



Meat Industry Association of New Zealand (Inc)

Submission on Climate Change Response (Zero Carbon) Amendment Bill

15 July 2019

Introduction

1. The Meat Industry Association ('MIA') is the voluntary trade association representing New Zealand meat processors, exporters and marketers. MIA members represent 99 percent of domestic red meat production and export, and the meat industry is New Zealand's second largest goods exporter with \$8.6 billion in annual exports, making the industry a critical part of the New Zealand economy.
2. It is New Zealand's largest manufacturing industry employing some 25,000 people in 60 processing plants, mainly in the regions. In many regional centres, the meat processor is the largest single employer. It is a central feature of the New Zealand economy and New Zealand's regional social fabric.
3. We realise that our future is in selling safe, quality, environmentally sustainable products. Other countries, especially in Europe, have adopted "zero carbon", "net zero" or "climate neutrality" policies, and "Zero Carbon" is increasingly demanded by customers. "Zero Carbon" is also easily understood and sets a clear and ambitious target for the next 30 years.
4. **The MIA supports the ambition of the Bill to achieve a "Zero Carbon" New Zealand by 2050.ⁱ**
5. A net-zero or Zero Carbon GHG target for 2050 (i.e. zero carbon to end any additional contribution to temperature increase by 2050) would respond to the latest climate science and fully meet the New Zealand's obligations under the Paris Agreement:
 - It would constitute New Zealand's 'highest possible ambition', as called for by Article 4 of the Paris Agreement. Reaching net-zero emissions earlier than 2050 is not possible without unacceptably high economic and social costs.
 - It goes beyond the reduction needed globally to hold the expected rise in global average temperature to well below 2°C and beyond the Paris Agreement's goal to achieve a balance between global sources and sinks of greenhouse gas emissions in the second half of the century.

- If replicated across the world, and coupled with ambitious near-term reductions in emissions, it would deliver a greater than 50% chance of limiting the temperature increase to 1.5°C.
6. The MIA welcome the “split gas” approach, which recognises the fundamental differences in temperature impact between long-lived gases and short-lived gases. It is acknowledged by almost all that long-lived gases must reduce to net zero. Most scientists also acknowledge that short-lived gases that are stabilised do not contribute to increased global warming. We commend the Government for making this distinction.
 7. It is important to get the law right. In the absence of new technologies, the only way of achieving real reductions in livestock methane emissions is to reduce the feed consumed by livestock, which translates into livestock numbers. A reduction in livestock numbers will have a direct impact on meat processing, and on jobs. This would have a multiplier effect on regional communities. It is therefore critical that if the Government is setting targets to achieve “Zero Carbon”, those targets must be transparent and credible. This has not happened.
 8. MIA is concerned that the specific targets in the Bill have been made with no rigorous scientific analysis, nor any proper economic analysis of the likely impact, especially on regional communities. We support steep reductions in long-lived gases, but allowing fossil fuel users to completely offset their emissions by planting forests is likely to result in a significant and permanent conversion of the New Zealand pastoral landscape to forest. MIA is concerned at the impact this could have on farms, on the New Zealand economy, and the impact on regional communities.
 9. Ultimately, to achieve permanent emissions reductions (including making investments in capital and making changes in how businesses are run), businesses – including meat processors and farmers – need to have confidence that the emission reduction targets and system to meet those targets are transparent and based in scientific analysis.
 10. As an export industry, we believe that any climate policy must also be credible in the eyes of an international audience. Other western countries (including the UK and the EU) are already moving to “Zero Carbon”, with transparent science-based emissions targets for their agricultural industries. Our members are increasingly conscious of being able to prove the environmental credentials of their products. That is undermined if the New Zealand targets and decision-making processes about climate change are not credible. **It is critical for the meat processing and export sector that targets and budgets for achieving “Zero Carbon” are transparent and based on science.**
 11. The MIA is concerned about the targets in the Bill. In other countries, the targets for emissions reductions have been arrived at through an independent open process. In contrast, the specific targets in the Zero Carbon Bill were set without public or independent input.ⁱⁱ MIA calls for the targets to be revised by the Environment Committee based on the emissions reductions necessary for New Zealand to achieve “zero carbon” equivalent by 2050.
 12. In particular, a gross methane target in the Bill is unprincipled, inconsistent with treatment of other gases, and, given that the Government supports a single point of emissions reporting for farms, impractical.
 13. The methane target of 10% by 2030 and 24-47% by 2050 specified in the Bill are not supported by science and are not credible. There is no coherent or consistent underpinning rationale for the targets. The methane targets were not based on science but rather cherry-picked from the IPCC SR1.5 Report which specifically stated that its

scenarios were not suitable for “national strategies and do not indicate requirements”. Other targets in the IPCC SR1.5 Report – in particular, for agricultural nitrous oxide - were not adopted, and in combination New Zealand’s targets go well beyond a 1.5 degree consistent pathway. It is accepted by scientists that a 24-47% reduction in methane would have a cooling effect on the atmosphere (i.e. go well beyond “zero carbon”).

14. We understand why the Government has struggled to come up with a figure for methane. Methane is subject to extremely high levels of uncertainty:
 - Because of its short-life but warming potency, small changes in methane emissions produce significant impacts (either warming or cooling);
 - Methane warming potential is very heavily influenced by the level of other greenhouse gases. New Zealand agricultural methane ceases to increase warming with reductions of about 0.3% a year under current conditions. But the methane reduction requirement doubles if the rest of the world reduces its emissions to be consistent with the Paris Agreement goals.
 - New Zealand’s emissions profile is extremely unusual amongst developed countries with its heavy weighting for agricultural methane.
15. MIA commissioned a climate researcher at the University of Oxford to provide clarity on the issue.ⁱⁱⁱ His report is appended (appendix 1). Using the non-biogenic methane targets in the Zero Carbon Bill and adopted globally for future warming at or below 1.5°C in 2050, then biogenic methane emissions must reduce 7% below 2017 levels if all other sources of methane reduce to zero by 2050. This shows the problems with cherrypicking a range from the IPCC SR1.5 report – when other gases (especially nitrous oxide as going to net zero) are factored in, then the reduction amount required for biogenic methane is far less than that required in the Bill. While it is possible to derive a global pathway consistent with the 1.5C temperature goal, and to take into account all long-lived gases going to zero, translating that to the New Zealand specific target pathway is fraught with risk and uncertainty.
16. The research from Oxford University also shows that when the methane reductions are made also makes a big difference for the impact on the temperature by 2050. “Frontloading” biogenic methane reductions up to 2030 and then constant emissions after then may achieve the same result for the temperature contribution as having a constant rate to 2030 and then very sharp reductions after then. This makes a simple single emissions reduction target at 2050 problematic, as there are different methane reduction pathways to achieve the same temperature result by 2050. **What matters is a focus on the temperature result wanted by 2050 from biogenic methane, and not a precise target number.**
17. For this reason, the MIA recommends amendment to the targets in the Bill to ensure that the targets reflect the ambition of zero carbon by 2050 in a way that is science-based and transparent, but leaves the specific pathway to the expertise of the Climate Change Commission. MIA note that this approach is consistent with other regulatory regimes, where the Parliamentary Act establishes the framework and principles, but leaves it for the competent authority to work out the specific budgets or standards.
18. The MIA wishes to make an oral submission to the Committee.

