

Minerals West Coast
P.O Box 77
Greymouth
manager@mwc.org.nz

28th February
2020

Minerals West Coast submission on discussion document: *Accelerating renewable energy and energy efficiency*

Introduction

1. Minerals West Coast is a charitable trust representing the minerals sector on the West Coast. Our mission is to promote, encourage, and support the mining industry on the West Coast. We are governed by a group of voluntary trustees, most of whom have a direct interest in the industry in the region.
2. Our members include gold and coal mining companies, as well as those with an interest in quarrying and earthmoving. These businesses range from small scale, solo operators, to larger firms employing anywhere up to one hundred staff across different sites, as well as New Zealand's largest mining companies. Other members include training institutes, engineering and mechanical support services, and geologists.
3. It's estimated the West Coast minerals sector employs about 600 people directly, in doing so supporting about as many contractors and support units. Mining jobs in the region pay about double the median annual salary, and in total the sector contributes to about 7% of regional domestic product. The median annual salary in the mining sector is \$80,020. Accommodation, for comparison's sake, pays about \$20,790, half the median salary.
4. In 2018 the West Coast coal fields produced 177,028 tonnes of thermal coal, and 1,321,908 tonnes of metallurgical coal for export, primarily for steel manufacturing

Summary

- Minerals West Coast supports the government's stated target of being carbon neutral by 2050, provided this is not simply achieved by sending our climate emissions offshore (i.e. making fossil fuel use unviable domestically while pushing production offshore). For example, two decades ago, New Zealand was self-sufficient in cement, now domestic production from one site meets 60% of our needs, and the shortfall is met with imports¹.

¹ (Evans, 2020)

- Minerals West Coast believes issues of food security, energy security, supply to strategic resources, and national as well as regional prosperity must be taken into account in any legislation passed.
- New Zealand's emissions profile is unusual by comparison with other OECD nations, and while coal's role in meeting our energy demands is very small, it is nonetheless, crucial.
- Coal emissions in New Zealand are at/or below (fluctuating year to year) what they were in 1990.
- The government has ignored feedback received from industry through consultation on the discussion document *Process Heat in New Zealand: Opportunities and barriers to lowering emissions*. This would seem to show the arguments made by many submitters, particularly energy intensive businesses and industries, carry little weight with the government.
- There seems to be a prejudice against coal disproportionate to its contribution to New Zealand's gross emissions.
- There is inconsistency with this approach and the approach to other fossil fuels. The government either wants to push the price of fossil fuels through the roof to the point where neither industries nor individuals can afford to burn them, or it does not. The day this submission was due (27th February 2020) the government boasted how it can achieve price reductions of 'between 10 and 30 cents a litre'², and saying 'cheaper prices should start flowing through to the pump by the end of the year'³.
- An interesting approach, given transport emissions make up half of New Zealand's energy related emissions, and of this, private lights vehicles are the main emitter.
- This document's proposals on coal will not just impact coal producers and coal consumers at a business level. It will impact New Zealand as well as New Zealanders, not merely through almost certain job losses as some activities become economically unviable, but through an increase in the cost of basic goods, namely meat, dairy, and vegetables, and heating in schools, hospitals, and universities and other public buildings as energy costs rise.

Question 4.1: Do you agree with the proposal to ban new coal-fired boilers for low and medium temperature requirements?

No. This is an unnecessary intervention. At the time of writing, there are no economically feasible or practical alternatives to coal in process heat for the vast majority of New Zealand coal users falling into the category of low and medium temperature requirements predominantly in South Island for food production – namely dairy processing, meat products, and hothouse horticulture, for example: tomatoes; capsicums; cucumbers; zucchinis; and eggplants.

