

## esr mfe submission 211122

# Making a submission

There are two ways you can make a submission:

- via Citizen Space, our consultation hub, at <https://consult.environment.govt.nz/climate/emissions-reduction-plan>
- write your own submission, and provide it as an uploaded file in Citizen Space.

# Meeting the net-zero challenge

## Transition pathway

1. Do you agree that the emissions reduction plan should be guided by a set of principles? If so, are the five principles set out above, the correct ones? Please explain why or why not.
2. How can we enable further private sector action to reduce emissions and help achieve a productive, sustainable and inclusive economy? In particular, what key barriers could we remove to support decarbonisation?
3. In addition to the actions already committed to and the proposed actions in this document, what further measures could be used to help close the gap?
4. How can the emissions reduction plan promote nature-based solutions that are good for both climate and biodiversity?
5. Are there any other views you wish to share in relation to the Transition Pathway?

## Proposed emissions reductions are far too weak

The Government's current proposal is to broadly accept the Climate Change Commission's budgets from their 31 May 2021 final report, with minor changes related to forestry emissions. But based on the available information, the Commission's emissions reduction targets for 2030 are far weaker than is required for New Zealand to do its part in meeting the key goal of the Paris Agreement to hold global warming to 1.5 degrees C.

The Intergovernmental Panel on Climate Change (IPCC) in their 2018 report concluded that, to have a 50-66% chance of limiting warming to 1.5°C above pre-industrial levels by the end of the century, net anthropogenic CO<sub>2</sub> emissions need to decline by around 45% (40 to 58% interquartile range) from 2010 levels by 2030, with emissions specifically from coal burning reducing by around 65% over this period.

From the graph given in Figure 9.4 of the Commission's 2021 final report (p 193) it is estimated that under the proposed budgets, net CO<sub>2</sub> emissions would fall by around 27% over the 2010-2030 period – far less than the IPCC says is required. Also, from the graph for long-lived gases in Figure 5.3 (p 81) it is estimated that the net emissions of these gases would fall by around 21% over the 2010-2030 period – also far less than is needed. Information obtained more recently indicates that, in both cases, the actual reductions are weaker than this if measured using standard net measurement methods, as used in arriving at our New Zealand greenhouse gas inventory figures – see later. This more recent data indicates that net emissions would actually significantly increase over the 2010-2030 period, rather than decreasing, and gross emissions would only decrease by around 7%. This is appallingly weak compared to what the IPCC say is required.

Because, since the 2018 IPCC report was published, progress in reducing global emissions has been slower than required, faster emissions reductions are now needed to meet the 1.5°C warming goal. The UN Environment Programme, UNEP (Emissions Gap Report 2020, December 2020) concluded that, to meet the 1.5°C Paris target, global greenhouse gas emissions need to fall by 7.6% every year over the next decade. This amounts to a 55% reduction over the 2020-2030 period.

From the graph for all gases net in Figure 5.3 (P 81) of the Commission's final report, under the proposed budgets it is estimated that net emissions for all gases would fall around 26% over the 2020-2030 period – yet again far less than is needed. Also, subsequently we found how to access the Commission's spreadsheet, "Mfe Target accounting emissions". We understand that the top two rows on this spreadsheet give standard GHGI net data and gross data, as used in the NZ greenhouse gas inventory. According to these figures, under the proposed budgets, our net emissions would actually *increase* by 4% over the 2021-2030 period, and our gross emissions would only fall by around 5%. If this information is correct, the proposed budgets are totally unacceptable, given the commitment we made under the Paris Agreement and the potentially catastrophic climate change we are facing.

In 2021, Climate Action Tracker (a partnership between Climate Analytics, The New Climate Institute and the Potsdam Institute for Climate Impact Research) rated New Zealand's response to climate change so far as "highly insufficient" and says that by 2030 New Zealand needs to reduce its overall *gross* emissions to at least 44% below the 2005 level, and preferably up towards the 70% level.

From the graph for long-lived gases gross in Figure 5.3 (P 81) of the Commission's final report, it is estimated that under the proposed budgets the gross emissions for long-lived gases would fall by only around 21% over the 2005-2030 period. However, from the standard gross data give on the Commission's spreadsheet, "Mfe Target accounting emissions", the proposed budgets would only give a reduction in gross emissions for all gases of around 12% - way below the level Climate Action Tracker says we should be aiming for.

Scientists and others are telling us that it is critically important that the world achieves major emissions reductions over the coming decade. There are very strong reasons for New Zealand to make a significant contribution to this because our emissions per capita are very high, our steps to reduce emissions have so far been very weak, and we are a developed country with the skills and resources to achieve this.

**We recommend** that the Government very substantially strengthens the proposed budgets in line with what Climate Action Tracker says New Zealand needs to do to contribute to holding global warming to 1.5°C: reduce our gross emissions for all gases other than biogenic methane by a minimum of 44% over the 2005 to 2030 period, and preferably further up towards the 70% reduction figure.

The emissions reductions we are recommending here are considered to be attainable if the government, businesses and New Zealand society take the necessary steps and work collectively to achieve them.

