



Official Information request reference: Ref: 2021-021

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Email: [REDACTED]

21 April 2021

Dear [REDACTED]

Thank you for your email of 22 March 2021, in which you request the following:

"...I request a copy of all financial and economic modelling used or considered in developing the draft emissions budgets currently out for consultation.

I also request all correspondence with third parties who have requested the same, or similar, information".

In line with other government agencies who have used models to inform their advice, the modelling assumptions, inputs and results used for developing the draft emissions budgets are available online. These can be accessed here:

<https://www.climatecommission.govt.nz/get-involved/sharing-our-thinking/data-and-modelling/>

Therefore, as this information is available publicly, we are refusing your request under section 18(d) of the Official Information Act (the Act).

In terms of any draft, interim and preliminary results from the modelling, we are withholding this material under the following sections of the Act:

- section 9(2)(g)(i) - to maintain the effective conduct of public affairs through the free and frank expression of opinions; and,
- section 9(2)(f)(iv) – to maintain the constitutional conventions for the time being which protect the confidentiality of advice tendered by Ministers of the Crown and officials.

With regards to second part of our request, *"for all correspondence with third parties who have requested the same, or similar, information"*, responses to Official Information Act requests are proactively published on the Commission's website and can be accessed at the link below:

[Official Information Act requests » Climate Change Commission \(climatecommission.govt.nz\)](#)



You will note that there are three responses published on the website, which are most directly relevant to your request for similar information. These are:

- **5 March 2021:** Request for information on the Commission's modelling and draft advice around electricity. [Response](#) and [attachments](#)
- **5 March 2021:** Copy of the ENZ model. [Response](#)
- **10 March 2021:** A list of models and other information on modelling. [Response](#).

Please also find attached a number of emails which are relevant to the second part of your request and are listed in the table below:

Document No.	Document Date	Content/Title
1	17 February 2021 1.23pm	RE: Climate Change Commission modelling workshop
2	22 February 2021 4.58 pm	Initial questions on CCC consultation materials published 31 st January 2021
3	5 March 2021 3.17 pm	FW: UNCLASSIFIED Response to your OIA request of 5 February Ref 2021-006
4	23 March 2021 5.44 pm	RE: [UNCLASSIFIED] follow-up information on Commission's assumptions
5	10 March 2021 5.07 pm	Response to OIA request of 9 February


Personal information within the emails has been removed under section 9(2)(a) of the Act.

I trust this addresses your request. You have the right to seek an investigation and review by the Ombudsman of this decision. Information about how to make a complaint is available at:

[Ombudsman New Zealand | Tari o te Kaitiaki Mana Tangata](#) or freephone 0800 802 602.

Please note that the Commission has a policy to proactively release OIA responses to help others have access to more information. Consequently, this letter will be published on our website with your name and contact details redacted to protect your privacy

Kind regards



Jo Hendy

Chief Executive
He Pou a Rangi – Climate Change Commission

[REDACTED]

From: [REDACTED]
Sent: Wednesday, 17 February 2021 1:23 pm
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Climate Change Commission modelling workshop

[UNCLASSIFIED]

Kia ora [REDACTED]

Hope you enjoyed your time away. I need to give you a call about some of your OIA questions from 9 Feb, is there a time on Friday that suits?

On the below – we will treat this as a new OIA request, info to come.

Cheers
[REDACTED]



[REDACTED] | Principal Analyst
[REDACTED]
W climatecommission.govt.nz

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[UNCLASSIFIED]

From: [REDACTED]
Sent: Wednesday, 17 February 2021 11:08 am
To: [REDACTED]

Cc: [REDACTED]

Subject: RE: Climate Change Commission modelling workshop

Thankyou [REDACTED]

Can you advise:

- That the expert model peer reviewers had full access to the models relied on by the CCC in preparing the draft emission budget consultation material. If not, then please provide the material the peer reviewers were given.
- Is the C-PLAN webinar for more detailed Q&A with [REDACTED] and [REDACTED] of Motu likely to be confirmed Tue 23rd Feb at 12?
- When will the MACC's assumptions be published?

Look forward to seeing updates on the CCC website of the Energy Link results summary and a more detailed set of input assumptions for the ENZ model (maybe this is where the MACC's assumptions will be?).

Kind regards

From: [REDACTED]
Sent: Wednesday, 10 February 2021 5:43 PM
To: [REDACTED]

Subject: RE: Climate Change Commission modelling workshop

Kia ora,

Thank you all for attending the modelling workshop today, and for your engagement with our analysis.