Both the bans on new plant, and existing plant (see response to question 4.2) are reckless. We say they are reckless, as it requires the government to be certain of technological

² (Radio New Zealand, 2020)

³ (Radio New Zealand, 2020)

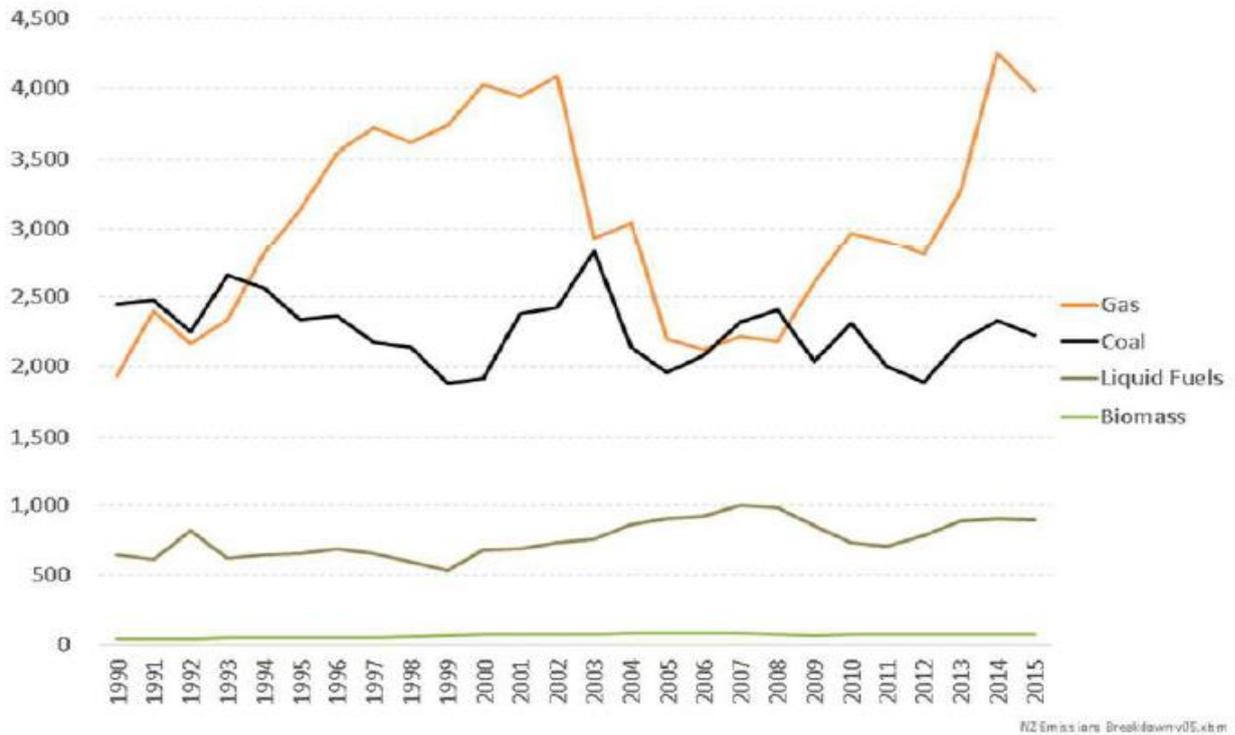
breakthroughs of which it can't possibly be sure. In response to ***Process Heat in New Zealand: Opportunities and barriers to lowering emissions***, the government received feedback from industry stating issues with woody biomass and electricity, lack of access to natural gas in the South Island and parts of the north, and that hydrogen simply has decades to go before it will be commercially available.

Given the government can't be sure of alternatives being available, it is reckless disregard for the wellbeing of New Zealand's communities, particularly in rural areas, who depend on food production and other manufacturing for their economic wellbeing and jobs in their communities. A ban on new plant also means modern, more fuel efficient and therefore less emissions intensive plant cannot be brought online, and places those already in possession of coal powered plant in an unfair competitive position over potential new manufacturers or processors trying to establish in the same industry.

The graph below was prepared by Concept Energy for the Parliamentary Commissioner for the Environment in September 2017⁴. As can be seen, coal use in process heat is at/below similar levels to the year 1990, notwithstanding fluctuations. According to MBIE data, in 1990 coal use in process heat emitted 2,672,200 tonnes of CO₂e, and in 2018 the figure was 2,274,189 tonnes of CO₂e.

