

Kia ora Nicola and Panel members,

Thank you for providing your draft report on the 8 Nov, which we understand is currently undergoing Peer Review. We have completed a review against the terms of reference and have the following feedback for your consideration. We understand the draft has continued to be refined, particularly regarding the results and discussions sections. We would appreciate a chance to have another viewing of the report before it is finalised to carry out another review of any new content at some point early next week. This will also enable us to support Ministers' review of the report once finalised. Let's discuss what is feasible and practical.

Overall

- It is not always clear what base year reductions are relative to. To support accessibility, it would be useful if this could be made clearer, particularly given in some places it is relative to 2017 and not in others (e.g., is the 8.1% referenced on page 39 relative to 2017 or 2022 levels?).
- The commentary on whether net-zero carbon and NAW (and/or whether NAW that takes into account delayed methane-induced warming resulting from oceanic thermal inertia, and net-zero carbon) are equivalent concepts, or not, could also be made clearer.
- Where referencing cuts achieving no additional warming in results, ensure this is caveated by 'from New Zealand biogenic methane emissions', given that for particular scenarios this is achieved where global warming is still much higher. Readers could interpret the results as meaning no additional warming globally.

Introduction

- The statement on pg. 3 "*Accordingly, NZ is striving to monitor and mitigate its own methane emissions situation consistent with meeting the legislative requirements, including no additional warming from agricultural emissions by 2050*" is incorrect. The CCRA does not in any part include reference to 'no additional warming from agriculture emissions by 2050'.

Panel Approach

- NA

New Zealand legislation, targets and reporting

- Re: pg. 7: "*NZ's Greenhouse Gas Inventory presents all gases as CO2 equivalents (CO2-e). To obtain CO2- e values, methane emissions (in kilotonnes, kt) are multiplied by their 100-year global warming potential of 28 (see Frequently Asked Questions)*" and "*Unfortunately, despite NZ legislation calling out this difference, the Greenhouse Gas Inventory report presents methane emissions as CO2 equivalents, as this is required for international reporting. The report provides CO2-e by sector and by gas, the sector amount combines all gases and the gas amount includes all sectors. To determine biogenic methane emissions specifically it is necessary to back calculate the numbers from breakdowns provided in the body of the report. This review focuses on biogenic methane, so reported CO2e values from the National Inventory Report have been converted to methane emissions throughout.*", note that while the GHGI inventory does present

methane emissions in CO2 equivalent, it also presents methane in kt of methane in the common reporting output tables (which are freely accessible).

- Pg. 10 Reference to ‘experiment’ of IAM. We agree with Chris’ suggestion to reword this on the basis that it would be more neutral to not refer to the IAMs from SR1.5 that informed New Zealand's current biogenic methane component of the 2050 target as an experiment.
- Pg. 10 states that “*Additional sources of information were also considered as part of the decision-making process for setting the biogenic methane target, though no national economic impact report was sought from the Treasury. Evidence that was sought included evidence related to the achievability of the target as discussed in the Biological Emissions Reference Group (BERG) Report (2018), research commissioned by the Parliamentary Commissioner for the Environment (PCE) on the contribution of methane emissions from NZ livestock to global warming (produced by the New Zealand Agricultural Greenhouse Gas Research Centre), and consideration of technological advancements, scientific advice and New Zealand’s national circumstances*”. For clarity, economic analysis was carried out as part of consultation of the Zero Carbon Bill. [Economic analysis for the proposed Climate Change Response \(Zero Carbon\) Amendment Bill | Ministry for the Environment.](#)
- [Zero-Carbon-Bill-Economic-Analysis-Report-FINAL.pdf \(environment.govt.nz\)](#) Reference to this was also included in the Cabinet paper that supported the Bill (ie, *Following consultation with my Ministerial colleagues, and **consideration of economic impacts**, technological advancements, and scientific advice I recommend that the Bill includes a 2050 target that specifies the reductions of biogenic methane that will be required by 2030 and 2050.*)

Methane Science (Sources/sinks Methane in Context / Role of methane as a GHG)

- NA

Methane Targets: achieving no additional warming

- Scenarios: The scenarios in boxes (table one) are not consistent with those in the results (table two) – if using more scenarios in results please ensure they are explained. Please also provide additional commentary on the likelihood of various scenarios including throughout the results and discussion.
- Reference is made to SSP5-8.5 being used in MFE Coastal hazards and climate change guidance. Please remove this sentence as this refers to adaptation and the first part is referring to mitigation. Our preference is to make sure we separate the emissions component of a scenario from the climate outcome we use for adaptation planning.
- To support accessibility and understanding of the report, given that inclusion of per annum reductions was not explicitly requested in the TOR, it may be useful to clarify why this was included (including to reduce risks of confusion between equivalence of 1%pa and 1% difference in the target relative to 2017)

- Pg. 33 states “If the MEF satisfies the no additional warming on 2017 levels criterion in 2050 or 2100, the cell is clear, if the MEF fails the test, i.e. there is warming above 2017 levels under that MEF under the global scenario, by the date in the cell then the cell is shaded grey.” Can you please expand to clarify the nuance and limitations of this approach about how the global scenarios are applied, and how this relates to the global temperature's they achieve by the end of the century.
- The TOR asks for “*estimates of biogenic methane emissions reductions needed in 2050 and 2100 to achieve and maintain a state of no additional warming from New Zealand’s biogenic methane emissions relative to 2017 levels of warming*”. The original intent behind this part of the TOR was to quantify what reductions would be needed in 2050 to achieve a state of no additional warming and what further reductions may be required by 2100 to maintain this state. While we accept that what the Panel has done is a reasonable interpretation of the TOR, if possible in the time available, we consider it would be beneficial to also include analysis that is better aligned with the original intent.
- The report presentation of results is tables based on solving equations to determine if NAW is achieved in 2050 or 2100 based on a range of reduction scenarios. This requires choices of target reductions used (5,10, 15, 20% and 24, 35, 47%). To support accessibility, it would be helpful to:
 - Clarify rationale for choice of targets in the table
 - Include explanation of why the Panel has decided to solve that way, rather than solving for the level of target (or if both approaches have been undertaken, include results for both)
- Table 3 – more decimal places needed as some of the figures don’t seem to align.
- The report references a range of data sources including the Climate Change Commission website data in the MEFs, rather than the emissions from NZ GHGI as described in the emissions data section. Can you please include rationale for using sources other than the NZ GHGI to support clarity and understanding.