

New Zealand Integrated Bioenergy Programme: A domestic solution to complement importing LNG

Submitted by the Bioenergy Association of New Zealand (BANZ)

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1. Executive Overview

New Zealand faces an urgent need to secure affordable, reliable, and low-emission alternatives to imported LNG. The Bioenergy Association of New Zealand (BANZ) proposes an integrated, nationwide co-investment bioenergy programme that delivers energy security outcomes as of that of the LNG option, however faster, at lower cost, and with broader national benefits. The New Zealand Integrated Bioenergy Programme will target 13.5 PJ of sustainable energy annually by 2030 (see Table 1 and the Appendix), and brings together mature bioenergy initiatives across wood energy, gaseous biofuels, and feedstock infrastructure under a coordinated delivery framework. It represents a practical, 'Made in New Zealand' solution that enhances energy resilience, accelerates decarbonisation, and drives regional growth.

2. Strategic Rationale

The Frontier Economics review identified imported LNG as a last resort measure to manage energy supply gaps. Prioritising domestic renewable energy sources, such as bioenergy, offers a faster, lower-cost and lower-carbon path to energy security. Bioenergy can free up natural gas and electricity capacity, supporting grid resilience during dry years or supply interruptions. This programme leverages near-investment-ready projects and coordinates them into a single, scalable model that can deliver measurable results by June 2027.

This programme aligns with the findings and recommendations of the Optima work carried out after the Minister requested a list of large gas users who could switch away from gas in the short-to-medium term. It could form a key plank of their suggested 'Energy Transition',

3. Programme Framework

The Integrated Bioenergy Programme combines multiple bioenergy workstreams to accelerate delivery and achieve national-scale impact. The approach addresses through co-investment a key market barrier, the high capital cost of biomass equipment, and consolidates projects into a unified governance and delivery structure. The programme proposes an initial focus on the North Island, which will establish coordinated biomass and organic waste supply systems, creating replicable models for later South Island rollout.

Governance will be led by a dedicated steering group chaired by BANZ and comprising EECA, GasNZ, WastMINZ, MEUG and representatives from the forestry, and wood processing. BANZ will manage the programme with a professional project team, ensuring transparent oversight, milestone delivery, and clear reporting to MBIE and the Minister of Energy.

4. Programme Workstreams

The programme brings together three complementary workstreams that collectively deliver an integrated, low-carbon energy system:

- I. **Wood Energy:** Converting government and industrial heat plants from fossil fuels to wood-based energy. This includes bulk procurement of wood fuel and support for wood-fuel supply side and domestic pellet manufacture, including supply for Huntly Power Station and large industrial users. This can deliver 13PJ annually by 2030.
- II. **Gaseous Biofuels:** Developing anaerobic digestion facilities for biogas and biomethane production at regional hubs, with demonstration sites producing renewable gas for grid injecting and network use. This can deliver 0.5PJ by 2030 whilst delivering on WasteMINZ and circular economy objectives.
- III. **Enabling Projects:** Establishing regional biomass supply plans, model fuel supply contracts, and expanded infrastructure for feedstock collection, processing, and logistics.

Table 1: Bioenergy initiatives alternative to import of LNG – for 5 year period (2026-2030)

		5 Year Budget	Quantity of gas freed up
I. Wood Energy Projects			
1	Converting govt owned facilities from natural gas to wood fuel (total current market size : 1.8PJ)	tbc	1PJ
2	Converting industrial natural gas users to wood fuel (total current market size : c38PJ)	\$300m	6PJ
3	Huntly biomass	tbc	6PJ
II. Gaseous biofuel projects			
1	Installing two AD demonstration plants to produce biogas for own bioheat.		0.5PJ
2	Identifying and establishing regional organic recycling facilities producing biogas/biomethane		tbc
III. Enabling projects			
	Development of regional biomass demand/supply plans.		
	Provide guidance for contracting to supply biomass to wood fuel suppliers. Develop model contracts.		
	Support establishment of regional wood fuel supply infrastructure. Support expansion of number and capabilities of accredited wood fuel suppliers.		
	Support development of capabilities of Wood Energy Advisers. BANZ hosts a register of Wood Energy Advisers who meet competency criteria.		
	Development of regional organics database.		
	Support construction of black & white pellet manufacturing plants.		

