OPINION: Why we're still struggling with bioenergy

Brian Cox *
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Despite abundant resources and clear energy security and climate benefits, uptake of bioenergy remains slow.

Bioenergy has long been touted as one of New Zealand's most promising renewable energy options. It offers regional jobs, improved energy security and a productive use for the vast quantities of forestry residues or an alternative pathway for organic materials that currently go to waste.

Given the benefits, the obvious question is: *why isn't bioenergy more widely adopted already?*

Supply chain

Currently, 8 per cent of energy supply comes from bioenergy, mainly biomass with some small amount of biogas production from organics.

Unlike solar or wind energy, which can be delivered through relatively simple development models, bioenergy depends on a complex network of participants.

To turn a pile of forest residues into usable heat or fuel, several groups must coordinate - forest owners, harvesting contractors, processors, residue aggregators, transporters and the organisations that ultimately use the energy.

A similar level of collaboration is required to produce biogas and biomethane from organic waste. Farmers, food processors, waste-collection companies, network operators and energy retailers must all align on feedstock supply, plant operation, gas upgrading, grid injection and long-term offtake agreements.

Without that alignment, even well-designed projects struggle to reach commercial scale.

In New Zealand's small market, collaboration can be surprisingly difficult. Even when businesses want to cooperate, they often face heightened caution around coordination, competition law and commercial confidentiality. This creates friction that simpler renewables don't have to navigate.

It is important to remember that bioenergy offers a fundamentally different value proposition from solar and wind.

Unlike these intermittent technologies, bioenergy can provide continuous, reliable energy and strengthen New Zealand's overall energy security, along with significant community benefits which are not seen with wind or solar.

Private returns

Bioenergy delivers regional economic activity, supports local jobs and reduces reliance on imported fuels.

Yet few of these advantages can be captured directly by the organisations investing in the bioenergy systems.

That mismatch limits private investment, making it hard to demonstrate a clear return on investment.

Globally, government co-investment has bridged this gap, in return for obtaining the community benefits.

New Zealand has done the same in the past, most notably through the Government Investment in Decarbonising Industry (GIDI) fund, in which co-investment worked well. The private sector secured access to commercial returns and the Government secured community and climate benefits.

The recent slowdown in government investment to secure community benefits such as energy security and improve regional employment has created uncertainty for the private co-investor and is already dampening the pipeline of new projects.

If the bioenergy market is left to evolve naturally, it will grow but only slowly.

Much of the progress over the past decade has been driven by past government support. This has helped the sector establish best-practice guidelines, technical standards and a solid information base for new entrants.

Government backing would help remove many of the remaining market barriers. Private investors cannot monetise the wider industry-development benefits that bioenergy delivers, as these are shared across communities and regions.

These market failures are most effectively addressed through targeted government assistance.

Risk

Across Canterbury and Otago, where stable wood-fuel markets have existed for more than a decade, major users have already proven the model works.

Christchurch Hospital, the University of Canterbury and several dairy processors demonstrate reliable, long-term bioenergy supply chains.

Elsewhere, however, confidence is weaker. New entrants often struggle to understand how to participate in the market. Mismatches occur between expected and actual fuel pricing due to limited market information. Consultants, many trained in more conventional energy technologies, can be unfamiliar with modern biomass or biomethane systems, leading to conservative or sometimes inaccurate advice.

These are symptoms of a maturing market, but they are often perceived as fundamental flaws.

In practice, bioenergy can be one of New Zealand's most resilient renewable options. Feedstocks can be sourced locally, energy supply can be contracted directly between producers and users, and production capacity can expand far faster than electricity infrastructure.

But until confidence catches up with capability, uptake will continue to lag.

Two islands

The South Island remains far ahead of the North in adopting biomass as a source of energy.

Strong regulatory pressure to phase out coal, combined with early investment in fuel-supply businesses, has created a relatively mature and reliable market.

The North Island, powered for decades by comparatively cheap natural gas, is only now facing the same decisions. As gas supply tightens and price volatility increases, industries and public institutions are looking for alternatives.

For biogas and biomethane, the development curve is flatter across the country, reflecting an emerging industry still finding its footing. It is notably suitable for gas transition, but it continues to lag in terms of the nationally coordinated approach which we have seen and which has been pushed in the biomass workstream.

Growth

Bioenergy is not held back by technology, but by market confidence, coordination and capability.

Better information, stronger supply-chain partnerships and ongoing policy clarity could unlock significant rapid national growth.

Once these bottlenecks ease, advocates argue, bioenergy could become a cornerstone of New Zealand's energy transition, offering renewable heat and fuel that is not only sustainable, but secure and locally sourced.

***Brian Cox** is the executive officer of the Bioenergy Association.*