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To: New Zealand Productivity Commission
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Submission on: **Low-emissions economy – Draft report April 2018**

From: DairyNZ

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1. INTRODUCTION

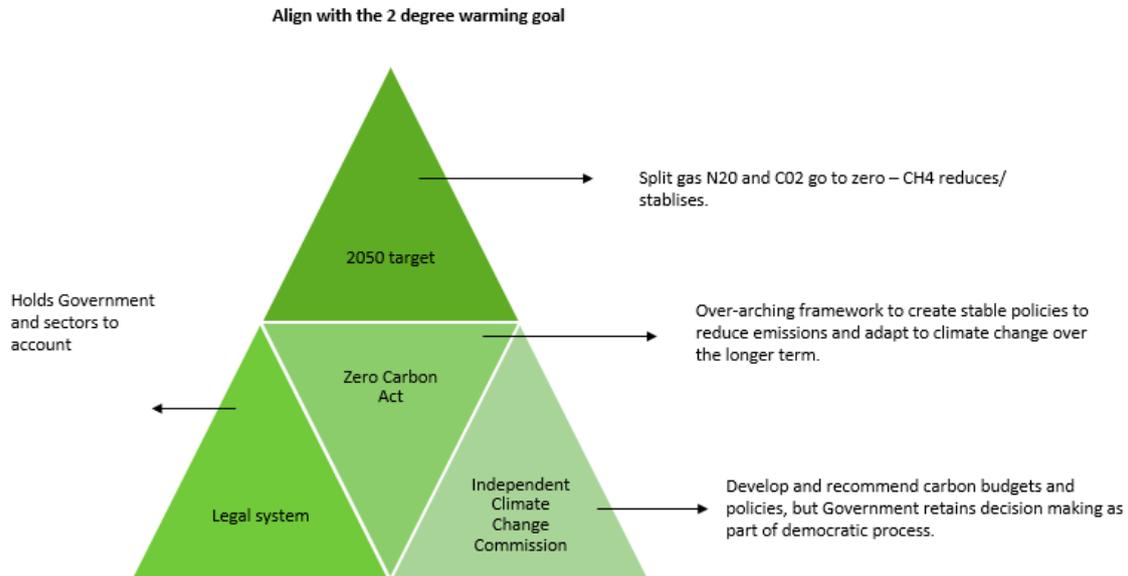
- 1.1 DairyNZ supports the Government's commitment to make New Zealand a leader in the global fight against climate change. We continue to support the current approach which recognises that climate change is a global problem and looks at the collective actions which can be taken to reduce all greenhouse gasses. This includes undertaking actions internationally to reduce global nitrous oxide and methane emissions.
- 1.2 We recognise the dairy sector's responsibility to contribute to New Zealand's greenhouse gas reduction targets and support the development of an economy wide plan that outlines what the expectation of each sector is in contributing to these targets.
- 1.3 DairyNZ supports the development and implementation of an outcome focussed policy framework which enables innovation and flexibility on how the agricultural sector can address its biological methane and nitrous oxide emissions. A positively re-enforced signal needs to be sent which encourages on farm action to address biological emissions. This involves understanding the levers which could be applied to get an outcome which adequately balances the significant economic, social, and environmental objectives New Zealand is working towards. The pathway must be integrated with the freshwater management policy framework.
- 1.4 In the following sections of this submission DairyNZ provides commentary for the Productivity Commission's consideration in finalising its Low-emissions economy Draft report.

2. POLICY FRAMEWORK

- 2.1 DairyNZ believes focusing on whether agricultural emissions should face a price in the Emissions Trading Scheme is not the primary question which needs to be examined to determine how to reduce and offset the sector's emissions.
- 2.2 Instead we support a process being undertaken which defines the short and long-term outcomes the dairy industry can achieve to address on farm emissions, improve on farm biodiversity, address water quality, and build sector resilience, and then determines the type of mechanisms and complimentary measures which could be adopted to achieve these.
- 2.3 This framework would need to interlink with the economic, and social objectives the dairy industry and wider economy is working towards. This requires an approach which is multifaceted and enables innovation and flexibility.
- 2.4 DairyNZ believes the Government's proposed climate change framework will assist in determining what the overarching outcome should be for climate change. We are therefore supportive of the development of the Zero Carbon Bill framework which aligns with global efforts to prevent the average temperature from increasing above 2 degrees on pre-industrial levels by 2100. Setting up an Independent Climate Change Commission to establish and recommend emission budgets and implementing a system where the Government establishes processes and policies to meet

these budgets, will establish policy certainty and provide clarity on what the dairy sector and the broader economy’s transition entails.