⁴ (Concept, 2017)

Figure 46: Line-chart of historical industrial process heat greenhouse emissions (ktCO₂-e)



Source: Concept analysis using MBIE and EECA data

It must be asked whether restrictions on coal-fired boilers are necessary. There is no discernable issue with a growth in coal emissions, which represent, with some year to year fluctuation, 4% of New Zealand’s greenhouse gas emissions. In 2017, New Zealand’s gross greenhouse gas emissions were 80,853,000 tonnes of CO₂-e⁵, of which coal in process heat accounted for 2,218,420 tonnes of CO₂-e⁶, or 2.74%. In 2016, coal met 33.8% of the energy needs of indoor cropping⁷, 54% of energy requirements for the dairy industry⁸ nationwide and 89% of the dairy industry’s energy requirements in the South Island⁹, and 31% of the energy requirements for manufacturing meat and meat products¹⁰. Coal use in the production of many of these goods falls within the low and medium temperature requirements as outlined in the discussion document.

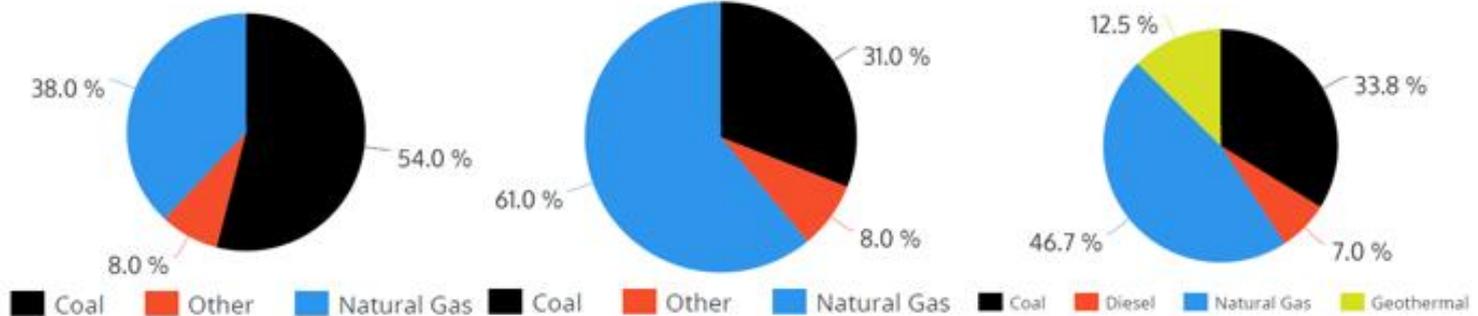
⁵ (Ministry for the Environment, 2019)
⁶ (Ministry of Business, Innovation, and Employment, 2019)
⁷ (Ministry of Business, Innovation, and Employment, 2019)
⁸ (Ministry of Business, Innovation, and Employment, 2019)
⁹ (Ministry of Business, Innovation, and Employment, 2019)
¹⁰ (Ministry of Business, Innovation, and Employment, 2019)

Energy consumption by fuel in food producing sectors, 2016 (based on MBIE process heat fact sheets)¹¹

Dairy manufacturing energy consumption 2016 (total 28.4 petajoules)

Meat and meat product manufacturing energy consumption 2016 (5.2 petajoules)

