

As the waste breaks down it naturally produces biogas.

The biogas is captured and upgraded to biomethane which can be used in existing gas infrastructure and customer appliances.



The potential

The 290,000 homes and 16,000 businesses connected to natural gas use 7.2PJ and 7.7PJ respectively.

New Zealand could produce up to ~23.5PJ of biomethane annually, more than needed for residential and commercial use.

Collaboration across the waste, agricultural and energy sectors can unlock the potential to create a circular wasteto-energy system that creates revenue streams from waste while reducing emissions.

It has a proven track record internationally.

Biomethane currently provides 39% of Denmark's gas needs, with a target of reaching 100% by 2035.

The benefits

Environmental

Producing ~23.5PJ of biomethane could reduce emissions by 3.7MtCO2-e by 2050.

Diverting organic waste to biomethane production could achieve 23% of the 3.3 Mt target for waste-to-landfill reduction.

🞽 Economic

Creates potential lower costs or new revenue streams for solid waste management and waste water management.

Provides choice for consumers about switching to electricity, saving up to \$7.9 billion in appliance and building conversion costs from mandated switching.

Useful by-products include organic fertiliser and carbon dioxide, reducing dependence on imports for these products.

Energy

- Can be used in existing gas infrastructure and consumer appliances.

Frees up natural gas for uses that are harder to electrify such as industry and electricity generation.

- Keeps diversity and consumer choice in the renewable energy solutions mix.

Eases electrification investment. Up to 4,160GWh more electricity generation

- would be required annually to supply the homes and businesses currently using natural gas (the equivalent of two Clyde dams).

Producing ~23.5PJ of biomethane could contribute 9% of the increase in renewable energy needed to reach 50%.

The enablers

Biomethane is already being produced in New Zealand. But without a clear energy strategy, investment and uptake is hindered. Strong collaboration across the waste, agriculture, water and energy sectors, and confidence to invest are needed to commit to producing biomethane at scale.

Three key Government actions

- 1. Endorse biomethane as a key solution for renewable energy, emissions reduction, and waste targets through:
 - explicit endorsement in government renewable energy strategy and national policy such as RMA changes.
 - setting a renewable gas target.
 - ensuring any economic regulation of gas pipelines provides certainty for their long-term viability.
- 2. Introduce regulatory incentives such as:
 - higher waste levies to divert organic waste from landfills.
 - reporting on biogas capture at wastewater treatment plants in new water regulation.
- 3. Facilitate government sector understanding and adoption of renewable gases by setting a biomethane procurement target in hospitals and schools to drive demand.

For more information contact

David Hendry Head of Renewable Gas renewable.gas@powerco.co.nz

