SUBMISSION

Submission from Straterra to the Climate Change Commission Emissions Reduction Plan Draft Advice

June 2023

Introduction

1. Straterra is the industry association representing the New Zealand minerals and mining sector (including coal). Our membership is comprised of mining companies, explorers, researchers, service providers, and support companies.
2. We welcome the opportunity to comment on the Climate Change Commission's (the commission's) 2023 Draft advice to inform the strategic direction of the Government's second emissions reduction plan (the draft advice).
3. This provides draft advice to the Government on the policy direction for its second emissions reduction plan (ERP) covering the second emissions budget period, from 2026-2030. We note that final advice will be delivered to the Government at the end of this year.

Key points

- We do not support the shift in emphasis away from net emissions towards gross emissions, outlined in the draft advice.
- The commission's demonstration path end point of coal use is quite ambitious and there is a high probability it won't be achieved in the expected timeframe.
- Government policy and actions must not hinder the production of New Zealand coal before alternative sources are readily available.
- The proposed move away from coal to biomass and electricity as a source of industrial process heat presents challenges that are insurmountable at present, even with Government assistance.
- Industry research shows biomass emits more CO2 than coal when combusted to produce a unit of energy. Huge volumes of biomass would be required to displace coal as a source of industrial process heat.
- Phasing out coal is short sighted given the useful role limited volumes of coal play, and will continue to play, as a back up to renewable sources and thus, in providing energy security.
- Coal has an ongoing role in providing backup to New Zealand's renewable electricity generation. In this regard, coal is a reliable and flexible energy input, with advantages over gas.
- We are pleased that the commission has reiterated its concerns about the Government's (aspirational) 100% renewable electricity by 2030 target and the Lake Onslow proposal.

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- We oppose the early phase out of industrial allocation. Industrial allocation is needed to mitigate the risk of emissions leakage and keep businesses in New Zealand. We disagree that the global context has shifted significantly since industrial allocation was first introduced. Carbon pricing schemes still cover only 23% of global emissions according to the World Bank.
- We are pleased to note the commission's acknowledgement of the significant role carbon capture and storage could play to constrain industrial emissions.

Submission

4. Our submission focuses on the Energy and Industry chapter (Chapter 9) of the draft advice but we also make comments on a number of key issues that the document raises.

5. First, we make some general comments on mining and climate change and outline our position on emissions reduction.

General comments

Straterra position on emissions reduction

6. We support global action to reduce carbon emissions and New Zealand's goal of achieving net zero emissions by 2050. New Zealand needs to play its part in global commitments to meet the objectives of the 2015 Paris Agreement.

7. In reducing New Zealand's emissions, it is essential that policies do not lead directly to increased global emissions through domestic economic activity closing down and/or shifting offshore. Integral to this is that we maintain the international competitiveness of affected sectors of our economy.

8. Any initiative to reduce emissions should be assessed in terms of its impact on both global and local emissions as well as its impact on the local economy.

Mining and climate change

9. Mining plays an important role in reducing global emissions. Mined minerals are needed in increasing abundance to make wind turbines, solar panels, batteries, electric vehicles etc. as the world transitions towards a lower-carbon future.

10. New Zealand has the potential to supply some of these lower-emissions economy minerals, e.g. vanadium, lithium, rare earth elements, and nickel-cobalt. Our existing production of ironsands, coal, gold, silver, mineral sands, and limestone are also needed for a lower carbon world.

11. Minerals and aggregates will have an important role in helping New Zealand adapt to the effects of climate change. For example, coal (used to make steel) and aggregates – sand, gravel, and rock – are needed to make infrastructure more resilient to resist greater-intensity storms and extreme weather events.

Global context

12. While there have been positive developments from other countries in recent years, the draft advice overstates the degree to which New Zealand's trade competitors are reducing their emissions in line with their commitments.

13. For example, according to the World Bank's State and Trends of Carbon Pricing 2023, carbon pricing schemes still only cover 23% of global emissions. The average price provided by ETS schemes and carbon taxes in 2021 was US$4.50 compared with New Zealand's of around NZ$62.50 (US$39.00).

The ERP and the ETS

14. Many of the regulations and policies to reduce emissions contained within the ERP and the draft advice are not necessary given the Emissions Trading Scheme's sinking lid on NZU supply. It is this, by definition, that will bring New Zealand emissions down, not the array of proposed interventions contained within the ERP.

15. Many of the proposals would result in market distortions, create unintended consequences, and be hugely disruptive to the economy and the people of New Zealand. They are also likely to contribute to a NZU price lower than it would otherwise be for a given amount of reductions.