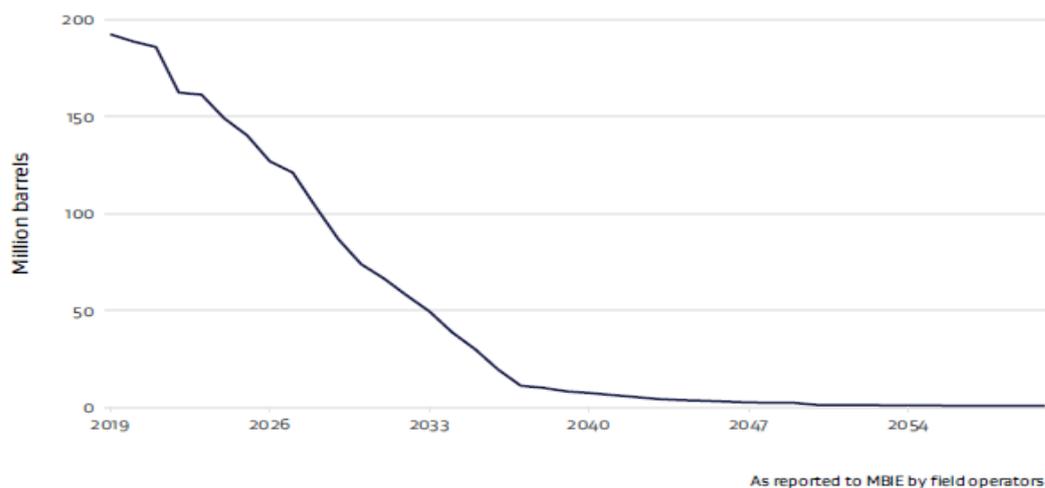
Indoor cropping energy consumption 2016 (total 3.4 petajoules)



Please note other refers to some mix of LPG, fuel oil, wood, diesel, or geothermal.

It is worth noting where coal is not used in these sectors, its place is largely taken by natural gas, which is only available in the North Island. Due to the government’s oil and gas exploration ban and diminishing resources in existing wells, production will be significantly lower within fifteen years¹² and nonexistent within twenty¹³, leaving North Island industry to fall back, presumably, on coal imports.

Figure E.7 Forecast gas production profile



Manufacturing of steel and cement is also dependent upon coal, but as these are within the arguably arbitrary high end use temperature category decided by government (more than 300°C), they fall outside the scope of this discussion document.

¹¹ (Ministry for Business, Innovation, and Employment, 2019)

¹² (Ministry of Business, Innovation, and Employment, 2019)

¹³ (Ministry of Business, Innovation, and Employment, 2019)

Dairy processing, meat processing, and indoor cropping alone account for direct employment of 13,000, 25,000, and 2,400 people respectively, to say nothing of export revenue generated and employment throughout the wider economy, as well as providing New Zealand with secure food supply.

To halt the production of new equipment beyond 2030 stifles the ability of new players to enter these sectors, and also prevents the building of newer, more efficient plant that will be less carbon intensive than what it replaces.

Q4.2 Do you agree with the proposal to require existing coal-fired process heat equipment for end use temperature requirements below 100 degrees Celsius to be phased out by 2030? Is this ambitious or is it not doing enough?

No, we do not agree. As outlined above, coal's role within the economy, especially in the South Island, is indispensable. In South Island dairy processing it accounts for 89% of energy needs¹⁴. If the government is happy to see certain industries shut down, jobs lost, and New Zealand's ability to feed itself and export food, then there is no issue with implementing a ban as described in the discussion document. It is worth noting emissions reductions will be negligible, *potentially leading to increases in overall global emissions if production simply moves offshore*, but the cost to communities, businesses, consumers, and staff will be brutal. By way of context, in 2015, New Zealand's gross greenhouse gas emissions were 80,200,000 tonnes of CO₂-e¹⁵, and coal within low temperature heat requirements constituted 595,988 tonnes of CO₂-e¹⁶, or 0.74% of New Zealand's emissions. The point could be made that everyone must do their bit, and that is a fine point to argue. But even if one believes something *should* be done to reduce the 0.74% of New Zealand's emissions that would be removed by a ban like the one being proposed, one would then have to prove something *could* be done.

The risk of 'leakage' is very real, and we may well end up simply outsourcing our carbon inputs into consumer goods, fudging our emissions numbers, at no benefit to the world's climate. It would be one thing to make martyrs of our own communities (though given these choices are being made against their wishes it's more making them sacrificial lambs) for the 'greater good', but to sacrifice them knowing the result will be to send their industries to jurisdictions with no carbon price is simple stupidity.

The two 'alternatives' put forward in this discussion document are biomass and electricity.

