

## METHANE SCIENCE AND TARGET REVIEW – TERMS OF REFERENCE

<b>Review Title</b>	Review of the methane science and target
<b>Duration</b>	30 June – 29 November 2024
<b>Date issued</b>	24 June 2024

### Purpose

1. The purpose of the Advisory Group (referred to as the Panel) is to deliver an independent review of methane science and the 2050 target for consistency with no additional warming from agricultural methane emissions.
2. This should include a scientific understanding of methane and its warming impact in order to provide advice on what a biogenic methane target consistent with the principle of no additional warming would look like for New Zealand.
3. The Panel's review will be independent of the Climate Change Commission's review of the 2050 target this year. It will provide the Government targeted advice to inform its response to the Commission's advice in 2025.

### Scope

4. The main output of the Panel will be a report that disseminates the findings of the review to the Government. The report will be made publicly available and should be written in plain language and be accessible to the public.
5. The report should provide the following:
  - a) background on New Zealand's climate change targets and legislation;
  - b) overview of the concept of no additional warming, including a clear definition of what no additional warming is in the context of a biogenic methane target<sup>1</sup>;
  - c) a review of previous studies that estimate a no additional warming target for biogenic methane (including any differences between them);
  - d) an up-to-date explanation and summary of the warming impact of biogenic methane, specifically including biogenic methane from New Zealand's agricultural sector;
  - e) a brief explanation of the global emissions scenarios relevant for determining target ranges for biogenic methane emissions;
  - f) consideration of a range of no additional warming biogenic methane emission reductions targets that reflect different background global emissions scenarios, including a scenario that is consistent with limiting global warming to 1.5 degrees Celsius (e.g., Shared Socioeconomic

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<sup>1</sup> For the purposes of this review the biogenic methane target includes all methane greenhouse gases produced from the agriculture and waste sectors (as reported in the New Zealand Greenhouse Gas Inventory).

- Pathway 1-1.9 from the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6)); and
- g) 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.
6. In doing so, the review should consider the following:
- a) the limitations and constraints of any advice in relation to target setting;
  - b) providing a clear rationale and justification for any methodological choices and an explanation of any assumptions or limitations;
  - c) the advancements in methane science and its warming impact since the target was set in 2019;
  - d) any relevant science that was not considered during the setting of the methane target in 2019;
  - e) the latest published scientific literature, including the IPCC AR6 report;
  - f) global scenarios of future greenhouse concentrations and associated emissions; and
  - g) what is included as biogenic methane in New Zealand.
7. The following issues are out of scope of the review:
- a) making any conclusions or recommendations that go beyond performing the scientific review and providing the evidence-based advice required by these terms of reference. For example, the advice will not cover implications of any new proposed target on the broader climate strategy. It will not try to make values-based judgements about the burden sharing responsibilities of different sectors or nations; and
  - b) reviewing any other aspects of the 2050 Target as set out in s5Q of the Climate Change Response Act 2002.<sup>2</sup>

## Approach

8. The review will take place from June to November. Within the four-month period, the Panel will:
- a) engage with relevant experts if they choose to, in the development of the report;
  - b) ensure an effective quality assurance process is undertaken, for example, including through an independent external review process;
  - c) where possible, provide a consensus view in its report. Where this is not possible, feedback from individual members will be captured, and considered as part of subsequent advice;
  - d) provide a process where interested parties, including iwi/Māori, can submit relevant evidence, including mātauranga Māori;
  - e) provide a draft report to the Minister of Agriculture and Minister of Climate Change by 1 November 2024; and
  - f) provide a final report to the Ministers by Friday 29 November 2024.

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<sup>2</sup> Section 5Q of the CCRA sets out the domestic target for 2050. The 2050 target requires that net accounting emissions of greenhouse gases in a calendar year, other than biogenic methane, are zero by the calendar year beginning on 1 January 2050 and for each subsequent year.

