

Submission to the New Zealand Productivity Commission on “LOW-EMISSIONS ECONOMY ISSUES PAPER” OCTOBER 2017

INTRODUCTION

1. Straterra welcomes the opportunity to submit on the New Zealand Productivity Commission’s *Low-emissions economy: Issues paper*, released in August 2017. The submission deadline of 2 October 2017 is noted.
2. Straterra is the industry association representing the New Zealand minerals and mining sector. Our membership is comprised of mining companies (including coal and gold), explorers, researchers, service providers, and support companies.
3. We have reviewed and support Business New Zealand’s submission on the Issues Paper. We agree with its key point that “The Commission’s focus should be less on plans and the minutiae of policy and more on the rules, incentives and frameworks required to facilitate economic actors making informed decisions about low carbon options.”
4. Given that Business New Zealand has presented a high-level view with which we agree, Straterra’s submission makes specific points about the coal sector and how it relate to climate change and a low carbon economy.
5. Straterra has published the resource *Let’s Talk About Coal* to promote a better understanding of the role of coal globally and in New Zealand and how these issues relate to the challenge of reducing emissions. For further information beyond that presented in this submission we recommend this website to the Commission. It can be found at www.letstalkaboutcoal.co.nz

EXECUTIVE SUMMARY

Climate change as a global problem requiring net-global emission reductions

Climate change is a global problem that requires emission reductions at a net-global level. This ‘net-global’ emissions reduction goal should be the fundamental test that New Zealand policy makers apply when considering this issue and making decisions, especially those that reduce economic activity to achieve domestic emission reductions.

The ‘net-global’ test is especially relevant when considering *emissions-intensive trade-exposed* sectors due to the risk of *carbon leakage*. Carbon leakage occurs when emissions restrictions in one jurisdiction simply push production (and the associated emissions) to another jurisdiction. Risks and impacts of carbon leakage must be carefully analysed.

The Paris Agreement, with its jurisdictional approach to meeting its targets, leads states to focus on *domestic* emissions, but potentially at the expense of policies that are in fact efficient and emission-reducing at a net-global level.

Any policies to reduce New Zealand coal production need to account for both the fact that coal is only 7% of emissions from a country that makes up 0.2% of global emissions as well as risk of carbon leakage.

The New Zealand coal sector

The New Zealand coal sector produces coking coal (exported for essential use in steel production) and thermal coal (domestic heat generation including for industry), as explained below.

Coking coal is produced to meet global demand. Any reduction in New Zealand production will simply be met by production elsewhere, resulting in a loss of jobs and economic benefit for New Zealand for no net gain in emissions.

New Zealand's thermal coal production is an important contributor to our export economy including agriculture. In the global markets, New Zealand businesses are price takers – costs additional to those faced by our competitors will lead to reduced output.

Carbon's centrality and need for bipartisan policy

Carbon has been an integral part of the modern economy, being simply accessible, affordable and concentrated energy which has enabled unprecedented economic development, wealth creation and human advancement. This means that any significant shift away from carbon speaks to the heart of the productive economy (although we fully appreciate the primacy of institutions, rather than resources, in enabling growth). Due to the centrality of this issue, and to minimise sovereign risk and regulatory uncertainty, we strongly wish to see bipartisan political support for sound policy, just as has traditionally been the case in New Zealand on foreign policy and free trade.

Substitutes for coal

In terms of thermal substitutes for coal, biomass is commonly cited but has a number of issues including transport and storage logistics and costs, the geographically diffuse nature of the energy source, the dilute nature of the energy source, and associated challenges at scale.

Coal and renewable electricity

Fossil fuels have an essential role in providing baseload energy and energy security with the current generation mix and technology options.

HIGH-LEVEL COMMENTS ON CLIMATE POLICY AND FOSSIL FUELS

6. We agree that New Zealand should make a fair contribution to address climate change, noting it is a truly global issue, to which New Zealand contributes 0.2% of emissions. In making a contribution, our choices must be wisely made taking into account the global context and noting the dynamic and globalised trading and economic environment. New Zealand policy makers should be careful that frameworks and policy will lead to improved outcomes at a *net-global* level, and only reducing New Zealand economic activity if a *net-global* emissions reduction will be achieved. We note the view, put forward by some, that ambitious climate policies may benefit some New Zealand exporters due to positive benefits from 'green branding'.
7. One could say that carbon lies at the heart of our modern and prosperous society – this is because most emissions come from fossil fuels which are simply accessible, affordable and concentrated energy. Given carbon's importance to the modern economy, any transition to a low-carbon future speaks to a fundamental and even structural change to the economy (although we fully appreciate the primacy of institutions, rather than resources, in enabling growth). Given the centrality of this issue to the entire economy, its management would benefit from bipartisan political support, so as to promote certainty and minimise sovereign risk for the commercial sector.