Part 1 Clause 4 – Paris Agreement goal

19. Clause 4 of the Bill establishes “a framework by which New Zealand can develop and implement clear and stable climate change policies that contribute to the global effort

under the Paris Agreement to limit the global average temperature increase to 1.5° Celsius above pre-industrial levels”.

20. The actual text of the Paris Agreement is for:
“Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels”.
21. The Paris Agreement also states as a goal:
“Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production.”
22. If the objective of the Bill is to carry out New Zealand’s commitment to the Paris Agreement, then the Paris Agreement goals should be better reflected in the Bill. The Bill should therefore be amended to explicitly recognise the importance of maintaining food production.
23. MIA recommend that criteria in clauses 5L, 5Q, 5Z and 5ZN be amended to include the text from the Paris Agreement that efforts to limit the global average temperature increase to 1.5° Celsius above pre-industrial levels “do not threaten food production”.

Part 1A Climate Change Commission

24. The MIA supports the proposal for an independent Climate Change Commission.
25. Taking the outcome demanded by Parliament (zero carbon New Zealand by 2050) and turning that into five-yearly budgets should properly be left to an expert and completely independent Commission to ensure stability and credibility.
26. The MIA is concerned that New Zealand may not have a large enough pool of suitably qualified and independent people - especially those with scientific expertise which will be critical for the credibility of the Commission. Appointment of experts from overseas – especially in climate change science – will add greater independence and credibility to the commission.
27. The MIA recommend amendment to Clause 5D, to specify that at least one member of the commission must be from overseas with scientific expertise in climate change.
28. To ensure ongoing bipartisan support for the Commission, MIA recommend amendment to clause 5E(1)(c) so that “the Minister has consulted representatives of all political parties in Parliament and has obtained the support of parties whose parliamentary members comprise at least 75% of all Members of Parliament.”
29. The MIA recommend Clause 5H should be amended to make clear that both the Minister and the nominating committee have regard to certain criteria before recommending appointment of members of the Commission.
30. The MIA believes that it is critical that members are a mix of scientists with expertise in climate science, and members with a practical understanding of the economic impact of responses to climate change and impacts of climate change policy. The MIA recommend that Clause 5H(1) include:
 - a) recognised expertise in climate science; and

- b) experience in working in or with New Zealand industry.
31. Ultimately, the Climate Change Commission has no actual powers apart from the Minister must “take into account” the Commission’s advice, and provide a written response to its emissions budgets. We note that the Parliamentary Commissioner for the Environment also provides advice, most recently on *Farms, forests and fossil fuels: the next great landscape transformation* (March 2019) - advice which was rejected by the Government.^{iv} The Commission can be ignored by a Minister who finds the recommendations politically unpalatable.

Part 1B Emission Reduction Section Target for 2050 – Net Zero for CO2

32. The meat industry is currently reliant on fossil fuels for heating and other production purposes, and transport of livestock and transport of product. The meat processing industry uses 65,000 tons of coal annually for boilers and rendering.
33. To move from CO2 fuels to electricity is going to require new capital (such as high temperature heat pumps), often in old plants. MIA surveyed its processor members and asked for estimates of converting existing gas, coal and diesel boilers to electricity.^v The capital cost of conversion to electricity for the meat processing industry will be about \$250 million.
34. Coal and gas used for heating in plants are, currently, significantly cheaper than electricity. Comparing the current costs of coal and gas to electricity, it will cost the meat industry roughly an additional \$60 million a year to use electricity instead of coal or gas. It is also probable that the price of electricity will go up as demand increases.
35. A major limitation to electrification is that New Zealand’s electricity network in the regions is inadequate to cope for increased loading that will be placed on it. There will need to be significant improvements to electricity generation and transmission in the next two decades.
36. We wish the Environment Committee to note that the meat industry is willing to “do its bit” for achieving “Zero Carbon” by 2050.

Part 1B Netting CO2 – long-term problems

37. Problematic for the meat industry is that fossil fuel users will be able to continue to offset their emissions by purchasing forestry credits. This allows fossil fuel users to store carbon permanently on otherwise productive land. This an intergenerational transfer of CO2, with CO2 being taken from the ground, transferred to the atmosphere, and then being stored in trees for perpetuity.
38. The Parliamentary Commissioner for the Environment estimates this will result in at about half the pastoral land currently used by the sheep and beef sector being converted to pine forest by 2070.^{vi}
39. The Parliamentary Commissioner for the Environment has pointed out the major long-term impacts on the New Zealand landscape, on regional communities, and on the New Zealand economy of offsetting long-lived gases with a short-term solution (trees).

“In very simple terms, New Zealand policymakers must decide whether they wish to score a net zero accounting triumph in 2050 (or some other target year) by storing carbon in forests over large areas of New Zealand; or adopt a more ambitious approach to reducing fossil emissions and make a transparent statement about how far biological emissions should be reduced.

