He Pou a Rangi
Climate Change Commission

OIA Ref: 2022-011

[redacted]

12 August 2022

Tēnā koe [redacted]

Thank you for your email of 7 July 2022 asking several questions about a farm footprints and greenhouse gases under the Official Information Act 1982.

In preparing your response the Commission identified that consultation was required with the Ministry for the Environment. As a result, the timeframe to respond to your request was extended to 12 August 2022.

Please find below the Commission's responses to your questions.

Please note that questions 2, 3, 4, and part of question 5 have been responded to by the Ministry for the Environment as they are the appropriate agency to respond to those questions. We have incorporated this information into our response to you to expedite providing you with a response, rather than partially transferring your request formally to the Ministry for the Environment.

1. "What is the definition of a farms ''foot print'', to be used to then determine the proposed levy to be paid by the farm owner?
The Commission has not proposed a levy at the level of detail you are seeking, so is unable to define a farm's "footprint." We are therefore refusing this aspect of your request under section 18(e) as the Commission does not hold this information.
He Waka Eke Noa, a partnership between government and industry, recently published proposals for a farm-level emissions levy. You can find their recommendations here: https://hewakaekenoa.nz/wp-content/uploads/2022/06/FINAL-He-Waka-Eke-Noa-Recommendations-Report.pdf .
Ministry for the Environment information as noted above:

2. The Zero Carbon Act requires methane gas to fall by 10% by 2030.
Is methane 'to fall' human activity created, or does it include methane from natural activities as well?
The Zero Carbon Act requires biogenic methane emissions to reduce by 10 per cent below 2017 levels by 2030. It covers methane emissions resulting from human activities as reported in the Waste and Agriculture sectors in New Zealand's Greenhouse Gas Inventory.
The inventory provides the official annual estimate of all human-generated greenhouse gas emissions and removals in New Zealand. More information on the inventory is available here: New Zealand's Greenhouse Gas Inventory 1990–2020 | Ministry for the Environment.

What is the quantity of the 10% ?
In 2017 biogenic methane emissions were 33.5 million tonnes of carbon dioxide equivalent (Mt CO2-e). Ten per cent of this would be a reduction of 3.35 Mt CO2-e.
The 2022 Greenhouse Gas Inventory reports greenhouse gas emissions in carbon dioxide equivalent (CO2-e) units, based on the Intergovernmental Panel on Climate Change Fourth Assessment Report (AR4) global warming potentials. This is a measure for comparing greenhouse gases based on their heating effect over a period of time, compared to that of an equivalent amount of carbon dioxide. CO2-e is used for describing different greenhouse gases in a common unit, which allows them to be reported consistently.

Where and what is the gas quantity now?
The most recent greenhouse gas inventory provides emissions estimates from 1990-2020. In 2020, methane emissions were 34.4 Mt CO2-e. Biogenic methane emissions, which only includes emissions from the Agriculture and Waste sectors, were 33.5 Mt CO2-e. The next GHG inventory will be released in April 2023 and will include emissions up to 2021.

Why does methane gas have to be reduced; when it breaks down naturally?
While methane is a short-lived gas, breaking down in the atmosphere after approximately 12 years, every tonne of methane that is emitted contributes to global warming. Even if stable, ongoing methane emissions keep the planet a lot warmer than it would be otherwise. Reducing methane emissions now helps to slow climate change and has an impact on reducing global temperatures in the near term.
The latest Intergovernmental Panel on Climate Change assessment on the physical basis of climate change reiterated this, showing that rapid and steep methane emissions reductions, alongside bringing global carbon dioxide emissions to net zero by about 2050, is vital to limit temperature increases to 1.5 degrees.

How will CCC determine what is natural methane and what is farm generated?
The methane required to reduce under the Zero Carbon Act is biogenic methane as recorded in the GHG inventory. This includes all emissions from the Agriculture and Waste sectors.

3. The Zero Carbon Act requires methane gas to fall between 24 - 47% by 2050.
What is the actual quantity that the 23% represents? (The difference between 47 and 23%)
The Zero Carbon Act requires biogenic methane emissions to reduce between 24 – 47 per cent on 2017 levels by 2050. The difference between 24 and 47 per cent equates to 7708 kt CO_2-e, or 308 kt of methane (CH_4).

4. Atmospheric greenhouse gas proportions are derived from both natural and human (farm) activities.
Does the CCC accept that the combined quantity of methane in the atmosphere is 0.066%?
The Intergovernmental Panel on Climate Change (IPCC) reports that methane concentrations in the atmosphere reached 1866.3 (±3.3) parts per billion (ppb) in 2019, equivalent to 0.00019%. Changes in methane and other greenhouse gases in the atmosphere have major impacts on the climate, even at seemingly low concentrations.

5. Nitrous oxide in the atmosphere is in the order of 0.047% of all greenhouse gases.
Does CCC accept this measure?
In 2019, concentrations of methane and nitrous oxide were higher than at any time in at least 800,000 years. More information is available in the IPCC's latest assessment report on The Physical Science Basis.

It is not within the Commission's role to independently audit valid information from other organisations in this respect. We also do not consider that any other organisation is likely to hold information related to this aspect of your request, therefore we are refusing under section 18(e) as the Commission does not hold this information/does not exist.

How will CCC measure natural and human activity nitrous oxide gas quantity, and determine how that nitrous oxide gas will be reduced to 'net zero' by 2050?"
The inventory is the key source of evidence on New Zealand's greenhouse gas emissions trends and is used to track progress towards our targets. It includes nitrous oxide emissions from human activities. The net zero target covers all greenhouse gases except for methane, so nitrous oxide together with other gases will need to be reduced to net zero. New Zealand's first Emissions Reduction Plan, released in May this year, sets New Zealand on a path to meeting the 2050 net zero target. This will be achieved through a combination of emissions reductions across all sectors, and increased carbon removals from forestry.

You have the right to seek an investigation and review by the Office of the Ombudsman of this decision, in accordance with section 28(3) of the Official Information Act 1982. The relevant details can be found on their website at: www.ombudsman.parliament.nz.

Please note that the Commission has a policy of proactive release of OIA responses to help others have access to more information.

As a result, this letter will shortly be published on the Commission's website with your name and contact details removed to protect your privacy.

Ngā mihi

Astrid Nunns
General Manager
Strategy, Engagement and Corporate Services