CLIMATE CHANGE COMMISSION

Submission on Reforming the NZ ETS: Proposed settings

28 February 2020

About the Commission

1. This is a submission from the Climate Change Commission. The Commission is an independent Crown entity established in December 2019 pursuant to the Climate Change Response Act 2002 (the CCRA). Contact details for the Commission and short descriptions of each Commission member are provided in an appendix.

2. The statutory purposes of the Commission are "to provide independent, expert advice to the Government on mitigating climate change (including through reducing emissions of greenhouse gases) and adapting to the effects of climate change; and to monitor and review the Government's progress towards its emissions reduction and adaptation goals."

3. The Commission's interest in the proposed provisional emissions budget and New Zealand Emissions Trading Scheme (NZ ETS) settings is driven by our role of providing advice to the Minister for Climate Change to enable the preparation of emissions budgets and an emissions reduction plan under the CCRA. We also note that the Climate Change Response (Emissions Trading Reform) Amendment Bill (ETR Bill) proposes roles for the Commission to advise in future on NZ ETS settings, on phase-out rates for industrial allocation, and on pricing agricultural emissions. The Commission is not a NZ ETS participant.[1]

Overview of this submission

4. We acknowledge that the proposals under consultation aim to define a provisional emissions budget and initial NZ ETS settings to apply during the period before 2022 when the first three emissions budgets and an emissions reduction plan under the CCRA will be in place.

5. We are committed to the Commission's mandate under the CCRA to providing advice based on the best available evidence and independent analysis, informed by engagement and consultation. Given the recent establishment of the Commission, we are not yet in a position to evaluate the Government's evidence base and comment specifically on the level of ambition proposed for the provisional emissions budget and the NZ ETS settings. In this submission, we have therefore focused on the logic, coherence and transparency of the method used to determine the provisional emissions budget and NZ ETS settings.

6. We see a risk in the current process to set a provisional emissions budget on which to base NZ ETS settings in that it could lock-in expectations for Government policy and business investment before the advice of the Commission is available. For this reason, we highlight key aspects of the Commission's forthcoming work on emissions budgets which may affect how NZ ETS settings will evolve, to signal these in advance to stakeholders.

7. By providing this feedback, we hope to:

[1] Some commissioners or near family members, including the Chair, have interests (individually or through partnerships, trusts or companies), in the NZ ETS. This declaration is made in the interest of transparency.

a. Contribute to a more robust immediate outcome for the first regulations on NZ ETS unit supply and price controls.

b. Draw attention to further work that will improve the evidence and analysis underpinning the proposals over time, to help to put recommendations for updates to the NZ ETS settings regulations on a stronger footing in future.

c. Enhance transparency and understanding of how the new framework for New Zealand's climate policy, including the 2050 target and emissions budgets, resulting from the passing of the Zero Carbon Bill, relates to the NZ ETS.

8. The proposed unit supply and price control settings will implement an emissions cap into the NZ ETS and overall they represent a significant improvement on the current operation of the scheme. Nevertheless, we have identified some important areas where the proposals need to be clarified, strengthened by further evidence, and/or better aligned with the legislative objectives and framework. The two most critical areas for improvement include:

    a. Transparency in how the overall limit on units and its components are set, and in how these unit volumes will be adjusted over time. This is crucial information about NZ ETS market fundamentals that market participants need to make informed decisions. This information should be thoroughly documented and publicly available.

    b. Price levels for the cost containment reserve (CCR) and auction reserve price should increase year-on-year to signal increasing mitigation ambition, factor in expected inflation, and to clearly reflect the matters to be considered in determining these settings proposed in the ETR Bill.

9. Given the history of the NZ ETS, it will take time time to build investor confidence and establish a robust and trusted system for unit supply and price control settings that supports the efficient operation of the scheme. This enhances the need for a package of climate policies. The consultation document makes it clear that achieving the provisional emissions budget will require a range of other policy tools and approaches alongside the NZ ETS to drive emissions reductions and address other effects. If the NZ ETS settings are not fit-for-purpose, however, then the burden placed on non-price and sector-specific policies will be even heavier.