## **Emissions budget information needs to be clearly presented using standard measurement methods**

When trying to make comparisons with what other entities say is needed, the Commission's data, which the Government has now taken on, is obfuscated in several ways. In particular, the Government is using its own measure of what it terms "target emissions". In the Commission's final report and the MfE consultation document, there does not seem to be any clear and explicit explanation, that is easily accessible, of exactly how these numbers were arrived at, and why they differ from the numbers arrived at using the Common Reporting Framework, as used in determining New Zealand's greenhouse gas inventory figures, which are submitted annually to the UNFCCC.

Three specific points in relation to this lack of clarity are covered here. First, while it does not seem to be clearly stated, our understanding is that the Commission, and now the Government, are using gross-net accounting for some emissions reductions, starting from the gross emissions data for 2010. This gross-net accounting just obscures what the proposed emissions reductions actually are. Back in time, this type of accounting was allowed under the Kyoto Protocol, starting specifically from the 1990 year, but there is no provision under the Protocol to select any other year as the base year for gross-net accounting. This gross-net accounting needs to be removed, and the budgets prepared using standard gross-gross or net-net measurement techniques.

Second, the Commission, and now the Government, have moved away from the standard way of defining net emissions, as used by the IPCC and others, and adopted another measurement method referred to as the "modified activity based" measure. This measure does not attempt to track net emissions for plantation forests, but instead disregards CO<sub>2</sub> removals that will become CO<sub>2</sub> emissions when the forest is harvested. The result is that the emissions data no longer represents what our actual emissions are in a specific year, and it also cannot be properly compared with emissions reductions set by the IPCC or other entities.

While there may be arguments in some situations for presenting data using this type of measure, which smooths out the rapid net emissions changes due to forestry harvesting, we still need to use the standard greenhouse gas inventory method as the primary way to define our net emissions. This shows us what our actual net emissions are and allows comparisons with what other entities say is needed.

Third, in presenting these emissions budgets, neither the Commission nor the Government provide complete information back to 2005 (the start date for our Nationally Determined Contribution, NDC) or to 2010 (the base date used by the IPCC and others). This information is necessary in assessing how our proposed budgets and NDC compare with what is actually needed.

**We recommend** that the Government moves to providing clear emissions budget information that can be easily compared with what various entities say is required.

## **We need a stronger NDC defined in clear net-net terms under which New Zealand aims to meet its own targets**

The Commission's advice to the Government on our revised NDC was based on using gross-net accounting, as was used in our original NDC. This type of measurement of emissions reduction is highly unclear and misleading, and according to Climate Action Tracker is only used by very few countries. For example, it is like saying that your pay has fallen by comparing your gross earnings before tax last year with your net earnings after tax this year.

The revision of our NDC, submitted during COP26, sets a target for a 50% reduction in emissions over the 2005-2030 period, measured in gross-net terms. In consistent net-net terms, it is actually only around a 28% reduction in emissions over this time period. Again, this is way less than is necessary for New Zealand to do its share in controlling global warming.

**We recommend** that we move immediately to defining our NDC in consistent net-net terms, and plan for a further revision that brings the 2030 target into line with what scientists say is required.

The revised NDC says that, "In meeting its target New Zealand intends to use international market mechanisms, cooperative approaches and carbon markets that enable trading and use of a wide variety of units/ emission reductions/ mitigation outcomes..." While it makes sense for New Zealand to assist other countries with emissions reductions, we do not agree that it is appropriate for New Zealand to use such assistance as a reason to lower its own goals for emissions reductions.

**We recommend** that New Zealand aims to meet its own targets, as well as assisting other countries, such as our Pacific neighbours.

## **Helping sectors adapt**

6. Which actions to reduce emissions can also best improve our ability to adapt to the effects of climate change?
7. Which actions to reduce emissions could increase future risks and impacts of climate change, and therefore need to be avoided?

## **Working with our Tiriti partners**

8. The Climate Change Commission has recommended that the Government and iwi/Māori partner on a series of national plans and strategies to decarbonise our economy. Which, if any, of the strategies listed are a particular priority for your whānau, hapū or iwi and why is this?
9. What actions should a Māori-led transition strategy prioritise? What impact do you think these actions will have for Māori generally or for our emission reduction targets? What impact will these actions have for you?

10. What would help your whanau, community, Māori collective or business to participate in the development of the strategy?
11. What information would your Māori collective, community or business like to capture in an emissions profile? Could this information support emissions reductions at a whanau level?
12. Reflecting on the Commission's recommendation for a mechanism that would build strong Te Tiriti partnerships, what existing models of partnership are you aware of that have resulted in good outcomes for Māori? Why were they effective?

## **Making an equitable transition**

### **Equitable Transitions Strategy**

The Commission recommends developing an Equitable Transitions Strategy that addresses the following objectives: partnership with iwi/Māori, proactive transition planning, strengthening the responsiveness of the education system, supporting workers in transition, and minimising unequal impacts in all new policies.

13. Do you agree with the objectives for an Equitable Transitions Strategy as set out by the Climate Change Commission? What additional objectives should be included?
14. What additional measures are needed to give effect to the objectives noted by the Climate Change Commission and any other objectives that you think should be included in an Equitable Transitions Strategy?

The Commission suggests that the Equitable Transitions Strategy should be co-designed alongside iwi/Māori, local government, regional economic development agencies, businesses, workers, unions, the disability community and community groups.