The current approach runs the risk that we will achieve net zero emissions with gross fossil emissions still running at around half today’s level and still need more time and land to offset the balance well into the second half of the century.”^{vii}

40. Purchasing land for forestry to offset CO₂ emissions is only a short-term solution. In the interim, however, it will result in significant conversion of the pastoral landscape to pine forest, with considerable impacts on the New Zealand economy and regional communities.
41. MIA appreciates that this is a major issue that needs proper analysis and consideration, and that the timetable for passing this Bill may not allow for such deliberations. Nevertheless, the “can cannot keep being kicked down the road” on this. At some point, Parliament, the Government or the Commission will need to address the fact that planting forest cannot keep being used to offset CO₂. At some point, “net zero” will need to change to some level of “gross” or absolute CO₂ reductions.
42. MIA recommends that the Bill be amended so the Commission can review the target for CO₂ and set budgets for CO₂, based on the appropriate level needed to manage landscape change, with amendment to:
 - Clause 5Q(2) criteria be amended, with a subclause requiring the Commissioner to take into account landuse change, including permanent conversion of productive land as carbon sinks, in consideration of targets.
 - Clause 5Z(2) criteria be amended, with a subclause requiring the Commissioner and the Minister to have regard to landuse change, including permanent conversion of productive land as carbon sinks, in consideration of emissions budgets.
 - Clause 5ZI be amended so the Commissioner must also report on the impact of climate change budgets on landscape change.

Part 1B Emission Reduction Section Target for 2050 – International comparisons

43. It is of concern to MIA that the Bill’s emission reduction targets for the agricultural sector are well in excess of other western countries that have also adopted “zero carbon” ambitions.
44. United Kingdom: In June the UK Government announced it will eradicate its net contribution to climate change by 2050. The UK Committee on Climate Change assumes “core measures” by British farmers will reduce agricultural emissions (methane, nitrous oxide and CO₂) by 15% by 2050.^{viii} The Core scenario adopted results in residual agricultural emissions of around 38.6 MtCO_{2e} by 2050, down from 45.6 MtCO_{2e} in 2017.
45. Ireland: The Irish “Climate Action Plan 2019” has assessed that Ireland’s total agriculture emissions.^{ix} It calculated 20.2 MtCO_{2-e} as of 2017. It calculated that cost-effective agricultural mitigation could reduce this by 1.85 MtCO_{2-e}, and offsetting by forestry another 2.68 MtCO_{2-e}. The Irish therefore expect to be able to achieve 22%

cut in emissions (both by agricultural mitigation and sequestration) by 2030. We note that this is for both methane and nitrous oxide.

46. Using GWP100 (used by UK and Ireland, though reservations on this methodology have been expressed), New Zealand's emissions in 2017 were 38.88MtCO₂-e. Zero emissions for CO₂ and nitrous oxide, and 24% for methane by 2050 (as envisaged under the Bill) equates to a 43% reduction in total agricultural emissions. Zero emissions for CO₂ and nitrous oxide, and 47% for methane by 2050 equates to a 60% reduction in total agricultural emissions. The Zero Carbon Bill has targets for agricultural emissions which far exceed those landed on in other countries.

Part 1B Emission Reduction Section Target for 2050 – Net Zero for N₂O

47. To achieve steep cuts in N₂O emissions will require significant changes to farming practices. Fortunately, many changes in farm management to manage nitrates are already underway to achieve water quality objectives. Nevertheless, achieving absolute N₂O emissions reductions for agriculture will be a major challenge, as N₂O emissions are part of an essentially natural process.
48. It is puzzling that the Government didn't also adopt the nitrous oxide target from the IPCC SR1.5 report, on which the Government based its methane reduction target (in the line immediately below in the report). The IPCC SR1.5 report emissions pathway scenarios range for agricultural N₂O is for an increase of +1% and reduction of up to 26% by 2050.
49. The MIA asks the select committee for consistency on clause 50. If the agricultural methane reduction target of 24-47% is adopted on the basis of the IPCC report scenarios, then so should the nitrous oxide targets.
50. The analysis from the researcher at University of Oxford noted that none of the scenarios used by the IPCC had both nitrous oxide and CO₂ going to net zero by 2050. However, if all long-lived gases did go to zero by 2050 (as required in this Bill), then that would affect the biogenic methane levels required (which would then be far less than in the Bill).
51. The MIA accepts that as a long-lived gas, agricultural nitrous oxide should be reduced to net zero by 2050. This is based on the logic that all gases should be reduced so they are no longer contributing to increasing global warming (i.e. zero carbon). However, if the Environment Committee agree that "zero carbon" is the principle, then it should be consistent in application of that principle to all gases.

Part 1B Emission Reduction Section Target for 2050 – Gross reduction in methane

52. The Bill sets a target for a gross reduction in methane emissions. That is to say, farmers will not be able to offset their livestock emissions by planting trees on their properties.
53. This means that while fossil fuel users will be able to offset by planting pine forests, farmers (in the absence of new technologies) will have to cut production.

54. The rationale given for gross (rather than net) reduction in methane is that “trees absorb CO₂ – not methane”.
55. This is simplistic. The purpose of the targets is to achieve an outcome – limiting global warming to 1.5° temperature increase. What matters is the warming effect – it doesn’t matter whether the warming effect is from CO₂ stocks or increasing methane emissions.
56. It is more principled for short-lived biogenic methane to be offset by trees than it is for long-lived CO₂ from fossil fuels. The Parliamentary Commissioner for the Environment writes:

“Biological methane, nitrous oxide and trees are part of the biological cycle, and the duration and benefits forest sinks can provide is roughly aligned with the duration of warming caused by methane and nitrous oxide emissions.”^x

“Using forestry to offset biological emissions makes more sense, as forests and farms are part of the fast biological carbon cycle and nitrogen cycle, and the durations of the warming impacts of biological emissions are better aligned with the duration of the benefits of the trees.”^{xi}
57. Second, the Government has accepted that the best way of achieving on-farm emissions reductions is through a single integrated on-farm plan.
58. It is not practical for a farmer to provide an integrated farm environment plan assessing nitrous oxide emissions, sequestration on that property, and methane emissions, and then to treat them separately. It would lead to the bizarre situation where a farmer is in credit because of netting off nitrous oxide by planting trees, yet still pays for methane emissions.
59. This is especially the case for sheep farmers, where nitrous oxide emissions will be relatively low, but they have land suitable for planting. These farmers will find themselves with a surplus on nitrous oxide, but still have to pay for methane emissions.
60. The MIA strongly recommend that in clause 50(1)(b) the word “gross” be changed to “net”.