2.5 Our proposed approach is outlined in the diagram below:



2.6 In supporting this framework, DairyNZ would seek to work with the wider agricultural sector, the Commission (on its establishment) and the Government on:

- Ensuring there is sufficient flexibility on how New Zealand meets the 2050 target to enable international credits earned through tech and farming practice transfer to other countries to be used.
- Ensuring the policy framework for GHG, nutrient management, biodiversity, and land-use change is addressed in an integrated way rather than on an issue by issue basis.
- Ensuring the action farmers are undertaking to address water quality and GHG’s are recognised and captured via transitional arrangements.
- Developing an Innovation and Diffusion Strategy which includes continued investment by both Government and industry in the breakthrough technologies being developed by the NZAGRC and PGgRc. This would help address the unique challenges around uptake of new technologies and practices (e.g. capital constraints and information gaps).
- Identifying how the 1 Billion trees programme can support the proposed climate change framework’s objectives.

2.7 In regard to whether agricultural emissions should face a price in the ETS, DairyNZ is supportive of the process being led by the Interim Climate Change Committee determining the short and long-term objectives and the type of mechanism which could be introduced to address biological methane and nitrous oxide emissions. We hope to work with the Committee, the wider sector, and Government to define the outcomes and explore the merits of the Emissions Trading Scheme alongside a range of other policy mechanisms.

3. INTERNATIONAL CLIMATE CHANGE FRAMEWORK



3.1 With approximately half of New Zealand's greenhouse emissions coming from agriculture and nearly a quarter coming from the dairy industry, New Zealand is well placed to become a world leader in addressing biological methane and nitrous emissions and assist other countries do the same.

3.2 We therefore support the New Zealand Government taking an approach which prioritises outcomes in the international climate change negotiations which recognise the efforts of our agricultural sector to reduce and offset biological methane and nitrous oxide emissions domestically and internationally.

3.3 DairyNZ supports the New Zealand Government considering the following aspects in developing its negotiating position ahead of the international climate change negotiations:

Establishment of a mechanism recognising farm systems practices and knowledge transfer from one country to another similar to the Kyoto Protocol Joint Implementation mechanism.

3.4 On-farm efficiency gains from 1990 onwards have resulted in New Zealand's agricultural sectors emissions being 30 percent lower than they would otherwise been. This has largely been achieved through improved animal genetics and management, combined with better grassland management, and feeding practices have resulted in farms using resources more efficiently to increase their outputs. In the dairy industry practices have evolved seeing consistent supply of high quality

3.5 New Zealand's dairy farmers continue to improve and adapt their farm systems to improve the environmental, social, and economic sustainability of their businesses. There is a significant focus on running a more efficient system, by managing the farm system dry matter intake to reduce methane emissions and managing the farms nitrogen surplus to address nitrogen leaching into waterways and nitrous oxide emissions into the atmosphere.

3.6 DairyNZ believes there is an opportunity for the Government to negotiate for a mechanism to be established via the Paris Agreement formally recognising the transfer of New Zealand's evolving farm systems knowledge and practices to less efficient producers against the global efforts to reduce greenhouse gas emissions. This would be similar to the Joint Implementation mechanism, defined in article six of the Kyoto Protocol.

Continued international focus and formal recognition on the research and development undertaken into breakthrough technologies and practices to reduce biological methane and nitrous oxide emissions

3.7 DairyNZ is very supportive of the work the New Zealand Government, its negotiators, and the New Zealand Agricultural Research (NZAGRC) and the science community undertakes via the Global Research Alliance and the United Nations Framework Convention on Climate Change to address global agricultural emissions.

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- 3.8 The Government and the agricultural sector industry bodies such as DairyNZ, Beef+Lamb, Deer Industry New Zealand, and Fonterra continue to invest via the New Zealand Greenhouse Gas Research Centre (NZAGRC) and the Pastoral Greenhouse Gas Research Consortium (PGgRc) into the research and development of breakthrough technologies to reduce biological methane and nitrous oxide emissions. This research is showing some promising results with a possible methane inhibitor becoming available in 2025.
- 3.9 We hope this investment and the results achieved via this research will continue to be profiled as part of the international negotiations. DairyNZ believes there is an opportunity for New Zealand to be a world leader in tackling biological emissions from livestock and hope our contribution continues to be recognised in the international negotiations. Once this research comes to fruition it will assist in reducing global livestock emissions, we believe this contribution should count towards New Zealand's efforts to meet its 2030 NDC and transition to a low emissions economy.
- 3.10 DairyNZ therefore supports the Government taking approach in the Paris Agreement international climate change negotiations which sees New Zealand's efforts and contribution to the research and development into breakthrough technologies and practices to reduce biological emissions formally recognised.

Flexibility in what is determined a carbon forest in the international accounting rules

- 3.11 The current definition of a forest for the purposes of carbon sequestration under the international climate change accounting rules is restrictive. Dairy farmers are undertaking a whole range of planting on-farm for other purposes which are sequestering carbon. These include riparian planting and wetlands to improve water quality, and planting trees for soil conservation, shade, biodiversity, biosecurity, as shade for livestock, as fodder for livestock, and as shelter belts against the wind.
- 3.12 At present most of this on-farm planting does not meet the international carbon forest rules and therefore cannot be entered the Emissions Trading Scheme or count towards New Zealand's 2030 NDC. DairyNZ proposes as part of New Zealand's negotiation priorities the definition of a carbon forest is examined and consideration is given as to whether it can be expanded beyond the current 5 meters in height, 30 metres wide, 30 percent crown cover, and over one-hectare definition.