5. Benefits and Outcomes

This programme provides equivalent or greater benefits than the proposed LNG import solution, with far broader national advantages:

- **Energy Security:** Frees up natural gas and electricity capacity, assisting resilience during dry years or peak demand.
- **Regional Development:** Creates skilled jobs and stimulates forestry, wood processing, and waste sectors.
- **Domestic Value Creation:** Keeps investment and employment within New Zealand through use of local biomass and waste resources.

- Economic Efficiency: Delivers energy at less than half the cost of natural gas or electricity, stimulating industrial competitiveness.
- Climate Leadership: Provides a carbon-neutral or negative fuel supply using stored solar energy.
- Replicability : Establishes a framework for expansion to the South Island.

6. Government Partnership and Alignment

The success of the Integrated Bioenergy Programme relies on a strong industry–government alliance. BANZ proposes that government support focus on strategic co-investment and enabling policy measures, including:

- Accelerated depreciation and financial instruments for renewable heat and gaseous fuel projects.
- Streamlined consenting processes for biomass and biogas developments.
- Targeted funding support tied to performance and emission reduction outcomes.
- Government procurement policies that prioritise renewable heat.
- Support for regional biomass coordination and supply-chain development.

These measures directly align with MBIE’s Accelerated Delivery Solution objectives by fostering rapid, scalable, and low-risk deployment of domestic energy infrastructure while enhancing long-term resilience and decarbonisation.

7. Implementation and Timeline

The Integrated Bioenergy Programme is designed for accelerated delivery with measurable results by mid-2027, and substantial further results over the 5 year timeframe. (13.5PJ freed up natural gas and electricity capacity).

Projects across the North Island will establish operational regional bioenergy systems, while concurrent enabling actions expand feedstock supply and industry capability. The programme’s success will lay the foundation for continued growth and expansion into the South Island, replacing fossil fuels with renewable, locally produced energy.

8. Indicative Co-Investment and Funding Structure

The Integrated Bioenergy Programme is structured to deliver national-scale energy security and decarbonisation benefits through an efficient, co-funded investment model. Based on comparable international programmes and the scope of the proposed New Zealand initiative, the estimated cost envelope is outlined below.

Component	Description	Indicative Cost (NZD)
A. Programme Governance & Delivery	Project management team, coordination, reporting, communications	\$3m over five years
B. Biomass Supply side	Assist establishment of biomass supply side for aggregation, processing and storage	5 sites at \$4m each = \$20m
C. Wood Energy Conversions	Conversion of gas users to biomass with assistance of simple-criteria co-investment grant and/or other financial assistance	\$150m would deliver 3PJ/yr \$300m would deliver 6PJ/yr
D. Gaseous Biofuel Projects	Two anaerobic digestion/biomethane demonstration plants, organic waste collection and upgrading infrastructure	\$20 – \$25 million
E. Enabling Projects	Regional biomass supply planning, model contracts, black and white pellet support, and training of Wood Energy Advisers	\$5 – \$10 million
F. Contingency & Co-Investment Reserve	Allowance for inflation, regional cost variance, and co-funding leverage	\$5 – \$10 million

Total \$203m-\$368m

Total indicative programme envelope: \$203 – \$368 million over five years (2026 – 2030). The payback on this investment would be significant :

- Every \$1m co-invested by the Gov't would free-up around 20,000GJ of gas per year (assuming \$1m co-investment per MW)
- Thus \$300m co-investment delivers 6PJ, being 50% more than a mid-scale LNG project
- It would also save NZ industry c.\$120m per year* resulting in a \$33m/year higher tax take
- Industry would be better positioned to survive and indeed grow, generating further revenues
- Further payback would be realised from the multiplier effect, avoided debris clean-up etc
- Energy Resilience and other 'soft' benefits would also be realised (such an increased international credibility regarding Paris commitments etc).