Part 1B Emission Reduction Section Target for 2050 – reduction in methane of 10% by 2010

61. The MIA is puzzled about how the 10% by 2030 reduction target for methane was arrived at.
62. Information provided under the Official Information Act suggests that the 10% by 2030 target was arrived at fairly late in development (March 2019), and that officials were tasked with finding a rationale for the target.
63. The rationale for the target seized on by officials was reference to the IPCC SR1.5 report scenarios. However, officials advised the Minister that: “The IPCC does not prescribe any policy approach or target, and the global emissions reductions do not necessarily apply to an individual country, but given the weight placed on its scenarios in the 2050 target formulation we recommend that this be considered in any decision on a 2030 target.”^{xii}

64. In its supporting Q&A material on the Bill prepared for the Minister for the Environment it was implied that the 10% by 2030 target was based on the Biological Emissions Reference Group (BERG) report.^{xiii}
65. Modelling done for the BERG concluded that about a 10% reduction in absolute biological emissions (both nitrous oxide and methane) from pasture based livestock is possible with existing technologies. The report states:
“Modelling suggests that if there was widespread adoption of currently available mitigation options (mainly farm management practices) an up to about 10% reduction in absolute biological emissions from pasture based livestock is possible. However, the ability of farmers to implement such practices varies widely, and while some farmers might achieve such reductions without significant negative impacts on profitability, for others the impact could be large.”^{xiv}
66. The 10% reduction figure stated in the BERG is based on both nitrous oxide and methane emissions.
67. No interim target is provided for CO₂ and other greenhouse gases in the Bill.
68. Analysis from the researcher at the University of Oxford suggests that early reductions in methane are likely to be preferable to linear constant emissions reductions to 2050 or remaining constant to 2030 and then a steep decline in biogenic methane emission to 2050. That research suggests that achieving a reduction in global biogenic methane of 4% in 2030 and then holding constant to 2050 would achieve the same impact on the temperature as holding constant emissions to 2030 and then a 12% cut by 2050.^{xv} However, devising those different pathways is going to be immensely complex and involve not just development of different biogenic methane pathways to achieve the temperature goals, but trading off against other factors (such as economic cost and feasibility of making the reductions). Determining the different pathways to 2050 for biogenic methane should not be a matter for “hard targets” in the Bill, but for the Commission to determine.
69. An interim target of 2030 in the law is unnecessary anyway if there are targets for 2050 and the Climate Change Commission is setting budgets to achieve that goal.

Part 1B Emission Reduction Section Target for 2050 – reduction in methane of 10% by 2010 – likely impact on meat processing

70. Methane is a by-product of ruminant animals digesting grass. The basic arithmetic does not change. DairyNZ field trials found 22 grams of emissions per kg dry matter consumed with very little variation due to feed type or breed.
71. In the absence of a “silver bullet” technology being taken up in the next decade, to achieve a gross reduction in methane emissions farmers will have to reduce livestock numbers.^{xvi}
72. A reduction in livestock numbers will mean fewer animals going to meat processing. That will have a proportional impact on meat processing operations and numbers of workers. How this would play out is not known. Shifts may be cut. Chains may be run for fewer days a year. Some chains in multi-chain processors may be shut down.

Eventually processing plants will be rationalised. Bluntly, a 10% reduction in livestock will result in a roughly equivalent in processing capacity and a commensurate drop in processing employment.

73. Meat processors are in many cases the major employer in a rural community. Reduced processing capacity, including closure of chains or of entire plants, will have a significant impact on those rural communities. Meat processors are major employers in Dargaville, Moerewa, Paeroa, Morrinsville, Te Kuiti, Hawera, Wanganui, Fielding, Levin, Te Puke, Wairoa, Hastings, Takapau, Danvirke, Balclutha, Gore, Invercargill, Blenheim, Ashburton, Timaru and Oamaru. A 10% cut in livestock being processed will have a big impact on those communities. These rural communities cannot simply shift workers who were employed at meat processors onto different industries.
74. For example, if we consider a processing plant at Moerewa in Northland. This is a town of 1400 people, almost 90% Maori. A reduction of 15% of stock available for processing would result in the ovine operation becoming unprofitable and the beef production operating on reduced throughputs, which overall would reduce employment of Full Time Equivalent jobs from 243 to 148, a reduction of 98 full time positions, removing \$5,000,000 from the local economy. Such an outcome is likely to be repeated in many such small communities.
75. There may be unpredictable consequences for meat processing. After many years of reduced livestock numbers, the meat processing industry is optimistic about its future. The industry has undergone a major transition from selling essentially frozen carcasses to higher value processed cuts of meat and ingredients. The industry has successfully developed a range of international markets, with notable success in developing markets in China. Meat processors are investing in new technologies, including automation. The industry is increasingly marketing branded products as safe, high quality and environmentally sustainable. A future with reduced production levels would undercut that optimism and take the industry back to downsizing again.
76. **The MIA strongly recommends that Clause 50(1)(b)(i) be removed completely from the Bill.**

Part 1B Emission Reduction Section Target for 2050 – reduction in methane of 24-47% by 2050

77. The MIA requested analysis and advice on the methane target by the Ministry for the Environment (Mfe) and Ministry for Primary Industries (MPI) under the Official Information Act (OIA) on 10 May 2019. Very heavily redacted copies of advice were provided by Mfe and (after a seven week wait) by MPI. We attach the analysis and advice provided by MPI under the OIA to show the transparency by Government in how the targets were reached (appendix 2).
78. MIA understand why the Government struggled to arrive at a hard numerical target for methane. Determining methane reductions by 2050 is subject to high levels of uncertainty.
79. Instead the Government simply relied on the IPCC SR1.5 report.
80. The figure of 24-47% is taken directly from a table in the IPCC Report Summary for Policy Makers. The table shows “four illustrative model pathway” scenarios to meet the global temperature goals. A copy of the IPCC table relied on by the Government is appended (appendix 3).