¹⁴ (Ministry of Business, Innovation, and Employment, 2019)

¹⁵ (Ministry for the Environment, 2017)

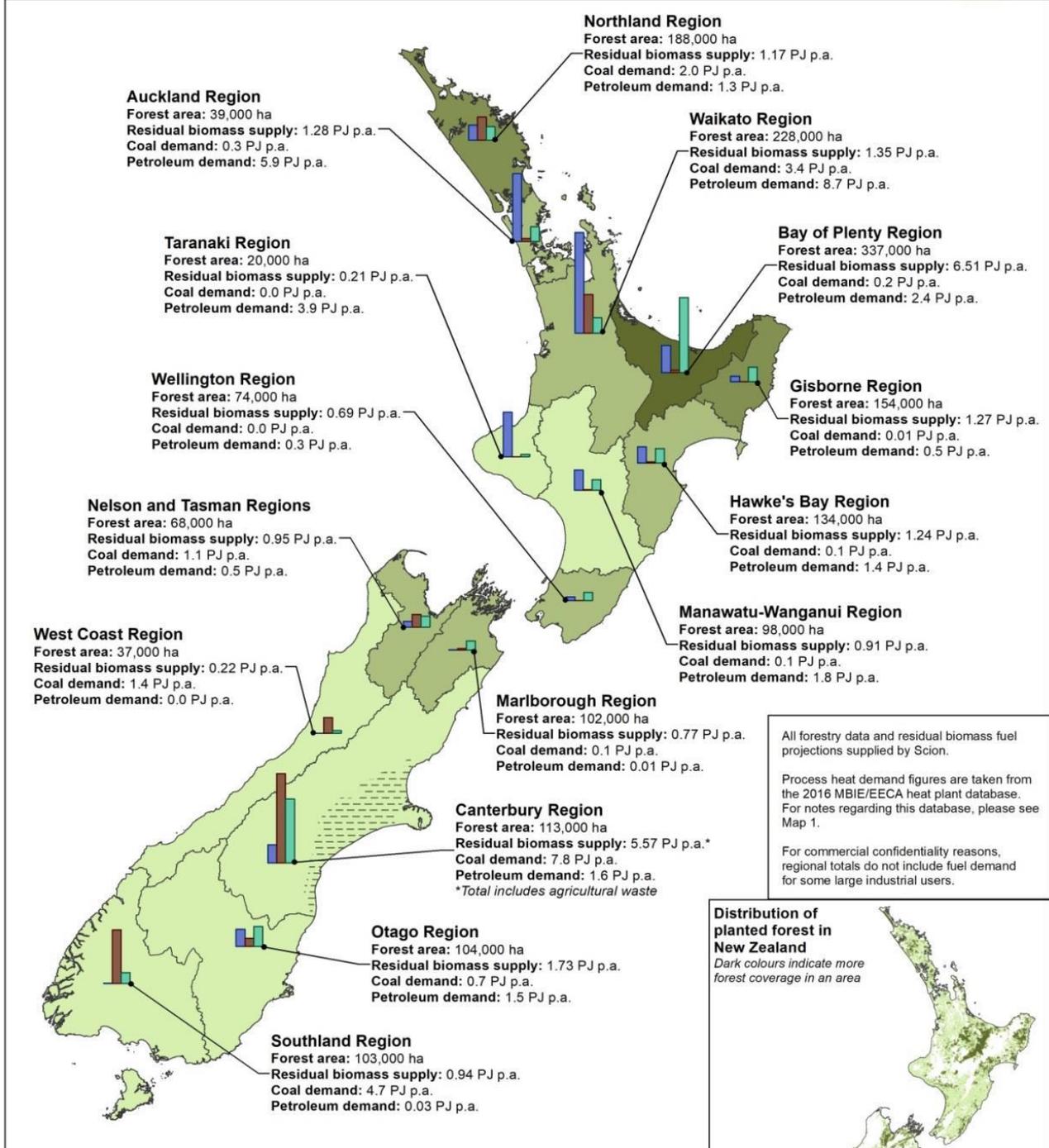
¹⁶ (Energy Efficiency and Conservation Authority, 2019)