10. We note that this package of NZ ETS settings will generate proceeds from the auctioning of New Zealand Units (NZUs), which opens up new opportunities. International experience indicates that emissions pricing policies are likely to be better supported by stakeholders where the funds generated are recycled.[2]

11. Finally, the Commission's advice on the first three emissions budgets and emission reduction plan will include advice on "how the emissions budgets, and ultimately the 2050 target, may realistically be met, including by pricing and policy methods". We expect to comment further on the role and operation of the NZ ETS in our advice on the first three emissions budgets and the direction of policy required in an emissions reduction plan, to be provided to the Minister for Climate Change by 1 February 2021.

[2] Klenert, D., Mattauch, L., Combet, E. *et al.* Making carbon pricing work for citizens. *Nature Climate Change* **8,** 669–677 (2018). https://doi.org/10.1038/s41558-018-0201-2

Detailed feedback

Provisional emissions budget

Emissions budget trajectory

12. In the proposed provisional emissions budget, net emissions will be held steady at 2020 levels in 2021 and 2022, and then will be reduced over 2023 to 2025 on a straight-line trajectory to the 2050 target.[3] We recognise that this is a pragmatic approach based on consistency with achieving the nominal single-year 2050 target, given the limited evidence available now to formulate the provisional emissions budget proposal.

13. We note, however, that under the CCRA emissions budgets must be set with a view not only to meeting the 2050 target but also contributing to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5° Celsius above pre-industrial levels (section 5W(a)). The IPCC's Special Report on global warming of 1.5°C found that achieving the 1.5°C goal requires steep near-term cuts in CO_2 globally to limit cumulative emissions and deep reductions in the emissions of other greenhouse gases over time.[4]

14. The emissions budgets to be set in 2022 under the CCRA will need to be developed in a way that has regard to how New Zealand's actions support the global 1.5°C temperature goal. The provisional emissions budget and the official emissions budgets under the CCRA are domestically focused, and do not represent the full extent of New Zealand's contribution to global efforts. Nevertheless, the proposed straight-line trajectory focuses on the single-year end-point of the 2050 target rather than also considering the accumulation of long-lived greenhouse gases in the atmosphere. This may not be consistent with the approach required by the CCRA, if maintained over the longer term.

15. It would also be useful for information to be provided about how the provisional emissions budget relates to the sub-target of reducing biogenic methane emissions by 10% below 2017 levels by 2030.

Focus on domestic emission reductions and commitment to purchase offshore mitigation

16. The provisional emissions budget has been proposed as a goal for New Zealand's domestic emissions reductions, reflecting the intent of emissions budgets as per section 5W(b) of the CCRA. This implies that offshore mitigation will be needed to bridge the gap between domestic net emissions and New Zealand's first Nationally Determined Contribution (NDC) under the Paris Agreement.

17. We note that the availability, timing and cost of offshore mitigation is highly uncertain at present. This is acknowledged on page 57 of the consultation document, which states that the longer-term outlook for prices in key carbon markets internationally is challenging to forecast and is influenced

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[3] We note that the 2050 target is split gas with a range for reductions in biogenic methane, and that the provisional emissions budget trajectory uses the mid-point of the range. Also we note that both the proposed provisional emissions budget and emissions budgets under the CCRA are expressed as a net quantity of carbon dioxide equivalent emissions.

[4] IPCC, 2018: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press.

by many factors, such as the availability of abatement options, economic growth, and climate policy choices.

18. Given this situation, managing risk from the uncertainty around offshore mitigation purchase should be a factor taken into account in proposing the provisional emissions budget. The key implication of this risk is that New Zealand should make the most of its opportunities to reduce emissions domestically, where they can be achieved in a way that balances the considerations relevant for emissions budgets in the CCRA.

Unit supply settings

Transparent method for setting the overall limit and its components

19. The proposed unit supply settings are intended to give effect, through regulations under the CCRA, to the architecture for NZ ETS unit supply contained in the Climate Change Response (Emissions Trading Reform) Amendment Bill (ETR Bill). This provides for an "overall limit" on new unit supply from sources other than forestry each year, defined as the sum of "New Zealand Units (NZUs) available by auction," "NZUs available by other means"[5], and "approved overseas units available", set on a rolling five-year basis.

20. The overall limit and its component parts are key for understanding NZ ETS market fundamentals, i.e. the supply and demand of NZUs now and in the future. This market information is critical for a well-functioning NZ ETS because it enables participants to make informed decisions in relation to NZUs, particularly in terms of understanding and forecasting NZU prices and making decisions about investing in abatement options.

21. Given the importance of this information, we emphasise that the method for developing these settings should be as transparent and thoroughly documented as possible, as well as accessible to all market participants.