81. The table specifically states:
“Indicators have been selected to show global trends identified by the Chapter 2 assessment. National and sectoral characteristics can differ substantially from the global trends shown above.” The Notes to the table also state *“These pathways illustrate relative global differences in mitigation strategies, but do not represent central estimates, national strategies, and do not indicate requirements.”* Indeed, the main report specifically warns that the scenarios *“cannot be assessed as ‘requirements’ for 1.5°C”* (2.1.2).
82. One of the lead authors of the IPCC report, Prof. Myles Allen has explained that the IPCC scenarios should not be used as national targets:
*“One thing I would urge, as an author of the recent IPCC Special Report on 1.5°C, don’t justify targets simply by following what happens in the IPCC’s 1.5°C scenarios.
 Those scenarios are based on economic models of the relative cost of different ways of reducing emissions. Some of the inputs to these models, like the estimated “cost” of a large fraction of the population turning vegetarian, are deeply subjective. The scenarios provide background information, but I would not rely on them as a basis for national policy.”^{xvii}*
83. The scenarios used as the basis for the target envisage agricultural nitrous oxide emissions to change from between -24% and +1%. If the Government is to pick the range for agricultural methane, then it must do the same for agricultural nitrous oxide.
84. The IPCC scenarios also assume significant increases in nuclear energy and the invention of carbon capture and storage technology. This illustrates how using global scenarios are not relevant to New Zealand.
85. The Government has sought to buttress its claims by referring to the BERG report’s assessment of technological developments coming to fruition and being implemented. The BERG report states:
“Modelling indicated that when all mitigation options assessed by the NZAGRC are combined into packages, and assuming various rates of adoption of each practice by farmers, overall biological emissions in the future could potentially be reduced between 10-21% by 2030, and by 22-48% in 2050”.
86. There are three things to note about this.
- First, the figures are for all agricultural emissions – not just methane.
 - Second, the report assumes that all mitigation options being researched come to fruition and are implemented on-farm. Given the fate of DCD (a nitrification inhibitor that resulted in residues in milk), caution is justified in assessing whether promising technologies in the laboratory or in field trials are applicable to on-farm practice. We also note that some technologies, such as 3NOP feed additive, are practically difficult to apply to extensive pastoral systems. The mitigation measures assumed in the BERG report also include novel technologies including Genetically Modified organisms. The PCE’s warning about “silver bullets” is pertinent.
 - Third, the BERG report included offsetting.
87. The methane target in the Bill lacks credibility. It is clear that it has been cherrypicked in a highly misleading way from the IPCC SR1.5 report, and claims by the Government that significant on-farm reductions are possible are based on a misreading of the BERG report.

88. The MIA commissioned research from a researcher at Oxford University to assess what the likely methane reduction required by 2050 would be, using the similar models used by the IPCC in their pathway scenarios. MIA asked for the global biogenic methane emission pathway consistent with the highly ambitious 1.5°C warming ambition, if linear CO₂ and N₂O reduction pathways that reach net zero in 2050 are followed, using an idealised scenario similar to the IPCC SR1.5 analysis. The analysis concluded:
- If targets for non-methane greenhouse gas emissions in the Zero Carbon Bill were adopted and achieved globally, for future arming at or below 1.5°C in 2050... Defining biogenic methane emissions using the biogenic categories (ICMAG and IPC4) from the PRIMAP-hist emission database **biogenic emissions must reduce to 7% below 2017 levels** if all other sources of methane reduce to zero by 2050.^{xviii}*
89. This illustrates the fundamental flaw in this Bill by uncritically relying on global pathway scenarios and cherry-picking just particular parts. If the 2050 temperature ambition of the Bill, net zero targets for long-lived gases, and using global emission pathways are followed (that is, the model that the Government has insisted on using for this Bill), then the reduction range for biogenic methane is not 24-47%, but rather probably considerably less. The research is appended (appendix 1).
90. The 24-47% methane target in the current Bill bears no relationship to the principle that the Bill professes to achieve. If the Bill is intended to achieve a state of “zero carbon” equivalent in all gases by 2050, then that should be made more explicit, and arrived at through a transparent and science-based process.

Clause 5O Target for 2050 – suggested changes

91. The MIA believes that the targets in the Bill must be based on three principles:
- It must be consistent with the “Zero Carbon” ambition to meet New Zealand’s contribution towards the Paris Agreement goals.
 - It assumes that net emissions of greenhouse gases other than biogenic methane reach zero by 2050.
 - Net emissions of biogenic methane must be reduced to a level equivalent to zero carbon of non-biogenic gases.
92. A problem with the Bill is that the Bill’s Paris Agreement goal of limiting global warming to 1.5°C is a global temperature goal. However, how to achieve that is by emissions reductions at the national level, and determining the relative national contribution of national emission to a future global temperature is extremely difficult.
93. The IPCC has developed pathway scenarios to achieve the 1.5°C goal. Almost all have greenhouse gases levelling off to zero increase in their effect by 2050. This has been adopted by other countries as “net zero” or “zero carbon”.
94. The MIA recommends the addition of a new sub-section 5O(1) in the 2050 Target to clarify that New Zealand’s contribution to the Paris Agreement goal of limiting global warming to 1.5°C is through zero carbon defined as zero contribution to increased warming by 2050. This will provide a clear indication to the Commission that Parliament intends to meet the Paris 1.5°C goal through a particular pathway – zero carbon by 2050.