Below are the actions we agreed to at the workshop:

- 1) Sharing the link to the peer review of our modelling approach.
- 2) Publishing the underlying data for all of the figures in the Commission's 2021 Draft Advice report
- 3) Publishing the ENZ results data for our proposed path to 2035 and the other scenarios featured in our draft advice and evidence reports

All three are now published on our website at <https://www.climatecommission.govt.nz/get-involved/sharing-our-thinking/>

- 4) Publishing the raw C-PLAN results files. This is being prepared and we expect this to be up on the website before the end of the week.
- 5) Publishing the Energy Link results summary. We are reviewing this now and are looking to publish this on our website early next week.
- 6) Publishing a more detailed set of input assumptions for the ENZ model. We are just looking at how long this will take to extract from the model and will look to put this on our website next week.
- 7) Looking to set up a session for the group after our C-PLAN webinar for more detailed Q&A with [REDACTED] and [REDACTED] of Motu. The webinar is pencilled in for Tue 23rd Feb at 12 and will be confirmed shortly.

As I mentioned at the start, because we didn't give much notice about this session some people could have been overlooked or not able to attend. We are really happy to follow up either one to one, or if there's interest, with another workshop.

Thank you again for all your questions and positive engagement with our work.

[REDACTED]



[REDACTED] | Principal Analyst
Emissions Budgets and Modelling

[REDACTED]
W climatecommission.govt.nz

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-----Original Appointment-----

From: [REDACTED]

Sent: Thursday, 4 February 2021 11:46 am

To: [REDACTED]

Subject: Climate Change Commission modelling workshop

When: Wednesday, 10 February 2021 12:00 pm-3:00 pm (UTC+12:00) Auckland, Wellington.

Where: 1 Willis Street; 21 Floor

Kia ora,

Please come up to the 21 Floor and sign in. Please use the COVID tracer QR code in reception to sign in too.

We are limited in space as we are recording webinar in the office at the same time – please can we limit attendance to 1 person from each organisation.

I'm aware this is over lunch time; bring your lunch! We'll provide tea and coffee.

Thanks



Microsoft Teams meeting

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[Learn more](#) | [Meeting options](#)

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[REDACTED]

From: [REDACTED]
Sent: Monday, 22 February 2021 4:58 pm
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [REDACTED] initial questions on CCC consultation materials published 31st January 2021

[UNCLASSIFIED]

Kia ora [REDACTED]

Thank you for the meeting on Friday afternoon. I found it really useful to understand what it is you are looking for with each question and it was helpful to talk through how we can best get you and your members the information they need. I've written down below what I understood we agreed in the meeting. Please feel free to correct or change anything if it doesn't match your understanding or something else occurred to you over the weekend.

I noted that the Climate Change Commission is outside the statutory 10 days to come back to you to discuss narrowing the scope of the OIA request. We had a discussion about what that meant for how the CCC would address the questions. Please can you confirm that you are content to narrow the scope where specified below? Or not?

We have started pulling together the material.

Where I haven't written out a bullet point we will leave it as you wrote it and address under the principals of the OIA. So, using the same numbering system as you set out in your note:

1.2 – we have released on the CCC website the data that underpin the charts created by the CCC in the advice report. [Data and modelling » Climate Change Commission \(climatecommission.govt.nz\)](https://climatecommission.govt.nz/data-and-modelling)

We agreed that you would ask members to identify any CCC-created charts in the Evidence report that they would like the data for and we will provide the information asap. The datasets we've published should provide the underlying data for every figure and number in Evidence report chapters 7-9 and 12-13, i.e. all the scenarios and impacts content. We provided the numbers for each figure in chapters 12 and 13 in the C-PLAN and DIM results datasets. We didn't do this for chapters 7-9 as there are so many figures, but more or less everything there should be replicable from the ENZ scenarios dataset we've provided. Please let us know if members need assistance finding the information they want in the datasets.

We agreed that you would ask members to identify any CCC-created charts members saw in any public zooms, presentations etc. that members wanted data for. If members can let us know which charts, or even which zoom event or presentation they are interested in, we can provide the data.

Allowing time for members to identify what they would like, and for us to respond has implications for our ability to meet the existing OIA deadline. If you are OK we can separate this request from the OIA, to allow members to come back to us and clarify. We will provide information asap. Is this approach acceptable to you?

1.3 – agreed the Commission does not have capacity to do this, but will reflect on the desirability of this for future consultation events. I noted that it makes it easier for members to pick up on small pieces of new information that are released in different events without having to listen to multiple events if they can search text. Also, there is an accessibility benefit. Are you content to amend the request to remove this from the OIA request?