Gross vs net emissions

16. The draft advice has a focus on reducing emissions at their source and downgrading the role of forests as a carbon sink in managing emissions. Among other things, it recommends the Government commits to a specific level of gross emissions reduction in upcoming emissions budget periods and implements an amended NZ ETS that separates the incentives for gross emissions reductions from those applying to forestry.

17. We do not support this shift in emphasis away from net emissions towards gross. The Climate Change Response Act 2002 has a net zero emissions target not a gross target. The draft advice should be focused on net emissions.

Energy and industry

18. This section comments on the issues discussed in Chapter 9 of the document, Energy and Industry, particularly the role coal plays in electricity generation, industrial process heat, and steel production.

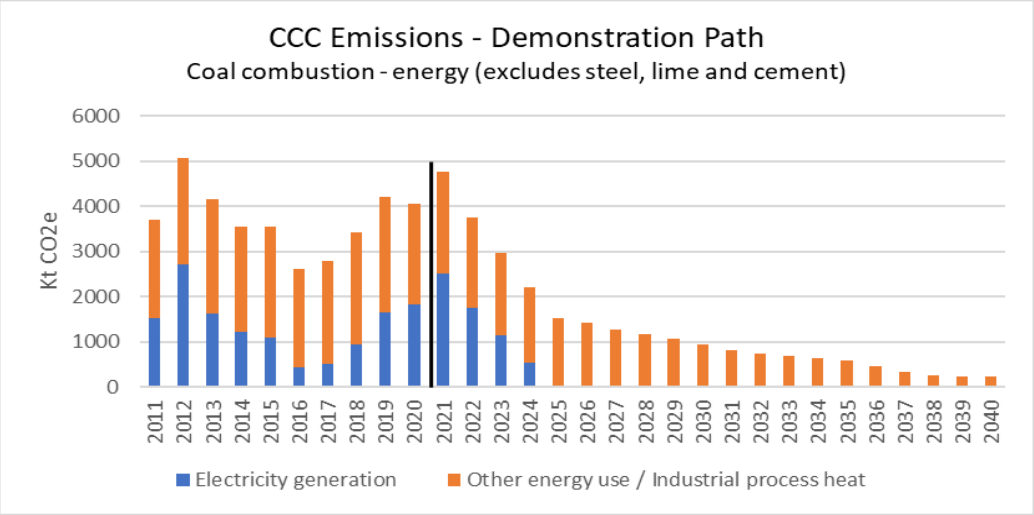
19. Coal is but one mineral mined in New Zealand but unlike others, as a fossil fuel, its combustion creates emissions. New Zealand produces two types of coal – coking and thermal. Thermal coal is used as a source of energy for industry and coking coal is a mineral input, mainly used to make steel. Note also that coal consumption is responsible for emissions, not coal mining (other than a small quantum of fugitive emissions of methane). Policies that encourage New Zealand to import more coal instead of producing it in New Zealand will not do anything to reduce emissions. In fact, we would suggest importing coal potentially increases emissions if you factor in its transportation.

The commission's expectations for coal

20. The document does not discuss the commission's expectations for coal in much detail, but it does state that under the 2023 demonstration path a 30% reduction of coal used in industrial boilers is expected by 2025 relative to 2020 levels, and a 61% reduction by 2030 (page 110).

21. The supporting data published on the commission's website enables a closer look at the expected paths for different uses of coal including electricity generation and industrial process heat, but there does not seem to be one for steel production.

22. As can be seen from the graph below the expected decline in coal emissions (and by assumption coal use) under the demonstration path for both electricity generation and other energy use is quite substantial.



23. Coal for electricity generation is largely expected to end in 2024 and there is a steady decline in "other energy use" (industrial process heat) throughout the period. (By our calculations the reduction is 58% of the 2020 levels by 2030 not 61% as referenced in the document[1].)

24. In total, by 2030 coal use (excluding for steel, lime and cement) is expected to be less than a quarter of the 2020 levels.

25. There is no emissions path for steel production provided in the supporting data so this isn't shown in the graph. We know from the Government's recent announcement on its partnership with New Zealand Steel to co-fund the installation of an electric arc furnace at Glenbrook, that coal emissions are expected to fall 45% (800,000 tonnes of CO2e per year). As we understand it, the aim is to have the furnace up and running by 2027. We estimate the steel emissions path to fall from approximately 1.6 million tonnes of CO2e in 2020 down to 0.8 million tonnes in 2027.

26. As we comment below, all three paths (industrial process heat, electricity generation and steel production) are quite ambitious and there is a high probability they won't be achieved in the expected timeframe.