4. SHORT LIVED AND LONG-LIVED GASES

- 4.1 The Paris Agreement on climate change, which all 197 UNFCCC members have either signed or acceded to, is focussed on reducing GHG emissions to prevent the global average temperature from increasing 2 degrees above pre-industrial levels by 2100.
- 4.2 Reducing carbon dioxide (CO₂) to net zero continues to be the priority, however there is an increasing focus on the need to also reduce agricultural methane (CH₄) and nitrous oxide (N₂O) emissions.

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- 4.3 There are different reduction pathways which have been modelled demonstrating how this could be achieved which have different consequences for the mitigation and offsetting actions undertaken to reduce CO₂.
 - 4.4 In examining these pathways and their implications, consideration is given to the fact not all GHGs have the same warming effect or stay in the atmosphere for the same amount of time. This is reflected in the way GHGs are accounted for in the international framework. The metric used is Global Warming Potential (GWP), which equates each gas into the tonnes of carbon dioxide equivalent and accounts for its warming potential over a 100-year timeframe.
 - 4.5 CO₂ and N₂O are long-lived gases. One tonne of CO₂ can last in the atmosphere for thousands of years and is the predominant GHG. While one tonne of N₂O has the equivalent warming effect of 298 tonnes of CO₂ and lasts about 121 years. The science shows both N₂O and CO₂ must go to net zero if we are to stay within the 2-degree threshold.
 - 4.6 CH₄ in comparison is a short-lived gas and lasts for approximately 12 years, however it has the same warming effect as 25 tonnes of CO₂. Due to the short-lived nature of CH₄, the science shows it does not need to go to zero, instead it can be reduced and then stabilised at a certain point in time.
 - 4.7 The significance of direct agricultural emissions to future warming depends strongly on global actions to reduce CO₂. At present the emission reduction targets countries have adopted put us on track to 2.8 degrees warming by 2100.
 - 4.8 There is a growing scientific consensus that in order to stay below the 2-degree threshold parties of the Paris Agreement have agreed to, CO₂ and N₂O must go to net zero and CH₄, due to its short-lived nature, should decrease and then stabilise.
 - 4.9 DairyNZ therefore supports the Government adopting an approach which treats short and long-lived gasses differently.

5. LAND USE CHANGE

- 5.1 DairyNZ acknowledges that land use change is something that is likely to occur over the next twenty to forty years. Climate change is one of a number of levers which will influence the pace and scale of land use change in New Zealand.
- 5.2 As noted in our previous submission on the Issues Paper it is an area which the dairy sector, the broader agricultural sector and the Government are just beginning to examine.
- 5.3 The modelling undertaken by Motu for the Productivity Commission indicates the different levels of land-use change which could occur away from dairy, sheep, and beef farming to forestry and horticulture under different carbon prices. In reality this will be driven by an array of factors not



just a carbon price or other market-based instruments. These include, as noted in our previous submission:

- The wider environmental, social, and economic impacts of encouraging land use change, such as land-value and equity implications.
- Identifying the agro-ecological aspects of different regions, this includes soil type, climatic variability, and identifying what land use may be applicable in accordance with the regions environmental limits.
- Identifying how to overcome the high capital costs involved in changing land-use and implementing a new system.
- Identifying measures to overcome the capability and capacity requirements which would be required to transition to an alternative land-use.
- The timeframe at which change is possible.

5.4 DairyNZ is therefore supportive of a policy framework which enables innovation and flexibility and is comprised of an array of complimentary measures and is not based solely on a market-based instrument.

5.5 We are developing a rural planning tool which will examine the suitability of different land types across catchments and regions to reduce a range of contaminants (nitrogen, sediment, phosphorus, GHGs, and e-coli).

5.6 The intention is for this tool to help identify the adaptive capacity in different catchments and regions to maintain the ecosystem health. This will help us identify how to drive land use change in an efficient and effective manner across New Zealand. It is important land use change is examined alongside the social and economic sustainability of regional communities.

5.7 DairyNZ hopes to work with government and the wider agricultural sector on a land use change strategy, which incorporates our rural planning approach.

6. ABOUT DAIRYNZ

6.1 DairyNZ is the industry good organisation representing New Zealand's dairy farmers. Funded by a levy on milksolids and through Government investment, our purpose is to secure and enhance the profitability, sustainability, and competitiveness of New Zealand dairy farming.

6.2 We deliver value to farmers through leadership, influencing, investing, partnering with other organisations and through our own strategic capability. Our work includes research and development to create practical on-farm tools, leading on-farm adoption of best practice farming, promoting careers in dairying and advocating for farmers with central and regional government. For more information visit www.dairynz.co.nz.