1.4 – The Commission has an FAQ page. [Frequently asked questions » Climate Change Commission \(climatecommission.govt.nz\)](https://climatecommission.govt.nz/frequently-asked-questions) Happy for feedback on missing questions.

2.1 – per OIA

2.2 – (first bullet) Per OIA, but reframe original request to please can the CCC provide any Board papers :

What Board papers did the Commissioners receive from staff on the question whether there are gaps in the regulatory governance of electricity distributors by the Commerce Commission or Electricity Authority?

And as a separate question, can the staff please explain what the thought process was for arriving at the rec? (We can probably do this easiest as a follow up conversation once we have sent the material).

Are you happy with this approach?

What Board papers did the Commissioners receive from staff referencing the Electricity Pricing Review or noting affordability of electricity issues?

And as a separate question, can the staff please explain what the thought process was for arriving at the recs? (We can probably do this easiest as a follow up conversation once we have sent the material).

Are you happy with this approach?

2.3 -

What Board paper did the Commissioners receive (from staff) around the recommendation to “Urgently introducing regulation to ensure no new coal boilers are installed.”?

And as a separate question, can the staff please explain what the thought process was for arriving at the recs? (We can probably do this easiest as a follow up conversation once we have sent the material).

Are you happy with this approach?

What Board papers did the Commissioners receive from staff mentioning access to capital as a barrier?

And as a separate question, can the staff please explain what the thought process was for arriving at the recs? (We can probably do this easiest as a follow up conversation once we have sent the material).

Are you happy with this approach?

2.4 – Please restrict the scope of this request to the modelling information and supporting analysis. *Okay?*

3.1 – please ask [REDACTED] for the numbers or the formulae used to calculate the incremental transmission and distribution costs or both. We will provide part 2 (assumed O&M and volumes) of this query too. Part 3 (regulated monopoly assets) – please narrow the scope from “any material or consideration” to “any reports to the Board”. *Okay?*

3.2 – Please substitute “any consideration” for “any material that went to the Board” *Okay?*

3.3 – I explained briefly how the forestry and biomass function worked in the model. We agreed that instead of the final sentence in this section, the CCC would provide a written explanation of how the model works out biomass availability and the regional figures for biomass availability for future years. If a chat is helpful we’re happy to organise. *Okay?*

3.4 - The CCC to provide a written explanation of the question in the first sentence rather than conduct a search of Board papers etc. to provide [REDACTED]. Again, happy to have a discussion. Can talk to this at the AGM we are coming to. *Okay?*

4.1 – Will provide under OIA

4.2 – Will provide under OIA

4.3 – Will provide under OIA – but we discussed the potential IDI/commercial confidentiality restrictions.

If you could confirm that you are okay with the approaches set out above or let me know of any changes, that would be great.

I've copied in [REDACTED], he's joined the team here to help with OIAs.

Thanks



[REDACTED] | Principal Analyst

W climatecommission.govt.nz

[UNCLASSIFIED]

From: [REDACTED]

Sent: Friday, 5 February 2021 10:14 pm

To: [REDACTED]

Cc: [REDACTED]

Subject: [REDACTED] initial questions on CCC consultation materials published 31st January 2021

Hi [REDACTED]

Attached is a memo with an initial set of questions from [REDACTED]. Can we have replies in writing? Responses to the questions as they are completed are OK rather than waiting for one complete package. Having responses in writing is one of several suggestions to consider for improving the consultation process in section 1 of the attached memo.

This email is also a formal request in terms of the OIA, for all models used by the Commission in preparing the consultation material published on 31st January 2021.

This email and the attached memo are not confidential. A number of likely interested parties have been copied in.

[REDACTED] Redacted - out of scope

Kind regards

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Redacted - out of scope

[UNCLASSIFIED]

[UNCLASSIFIED]

From: [REDACTED]
Sent: Friday, 5 March 2021 3:17 pm
To: [REDACTED]
Subject: RE: [UNCLASSIFIED] Response to your OIA request of 5 February ref 2021-006

Thankyou [REDACTED]

That is very comprehensive and well set out.
Will get back to you if we have any follow on questions.

Kind regards
[REDACTED]

From: [REDACTED]
Sent: Friday, 5 March 2021 3:03 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: [UNCLASSIFIED] Response to your OIA request of 5 February ref 2021-006

[UNCLASSIFIED]

Dear [REDACTED]

Please find attached our response to your OIA request of 5 February.

Kind regards
[REDACTED]

[UNCLASSIFIED]

[REDACTED]

Redacted - out of scope

[UNCLASSIFIED]

From: [REDACTED]
Sent: Friday, 5 March 2021 3:34 pm
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [UNCLASSIFIED] Response to your Official Information Act (OIA) Request of 5 February ref 2021-012

Our privacy policy is [here](#). It tells you how we may collect, hold, use and share personal information.