15. What models and approaches should be used in developing an Equitable Transitions Strategy to ensure that it incorporates and effectively responds to the perspectives and priorities of different groups?

### **Other actions**

16. How can Government further support households (particularly low-income households) to reduce their emissions footprint?
17. How can Government further support workers at threat of displacement to develop new skills and find good jobs with minimal disruption?
18. What additional resources, tools and information are needed to support community transition planning?
19. How could the uptake of low-emissions business models and production methods be best encouraged?
20. Is there anything else you wish to share in relation to making an equitable transition?

### **Return revenue from emissions charges to the public**

In order to drive emissions reductions more rapidly, our emissions charges are going to have to increase significantly, which will affect the prices of some goods and services. For example, an emissions charge of \$100 per tonne CO<sub>2</sub> would increase the price of a litre of petrol by around 23 cents. In order to protect people from the effects of these rising prices, leading climate scientist James Hansen, and others, have recommended returning the revenue from the charges back to the public via a citizen's dividend. This will help keep things affordable for people, while giving them a financial incentive to move to lower cost options that involve less use of fossil fuels. This citizen's dividend approach, which we

recommend, would also be a step towards reducing the high income inequality we are currently suffering from in New Zealand.

### **Future generations also need to be considered**

Support for people as changes occur to reduce emissions is going to be needed. But what does not seem to be getting considered in the Commission's Equitable Transition Strategy is the effects of climate change on future generations. If we do not take rapid action to reduce emissions, millions and millions of people are going to be affected by changing climates, sea level rise and reductions in food growing abilities. If we do not make rapid reductions in emissions, the outcome will be highly inequitable for our children, grandchildren and future generations.

## **Aligning systems and tools**

### **Government accountability and coordination**

21. In addition to the Climate Change Commission monitoring and reporting on progress, what other measures are needed to ensure government is held accountable?
22. How can new ways of working together like mission-oriented innovation help meet our ambitious goals for a fair and inclusive society and a productive, sustainable and climate-resilient economy?
23. Is there anything else you wish to share in relation to government accountability and coordination?

### **Funding and financing**

24. What are the main barriers or gaps that affect the flow of private capital into low-emissions investment in Aotearoa?
25. What constraints have Māori and Māori collectives experienced in accessing finance for climate change response activities?
26. What else should the Government prioritise in directing public and private finance into low-emissions investment and activity?
27. Is there anything else you wish to share in relation to funding and financing?

### **Emissions pricing**

28. Do you have sufficient information on future emissions price paths to inform your investment decisions?
29. What emissions price are you factoring into your investment decisions?
30. Do you agree the treatment of forestry in the New Zealand Emissions Trading Scheme (NZ ETS) should not result in a delay, or reduction of effort, in reducing gross emissions in other sectors of the economy?

#### **Yes, we agree.**

31. What are your views on the options presented above to constrain forestry inside the NZ ETS? What does the Government need to consider when assessing options? What unintended consequences do we need to consider to ensure we do not unnecessarily restrict forest planting?

32. Are there any other views you wish to share in relation to emissions pricing?

**Emissions charges need to increase more rapidly.**

The one major tool we have introduced, so far, to control our emissions, is our emissions trading scheme (ETS). From the time it came into effect over most areas of the economy in 2010, up until 2020, the unit price was too low to have any significant effect on reducing emissions. Since the start of 2020, the spot price has increased from around \$25 / tonne CO<sub>2</sub> up to recently around \$65. But this is still too low, for example, to drive a move away from coal for process heat – something we need to have achieved well before 2030 in order for New Zealand to make an appropriate contribution to controlling climate change.

To give some idea of where charges need to rise to in this respect, the IPCC in their 2018 Special Report on Global Warming concluded that to achieve the necessary reductions to meet the Paris Agreement, emissions charges will need to be US\$177 (approx. NZ\$250) or more by 2030. These charges appear to be high enough to make the use of fossil fuels uneconomic for many purposes.

The current charges are also way below estimates of the cost of the damage the related emissions are causing. This is often referred to as the social cost of carbon (SCC). There have been a wide range of figures published for this, but in 2018, an IPCC group concluded that, based on the available information, the SCC was above US\$100 / tonne CO<sub>2</sub> - above approx. NZ\$140 / tonne CO<sub>2</sub>. Another group (Katharine Ricke et al, Nature Climate Change, 2018) has recently come up with an often-quoted figure for the global SCC price of US\$417 / tonne CO<sub>2</sub> – approx. NZ\$590 / tonne CO<sub>2</sub>. Also, as long as the world does not take sufficient steps to bring climate change under control, the damage cost will keep increasing.

Having ETS charges that are way below the damage cost means we are subsidising the damage that emitters are causing and effectively passing the cost on to our children, grandchildren and future generations. This needs to stop. We need to rapidly start increasing emissions charges up towards the damage level.

The Climate Change Commission has been focussed on setting targets, and does not seem to have looked seriously at how our ETS works, or what emissions charges are needed. However, in its final report it does mention a “marginal abatement cost” of \$140 in 2030. This is much lower than the emissions charge that the IPCC said would be needed by 2030, but then, based on the available information, the Commission’s emissions reductions by that date are much lower than the IPCC says is required.