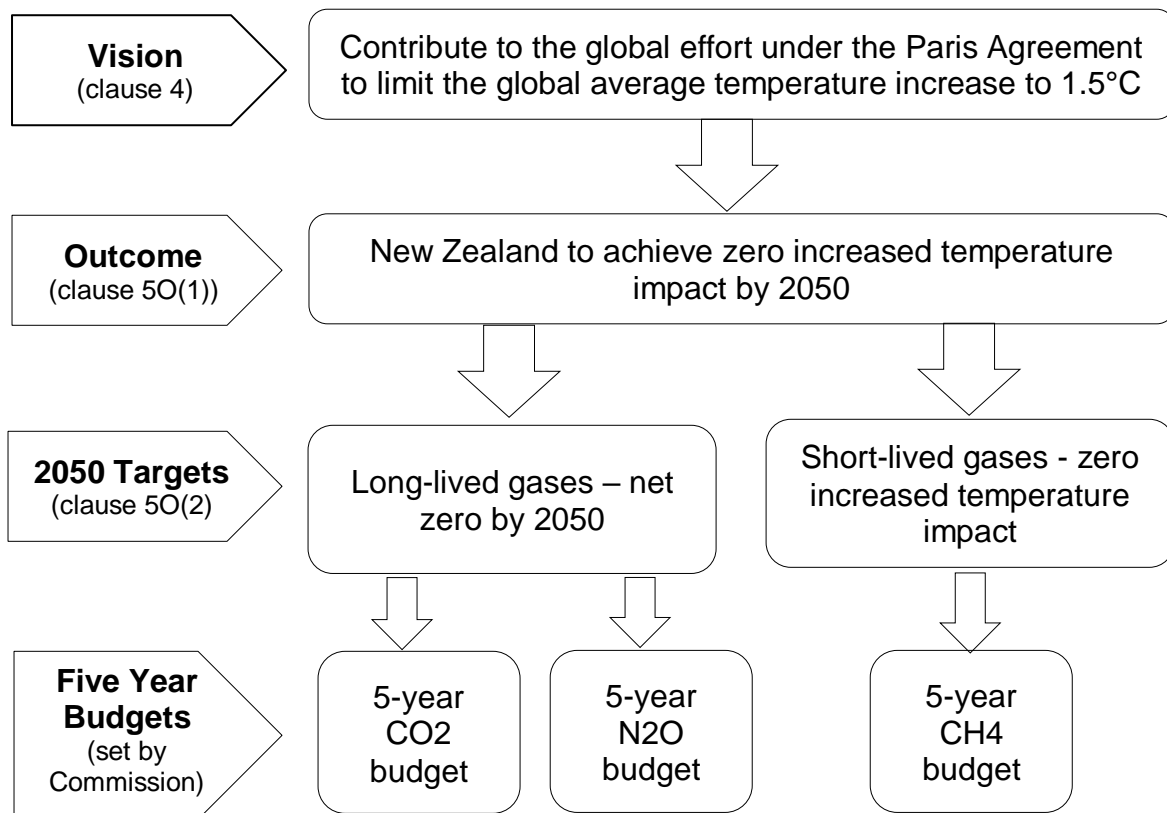
95. The MIA agrees with the Bill's ambition to reduce net emissions of all long-lived gases to net zero by 2050. We agree that steep reductions of long-lived gases are urgently required by 2050.^{xix}
96. The basic problem is that methane is subject to extremely high levels of uncertainty:
- small changes in methane emissions produce significant impacts (either warming or cooling);
 - the warming impact is very heavily influenced by the level of other greenhouse gases.
 - New Zealand's unusual emissions profile.
97. Climate scientists (Frame, Allen, Reisinger, et al^{xx}) have indicated that the methane reduction required by New Zealand, assuming (a) other countries meet the Paris Agreement goals and (b) New Zealand achieves net zero on long-lived gases, is in the area of 20-24%. But they have been reluctant to provide a definitive figure given the uncertainties above.
98. With little scientific analysis to support what "zero carbon" would mean for New Zealand, the MIA commissioned research to assess what the likely methane reduction required by 2050 would be for New Zealand. MIA asked for the biogenic methane emission pathway consistent with the highly ambitious 1.5°C warming ambition, if linear CO₂ and N₂O reduction pathways that reach net zero in 2050 are followed, using an idealised scenario similar to the IPCC SR1.5 analysis. That analysis concluded database biogenic emissions must reduce to 7% below 2017 levels by 2050.
99. This reinforces the fact that methane is subject to extremely high levels of uncertainty. While it is possible to derive a global pathway consistent with the 1.5C temperature goal, and to take into account all long-lived gases going to zero, translating that to the New Zealand specific target pathway is fraught with risk and uncertainty.
100. The research also shows that when the methane reductions are made also makes a big difference for the impact on the temperature by 2050. "Frontloading" methane reductions up to 2030 and then lesser reductions after then may achieve the same result for the temperature contribution as having a constant rate to 2030 and then very sharp reductions. This makes a simple emissions reduction numerical target at 2050 problematic, as there are different methane reduction pathways to achieve the same temperature result by 2050. What matters, then is a focus on the temperature result wanted by 2050 from methane, and not the precise target number.
101. For this reason, the MIA instead proposes taking a principled approach to the methane target, with the methane reductions explicitly tied to achieving zero carbon equivalent in every budget.
102. It would therefore be for the Commission to determine the exact level of methane to be reduced as part of their budget process. We believe that this is the appropriate role for the Commission.
103. MIA therefore proposes the following text to replace Clause 50:

Target for 2050

- (1) As New Zealand's contribution to the global effort under the Paris Agreement under **section 3**, the target for emissions reduction is for New Zealand to achieve zero carbon by 2050, defined as zero contribution to increased warming by 2050, through a balance of emissions and removals.

- (2) The target for emissions reduction (the **2050 target**) requires that –
- a) Net emissions of greenhouse gases in a calendar year, other than biogenic methane, are zero by the calendar year beginning on 1 January 2050; and
 - b) Net emissions of biogenic methane achieve a level equivalent to zero increased impact on the temperature.
- (3) In this section zero carbon is determined by a science-based assessment of the impact of different greenhouse gas emissions on global mean surface temperature.

104. A revised Clause 50 would also make the Zero Carbon Bill’s structure more logical. Conceptually, the Bill should seek to do this:



105. The MIA notes and supports the Federated Farmers submission, which argues for a similar principles based approach.

106. The MIA notes that some other primary sector organisations have argued instead for a numeric change to the methane target (such as “up to 24%”). We note that the target of “zero increased temperature impact” could result in the ballpark of “up to 24%”. MIA believes the Commission should be guided by a clear principle to determine the numbers as part of their budgets, rather than the other way around. MIA also believes that a clearly articulated principle on the expected temperature outcomes will be more easily understood by the public and customers, rather than arbitrary numbers of “24-47%” or “up to 24%”.

107. For this reason, the MIA recommends changing clause 5O Target for 2050 so net emissions of biogenic methane achieve a level equivalent to zero increased impact on the temperature by 2050.