Thanks very much, this info is useful.

[REDACTED]
[REDACTED] | Head of Policy, Regulation, and Markets | [REDACTED]
[REDACTED]

From: [REDACTED]
Sent: Friday, 5 March 2021 3:00 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: [UNCLASSIFIED] Response to your Official Information Act (OIA) Request of 5 February ref 2021-012

[EXTERNAL EMAIL] DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

[UNCLASSIFIED]

Dear [REDACTED]

Please find attached our response to your OIA request of 5 February.

Kind regards

[UNCLASSIFIED]

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[REDACTED]

From: [REDACTED]
Sent: Wednesday, 10 March 2021 5:07 pm
To: [REDACTED]
Cc: Hello - Climate Commission
Subject: Response to OIA request of 9 February
Attachments: 2021-008 - Attachment 2 - Review of Models and Modelling (draft).pdf; 2021-008 - Attachment 1 - List of Models.pdf; 2021-008 Response to request for a list of models and other information.pdf

[UNCLASSIFIED]

Kia ora koutou

Please find attached the Climate Commission's response to your OIA request of 9 February.

Kind regards
[REDACTED]



[REDACTED]
Principal Advisor – Strategy and Performance
[REDACTED]
W climatecommission.govt.nz

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Redacted - out of scope

From: [REDACTED]
Sent: Tuesday, 23 March 2021 5:44 pm
To: [REDACTED]
Cc: [REDACTED]; Jo Hendy
Subject: RE: [UNCLASSIFIED] follow-up information on Commission's assumptions

Great thanks [REDACTED]

The below answers are comprehensive, thanks, but apologies, I am still a bit unclear on a few key points, and some of the answers lead to further questions!

- The EV costs were developed by Concept consulting and reviewed by other independent EV experts – can we get a copy of the work received from Concept and reviews?
- Re the MG EV – is this the car the costs in the model are based on?
- Re,
 - We agree that past efficiency gains have generally been taken as increased production rather than keeping production constant and reducing inputs and emissions. We wouldn't expect this to happen without policy to encourage this change in behaviour.
 - What is the policy the Commission is recommending / assuming? I think this is important as pulling dry matter back would be a challenging policy proposition. E.g. quota type policies can lead to some very perverse outcomes when farmers 'accidentally' produce too much grass in favourable weather and have to let grass go to waste, and are a very negative signal to long-term investment in efficiency and productivity.
- I have to admit I am more confused now than before on the native afforestation!
 - In the below you say that "Note that we did not adjust the reported land areas for dairy or sheep and beef farming to account for [some lower-quality pasture on dairy and sheep and beef farms to native forest]"
 - Does this mean that the reported numbers in the attached (excel spreadsheet) for dairy, sheep and beef, and natives do not include all land conversion?
 - Can you share with me how much extra dairy and sheep and beef farm you expect to convert to natives? (over and above that reported in the assumptions released on the website)

Finally, and apologies, more of a question than a comment:

Re "In the ENZ model, we do not model feed explicitly but look at the relationship between the production per head and the emissions per head, calibrated to MPI's projections."

- I think this is the nub of the problem. The modelling seems to assume farmers run a set number of cattle, producing a set volume of milk, and then produce the grass needed for this cattle and milk.
- In reality, a farmer's biggest asset, and fixed input, is their land. The land will have an efficient level of dry matter production, and an efficient number of stock that will stem from, rather than drive, that pasture production curve.

I have to say I am quite concerned that the approach used to model dairy emissions (and potentially sheep and beef also) may have a significant impact on the overall economic costs of the transition communicated to the New Zealand public.

From: [REDACTED]
Sent: Tuesday, 23 March 2021 2:34 PM
To: [REDACTED]
Cc: [REDACTED] Jo Hendy [REDACTED]
Subject: RE: [UNCLASSIFIED] follow-up information on Commission's assumptions

[REDACTED]

Sorry for taking some time to get back to you.

We've added answers to your questions in italics (and some wider context) in red below.

Thanks

[REDACTED]



[REDACTED] | Principal Analyst
Emissions Budgets and Modelling
[REDACTED]
W climatecommission.govt.nz

From: [REDACTED]
Sent: Monday, 15 March 2021 12:28 pm
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [UNCLASSIFIED] follow-up information on Commission's assumptions

Thanks [REDACTED]

That helps a lot. I wasn't able to find these links – my apologies.