**Move to a simple carbon charge**

The way our ETS currently operates, with spot prices for units depending on demand, is complicated for businesses and does not provide clear information on what pricing will be in the coming period, or further into the future.

We recommend that we move to a system where, during a specific period, say six months, the carbon charge is set and remains constant. The planned price for the coming period, or periods, can also be indicated, to allow businesses to plan ahead on what steps they may take as a result.

**Higher emissions charges are workable**

For example, Sweden already has emissions charges equivalent to around NZ\$190 over part of its economy, which has remained strong. By 2018, its net emissions had dropped by around 27% below 1990 levels, while ours rose by around 31%. Sweden seems to be a leader in this, but several other European countries also now have emissions charges equivalent to more than NZ\$100 over parts of their economies.

**Use of “banked” units needs to stop**

To make higher emissions charges work properly and effectively, we need to move to a system under which units purchased from the government for a specific price can only be used during the period when their cost relates to the actual emissions charges being made, and after that if unused can be sold back to the government for their purchase price. This will remove the ability for businesses to purchase units while prices are lower, “bank” them, and use them later when emissions charges have increased. The use of banked units, which is currently allowed, reduces the incentive for users to lower their emissions, and reduces the revenue the government receives.

### **Allocation of free emissions units needs to be promptly phased out**

Currently some emissions intensive and trade exposed industries (EITE) are allocated free emissions units. Where necessary, other ways need to be found to assist and support these industries, rather than granting them free units that strongly reduce their financial incentive to reduce their emissions.

### **Protecting the public**

As covered under Equitable Transitions Strategy, higher emissions charges will affect the prices of some goods and services. We recommend following the proposal made by leading climate scientist James Hansen, and others, to return the revenue from the charges back to the public via a citizen’s dividend. This will help keep things affordable for people, while giving them a financial incentive to move to lower cost options that involve less use of fossil fuels. It will also be a step towards reducing the high income inequality we are currently suffering from in New Zealand.

## **Planning**

33. In addition to resource management reform, what changes should we prioritise to ensure our planning system enables emissions reductions across sectors? This could include partnerships, emissions impact quantification for planning decisions, improving data and evidence, expectations for crown entities, enabling local government to make decisions to reduce emissions.
34. What more do we need to do to promote urban intensification, support low-emissions land uses and concentrate intensification around public transport and walkable neighbourhoods?
35. Are there any other views you wish to share in relation to planning?

### **Cessation of oil, gas and coal development**

The International Energy Agency (IEA), recently released a report (Net Zero by 2050, May 2021) saying that there should be no new oil, gas or coal development if the world is to reach net zero emissions by 2050. We recommend that our government adopts this policy.

### **Targets for phase-out of fossil fuel use**

Some developed countries are setting targets for the phase-out of fossil fuel use for various purposes, but New Zealand has not done this yet. We therefore recommend that the government introduces targets for the phase-out of coal for electricity production by 2025 and for low- and medium-temperature process heat applications, such as the dairy industry, by 2027.



## **Research, science and innovation**

36. What are the big challenges, particularly around technology, that a mission-based approach could help solve?
37. How can the research, science and innovation system better support sectors such as energy, waste or hard-to-abate industries?
38. What opportunities are there in areas where Aotearoa has a unique global advantage in low-emissions abatement?
39. How can Aotearoa grow frontier firms to have an impact on the global green economy? Are there additional requirements needed to ensure the growth of Māori frontier firms? How can we best support and learn from mātauranga Māori in the science and innovation systems, to lower emissions?
40. What are the opportunities for innovation that could generate the greatest reduction in emissions? What emissions reduction could we expect from these innovations, and how could we quantify it?
41. Are there any other views you wish to share in relation to research, science and innovation?

## **Behaviour change**

42. What information, tools or forums would encourage you to take greater action on climate change?
43. What messages and/or sources of information would you trust to inform you on the need and benefits of reducing your individual and/or your businesses emissions?
44. Are there other views you wish to share in relation to behaviour change?

## **Moving Aotearoa to a circular economy**

45. Recognising our strengths, challenges, and opportunities, what do you think our circular economy could look like in 2030, 2040, and 2050, and what do we need to do to get there?
46. How would you define the bioeconomy and what should be in scope of a bioeconomy agenda? What opportunities do you see in the bioeconomy for Aotearoa?
47. What should a circular economy strategy for Aotearoa include? Do you agree the bioeconomy should be included within a circular economy strategy?
48. What are your views of the potential proposals we have outlined? What work could we progress or start immediately on a circular economy and/or bioeconomy before drawing up a comprehensive strategy?
49. What do you see as the main barriers to taking a circular approach, or expanding the bioeconomy in Aotearoa?
50. The Commission notes the need for cross-sector regulations and investments that would help us move to a more circular economy. Which regulations and investments should we prioritise (and why)?
51. Are there any other views you wish to share in relation to a circular economy and/or bioeconomy?

# Transitioning key sectors

## Transport

We are proposing **four new transport targets** in the emissions reduction plan, and are seeking your feedback.

52. Do you support the target to reduce vehicle kilometres travelled by cars and light vehicles by 20 per cent by 2035 through providing better travel options, particularly in our largest cities, and associated actions?