Industrial process heat

27. As the commission is aware, thermal coal as an industrial heat source has an important role in maintaining the international competitiveness of our agricultural sector – dairy in particular – and in domestic food production.

28. Government policy is aiming to phase out thermal coal from industrial process heat and replace it with alternative sources, such as biomass and electrification.

29. On the demand side, there is a ban on the installation of new low and medium-temperature coal boilers and a phase out of existing coal boilers by 2037.

[1] "Emissions from electricity generation - coal" (row 256) has been split out from "Total combustion emissions by fuel type - coal" (row 145) - which is actually total energy emissions excluding emissions from steel, lime and cement production (which are accounted for differently because the coal is not just a source of energy in their production). The difference "Other energy use" is a proxy for industrial process heat.

30. The Government Investment in Decarbonising of Industry (GIDI) fund provides support to businesses that transition out of coal and the Government is looking to support this by developing national direction for industrial greenhouse emissions under the new resource management legislation.

31. On the supply side, the Government is discouraging production of fossil fuels including coal. Just two recent examples include the changed purpose of the Crown Minerals Act, which neutralises the promotional intent of the Act. Changes to wetland regulations have enabled the extraction of minerals (and certain other land uses) on or near wetlands but discriminatory provisions mean that coal is excluded from this in many circumstances. These and other policies that hinder New Zealand production simply result in companies substituting local product for imported product.

32. There are a number of issues that need to be considered as the Government promotes policies to transition out of thermal coal for process heat. Not least, as already stated, any policies to transition out of coal must avoid carbon leakage. That is, it must not result in economic activity and the emissions simply being transferred offshore. A just transition away from fossil fuels needs to be fair, equitable and inclusive.

Challenges posed by alternative fuels

33. The anticipated move away from coal to biomass and electrification as alternative sources of industrial process heat presents many challenges.

34. This is admitted in the document. On page 120 it says: "There is uncertainty in the availability of biomass supply and growing competition, so additional coordination will be required. Some biomass suppliers are reluctant to enter into long-term contracts, which are important for users to be able to secure continuity of supply and certainty of price."

35. And on the same page: "The electricity system must be able to support the additional pressure that will come from industrial conversions to electricity. Decarbonisation projects occur on a much shorter timeline than electricity distribution businesses are used to or the regulatory system can easily allow for."

36. For the commission's 2030 reduction to be achieved, all 17 dairy product manufacturing sites in the South Island would need to have converted to biomass or electricity. This is quite an assumption.

Biomass

37. Challenges associated with biomass include its limited quality (e.g. moisture content), the availability and reliability of supply, transport logistics, and cost.

38. It should also be noted that biomass emits more CO2 than coal when combusted to produce a unit of energy according to recent research[2]. The reason for this is that the calorific value of the biomass is lower and with higher total moisture, efficiency is lost in driving off the water. The impact of this is the huge volume of biomass is required, and that has an impact on transport emissions to truck larger volumes of biomass to industrial sites (more transport miles).

39. While we know some individual users have switched or have signalled their intentions to switch to biomass, we are not aware of any evidence that supports the replacement of coal with biomass at the scale proposed. Fonterra once said that to replace its coal-fired boilers with wood biomass it would

[2] We are happy to share this with the commission.

need access to a forest the size of Belgium, every year, to keep them running. That's just one company. There is not enough biomass currently and new plantings will take decades to mature – a timeframe which does not align with the phasedown period proposed.

40. Add to this the fact that other industries will still need wood products, which biomass to replace coal may be taken away from. It seems unlikely that New Zealand will be able to create enough biomass at the right places to meet the commission's demonstration path.

Electrification of boilers

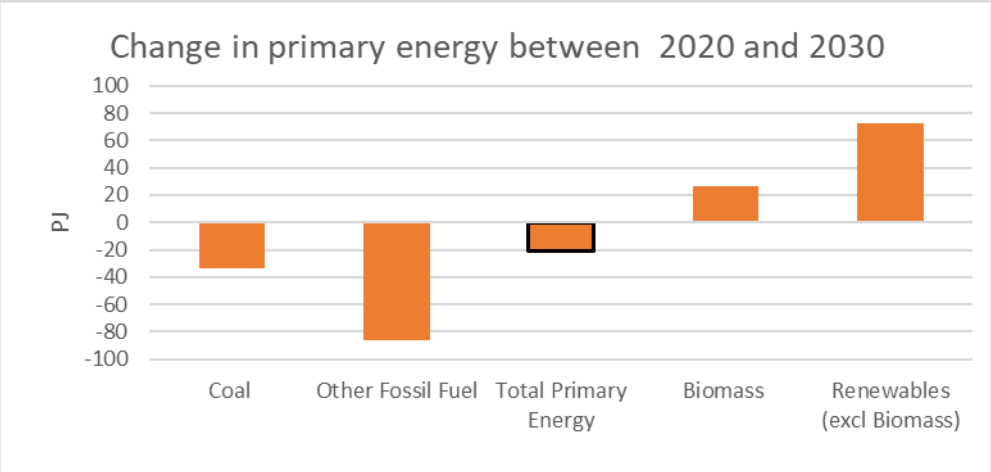
41. In the case of electrification of boilers, challenges include the cost of arranging transmission and insufficient electricity capacity in places. The capital cost of boiler conversion is being addressed by the GIDI fund but the cost of electricity for industrial consumers will be an ongoing issue. It has been estimated that the cost of electricity in terms of operating costs is roughly 3-4 times that of coal per unit of heat produced.