22. We welcome that consideration has been given to the process for the annual release of information on NZ ETS settings. We understand that the regulations containing the settings will contain mainly quantitative unit volumes. We are therefore pleased that it is proposed in the consultation document that a written summary be published at the same time that the settings are announced, outlining the new settings, any changes or updates, and how the NZ ETS is tracking in terms of the overall emissions cap and New Zealand's emissions targets.

23. The consultation document provides a generally logical explanation of the process followed to determine volumes for the various components of the overall limit. However, there are some elements of this method and how it is presented that could be clearer. We provide comments below on these issues, which should be considered both in terms of potential revisions to the proposed settings under consultation, but also for providing a clear account of the method used to arrive at the unit volumes to be published alongside the unit supply regulations.

Presentation of the overall limit

24. The consultation document defines an auction volume and a free allocation volume but does not explicitly define an "overall limit" using the terminology of the ETR Bill. The way this information is presented in future should be adjusted so that it is more in line with legislative requirements.

[5] Units provided through free allocation or negotiated greenhouse agreements.

Treatment of biological emissions from agriculture

25. Under the ETR Bill, emissions from nitrogen fertiliser and, by default if an alternative pricing mechanism is not in place, emissions from livestock, are scheduled to enter the NZ ETS in 2025. The consultation document is silent on unit supply in relation to emissions from agriculture starting in 2025. This issue should be clarified, with the settings for unit supply either reflecting the requirements of the legislation, or exclusions addressed explicitly.

Effect of non-NZ ETS post-1989 forestry emissions and CO_2 removals on auction volumes

26. The consultation document notes that only 48% of New Zealand's land area of post-1989 forestry is currently represented within the NZ ETS. This statistic is not helpful on its own for understanding the amount of emissions and CO_2 removals from post-1989 forestry outside the NZ ETS. With the move to an averaging accounting methodology, only a subset of the forests covering the other 52% of post-1989 forest land area will still be below their long-term average carbon stock and therefore potentially contributing CO_2 removals that help New Zealand meet its targets. The consultation document also does not assess the potential for emissions from deforestation of these forests.

27. Understanding the amount of emissions and CO_2 removals from post-1989 forestry not registered in the NZ ETS is important because it may mean than an adjustment is needed to the NZ ETS auction volume to maintain alignment with emissions budgets. For example, if significant CO_2 removals are expected from post-1989 forestry outside of the NZ ETS, then the auction volume may need to be increased to avoid putting a higher abatement task on NZ ETS sectors than necessary to meet the relevant emissions budget.

28. This is briefly acknowledged in the consultation document, which indicates on page 37 that "In future, a decision will need to be made about how forestry that is not registered within the NZ ETS is accounted for within the NZ ETS cap". It is not clear why it is not possible to make this decision now, and why information about forecast net emissions from these forests is not provided. This issue should be clarified and considered in the finalisation of the NZ ETS settings proposals, and explained in any written summary documenting the method used to determine the settings.

Transparent approach to adjusting unit supply settings over time

29. How the unit supply settings will be adjusted over time is another key element of information about NZ ETS market fundamentals.

30. The framework for unit supply in the ETR Bill provides for flexibility to adjust the settings within the five-year period covered by the regulations, as per the proposed new section 30GB. The Government should take a careful approach to exercising this flexibility. The process for adjusting NZ ETS settings should be sufficiently predictable and transparent to build confidence in the market and to support informed decision-making by market participants. This will improve the market's ability to reveal the emissions price based on expectations for long-term unit supply, to better enable the NZ ETS to drive low-emissions investment in line with the 2050 target and emissions budgets.

31. To reduce uncertainty about future unit supply and expectations of prices, an option that the Government could consider would be to outline its approach to making adjustments over time in a

published document or policy. We comment below on two areas where it would be helpful to further clarify how unit volumes will be adjusted over time.

Distribution of the provisional emissions budget between NZ ETS and non-NZ ETS sectors

32. The Government should signal in advance whether it intends to revise the unit supply in the NZ ETS due to changes in the emissions performance of sectors that are not covered by the NZ ETS.[6]

33. The provisional emissions budget includes all sectors, while the NZ ETS overall limit applies only to a subset of sectors and is calculated based on uncertain emissions projections relating to both NZ ETS-covered and non-covered sectors. The consultation document depicts a fixed distribution of the provisional emissions budget between NZ ETS and non-NZ ETS sectors during the period 2021-2025.

