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Subject: Submission on consultation document:
"Process Heat in New Zealand: Opportunities and barriers to lowering emissions"

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9(2)(a) [redacted]
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1. I agree that process heat is an area where transition from use of coal and natural gas can provide significant reduction in greenhouse gas emissions reduction by 2050.
2. Woody biomass derived from forest harvesting residues and other sources is a significant potential fuel resource. This has been assessed and described. It has also been mapped, along with coal and gas heat demand points. Opportunities worthy of more detailed assessment on a site by site basis have been made. The MBIE funded Wood energy Industrial symbiosis study identified over 50 sites throughout New Zealand with a potential of up 750,000 tonnes of GHG reduction based on replacing coal with wood fuels.
3. The report identifies a lot of barriers and reasons for not changing – there is little comment on the opportunities, benefits and means of achieving them. Many opportunities exist, and co-firing of biomass has real potential. Upgrading of biomass (torrefied wood or steam exploded wood pellets) to better fit the coal fired infrastructure is not considered at all. This is a substantial oversite.
4. The Bioenergy Association has identified that the wood energy sector could transition 20PJ of process heat from coal and gas by 2050, resulting in annual greenhouse gas emission reductions of 1800 kt CO_2-e pa[1]. In addition 4.6PJ of energy could be obtained from organic waste and this would reduce greenhouse gas emissions by 1811 kt CO2-e pa by 2050 .
5. The discussion document focuses on the large scale heat plant where many of the issues raised are barriers because the low carbon fuel markets are still emerging. Given the distributed nature of the woody biomass resources, looking at where the coal demand is located in relationship to the wood supply is much more focused on actual opportunities.
6. By focusing only on large heat plant the discussion focused on the most difficult issues and overlooks less challenging opportunities.
7. It is disappointing that the document ignores the opportunities for using waste for process heat. Treatment of waste by anaerobic digestion to make biogas for process heat is a proven technology and waste is readily available. Food processors have an opportunity to adopt circular economy principals to their business and use their organic wastes to produce their on-site energy. This is a significant gap in the consultation document.
8. The discussion document does not appear to consider future natural gas supply.

[1] Bioenergy Association Information Sheet 48 – Reducing greenhouse gas emissions to achieve "Zero carbon by 2050" using biomass energy for industrial and commercial heat. https://www.bioenergy.org.nz/documents/resource/Information-Sheets/IS48-GHG-reduction-using-wood-energy-190124.pdf

9. An integrated approach across sectors and supply and demand needs to be considered, as well as changes over time, including the impact of the 1billion trees programme which may provide future biomass supplies. The discussion document makes an assumption that the transition to a low emissions economy is going to be based on further reductions of the emissions from transport and process heat and then focuses on the barriers to the process heat market.
10. Future expansion of wood processing is not mentioned, NZ could process another 10M m3 per annum (currently 14 to 15M m3 per annum). If this new plant was well planned it could provide process heat to other industries (meat, dairy and other food processing.
11. The productivity commissions report on a low carbon economy highlighted the need for a major expansion of forests for carbon sequestration. Sustainable management of a an expanded plantation forest estate can give both substantial sequestration and a long term supply of biomass for energy. This should be considered as a substantial opportunity.
12. An approach of thinking holistically across range of sectors and programmes (1B trees, low carbon economy, PHiNZ) will identify greater opportunities.

Some barriers to the use of biomass for supplying heat are:

- Until recently energy policy has been focused on electricity and heat has been ignored. Frequently the term energy is used when the speaker means electricity. Process heat needs its own focus, although preferably aligned with electricity.
- Good fundamental data on process heat demand and trends. The heat plant database and the Energy end-use database are both out of date and have insufficient detail.

Gaps

There is little or no mention of combined heat and power (CHP). There is an opportunity for many of the heat plants operating to convert to CHP overtime. For example; Red Stag sawmill (Rotorua) expansion, with additional CHP on top of their existing plant. A new wood processing plant with a CHP could be symbiotic with other process and electricity users.