Risk that coal supply ends before alternative energy sources are available

42. If these alternative sources are not available, or in place when the supply of domestic coal (and other fossil fuels) ends (as is the apparent goal of Government policy), significant disruption could occur with business closures, resulting job losses, and reliance on imported coal to fill the gap. It makes no sense to close down coal mining in New Zealand and then import coal to keep the home fires burning. There is no guarantee we will continue to have access to imported coal as global supply tightens, without the contribution of the likes of New Zealand which exports coal, and the powerhouses of China and India are given preference for available coal. India predicts it will be burning coal until 2070, so that market is stable.

43. Closer inspection of the commission's data in the supporting data is revealing in this regard.

44. It shows that under the commission's 2023 demonstration path, primary energy consumed in New Zealand is 21 PJ (2.4%) lower in 2030 than in 2020. The reduction is made up of increases in biomass and renewables more than offset by declines in fossil fuels as shown below, which is quite ambitious.



45. Specifically, primary energy from biomass is expected to increase from 48.8 PJ in 2020 to 75.1 PJ in 2030. The anticipated reduction in energy from coal under this scenario is a comparable amount.

46. There is an added risk that Government policy designed to curtail supply, much of which discriminates against coal miners beyond other miners on grounds unsubstantiated by facts and science, will scare off

investors and lead to the closure of coal mines even sooner than is envisaged by the Government or the commission.

47. In conclusion, Government policy must not constrain the supply of New Zealand produced coal based on the expectation of highly ambitious reductions in demand for coal due to alternative energy sources maybe coming available. It is highly uncertain that these alternatives will be available or in place to meet the commission's assumed timeframe.

Coal and electricity generation

Coal as a back up

48. As the commission is aware, coal provides energy security by acting as a backup fuel for electricity generation. That back up occurs in dry years when the hydropower is limited; at times when the wind isn't blowing and the sun is not shining; and also, in times of gas outages.

49. Coal's role in electricity generation is limited but it makes a crucial contribution in this backup role. We argue it should continue, even, as we explain below, as part of a strategy to lower energy emissions.

Coal vs gas

50. The commission accepts there is a role for fossil fuels as a backup in electricity generation for security of supply, but it sees gas playing this role. As mentioned, its demonstration path has coal fired generation ending in 2024 and it has given gas a longer life path.

51. As matters stand, there is uncertainty in future gas supply in New Zealand, partly because of Government policy to greatly constrain new oil and gas exploration, and more importantly in the short term from outages at existing producing assets. Coal is a reliable and flexible energy input, easily stored and transported, and coal should continue to play its current role to safeguard New Zealand's energy security.

Future demand for electricity to assist in decarbonisation

52. Electricity demand is likely to increase significantly in the future as increased electrification of transport and industry occurs. The commission's 2023 demonstration path has electricity generation increasing at 13.7% between 2020 and 2030, largely due to the electrification of industry and transport, and by 26% from that baseline to 2035 – the end of the third emissions budget period.

53. The bulk of the new generation capacity is likely to be renewable which is positive for New Zealand's emissions path. However, the case for a small amount of coal (and gas, if still available) as a backup to this new renewable electricity is as strong as it is for the current generation. In fact, in volume terms – if not as a proportion – there is even a case for it to increase as renewables increase as a back up to meet the growing demand.

54. In spite of an increase in fossil fuel use in electricity generation, lower emissions for New Zealand would still result through greater electrification, i.e. as transport and industry switches to electricity. In other words, perhaps paradoxically, continuing with coal can make the increased electrification goal easier to achieve and reduce emissions in the process.

55. Ironically, climate change is likely to intensify seasonal and intraday weather conditions, further testing the resilience of the national grid as the country becomes more reliant on renewable generation. This issue further strengthens the case to continue using coal (and gas) to provide backup into the future.