### **Faster reduction in vehicle use would be appropriate**

A 20% reduction in vehicle km travelled by 2035 would be a significant change, but we consider that the target could be stronger. To reduce emissions, as well as improved walking and cycling options, we also need much improved public transport systems that can provide a lot of people with a faster and less costly way of travelling, both within and between cities. For example, if Auckland's North Shore had a train service, as was proposed in the 1970's, a lot of people could travel between the two sides of the harbour with much lower emissions, and probably often in half the time it currently takes them.

Spread-out cities, like Auckland, really need a rapid transit system that has its own transport corridors. Sydney, which is also quite a spread-out city, has a good rail system. Around 5 times as many people per capita travel by train each day in Sydney as do in Auckland. Frequently serviced rapid transport hubs also become strong venues for more dense housing and the location of shops and businesses.

We need some serious planning and development in this area. Cities will also likely need Government support in funding, in order to come up with good solutions.

53. Do you support the target to make 30 per cent of the light vehicle fleet zero-emissions vehicles by 2035, and the associated actions?

### **Faster move to zero emissions vehicles needed**

Road transport emissions have risen by around 96% since 1990 and accounted for around 43% of all CO2 emissions in 2019. We consider the Commission's recommendation of a 13% reduction by 2030 and a 45% reduction by 2035, compared to 2019 levels, to be far too slow.

For us to play a proper part in controlling global warming, these transport emissions can and must be reduced much more rapidly. A key way to achieve this is to move to electrically powered vehicles. Norway gives an example of what is possible. Following steps taken starting from 1990, in 2020, 54% of all new vehicles sold there were battery powered electric. Norway has now set a goal that by 2025 all new cars sold should be zero-emissions.

In contrast, in 2020 in New Zealand around 5,500 EV's gained their first registration - about 2.3% of the first registrations for the total light vehicle fleet in that year. The Climate Change Commission recommended that all light vehicles entering the country must be low emissions by 2035 – ten years slower than the Norwegian goal. We need to take the necessary steps to proceed a lot more rapidly than this. The government's rebate scheme to reduce the cost of electric vehicles, which took effect from July 2021, is a step in the right direction, but further action will almost certainly be needed.

54. Do you support the target to reduce emissions from freight transport by 25 per cent by 2035, and the associated actions?

### **Much higher reduction in freight transport emissions is possible**

Starting in 1936, the government set distance limits on how far trucking companies could carry freight, when rail was an option. These remained in place until the mid-1980's. Extending electrification of our rail system, to include links between major cities, and reintroducing these distance limits, would significantly reduce both the emissions from goods transport and the number of trucks on our intercity roads. There is also a case for improving our rail network, including re-establishing lines to areas that have had their rail connection removed. These steps need to be seriously considered as soon as possible.

55. Do you support the target to reduce the emissions intensity of transport fuel by 15 per cent by 2035, and the associated actions?
56. The Climate Change Commission has recommended setting a time limit on light vehicles with internal combustion engines entering, being manufactured, or assembled in Aotearoa as early as 2030. Do you support this change, and if so, when and how do you think it should take effect?
57. Are there any other views you wish to share in relation to transport?

### **Move more quickly to lower emissions fossil fuel-powered vehicles**

While petrol- and diesel-powered vehicles remain an option, their emissions also require attention. The average light vehicle in New Zealand produces around 171 g/km of CO<sub>2</sub> emissions. In January 2021 the Government announced its intention to reduce this down to an average of 105 g/km by 2025 for vehicles entering the country – a standard Japan set in 2014 and the EU in 2020. We need to proceed faster than this. The 105 g/km level could be brought into effect in 2022, which would reduce the emissions of these types of vehicles entering the country by about 38%.

### **Vehicles powered by bio-fuels**

Electrically powered vehicles and equipment may not be a very satisfactory option for some farming, forestry and other operations. Also, small numbers of traditional fuel-powered light vehicles may remain in use. Development of biofuels, not coming from fossil fuels, could be a good option for powering such vehicles and equipment.

## **Energy and industry**

### **Energy strategy**

58. In your view, what are the key priorities, challenges and opportunities that an energy strategy must address to enable a successful and equitable transition of the energy system?

### **Rapid action needed to move away from fossil fuel use for electricity generation**

As we move away from fossil fuel use, demand for electricity is going to increase. It can often be generated at lower cost from renewable energy sources than from coal or gas. Despite this, Huntly power station continues to produce large amounts of electricity from fossil fuels because of the way the market works.

All generators feeding into the grid get paid the same price per kwh as the highest priced generator supplying the market at that time, which is often Huntly. Other generating companies therefore take steps to keep Huntly in the market. For example, around 10 consented windfarms remain unbuilt, including one behind Huntly that alone could supply up to half the power that Huntly does.

We need to follow the simple step Germany took in 1991, giving renewably generated electricity precedence in entering the market over fossil fuel generation. Huntly would then rapidly move to back-up status, and later to complete retirement from fossil fuel use.

Also, paying all electricity generators feeding into the market the same price as the highest priced generator receives is unfair to consumers, and reduces the financial incentive for them to move away from fossil fuels when electricity would otherwise be a good alternative option. The way the market works needs to change so that the amount electricity suppliers are paid relates back to their generating costs, and not to an arbitrarily high price set by one generator.