34. To inform market expectations of unit supply, it would be helpful to indicate whether future updates to unit supply settings will be independent of, or dependent on, changes to emissions from non-NZ ETS sectors. In particular, it would be useful to clarify whether and how such adjustments might be made in respect of changes to methane emissions, in light of the split gas 2050 target and 2030 sub-target for biogenic methane.

Operation of the overall limit and impact of free allocation on auction volumes over time

35. Our understanding of the overall limit as defined in the ETR Bill is that it constrains auction volumes, but not the supply of NZUs available by other means (e.g. free allocation). This architecture provides flexibility for the volume of NZUs available by auction to increase or decrease relative to other sources of NZUs within the overall limit. This approach improves the predictability of total unit supply in the market regardless of whether it originates via auction or free allocation.

36. The consultation document acknowledges uncertainties around industrial allocation volumes. These stem, for example, from the potential for changes in industrial output, revision of the Electricity Allocation Factor, or the entry or exit of free allocation recipients. On page 42 of the consultation document it is stated that "the significant impact that the accuracy of free allocation forecasts may have on NZUs available to auction means that it will be important to review the accuracy of forecasts and make updates based on any unforeseen changes to the market".

37. Unfortunately, this explanation does not really clarify whether and how auction volumes in current or future years will be adjusted in the case of differences between forecast and actual free allocation volumes. This is necessary for understanding how total market supply – including the response of the forestry sector - will respond to changes in actual demand for free allocation. The mechanics of how the interaction between free allocation and auction volumes within the overall limit will operate, both within and across calendar years, should be further explained.

Technical volume adjustments - voluntary offsetting

38. As noted in the consultation document, there is currently no mechanism in place or proposed for enabling voluntary offsetting through NZU cancellation from 2021 onwards that avoids the double counting of emission reductions against New Zealand's emissions reduction targets. It is possible, however, that market participants may choose to buy and cancel NZUs anyway, either with or

[6] Sectors not currently covered by the NZ ETS include biological emissions from agriculture; some post-1989 forestry; part of the waste sector; and synthetic greenhouse gases imported in goods and motor vehicles (the latter are subject to a levy which is aligned with the NZ ETS price).

without an understanding of the double-counting issue. This could affect unit supply and prices in the NZ ETS.

39. As we pointed out in our recent submission to the Environment Committee on the ETR Bill, there is policy uncertainty around whether the Government intends to facilitate voluntary offsetting via the NZ ETS. In any case, providing clear guidance to market participants on the extent to which cancellation of NZUs fulfils commonly accepted voluntary offsetting criteria post-2020 would help to manage the potential impacts of voluntary NZU cancellations on unit supply.

Unit supply reduction volumes - managing the stockpile of NZUs

40. We acknowledge the importance of banking NZUs for enabling NZ ETS participants to manage their obligations. There is, however, a large amount of NZUs banked in private accounts. While unit holders' intentions for these units are not well understood, the scale of this stockpile poses a significant risk to the NZ ETS's ability to support New Zealand to achieve its targets efficiently. We therefore consider it essential to build a reduction into annual NZU auction volumes in the near term to manage this risk.

41. It is very challenging to determine an appropriate volume for this stockpile adjustment. The proposed settings provide for a reduction to auction volumes of 27 Mt CO_2e over 2021-2025. This represents 20 per cent of the current amount of banked NZUs but could be a smaller percentage of the NZU bank by 2021 given that it is proposed that a fixed price option remains in place for 2020 emissions. One rationale for the size of the reduction is its correspondence with the volume of NZUs currently held by market participants without direct surrender obligations. The document indicates a level of assurance that these NZUs are available to be sold.

42. The actual liquidity of these banked NZUs is highly uncertain. Participants without direct surrender obligations may be unwilling or unable to sell banked NZUs for many reasons. There is very limited information available about market participants' behaviour to help judge under what conditions stockpiled units would be surrendered to meet NZ ETS obligations and what volume of intended stockpile reduction would be optimal for bringing unit scarcity more into line with targets while maintaining stable market function.

43. We suggest that, given there will be an ongoing need to adjust auction volumes in future to manage the NZU stockpile, consideration be given to how a better evidence base can be developed to inform these adjustments. An avenue worth investigating is whether market research could be undertaken, such as surveying holders of units about their intentions, to better understand what factors will drive actual stockpile reduction.