Firstly, biomass. At best, biomass is about 50% - 60% moisture, unless dried in kilns, increasing cost. Availability is one of the biggest issues. The government's own map (on pg.128 of the discussion document) is telling. Based purely on figures in the South Island, there is nowhere near enough biomass, even in theory, to meet the energy demands presently met by coal.

| Region | Coal demand | Residual biomass supply |
|---------------|----------------------------------|-----------------------------------|
| Nelson/Tasman | 1.1 petajoules per annum | 0.95 petajoules per annum |
| Marlborough | 0.1 petajoules per annum | 0.77 petajoules per annum |
| West Coast | 1.4 petajoules per annum | 0.22 petajoules per annum |
| Canterbury | 7.8 petajoules per annum | 5.57 petajoules per annum |
| Otago | 0.7 petajoules per annum | 1.73 petajoules per annum |
| Southland | 4.7 petajoules per annum | 0.94 petajoules per annum |
| Total | 15.8 petajoules per annum | 10.18 petajoules per annum |

The demand for energy in the South Island is at least 50% greater than the potential supply of biomass, notwithstanding the many issues surrounding its ability to actually work. It is worth noting Canterbury's listed residual biomass supply is noted on the map to include agricultural waste, which presumably includes crop stubble and chaff, the calorific value of which would be questionable at best and use as a feedstock is not considered viable. The fuel demand of 'large industrial users' is also excluded from these figures for commercial confidentiality, meaning the total demand shown here of 15.8 petajoules per annum is, if anything, a bit on the light side. In short, the figures are fudged, and in truth, the demand is greater than shown on the map, and the supply of biomass less than is depicted.

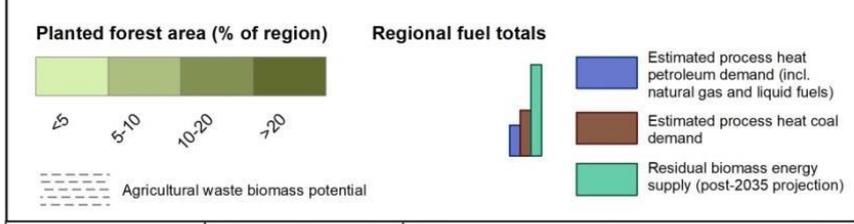
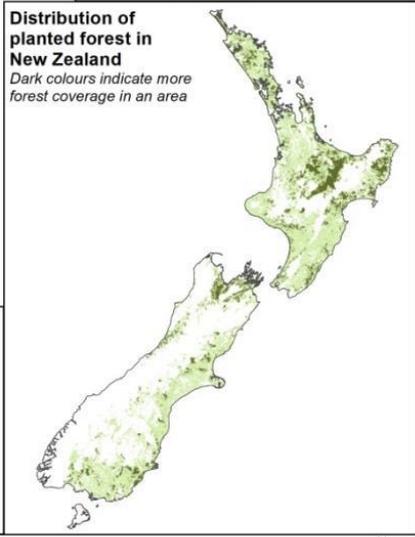
Biomass fuel switching opportunities for industrial process heat



All forestry data and residual biomass fuel projections supplied by Scion.

Process heat demand figures are taken from the 2016 MBIE/EECA heat plant database. For notes regarding this database, please see Map 1.

For commercial confidentiality reasons, regional totals do not include fuel demand for some large industrial users.



Even *if there were enough* biomass resource, the associated transport emissions must be taken into account. One of our members, who supplies both coal and biomass, says even under a best case scenario, the energy density of coal to wood is a scale of one to three, if not one to four or higher still. That is to say, one truckload of coal will, at best, be three or four truckloads of biomass, possibly more. As Fonterra noted in their submission on ‘Process Heat in New Zealand: Opportunities and barriers to lowering emissions’ in February 2019, ***“emission reductions can be quickly eroded – or turn negative - the further biomass has to be trucked.”***¹⁷

Many people will not appreciate trucking and logistics efficiencies achieved through back freighting. That is to say, when goods are carted in one direction, it is better for the trucking company if goods are freighted back the other direction, or beyond somewhere else, as they operate more cost-effectively.