In 2013, Labour and the Greens proposed setting up a single buyer in the power market, NZ Power, that would purchase the electricity from the power companies for a price that reflected their generating costs. They said this would reduce the average New Zealander's power bill by up to \$330 a year. It was also proposed that NZ Power would prioritise renewable generation and energy efficiency. National won the 2014 election and the proposal was not implemented.

The need for action is now even more urgent than it was in 2013 – 8 years ago. Taking these steps would lead to a rapid increase in renewable generation capacity which we will need as we move away from fossil fuels. The Commission's report does not seem to cover these key points.

### **Renewably-powered back-up electricity generation is also possible**

Currently, when other sources cannot meet the demand, this is met by generating electricity from fossil fuels, primarily at the Huntly power station. As our renewably powered generating capacity increases, we can use our hydro dams as giant batteries to generate additional power when needed.

There is also the possibility of developing tidal power, which is a very reliable energy source. A tidal station that would have powered around 200,000 homes was planned on the Kaipara Harbour in Northland, but was dropped in 2008 because of uncertainties about the electricity market. A trial turbine was planned around the same time for Cook Strait, which has potentially massive tidal generating capacity, but also did not proceed.

Beyond that, the Huntly power station could potentially move to using biomass to provide energy instead of fossil fuels. It is encouraging to learn that Genesis recently announced it plans to trial the use of sawdust compacted into wood pellets to power one of its Rankin boiler units at its Huntly plant

### **Allow local electricity generation to feed into the grid at a realistic price**

People and businesses with solar panels, or other systems for renewably generating electricity, are sometimes not given permission to feed excess power into the grid, and if they are, often receive quite low prices. This needs to urgently change, as they can potentially make a significant contribution to our total power needs. Local electricity networks also need to be allowed to connect into the grid, so that they can both buy and sell electricity via this system.

59. What areas require clear signalling to set a pathway for transition?

## **Setting targets for the energy system**

60. What level of ambition would you like to see Government adopt, as we consider the Commission's proposal for a renewable energy target?

## **Phasing out fossil gas while maintaining consumer wellbeing and security of supply**

61. What are your views on the outcomes, scope, measures to manage distributional impacts, timeframes and approach that should be considered to develop a plan for managing the phase out of fossil gas?

## **Decarbonising the industry sector**

62. How can work under way to decarbonise the industrial sector be brought together, and how would this make it easier to meet emissions budgets and ensure an equitable transition?
63. Are there any issues, challenges and opportunities for decarbonising the industrial sector that the Government should consider, that are not covered by existing work or the Commission's recommendations?

### **Use of fossil fuels to supply process heat needs to be rapidly reduced**

The Climate Change Commission's final report mentions eliminating coal use for food processing by 2040. But we need to move much faster than this. The IPCC in their 2018 report called for emissions from coal burning to fall by 65% over the 2010-2030 period, and more recently UN secretary-general, Antonio Guterres has called for developed countries to completely end coal use by 2030. We also need to eliminate the use of natural gas for this purpose.

Moving away from fossil fuels for low and medium temperature applications is straightforward. We already know how to do it by using biofuels, such as wood chips, or by moving to the use of electricity. In New Zealand, wood biomass is currently an under-utilised resource, with a lot of forestry off-cuts just going to waste.

For example, the dairy industry is one of New Zealand's largest coal users, Fonterra, our largest dairy company, has already taken some small starting steps to move away from coal, and is now firing a boiler at its Te Awamutu plant with wood pellets, but coal typically remains its cheapest option because our emissions charges are so low.

We need to start moving much faster. This could be done with the aid of legislation, but the simplest way is to fairly rapidly increase our ETS charges to the level that makes the use of coal and natural gas to generate process heat no longer economic. It may well be possible to develop the biofuel supply system, put the necessary electricity generation facilities in place and make the onsite equipment changes so as to be able to virtually completely terminate the use of coal for process heat by 2027, or even possibly by 2025, with natural gas following soon after. Some government assistance to affected industries would aid in achieving this.

### **Fossil fuel use for high temperature applications also needs to be addressed**

Regarding high temperature applications, the Climate Change Commission report says that "while there is potential to further decarbonise a range of industrial processes through emerging technologies, we assume these are not available for use before 2035". However, moving beyond what the Commission says, the need to reduce fossil fuel use is rapidly driving changes in technology and the development of new options.

Steel manufacture and processing in New Zealand currently accounts for a major part of our coal use. As an example of recent developments in this area, in July 2021 a Swedish company, HYBRIT, produced its first steel using fossil-free hydrogen instead of coal and coke. It plans to bring fossil-free steel to the market by 2026. The use of plant-derived

charcoal and electrically powered furnaces are also options. Eliminating coal use in these industries by 2030 may well therefore be possible, and something we should aim for.

Cement manufacture is also currently a major coal user, but other fuels such as wood, agricultural waste, or even car tyres, can be used for this purpose. Emerging technology includes using hydrogen-based fuels or electric heaters.

Higher emissions charges can drive these changes, but legislative changes and Government assistance may also be needed, with the aim of keeping these sorts of industries able to continue operating profitably in New Zealand.

