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Discussion from the Convenor of the Solid Biofuels Interest Group

The multiple benefits for NZ of not blindly going down the "Electrify Everything!" path

Introduction

There is an increasingly prevalent push towards electrifying all categories of New Zealand's energy (power, transport, heat). This agenda is promoted by various influential parties such as power companies and consultants who specialise in electrification of industrial heat. This bias, and the lack of sufficient influential lobby groups to add counter-balance, has resulted in electricity being seen by many as the elusive silver bullet to decarbonisation. This approach ignores NZ's unique situation, and is to the detriment of our GDP and ultimately our energy resilience.

Transport fuels may be the energy-type most suited to electrification. However to electrify everything, including industrial heat, is ignoring the significant role that biomass can play in NZ's decarbonisation pathway. Biomass boilers offer multiple advantages, including the following:

- **Cost-effective decarbonisation** Biomass can deliver heat at a lower cost than electricity, as shown by the projects awarded grants by the GIDI fund, where the cost per tonne of abatement is significantly less for biomass projects than for electrification of heat. Use of biomass fuel from making heat can release electricity to be used for its highest value applications.
- **Diversity of supply** With more extreme weather events (including Dry Years) energy resilience will be increasingly important. Wood fuel is stored solar energy that can be released 24x7 – so it effectively offers what is known as 'dispatchability' in the power sector.
- **Reduced exposure to intermittency** that arises from a higher proportion of wind and solar projects, which are both subject to the vagaries of the weather. Having a large fleet of 'dispatchable' industrial wood-fired boilers relieves the load on the power grid – and could effectively represent the equivalent of several Huntly power stations. As the proportion of wind and solar grows these virtual power stations will be increasingly valuable
- **Reduction in need for fossil 'peakers'** For the foreseeable future and until adequate quantities of biomethane is available to replace fossil gases, it's likely that peak electrical demand will have to be met with fossil fuel peaker plants. The resulting emissions, though far away off-site, mean that electrode boilers may not be so clean after all. This requirement is likely to only get worse when greater intermittency combines with longer droughts to deliver a double-whammy.

- **Dry year hydro firming.** Genesis Energy has shown that the Huntley Power Station can be refuelled on biomass fuel so that it can continue to provide a firming role when the hydro lakes have inadequate water stored to provide secure electricity supply.
- **Beneficial use of forestry by-products** We already have significant biomass waste streams such as forestry slash (e.g. Tairawhiti region). A greater role for bioenergy can only lead to greater slash clean-up with the associated social & environmental benefits.
- **Surety of supply** Wood fuel supply chains in NZ are back-stopped by a large sustainable forestry industry, with a plentiful supply of fibre that can be diverted to boiler fuel/energy for the right price
- **Diversifying demand for Logs** NZ exports over 20 million tonnes of unprocessed logs every year, equivalent to approx 150PJ's of energy. Around 90% of these logs head to China, leaving the industry very vulnerable to economic and geo-political shocks. Using low value export logs for bioenergy would provide another market, a market that is consistent & reliable, protecting jobs. We would only need to divert around 30% of those export logs to de-carbonise every single industrial gas and coal boiler in NZ !
- **Available even in remote sites** Yes there may be regional supply/demand imbalances, but the maths shows that wood fuel can be trucked over 300km (so from any 'remote' forest to an equally remote heat user) and the CO_2 from that truck's diesel would only constitute around 2% of the abatement delivered by the wood fuel in the truck. So it would still be around 98% carbon-neutral, and every single truck-load is equivalent to removing 12 cars for a year !
- **De-carbonising other sectors** Biodiesel (maybe even from export logs ?) can provide the most rapid wins when it comes to decarbonising our fishing and coastal shipping fleets, as well as other hard-to-electrify machinery (such as logging equipment etc).

Summary

The features listed above are all advantages that the "Electrify Everything!" strategy cannot readily deliver. A sizeable role for wood energy increases the chances of having enough electricity available to keep the lights on, run machinery, and de-carbonise the transport fleet. Electricity and biomass have different strengths and weaknesses but can both make valid contributions to achieving NZ's 2050 Net Zero goal, and so need to be seen as complimentary.

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