Part 1B Emission Reduction Target Reviews

108. Clause 5P allows the Commission to recommend changes to the targets set in Clause 5O. However, these reviews (a) only apply to targets after 2036 or, (b) when the Minister requests a review.
109. The Government has stated that:
“Last year’s IPCC report suggests a range for what needs to happen with global emissions of methane, but the scientific and economic consensus for what that means for New Zealand doesn’t yet exist. So we’ve included in the Bill a provision for the new, independent Climate Change Commission to give us a more definitive proposal by 2024.”^{xxi}
110. This is misleading – the Climate Change Commission is actually limited in its review.
111. First, the Climate Change Commission can review the methane target of 24-47%, but it can only make recommendations to the Minister. The target will be set in legislation and can only be changed by an amending Act of Parliament.
112. Second, the criteria under which the Commissioner can recommend a change (clause 5Q(2)) are restricted to if there has been a “significant change” in a series of various criteria. This means that even if the Commission believes that a target range is flawed, unless there has been “significant change” in the criteria, the targets remain. An example is regarding the methane target. It may be that there has not been “significant change” in scientific understanding of climate change, but it is obvious that the target bears no relation to any science, so the Commission would not have grounds to review.
113. Third, the methane target of gross 10% reduction by 2030 remains as the review is only for budgets after 2036.
114. The MIA recommends amending clause 5P(1)(a), changing 2036 to 2025, so there is a review of the target in five years, and therefore include a review of any 2030 targets.
115. The MIA recommend amending Clause 5Q(2)(a) so that the Commission may have regard to 1 or more of the following factors as they relate to climate change, replacing “only if significant change has occurred since the commencement of this section to 1 or more of the following” with “considering”. Clause 5P(2)(b) should be removed. This will give the Commission greater ability to review the targets in accordance with existing evidence.
116. The MIA notes that even a recommendation from the Commission to change a target can be ignored by the Minister, and that the targets can only be changed by amendment of the Act in Parliament.

Subpart 2 – Setting Emissions Budgets

117. Clause 5V states that emissions budgets will be set by “a net quantity of carbon dioxide equivalent”. This highlights a major problem with the current 100-year Global Warming

Potential (GWP100) metric, which considerably overstate the impact of short-lived greenhouse gas emissions.

118. This clause should be amended so that “carbon dioxide equivalent” is defined as a science-based comparison of the impact of different greenhouse gas emissions on global mean surface temperature.

Subpart 5 – Effect of 2050 target and emissions budgets

119. Clause 5ZK(1) states that “A person or body may, if they think fit, take the 2050 target or an emissions budget into account in the exercise or performance of a public function, power or duty conferred on that person or body”.
120. MIA are concerned that this may have unintended consequences for sections 104E, 104F, 70A and 70B of the Resource Management Act. This clause may allow local government to essentially circumvent the intention of that law (which prohibits local government from taking into account discharge of gases on climate change).
121. MIA recommend that the Environment Committee clarify the meaning of this clause.

Summary

122. MIA supports the ambition of “Zero Carbon” by 2050.
123. MIA supports the overall architecture proposed for dealing with climate change. In particular, we support the creation of an independent expert Commission to determine how New Zealand moves along a zero carbon pathway to 2050. However, MIA recommends a number of technical improvements to the Bill.
124. Clause 5O (Target for 2050) in particular has significant problems which require considerable consideration and amendment by the Environment Committee.
125. A “net zero” target for CO₂ emissions will accelerate conversion of pasture to pine forest. The Environment Committee should assess the long-term consequences of this on the New Zealand economy and on regional communities.
126. Clause 5O(1)(b) is fundamentally flawed. The methane reduction of 10% by 2030 is completely arbitrary and would result in significant economic and social costs. The methane reduction of 24-47% by 2050 is based on selective use of the IPCC SR1.5 report scenarios (which itself states should not be used for national targets).
127. The methane target's in the Bill of 10% by 2030 and 24-47% methane reduction by 2050 are not credible figures. Assuming a net zero target for long-lived gases, then the biogenic methane reduction required to limit global warming to at or below 1.5 is considerably less. Further, a hard numeric target at 2050 would not appear to be the best way of achieving the temperature goal, and there are different pathways for methane emissions. This suggests that cause 5O of the Bill should be focussing on temperature outcomes by 2050, rather than a fixed numeric target for methane.
128. The MIA recommends amending clause 5O to provide a clear direction for how Parliament expects the Paris Agreement goal to be met through “zero carbon” in all

greenhouse gases. The new clause proposed sets a target for biogenic methane to reduce by the equivalent amount according to its temperature impact. And it reinforces that assessment of different gases on the zero carbon pathway should be a science-based assessment of their impact on temperature with budgets for that pathway determined by an independent expert Commission.

129. MIA therefore recommends a new clause 5O:

Target for 2050

- (4) As New Zealand's contribution to the global effort under the Paris Agreement under **section 3**, the target for emissions reduction is for New Zealand to achieve zero carbon by 2050, defined as zero contribution to increased warming by 2050, through a balance of emissions and removals.
- (5) The target for emissions reduction (the **2050 target**) requires that –
 - c) Net emissions of greenhouse gases in a calendar year, other than biogenic methane, are zero by the calendar year beginning on 1 January 2050; and
 - d) Net emissions of biogenic methane achieve a level equivalent to zero increased impact on the temperature.
- (6) In this section zero carbon is determined by a science-based assessment of the impact of different greenhouse gas emissions on global mean surface temperature.

This will achieve the goal of Zero Carbon New Zealand by 2050.

130. Clause 5P and 5Q require amendment to allow for the Commission to review and advise on changes to the targets in 2025.
131. New Zealand is the first country that seeks to do something serious about agricultural greenhouse gases. Other countries, as they begin to look to their own greenhouse gas emissions, will look to the New Zealand system. If the targets of this Bill are based on ad hoc fixes and compromises (such as the obviously cherrypicked methane targets), then it will not be taken seriously or be influential. Nor will it last.
132. On the other hand, a system with that is transparent, science-based and goes directly to addressing the temperature impact will be credible and influential. It will mean New Zealand becomes an international "rules-writer" for agricultural greenhouse gas emissions. As an exporting country, it is crucial that New Zealand choose the latter path.
133. The MIA wish to appear before the Environment Committee.