This achieves efficiencies in transport which has environmental benefits. Practical links have developed throughout the South Island. Coal goes from the West Coast to Marlborough via truck to service hothouse horticulture, fisheries, and dairy and meat processing, and dolomite (fertiliser) comes back via the same trucks. Trucks taking coal to Canterbury for industrial use bring fertiliser and other goods back for West Coast farms. The same patterns exist with Southland – coal goes out, agricultural products come in.

If, as an example, woodchip were carted from a pine plantation to a dairy factory, meat processor, or covered crop grower, there is little demand for anything to return to the logging site.

The supply is known to be insufficient; the emissions reductions may be marginal or in fact there may be greater emissions due to transport, but then, there is the economics.

One of the potentially worst affected sectors would be covered crop growers in the South Island. Their counterparts in the North Island have access to gas. This is not possible as a switching option in the South Island. To quote a joint submission from Vegetables New Zealand, TomatoesNZ, and Horticulture New Zealand made regarding changes to the Emissions Trading Scheme in September 2018:¹⁸

“As one of our members put it ‘there are no low hanging fruit here’, as there are no straightforward, obvious or cheap answers to how this industry can transition to low or zero carbon fuels.

A South Island grower reports being recently quoted \$600,000 - \$700,000 for converting coal boilers to wood chip and increased ongoing variable energy costs 30-40% higher than their current costs.”

Relevant to process heat at whichever temperatures it is designed to reach, is the cost of the alternatives. The viability of switching to woody biomass at a national or industrial scale

¹⁷ (Fonterra, 2019)

¹⁸ (TomatoesNZ, 2018)

is questionable, for the reasons outlined above. Electrification is considered cost prohibitive for many users. Fonterra noted electrification of Edendale, one of its largest plants, **would increase operating costs for the plant by 50%**¹⁹, and the Meat Industry Association, representing 99% of domestic red meat production²⁰, outlined the cost of electricity making it unviable as a switching option. One meat company stated electricity would cost three to four times more than current use of thermal fuels²¹, and one large processor saying if it were to go completely to electricity (abandoning coal and gas) ***“power demand would double, as well as result in significant capital cost to change over. One processing plant, for example, uses almost 10,000 tons of coal a year, at almost \$2.5 million. To change to electricity, the cost would be \$4.6 million a year.”***²²

To put things simply, neither woody biomass or electricity offers an industry or nationwide solution as a viable alternative to coal in the South Island or coal and/or gas in the North Island. Given the feedback government received from previous consultations that neither electricity or biomass offer remotely feasible or commercially practical switching options for South Island industry at a large scale, it is startling the government hasn't even attempted to cost the proposals, meaning it has no idea of the financial impacts of what it is suggesting.

Q4.3 For manufacturers: referring to each specific proposal, what would be the likely impacts or compliance costs on your business?

The impacts on manufacturers will be an increase in operating costs. There are three results this may have: a) the company will absorb the costs, by losing profits or neglecting other parts of their business, including not investing in new, potentially lucrative ventures; b) passing these costs onto consumers where this market will bear increased costs compared to imports, increasing the costs of food domestically and becoming less viable or unviable on the export market; c) companies either contracting or going out of business.

Q4.4 Could the Corporate Energy Transition Plans (Option 1.1) help to design a more informed phase out of fossil fuels in process heat? Would a timetabled phase out of fossil fuels in process heat be necessary alongside the Corporate Energy Transition Plans?

There is circular logic being applied here. Industry, on the whole, has said they have no feasible alternatives to coal and gas. If they knew enough about how they would phase out fossil fuels over five to ten years to put together a *‘Transition Plan’*, it must be asked how they wouldn't know enough to have already started doing so. If they can't transition and stay in business, they simply can't do it.

Q4.5 In your view, could national direction under the RMA be an effective tool to support clean and low GHG-emitting methods of industrial production? If so, how?