### **Addressing current data gaps on New Zealand's energy use and associated emissions through an Energy and Emissions Reporting scheme**

64. In your view, should the definition of a large energy user for the purposes of the proposed Energy and Emissions Reporting scheme include commercial and transport companies that meet a specified threshold?
65. We have identified a proposed threshold of 1 kt CO<sub>2</sub>e for large stationary energy users including commercial entities. In your view, is this proposed threshold reasonable and aligned with the Government's intention to meet emissions budgets and ensure an equitable transition?
66. In your view, what is an appropriate threshold for other large energy users such as transport companies?
67. Are there other issues, challenges or opportunities arising from including commercial and transport companies in the definition of large energy users for the purposes of the proposed Energy and Emissions Reporting scheme that the Government should consider? Supporting evidence on fleet size and characteristics is welcomed.

### **Supporting development and use of low-emissions fuels**

68. What level of support could or should Government provide for development of low-emissions fuels, including bioenergy and hydrogen resources, to support decarbonisation of industrial heat, electricity and transport?
69. Are there any other views you wish to share in relation to energy?

### **Building and construction**

70. The Commission recommended the Government improve the energy efficiency of buildings by introducing mandatory participation in energy performance programmes for existing commercial and public buildings. What are your views on this?
71. What could the Government do to help the building and construction sector reduce emissions from other sectors, such as energy, industry, transport and waste?
72. The Building for Climate Change programme proposes capping the total emissions from buildings. The caps are anticipated to reduce demand for fossil fuels over time, while allowing flexibility and time for the possibility of low-emissions alternatives. Subsequently, the Commission recommended the Government set a date to end the expansion of fossil gas pipeline infrastructure (recommendation 20.8a). What are your views on setting a date to end new fossil gas connections in all buildings (for example, by 2025) and for eliminating fossil gas in all buildings (for example, by 2050)? How could Government best

support people, communities and businesses to reduce demand for fossil fuels in buildings?

73. The Government is developing options for reducing fossil fuel use in industry, as outlined in the Energy and industry section. What are your views on the best way to address the use of fossil fuels (for example, coal, fossil gas and LPG) in boilers used for space and water heating in commercial buildings?
74. Do you believe that the Government's policies and proposed actions to reduce building-related emissions will adversely affect any particular people or groups? If so, what actions or policies could help reduce any adverse impacts?
75. How could the Government ensure the needs and aspirations of Māori and iwi are effectively recognised, understood and considered within the Building for Climate Change programme?
76. Do you support the proposed behaviour change activity focusing on two key groups: consumers and industry (including building product producers and building sector tradespeople)? What should the Government take into account when seeking to raise awareness of low-emissions buildings in these groups?
77. Are there any key areas in the building and construction sector where you think that a contestable fund could help drive low-emissions innovation and encourage, or amplify, emissions reduction opportunities? Examples could include building design, product innovation, building methodologies or other?
78. The Ministry of Business, Innovation and Employment (MBIE) is considering a range of initiatives and incentives to reduce construction waste and increase reuse, repurposing and recycling of materials. Are there any options not specified in this document that you believe should be considered?
79. What should the Government take into account in exploring how to encourage low-emissions buildings and retrofits (including reducing embodied emissions), such as through financial and other incentives?
80. What should the Government take into account in seeking to coordinate and support workforce transformation, to ensure the sector has the right workforce at the right time?
81. Our future vision for Aotearoa includes a place where all New Zealanders have a warm, dry, safe and durable home to live in. How can we ensure that all New Zealanders benefit from improved thermal performance standards for our buildings?
82. Are there any other views you wish to share on the role of the building and construction sector in the first emissions reduction plan?

## **Agriculture**

83. How could the Government better support and target farm advisory and extension services to support farmers and growers to reduce their emissions?
  - a. How could the Government support the specific needs of Māori-collective land owners?
84. What could the Government do to encourage uptake of on-farm mitigation practices, ahead of implementing a pricing mechanism for agricultural emissions?

### **Assessments of farm emissions and how to reduce them**

Regular assessments and re-assessments, on a farm-by-farm basis, of steps farmers can take to reduce emissions would be very helpful. We understand this is already happening to some extent. These assessments could perhaps be made on an annual

basis, or when requested by the farmer, so farmers can consider further changes, as may be needed.

85. What research and development on mitigations should Government and the sector be supporting?

### **Reduction of methane and nitrous oxide emissions**

Around 48% of New Zealand's emissions currently come from agriculture. Around 71% of these agriculture emissions come from methane produced by ruminant animals and around 20% from nitrous oxide. By 2019, the methane emissions had risen by around 8% and the nitrous oxide emissions by around 54% above 1990 levels. This was largely as a result of the expansion of the dairy sector.

We strongly support the research we understand is taking place to explore whether cattle that produce lower methane emissions can be bred, into types of supplementary feed stocks for cattle that can reduce the emissions they produce, and into pasture vegetation and conditions that may also reduce these emissions.

The increase in nitrous oxide emissions is primarily the result of increased use of synthetic nitrogen fertilisers. This has also led to serious nitrogen pollution of many of New Zealand's waterways. The use of these fertilisers can be greatly reduced by moving to alternatives such as inter-cropping with clover or other legumes that can provide nitrogen captured from the atmosphere, and by moving to regenerative farming approaches that can completely eliminate the need for fertilisers, as well as sequestering carbon into the soil. We strongly support further work in this area so that farmers can be advised on how to reduce their nitrogen fertilizer use before a charge is introduced for these emissions.