8. There has been discussion about an independent climate commission established by an Act of Parliament, as if this entrenches climate policy. In reality, we would suggest this only has merit if there is bilateral political support for such an Act and the goals it would espouse – otherwise a future Government could simply repeal the legislation.
9. We wish to make a comment on the following scene-setting line presented in the Issues Paper, with which we disagree (p63):

“the Commission understands that the implication of the commitments made under the Paris Agreement to limiting temperature increase to 2°C is a transition to zero net CO₂ emissions economy domestically over this century...”
10. We disagree, because the Paris Agreement simply specifies a maximum warming of 2°C relative to pre-industrial levels. The Agreement does not impose specific emission obligations on signatory states – instead, states set their own *Nationally Determined Contributions*. This means that New Zealand does not face specific requirements, and can instead make its own Nationally Determined Contribution without necessarily having to become a net carbon-zero economy. The Commission needs to understand this point and should focus on its terms of reference, which speak of a “lower net-emissions economy” (emphasis added) rather than a necessarily “zero net CO₂ emissions economy”.

CONTEXT ABOUT COAL

11. New Zealand produces thermal and coking coal, as explained below.
12. Thermal coal in New Zealand is an important and traditionally low-cost input to our export sector. These industries including dairy, meat and wool, which compete in international markets where our exporters are price takers who cannot pass on additional costs.
13. Coking coal is an essential input into the production of steel, for which there are currently no substitutes at scale. This means as long as the world needs steel, coking coal will be produced. Given the coking coal market is global and demand-driven, demand will always be met by supply somewhere (subject to regular economic constraints).
14. The coal sector accounts for 6-7% of New Zealand’s greenhouse gas emissions¹. New Zealand has 18 producing coal mines, all of which are open cast mining operations (October 2017). The major coalfields are located in the Waikato, the West Coast, Otago and Southland.

NEW ZEALAND USES OF COAL

15. Coal is an essential input into diverse industries and commercial uses in New Zealand:
 - **Electricity generation:** Genesis Energy’s Huntly power station operates two Rankine units for coal-fired generation. This residual capacity manages the risks of fluctuations in renewables, particularly in dry years, i.e. it contributes to energy security by managing supply risk.
 - **Steel-making:** The Glenbrook mill uses coal and ironsands to make iron and steel. Coal is both a heat source, and a metallurgical input. Steel, with cement, are necessary ingredients for almost all infrastructure, including renewable electricity generation and transmission.

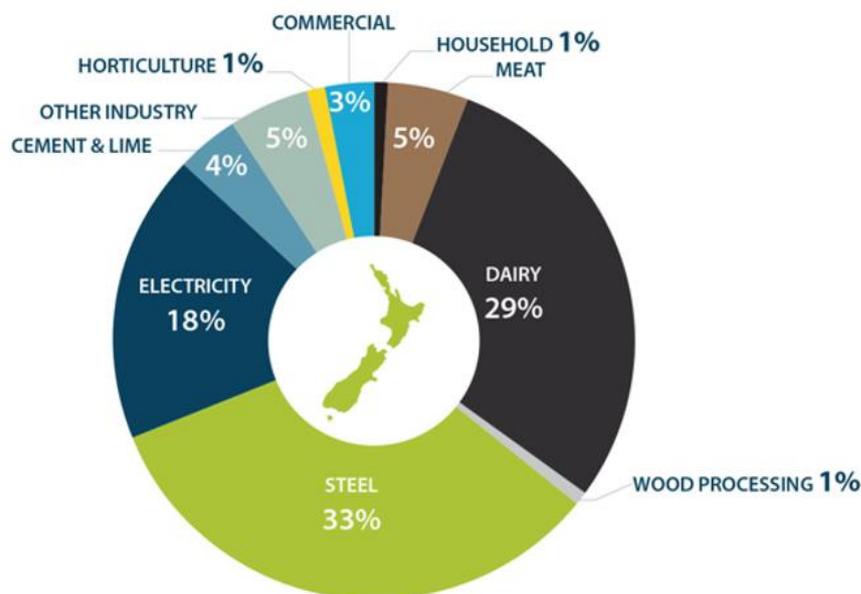
¹ NZ GHG inventory <http://www.mfe.govt.nz/climate-change/reporting-greenhouse-gas-emissions/nzs-greenhouse-gas-inventory>

- **Cement and lime-making:** Coal is a source of heat and is a chemical input into Golden Bay Cement, and a number of plants making lime for fertiliser.
- **Food processing:** In the South Island, coal is used as process heat in the manufacture of milk powder and other dairy products, chocolate, meat processing, vegetable canning, salt, gelatine, dried herbs, breweries, and more.
- **Hothouse horticulture:** Tomatoes, rocket, capsicums, chillies, flowers, and numerous other plants and vegetables are grown in commercial hothouses, which are heated during the winter, and the production of carbon dioxide encourages plant growth.
- **Other industrial processing:** Wood, timber, other construction materials, wool, and leather are among products processed with the use of coal as a source of industrial process heat.
- **Heating of commercial facilities:** In the South Island, schools, universities, hospitals, museums, laundries, hotels, offices, swimming pools, and other facilities are heated using coal.