¹⁹ (Fonterra, 2019)

²⁰ (Meat Industry Association, 2019)

²¹ (Meat Industry Association, 2019)

²² (Meat Industry Association, 2019)

No. The Resource Management Act should not be used to enforce climate change mitigation policies. This should be addressed under the Climate Change Response Act 2002. This ensures clarity in a legal and regulatory sense and follows good law-making practice.

Q6.1 What is your view on whether cost recovery mechanisms should be adopted to fund policy proposals in Part A of this document?

If this were simply referred to as a coal tax, at least there would be some honesty in the equation. As the discussion document states, due to the Energy Resources Levy Act 1976, coal is already levied at the point of production. This only applies to open-cast coal mines, but nowadays there are no underground mines, so all mines are levied. At a levy rate of \$2.00 for coal and \$1.50 for lignite, based on 2018²³'s production figures, the government would have collected close to \$5,000,000 dollars in energy levies alone, to say nothing of the Emissions Trading Scheme, which attracts over fifty dollars per tonne of coal, plus GST.

Consumers/coal users already pay a considerable amount to the government due to coal use. Adding extra costs means coal users will simply be taxed/levied twice on the same tonne of coal.

When the government looked at extending levies in 2016, it noted in its own discussion document imposing costs on coal users would be '*administratively complex and costly relative to the amount of money that would be recovered*'.²⁴

The intention of this proposal is clearly just to make coal use more costly, with little or no impact on the global climate. There is a strong case in any event to repeal the ERLA 1976. It is an outdated and redundant relic of the Muldoon era.

Q6.2 What are the advantages and disadvantages of introducing a levy on consumers of coal to fund process heat activities?

The biggest concern here is an issue of equality. While some plants may have switching options, many won't. This will be a case of taking money off everybody and giving it to a select few. As one example, Fonterra's Brightwater and Te Awamutu plants have both benefitted from hundreds of thousands of taxpayer funding through EECA (Energy Efficiency & Conservation Authority) to establish wood biomass co-firing capabilities.

Brightwater is an outlier in that it is literally across the road from its biomass supplier, Azwood, and it is a very small plant. Its peak milk production is about 240,000 litres/day versus, say, Edendale at 15,000,000 litres/day in peak season. For all that, the small Nelson plant still meets three quarters of its energy needs with coal.

Te Awamutu is a larger plant, but also enjoys proximity to larger supplies of woody biomass, who in themselves are in a particular position within New Zealand. Nature's Flame, who supply Te Awamutu, have the ability to achieve low moisture content in their pellets due to a ready supply of geothermal energy, and an ability to source feedstock from surrounding forestry operations. The pellet manufacturer's processing operations are 'right in the heart

²³ (New Zealand Petroleum and Minerals, 2019)

²⁴ (Ministry of Business, Innovation, and Employment, 2016)

of the New Zealand timber industry - Taupo²⁵, and also enjoy access to geothermal energy. Prior to a direct heat supply deal with Contact Energy, the company was operating at 45% capacity and burning some of their own product or dried sawdust to dry wood²⁶.

This outlines that particular situations which make fuel switching viable for some companies in some places are most often peculiar to a certain combination of factors. The point we wish to make in outlining the above case studies, is who will benefit. The government says in the discussion document ***'Coal users would face increased costs because of the levy. However, they are expected to benefit from the services the levy will fund.'*** This is not true. Geography, lack of access to cost effective alternatives, and boiler requirements all come into play. This would be taking money from everyone, for the benefit of a small group of companies able to utilise the funding.

For Fonterra's Te Awamutu conversion, \$200,000 of taxpayers' money, through EECA, was provided to the cooperative. With annual revenue of \$20,114,000,000²⁷, one has to question why they need any taxpayer support for such capital projects.

The government seems content to take money from businesses, quite often those who fall within the 'Kiwi battler' category of small, locally owned or family owned businesses, to subsidise large corporates. Cost recovery as is described here will simply be more of the same in this respect.

ENDS

²⁵ (Nature's Flame, 2012)

²⁶ (Think Geo Energy, 2019)

²⁷ (Fonterra, 2019)