86. How could the Government help industry and Māori agribusinesses show their environmental credentials for low-emissions food and fibre products to international customers?
87. How could the Government help reduce barriers to changing land use to lower emissions farming systems and products? What tools and information would be most useful to support decision-making on land use?

### **Incentivising emissions reductions**

When emissions charges are introduced, it would make sense to consider financially incentivising emissions reductions to below targets and increased sequestration of carbon in the soil.

88. Are there any other views you wish to share in relation to agriculture?

### **Regenerative farming**

Regenerative farming techniques, which are reasonably new to New Zealand, have now received support from many governments around the world. Because of their strong potential to reduce emissions, sequester carbon in the soil and improve farm operation, it would make sense for our government, perhaps working with the Primary Sector Climate Action Partnership, to set up a team that can travel around New Zealand explaining and promoting this approach. There is a case for one-off funding to be supplied to farmers taking steps to make this change, and ongoing soil testing and advisory services would also be needed in the longer term.



## Use of palm kernel expeller (PKE)

Palm kernel expeller is what remains after palm oil is extracted from the seeds of the oil palm. While this imported product is useful to provide food for cattle during drought periods, palm oil production is leading to increased destruction of forests, particularly in Indonesia and Malaysia. This has major climate change repercussions. We therefore recommend that we move away from the use of this feedstock and instead use locally-sourced feeds.

## Waste

89. The Commission's recommended emissions reduction target for the waste sector significantly increased in its final advice. Do you support the target to reduce waste biogenic methane emissions by 40 per cent by 2035?
90. Do you support more funding for education and behaviour change initiatives to help households, communities and businesses reduce their organic waste (for example, food, cardboard, timber)?
91. What other policies would support households, communities and businesses to manage the impacts of higher waste disposal costs?
92. Would you support a proposal to ban the disposal of food, green and paper waste at landfills for all households and businesses by 1 January 2030, if there were alternative ways to recycle this waste instead?
93. Would you support a proposal to ban all organic materials going to landfills that are unsuitable for capturing methane gas?
94. Do you support a potential requirement to install landfill gas (LFG) capture systems at landfill sites that are suitable?
95. Would you support a more standardised approach to collection systems for households and businesses, which prioritises separating recyclables such as fibre (paper and cardboard) and food and garden waste?
96. Do you think transfer stations should be required to separate and recycle materials, rather than sending them to landfill?
97. Do you think that the proposals outlined in this document should also extend to farm dumps?
98. Do you have any alternative ideas on how we can manage emissions from farm dumps, and waste production on farms?
99. What other options could significantly reduce landfill waste emissions across Aotearoa?

## Use of reusable containers

We used to get milk, cream, soft drinks, alcoholic drinks and other liquids supplied in reusable containers, but now most of these products come in containers that go into the rubbish or recycling bins. Glass milk bottles, for example, used to get re-used typically around 100 times, and plastic milk containers, that were used in other places, had an even longer life.

There is potential for a major reduction in household waste if we were to return to reusable containers for liquid products. There is also potential to start re-cycling other types of food containers that could be investigated further.

## F-gases

100. Do you think it would be possible to phase down the bulk import of hydrofluorocarbons (HFCs) more quickly than under the existing Kigali Amendment timetable, or not?
101. One proposal is to extend the import phase down to finished products containing high-global warming potential HFCs. What impact would this have on you or your business?
102. What are your views on restricting the import or sale of finished products that contain high-global warming potential HFCs, where alternatives are available?
103. What are your views on utilising lower global warming potential refrigerants in servicing existing equipment?
104. Do you have any thoughts on alternatives to HFC refrigerants Aotearoa should utilise (eg, hydrofluoroolefins or natural refrigerants)?
105. Can you suggest ways to reduce refrigerant emissions, in combination with other aspects of heating and cooling design, such as energy efficiency and building design?

## Forestry

106. Do you think we should look to forestry to provide a buffer in case other sectors of the economy under-deliver reductions, or to increase the ambition of our future international commitments?
107. What do you think the Government could do to support new employment and enable employment transitions in rural communities affected by land-use change into forestry?
108. What's needed to make it more economically viable to establish and maintain native forest through planting or regeneration on private land?
109. What kinds of forests and forestry systems, for example long-rotation alternative exotic species, continuous canopy harvest, exotic to native transition, should the Government encourage and why?
  - a. Do you think limits are needed, for example, on different permanent exotic forest systems, and their location or management? Why or why not?
  - b. What policies are needed to seize the opportunities associated with forestry while managing any negative impacts?
110. If we used more wood and wood residues from our forests to replace high emitting products and energy sources, would you support more afforestation? Why or why not?
111. What role do you think should be played by:
  - a. central and local governments in influencing the location and scale of afforestation through policies such as the resource management system, ETS and investment?
  - b. the private sector in influencing the location and scale of afforestation?

Please provide reasons for your answer.

112. Pests are a risk to carbon sequestration and storage in new, regenerating and existing forest. How could the Government support pest control/management?
113. From an iwi/Māori perspective, which issues and potential policies are a priority and why, and is anything critical missing?
114. Are there any other views you wish to share in relation to forestry?