16. A snapshot of coal use in New Zealand (2015) is provided below in Figure 1.

Figure 1. How New Zealand uses coal

In 2015 **2.7 million tonnes** of coal were used in New Zealand



Based on MBIE (Energy Data File 2016) figures

Source: CRL Energy Ltd

17. As a source of industrial process heat, coal is used because of its cost advantage, being roughly one-third the price of electricity per unit of heat produced. It is also a reliable source of energy, and is easy to transport, store and handle when compared to other solid fuels, e.g. biomass.
18. In the absence of cost-effective, lower carbon substitutes, carbon price signals are simply a cost impost. Over time those price signals will change behaviour, but if that change results in business closure, businesses shifting offshore, or new investments not being made in New Zealand, then that is an economic loss for New Zealand, and would likely result in increased net

global emissions (assuming that overseas production is more emissions-intensive than the generally efficient New Zealand economy).

ISSUES WITH BIOMASS AND NATURAL GAS AS ALTERNATIVES TO COAL

19. Coal is associated with higher carbon emissions than other fuel sources, so discussion naturally focuses on substitutes. Biomass and gas are typically presented as lower-carbon alternatives to coal, about which we make the following comments.
20. Wood and plant waste, also known as biomass, can theoretically be used as a source of industrial process heat. However, the following challenges apply:
 - **Transport:** biomass is bulky - approximately three truckloads of biomass for every truckload of coal to the equivalent energy value.
 - **Diffuse energy source:** biomass is typically not localised at scale and over time.
 - **Quality:** moisture content in wood waste can vary widely, affecting consistency of combustion and heat production.
 - **Dilute energy source:** it would take 90,000 hectares of trees planted specifically for biomass harvesting to fuel South Island dairy production.
 - **Reliability and availability of supply:** unproven at scale.
 - **Storage:** similar issue as for transport.
21. Natural gas emits about half as much carbon as coal per unit of energy produced. As such, gas is a good substitute where it is available in the North Island. Gas is not an option to substitute for coal in the South Island, subject to a major discovery. Note that in the North Island gas has competed with coal over many years and is the fuel of choice in many industrial situations.

CARBON LEAKAGE

22. Coking coal is produced in New Zealand by price-taking producers for export, and is produced to meet global demand. Thermal coal is, from time to time, exported and imported. Prices are set locally but the prevailing international price and substitutes create a floor and ceiling.
23. The issue of carbon leakage is crucial², and government needs to consider all policies in light of this concept. If domestic climate change and environmental policies impose an inequitable cost burden on New Zealand business, economic activity, or new investment, will simply move offshore to meet demand – i.e. the carbon emissions ‘leak’ to another country.
24. The Paris Agreement might ‘allow’ this outcome, but policies that do not result in a reduction in net global emissions are not economically or environmentally rational.
25. Further to this, if coal production shifts from New Zealand to offshore, there will be an impact on the New Zealand economy, particularly in the South Island, while achieving relatively little towards meeting our international climate change target. Indeed, New Zealand and the globe as a whole can be made worse off by domestic policies that simply shift emissions-intensive industries offshore.

² The Productivity Commission’s issues paper defines this as follows: “Emissions leakage, in essence, refers to the situation whereby the introduction of emissions restrictions in location A can provide the incentive for high emissions production to move to location B to avoid those restrictions.”

26. New Zealand has a comprehensive framework for managing industry including coal mines, in terms of fugitive emissions, the natural environment, heritage, and health and safety. That is, New Zealand is a responsible jurisdiction in which to mine coal.
27. Any policies to reduce New Zealand coal production need to account for both the fact that coal is only 7% of emissions from a country that makes up 0.2% of global emissions, as well as risks of carbon leakage.

BARRIERS PREVENTING THE UPDATE OF TECHNOLOGIES TO REDUCE EMISSIONS

28. There are a number of barriers preventing the update of technologies to reduce emissions, including:
 - The lack of international carbon markets with and access for New Zealand.
 - Lack of nationwide infrastructure to support electric vehicles.
 - The lack of commercially-viable biomass combustion and delivery technologies, at scale, as a source of industrial process heat for industries that currently use coal.
 - Lack of technologies for or inability to managing fugitive emissions of methane from coal mining operations.
 - The lack of a commercially-viable alternative to fossil carbon in steel-making.
 - A downturn in contestable government funding of research into “clean coal” technologies, low-emissions technologies, as evidenced by funding rounds in recent years.