Price control settings

Fixed-price option

44. The consultation document proposes to retain the fixed price option (FPO) at a level of $25 for emissions in 2019 (with corresponding surrenders due by 31 May 2020) and raise it to $35 for emissions in 2020 (with corresponding surrenders due by 31 May 2021), before it is replaced with a cost containment reserve (CCR) triggered at $50.

45. Expectations of rising NZU prices create a risk that many NZ ETS participants will choose to fulfil their surrender obligations by using the FPO. This would result in new NZUs provided to participants in 2020 (via industrial allocation or auctioning or due to forestry CO_2 removals) adding to the

stockpile of NZUs. Given the importance of reducing the stockpile for bolstering the long-term effectiveness of the NZ ETS, this risk would be reduced by setting the FPO for 2020 emissions at a higher level that is closer to the CCR trigger price.

Level of the cost containment reserve trigger price and auction reserve price

46. The consultation document proposes to set a CCR trigger price fixed at $50 and an auction reserve price fixed at $20 from 2020 through 2025.

47. Overall, it is not clear to us how these price levels, fixed at one value across the period out to 2025, reflect the matters that must be considered by the Minister when recommending regulations on price control settings as per the new section 30GC proposed in the ETR Bill. Among other things, these include the proper functioning of the NZ ETS, the level and trajectory of international emissions prices, and inflation.

48. The case laid out in support of the specific price levels proposed is not convincing in the absence of further evidence. For example, the consultation document indicates that the auction reserve price should be set to ensure "the Government does not incur financial losses by selling NZUs significantly below their long-term value." No evidence is cited that demonstrates how this desired outcome will be achieved with an auction reserve price of $20 from 2020 to 2025.

49. If set too low, the CCR and auction reserve trigger prices have the potential to inflate the NZU stockpile further, contributing to an oversupply of units that could suppress future emission prices below the level required to achieve emissions reduction targets. The consultation document fails to provide much assurance that these risks to achieving emissions reduction targets (with potential for flow-on costs for taxpayers) are appropriately balanced against price risks to NZ ETS participants.

50. The effectiveness of market mechanisms such as emissions trading schemes depends in part on expectations that emissions prices will rise over time in line with the increasing stringency of targets. While the CCR and auction reserve prices are intended to act as safety valves, the levels of their trigger prices serve an important signalling function to the market. The proposed fixed prices for these features over 2021-25 are also not adjusted for inflation and are therefore likely to be declining in real terms. The lack of an increase to these trigger prices over several years fails to contribute to a better understanding of the direction of travel needed to meet New Zealand's emissions reduction targets.

51. We consider that the level of the CCR and auction reserve trigger prices should increase year-on-year in a way that signals increasing mitigation ambition in line with targets, factors in expected inflation and that clearly takes into account the considerations outlined in new section 30GC contained in the ETR Bill.

Impacts

52. The consultation document suggests relatively modest impacts of emission pricing on households through to 2025. However, the analysis presented is limited. It does not address specific impacts such as those on iwi/Māori, on different types of businesses or different regions, or on how different types of households will actually respond to rising emission prices. Further research and modelling are needed in these areas.

53. The Commission is aiming to fill some of the gaps in understanding the impacts of climate policies through its work on emissions budgets over the coming year. We have commissioned a top-down

whole-of-economy model coupled with a distributional impacts module that will enable exploration of financial and other impacts across different cross-sections of New Zealanders. This will enable a better assessment of impacts on the economy overall as well as impacts on households, businesses, and communities, including considerations specific to iwi/Māori. Assessing the impacts of emission pricing on land-use change and forestry will also be an important part of the Commission's work.

54. We note that achieving the provisional emissions budget will, in addition to the NZ ETS, require the Government to drive mitigation with a range of other regulations and policies. These will also impact on households, businesses, and communities. The Government will need to develop a comprehensive, nationwide strategy to manage any disproportionate impacts (both financial and non-financial) of climate policies (emissions pricing in combination with other non-price and sector-specific regulations and policies) on households, businesses, regions and communities, including iwi/Māori.

Conclusion

55. A robust NZ ETS can provide a price signal that rewards innovation and encourages investment to support the goals of the CCRA. Other non-price and sector specific policies will also be required to achieve our emissions reduction targets. The Commission will offer advice on the direction needed for such measures, following consultation, when it tenders advice to Government on emissions budgets and the emission reduction plan by 1 February 2021.