9. The review process should adhere to the following principles:
  - a) rigorous - Uses the most up-to-date and comprehensive body of evidence; recognises and minimises bias; is independently reviewed as part of a quality assurance process;
  - b) inclusive - Considers many types and sources of evidence; uses a range of skills and people;
  - c) transparent - Clearly describes the research question, methods, sources of evidence and quality assurance process; communicates complexities and areas of contention; acknowledges assumptions, limitations and uncertainties, including any evidence gaps; declares personal, political and organisational interests and manages any conflicts; and
  - d) accessible - Is written in plain language; is available by 29 November 2024; is freely available online (this will be actioned by Ministers upon receipt of the report).

## **Context**

10. Biogenic methane, a short-lived greenhouse gas (GHG), contributes to ~48% of New Zealand's gross aggregated annual greenhouse gas emissions. Most of New Zealand's gross annual emissions of biogenic methane come from the agriculture sector (~91%), particularly from ruminant livestock. The remainder is from the waste sector (~9%).
11. New Zealand's 2050 target was set as part of the Climate Change Response (Zero Carbon) Amendment Act 2019 which amended the Climate Change Response Act 2002 (CCRA). At the same time the purposes of the CCRA were expanded to include the following purpose – “to provide 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” (see section 3(1)(aa)(i)).
12. Under the CCRA New Zealand adopted a split-gas approach to the 2050 target based on scientific evidence that biogenic methane, as a short-lived gas, does not have to reduce to zero to limit global warming.
13. The legislated 2050 target for biogenic methane requires that New Zealand's gross emissions of biogenic methane in a calendar year are 24 - 47% less than 2017 by the calendar year beginning on 1 January 2050 and for each subsequent calendar year.
14. The Government has committed to “maintain a split-gas approach to methane and carbon dioxide through to 2050 and review the methane science and targets in 2024 for consistency with no additional warming from agricultural methane emissions”.

15. The Minister of Climate Change and the Minister of Agriculture are seeking advice on what New Zealand's biogenic methane target should be to ensure no additional warming.
16. Determining an appropriate target for New Zealand is a judgement for the Government based on a range of considerations including equity, responsibility, cost, and economy wide opportunities for emissions reductions.

### **Skills and experience:**

17. To ensure a robust and independent review process, the Panel will need to collectively hold sufficient expertise and capability across the following topics:
  - a) climate science – including climate modelling and the warming impact of short and long-lived greenhouse gases;
  - b) New Zealand's greenhouse gas emissions, particularly biogenic methane from the agriculture sector; and
  - c) understanding of New Zealand's climate change targets and budgets under the Climate Change Response Act.

### **Memberships**

18. Four Panel members and a chair will be appointed by the Minister of Agriculture and Minister of Climate Change (Ministers) following approval from APH Committee and Cabinet.
19. A chair will be appointed by Ministers. The chair is expected to:
  - a) lead the work programme and ensure effective delivery of the final report;
  - b) meet with Ministers to discuss progress of the review;
  - c) liaise with the Secretariat on support required for the Panel; and
  - d) maintain an effective working relationship with Panel members.
20. A member may resign from the Panel by informing the Ministers in writing.
21. A replacement chair, or new members can be added to or removed from the Panel by Ministers, subject to Cabinet approval.

### **Fees**

22. To be derived from the relevant Cabinet Fees Framework (Category 4).
23. Letters of appointment will detail the remuneration and reimbursement arrangements for the chair and Panel members.

### **Secretariat / Support:**

24. The Panel will be supported by ministry officials (the Secretariat). Full Secretariat support and functions will be confirmed with the chair and Panel members.

## **Deliverables**

25. The Panel is to provide a draft report by 1 November 2024 and a final report by 29 November 2024.
26. Additional interim deliverables may be determined in agreement between Panel members, the Secretariat and Ministers as required.

## **Conflict of interest**

27. Group members are expected to disclose any perceived or real conflicts of interest to the chair and Secretariat. A conflict-of-interest register will be maintained by the Secretariat.
28. Where a conflict of interest is declared a management plan will be put in place and monitored by the Chair with the support of the Secretariat.

## **General confidentiality requirements**

29. If the Panel receives an official information request, they must immediately provide it to MfE/MPI via the Secretariat and advise the requester that the request was referred to MfE/MPI.