Government support is expected to represent around 40–50 % of total investment through targeted grants, concessional finance, and enabling policy measures, with the balance provided by private and industry co-investment. Similar regional bioenergy programmes in Canada and Europe (e.g., Finland, Denmark) have comparable biomass-to-energy integration project costing.

This structure aligns with international bioenergy programme benchmarks and New Zealand's renewable-heat and ETS funding frameworks. It ensures every dollar invested delivers both energy security and long-term regional economic value while avoiding redundant or duplicative expenditure.

** Note : This is based on former gas users paying \$20/GJ for 6PJ's of wood energy (\$20/GJ being an average of pellets and wood chip) versus the counter-factual of paying c.\$40/GJ for natural gas / LNG usage.*

9. Conclusion

The New Zealand Integrated Bioenergy Programme offers a timely, practical, and nationally significant solution to the country's energy security and decarbonisation challenges. It provides a "Made in New Zealand" alternative to LNG imports, one that delivers supply resilience via 13.5PJ's of new renewable energy use, with faster deployment, lower costs, and enduring economic and environmental value.

Through a coordinated, industry-led framework, the programme will mobilise mature bioenergy projects, build regional biomass and organic resource supply chains, and accelerate renewable fuel adoption across the country. It positions bioenergy as a cornerstone of New Zealand's clean energy transition, supporting the Government's objectives for energy reliability, emissions reduction, and regional development.

BANZ and its partners are ready to work with MBIE and the Government to deliver this integrated, investment-ready programme. Together, we can unlock New Zealand's domestic bioenergy potential — strengthening energy independence, creating high-value regional jobs, and building a resilient, low-carbon future for all New Zealanders.

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**Appendix : Five year phasing of transition of 7PJ of natural gas usage to wood-based energy
(6PJ of industrial users, 1PJ of Government use)**

a	b	c	d	e	f	g	h	i	j	k	l
No. of Sites	Size Category *	% of Total	Annual Gas usage (GJ)	% of gas usage targetted to be freed-up	Expected phasing of installation of new biomass boiler capacity (MW)					Total MW of biomass boilers required	Gas Freed-up (PJ's)
					2026	2027	2028	2029	2030		
8	Over 1,000,000GJ	44.7%	17,122,077	19%	10	20	30	45	60	165	3.32
18	300,000-999,999GJ	21.1%	8,086,717	19%	5	10	15	20	25	75	1.51
33	100,000-299,999GJ	14.1%	5,400,799	15%	4	5	10	10	10	39	0.79
90	30,000-99,000GJ	12.2%	4,683,399	19%	3	6	9	12	15	45	0.91
121	10,000-29,999GJ	5.7%	2,192,809	18%	2	4	4	4	6	20	0.40
199	0-10,000GJ	2.2%	858,893	8%	0.5	0.5	1	1	1	4	0.07
469		100%	38,344,693	18.3%	25	46	69	92	117	348	7.00

* Note : This breakdown is based on EECA's RETA database.

Comments :

1. As per column e, this co-investment programme would convert <20% of natural gas usage (18.3% of total).
2. The 5-year programme would deliver c.348MW (column k), being an average of 70MW of boiler capacity per year.
3. An average of 125MW of boiler capacity has been installed over the last 3 years (see table below).
4. This has delivered approximately 7PJ of new renewable energy – the same as this co-investment would deliver.

Average of 125MW of biomass capacity over last 3 years

Source : EECA

Project Year	Projects	New Fuel Capacity (MW-th)	Annual New Biomass Requirement (GJ p.a.)	Average Boiler Size (MW)
2020	2	49	1,024,664	24.5
2021	8	10	10,181	1.25
2022	19	56	926,562	3
2023	35	175	2,262,604	5
2024	38	85	775,685	2.2
2025	22	110	1,896,131	5

124

485

6.9PJ

3.9

Tonnes of Log equivalent : 850,000T