The difficulties and expense of new renewable generation

56. As stated, the commission's demonstration path which has coal for electricity generation largely ending by 2024 is very ambitious and there is a high probability it won't be achieved in the expected timeframe.

57. This is particularly so given the difficulties and expense in consenting and building sufficient new renewable generation capacity. These challenges and the risk of delay need to be taken account of, when considering the phase out of coal.

58. The Government's intention is that increased renewable generation capacity, and perhaps the New Zealand Battery Project (the proposed Lake Onslow pumped hydro scheme) or alternatives, will reduce the demand for coal over time. But it is not certain that the proposed scheme will go ahead and the uncertainty is delaying private sector investment in renewables. This all points to the role for limited amounts of coal or gas as a backup needing to continue.

59. The commission's demonstration path has coal use for electricity largely ending by 2024, but this contrasts with industry statements that coal use under normal market conditions would cease by 2025 and coal use would be completely phased out by 2030. The commission's assumed 2024 end point seems quite ambitious as does, in our opinion, the electricity sector's stated end point for coal under normal market conditions, 2025.

60. The argument made earlier that there is a risk that if alternative energy sources are not available to replace coal significant disruption could occur, applies equally to electricity generation. There is also a real possibility that Government policy causes coal supply to dry up before sufficient renewable sources come on stream which would mean significant volumes of coal imports would be necessary.

61. We have seen this to some extent already with the 70% increase in imported coal in 2021 needed to meet the demand for electricity generation.

Renewable electricity target

62. We are pleased that the commission has reiterated its concerns about the Government's (aspirational) 100% renewable electricity by 2030 target. We agree with the commission that the target should be abandoned.

63. Decarbonising the last few percent of the electricity mix comes at a very high marginal cost of abatement, meaning electrification becomes increasingly expensive, thereby disincentivising the electrification of transport and industrial heat. In other words, to reiterate our earlier point, a limited amount of coal / fossil fuels used as a backup to our renewable resources is actually a step towards achieving emissions reductions overall.

Offroad vehicles and machinery

64. The commission has recommended an increased focus on mining and construction emissions – specifically offroad vehicles and machinery. On page 121 it says: "Other sectors have not received much attention to date, such as mining and construction. This includes offroad vehicles and machinery that contribute significant emissions, but often fall between central government agencies' focus."

65. Mining company emissions stem mostly from burning the diesel used to extract, transport and process minerals. These processes are relatively energy intensive. But it should be noted that there are many examples of the extractive sector taking proactive steps to decarbonise their operations. Electric conveyors are now quite common in plants where electricity is available, and operators are moving in increasing numbers to electric and hybrid offroad vehicles and machinery.

66. We have included here some links to recent announcements and actions from, Fulton Hogan (diesel/ electric hybrid excavator), Blackhead Quarries (an electric dump truck) and OceanaGold (electric hydraulic shovel).

67. One of the main barriers to increased uptake is access to electricity in the often-remote parts of New Zealand where the extractive sector operates, and the capacity of the electricity network often comes into play. Companies are also restricted by what is available on the global market given the size and specificity of some of the machinery and vehicles.

Industrial free allocation

68. We oppose the early phase out of industrial allocation as is implied in the document.

69. Industrial allocation is the free allocation of NZUs to companies judged to be both emissions-intensive and trade-exposed (EITE). They are needed to mitigate the risk of emissions leakage and keep businesses in New Zealand where trade competitors' emission reduction policies are inadequate.

70. We disagree that the global context has shifted significantly since industrial allocation was first introduced. As stated earlier in the submission, carbon pricing schemes still only cover 23% of global emissions according to the World Bank.

Transition

71. In the discussion on just transition, more focus is needed on communities under increasing pressure as emissions reduction polices start to bite.

72. On the West Coast for example, coal mining represents a significant part of the region's employment and economic output. Mining in Buller directly contributes 18.6% of the district's total GDP. This means Buller's economy is more dependent on mining than Wellington's is on the public service.

73. As discussed elsewhere, we are particularly concerned that policies to end coal mining will simply result in increased imports of coal to be burned locally meaning the net effect is both no decrease in emissions, as well as economic contraction which would have major impact on the regional development of such communities.

Carbon capture

74. We are pleased to note the commission's acknowledgement of the significant role carbon capture and storage (CCS) could play to constrain industrial emissions (page 122).

75. We believe the Government needs to develop an enabling regulatory regime for CCS and closely monitor developments in other countries in this regard.

76. Carbon capture and storage would be particularly important if the Government pursues the commission's draft advice to increase its focus on emissions at source and focus on gross emissions reductions.