MIA Contact

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Meat Industry Association of New Zealand (Inc)
15 July 2019

MIA members and affiliate members as at July 2019

Members	Affiliate members
Advance Marketing Ltd	Abattoirs Association of New Zealand
AFFCO New Zealand Ltd	AgResearch Ltd
Alliance Group Ltd	Alfa Laval New Zealand Ltd
Ample Group Ltd	Allied Envirotech
ANZCO Foods Ltd	AON New Zealand Ltd
Arrow Commodities (NZ) Ltd	Auspac Ingredients Pty Ltd
Auckland Meat Processors Ltd	Centreport Ltd
Bakels Edible Oils (NZ) Ltd	CMA-CGM Group Agencies (NZ) Ltd
Ballande New Zealand Ltd	Cooltranz 2014 Ltd
Blue Sky Meats (NZ) Ltd	Conveyor Industries Ltd
BX Foods Ltd	Direct Fats and Oils Ltd
Columbia Exports Ltd	Ecolab Pty Ltd
Crusader Meats New Zealand Ltd	Foodcap International Ltd
Davmet (New Zealand) Ltd	G-Tech New Zealand Ltd
Farmlands Mathias International Ltd	Haarslev Industries Ltd
Fern Ridge Ltd	Hamburg-Sud New Zealand Ltd
Firstlight Foods Ltd	Hapag-Lloyd
GrainCorp Commodity Management NZ Ltd	Ibex Industries Limited
Greenlea Premier Meats Ltd	Intralox Ltd
Harrier Exports Ltd	Jasol
Integrated Foods Limited	Kemin Industries NZ Ltd
Kintyre Meats Ltd	Liqueo (HB) Ltd
Lanexco Ltd	Maersk NZ Ltd
Lowe Corporation Ltd	MJI Universal Pte Ltd
Midland International Ltd	Nestle New Zealand Ltd
NZ Natural Beef and Lamb Ltd	Oceanic Navigation Ltd
Ovation New Zealand Ltd	Port of Napier Ltd
Prime Range Meats Ltd	Port Otago Ltd
Progressive Meats Ltd	Pyramid Trucking Ltd
Provenance Meat (NZ) Ltd	Rendertech Ltd
PVL Proteins Ltd	Rockwell Automation (NZ) Ltd
SBT Group Ltd	SCL Products Ltd
Silver Fern Farms Ltd	Scott Technology Ltd
Standard Commodities NZ Ltd	Sealed Air (New Zealand)
Taylor Preston Ltd	Vero Insurance New Zealand Ltd
Te Kuiti Meat Processors Ltd	Wiley New Zealand Limited
UBP Ltd	
Value Proteins Ltd	
Wallace Corporation Ltd	
Wilbur Ellis (NZ) Ltd	
Wilmar Gavilon P ty Ltd	

ⁱ Global temperature rise depends primarily on cumulative emissions of CO₂ and other very long-lived greenhouse gases (e.g. nitrous oxide and some F-gases). Temperature limits will therefore only be met if emissions of these gases reach net zero. Other, shorter-lived gases (e.g. methane) drive temperature by their rate of emission, and different reductions are needed to achieve zero temperature increase.

ⁱⁱ The Government's options given to the public in mid-2018 were for (1) Net Zero CO₂ by 2050; (2) Net zero long-lived gases and stabilised short-lived gases by 2050; and (3) Net zero emissions by 2050. None of the public consultation envisaged the methane targets adopted in the Bill. Indeed, it is clear from the Regulatory Impact Statement for the Bill that the methane targets were not known and the methane targets were only seized on very late in the stage of drafting of the Bill.

ⁱⁱⁱ Leach, Global methane emissions pathways consistent with 1.5°C warming, July 2019.

^{iv} *Farms, forests and fossil fuels: The next great landscape transformation?*, Parliamentary Commissioner for the Environment, March 2019. The Government's response was that "This report will not affect the decisions the Government has consulted on and signalled over the course of the last 12 months regarding the Zero Carbon Bill and reforms to the NZ Emissions Trading Scheme."

^v Some MIA members have been working with EECA and so have been able to determine some estimates of capital conversion and operating costs of coal, gas and electricity.

^{vi} *Farms, forests and fossil fuel*, p.11 and p.127 – "Unconstrained access to forest sinks in the current approach sees 5.4 million hectares of land switched to forest cover."

^{vii} *Farms, forests and fossil fuel*, p.14.

^{viii} <file:///C:/Users/goldstonep/Downloads/Net-Zero-Technical-report-CCC.pdf>

^{ix} <https://www.dccae.gov.ie/en-ie/climate-action/publications/Documents/16/Climate%20Action%20Plan.pdf>; "An Analysis of Abatement Potential of Greenhouse Gas Emissions in Irish Agriculture 2021-2030", Teagasc Greenhouse Gas Working Group, June 2018.

^x *Farms, forests and fossil fuels*, p.10.

^{xi} *Farms, forests and fossil fuels*, p.13.

^{xii} MfE to Hon James Shaw, "Climate Change Bill: advice on target formulation and legal accountability", 28 March 2019.

^{xiii} The BERG was a joint agriculture industry-government working group of Beef + Lamb NZ, DairyNZ, Deer Industry NZ, Federated Farmers, The Fertiliser Association of NZ, Fonterra, HortNZ, Ministry for Primary Industries (MPI), and Ministry for the Environment (MfE).

^{xiv} <https://www.mpi.govt.nz/dmsdocument/32125-berg-report-final-for-release-6-dec>, p.5.

^{xv} Leach, Global methane emissions pathways consistent with 1.5°C warming, Figure 7.

^{xvi} Parliamentary Commissioner for the Environment, *Climate change and agriculture: Understanding the biological greenhouse gases*, October 2016 – "There are no silver bullets for reducing methane and nitrous oxide emissions currently on the horizon."

^{xvii} Allen, "A climate-neutral NZ? Yes, it's possible", Auckland University, March 2019

^{xviii} Leach, Global methane emissions pathways consistent with 1.5°C warming, July 2019.

^{xix} For example, IPCC SR.15 https://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf states that all scenarios with no or limited overshoot of 1.5°C, global net anthropogenic CO₂ emissions decline by about 45% from 2010 levels by 2030, reaching net zero around 2050. *Net-Zero: The UK's Contribution to stopping global warming*, May 2019, <https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf> - "To stabilise global temperatures, emissions of long-lived gases like CO₂ must be reduced to net-zero. Emissions of short-lived gases like methane must be stabilised, but need not reach net-zero".

^{xx} Reisinger, *The contribution of methane emissions from New Zealand livestock to global warming*, August 2018; Frame, Macey and Allen, "Why methane should be treated differently compared to long-lived greenhouse gases", June 2018,; etc. Also Frame and Reisinger at a workshop for pastoral sector organisations on 4 February.

^{xxi} <https://www.beehive.govt.nz/speech/landmark-climate-change-bill-goes-parliament>