Appendix: Commission members

Dr Rod Carr (Chairperson)

Dr Carr has extensive experience in both public and private sector governance and leadership. He served as Chair and non-executive director of the Reserve Bank of New Zealand and served as Deputy Governor and for a time Acting Governor of the Bank. Dr Carr was the founding Chair of the National Infrastructure Advisory Board and for over a decade was a non-executive director of the Canterbury Employers' Chamber of Commerce. He led the University of Canterbury as Vice Chancellor for ten years before retiring in February 2019 having completed the recovery from the 2010 and 2011 earthquakes. Rod holds a PhD in Insurance and Risk Management, an MA in Applied Economics and Managerial Science, an MBA in Money and Finance and honours degrees in law and economics. His real-world experience, academic training and breadth of experience provide an excellent background for the critical task in taking a leadership position in leading climate change mitigation and adaptation.

Ms Lisa Tumahai (Deputy Chairperson)

Ms Tumahai's prior experience as Deputy Chairperson of the ICCC will help bring continuity to the work of the Commission. Ms Tumahai is a leader within Ngāi Tahu and has a unique insight about how to mobilise an entity towards strategies and targets. Ms Tumahai also has established relationships with iwi and Māori and will help to ensure the broader Commission has a greater understanding of te ao Māori perspectives.

Dr Harry Clark

Dr Clark is an internationally recognised science leader in greenhouse gases research. He is well regarded in the primary sector both from a science and agri-business perspective. As a member of the ICCC, Dr Clark has been heavily involved in the delivery and oversight of reports and will bring a strong sense of continuity to the broader climate community and secretariat during the transition from the ICCC to the Commission.

Dr Judy Lawrence

Dr Lawrence is a thought leader on climate change adaptation with a strong national and international reputation. Judy's expertise is reflected in having been appointed as a Coordinating Lead Author with the Intergovernmental Panel on Climate Change (IPCC). She has developed extensive networks across central and local government and served as an elected member of a regional council. Judy is a multi-disciplinary team player set between climate change science and national mitigation and adaptation policy. Dr Lawrence will make a valuable contribution to the Commission, ensuring the organisation has both expertise in, and a focus on, climate change adaptation.

Ms Catherine Leining

Ms Leining is one of New Zealand's leading experts on climate change mitigation policy with a specialisation in emissions trading. As a Policy Fellow at Motu Economic and Public Policy Research since 2013, she co-led Motu's research and engagement programme on "Shaping New Zealand's Low-Emission Future." She has held policy positions at the Ministry for the Environment, Ministry of Foreign Affairs and Trade, Wellington City Council and New Zealand Transport Agency. In government roles, she

helped design the NZ ETS and served on the New Zealand delegation to the UNFCCC negotiations. Before moving to New Zealand, she held diverse policy positions in the US. She provides independent consulting through Silver Lining Global Solutions and was trained as a Climate Leader under The Climate Reality Project launched by Al Gore. She holds a BS in Biology (with distinction) and French from Duke University. As a Commissioner, Ms Leining will help ensure the organisation considers the broadest range of policy tools and mechanisms available to reduce emissions.

Professor James Renwick

Professor James Renwick is a leading climate scientist with a strong national and international reputation, having four decades of experience in weather and climate research. His appointment as a Lead Author and Coordinating Lead Author on three Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC) demonstrates his expertise in climate and atmospheric science. He has also been involved in the governance of the World Climate Research Programme for the past eight years. Professor Renwick is a well-known science communicator, engaging with a wide variety of stakeholders and public groups, and appearing regularly in the media on climate-related topics. He was awarded the 2018 Prime Minister's Prize for Science Communication.

Professor Nicola Shadbolt

Professor Nicola Shadbolt is a farmer, forester, director and academic who brings a great mix of real-world business experience and research to the Commission. As the recently appointed Chairperson of Plant and Food Research and former Director of Fonterra Cooperative Group and Transit New Zealand, Professor Shadbolt also has a strong understanding of governance leadership. She is equipped with a wide range of experience, from farm to fork, including manufacturing ingredients and fast-moving consumer goods. Her additional knowledge in quick-service restaurants and the high-end food service provides Nicola a proven record in implementing sustainability in businesses and a keen appreciation of how environmental management fits alongside social and economic imperatives.

Contact details

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