Now that I have the excel spreadsheets, I do have some questions understanding what I am reading! Do you mind helping me with the following [REDACTED]? Sorry the agriculture one is quite complicated. I have put the key questions in

italic. Its rather technical, but it seems the way dairy ghg are modelled runs directly contrary to the advice in the dairy NZ submission.

- **Electric Vehicles.** Under the tab on Road Transport, New BEV Light Passenger vehicles are assumed to cost \$56,033 in 2018, falling to \$31,217 in 2035 in the “Our path to 2035” scenario. The assumed cost in 2021 is \$47,208. This lines up with the “Tail winds” scenario. New Petrol light vehicles are assumed to cost \$36,096 and this remains constant. This makes BEVs cheaper than petrol cars in 2035. Used BEV fall to \$9,824 in 2035; compared to used petrol \$9,788 for petrol light vehicle.
 - Where do the assumptions come from? Is there a reference model that is used to determine these costs?
 - For instance, the cheapest new BEV I can find is the Nissan Leaf and this is currently \$62,000 compared to the figure of \$47,208 in the model. Other BEVs are a lot more expensive <https://www.stuff.co.nz/motoring/120826915/lowest-to-highest-every-new-ev-you-can-buy-in-nz-in-2020> (there is a model offered for \$49,000, but this was limited to the first 50 orders.
 - What is the methodology used to determine the cost of a light petrol vehicle? “Light Passenger Vehicles” appears to be a very broad range of vehicles covering everything from a Mazda 2 to a 7-seater.
 - How do these figures drive the model? Are they important in the cost of the transition?

Prices in the spreadsheet are ex-GST – so including GST the assumed cost of a BEV in 2021 under our path would be \$54,289.

It is difficult to make a direct comparison between ICEs and EVs because they are often different models with different specifications. The one exception to this we’re aware of in the NZ market is the MG ZS Essence (\$48,990 for the EV version, \$27,490 for the ICE). There is huge variation in the price of vehicles within a market segment. Our model doesn’t try to represent this complexity. The differential in price between a comparable ICE and EV is the most important factor in.

The cost of ICE vehicles is calculated by dividing the total cost of vehicle purchases by the number of vehicles. This represents the ‘average’ vehicle purchase price across all market segments.

The EV costs were developed by Concept consulting and reviewed by other independent EV experts. Based on that research we anticipate that EV production costs will continue to reduce. In our model the cost of producing an EV is broken down in to the cost of the battery and other vehicle costs (drive train, etc). Both components are assumed to reduce in cost as economies of scale are achieved globally and battery technology continues down its learning curve. We are open to revising these assumptions based on feedback.

Our model predicts EV uptake based on the total cost of ownership in the first 5 years. It applies an early adoption penalty for EV technology to reflect early consumer hesitance to adopting EVs. It also constrains the growth of EV supply to reflect expected market constraints.

- **Industry:** Food processing
 - Food processing “Pathway” states that “Regional biomass constrained at 50 per cent availability”. What does this mean?
 - Does this cover dairy processing?

Food processing includes dairy processing.

The supply of biomass is derived from the forestry module which predicts the level of harvesting in each region. The regional biomass constraints prevent the model using more than 50% of the estimated technically recoverable biomass residues and pulp logs within each region.

Scaling factors are also applied to restrict the available regional supply. The purpose of this is to prevent the food processing sector from consuming all the available supply within the region at the expense of other users and to ensure a balance between fuel switching to bioenergy and electrification. The latter is thought to reflect the practicalities of using biomass as a boiler fuel on a massive industrial scale which might limit the uptake.

- **Agriculture**

- Dairy GHG seem to be modelled by working out the relationship between GHG per head of cattle and milk production per head of cattle.
- Milk production per head is increased. Dairy land falls 4%. Milk production falls 1.5%. Dairy cattle fall 20%.
- As a result dairy enteric methane fall 16 per cent between 2018 and 2035.
- In the 2020 “Call for Evidence” DairyNZ submission have a section titled “Understanding methane from enteric fermentation” <https://www.dairynz.co.nz/media/5792810/dairynz-submission-ccc-call-for-evidence-carbon-budgets.pdf>
- In this it is pointed out that methane is a linear equation: every kg of dry matter consumed by dairy cattle results in 21.6 g of methane. The only way to reduce enteric methane from dairy is to reduce dry matter consumed by dairy cattle.
- The Commission has assumed that if the efficiency of a dairy cow can be increased, dairy cows will need less grass to produce the same volume of milk, and GHG will fall.
- This is an odd assumption. If an industry increases efficiency (reducing its cost, while it is an exporter that doesn’t saturate its own market), the increased profit would normally lead to increased production. *Why is milk production held near constant while efficiency increases?*

The link between total dry matter consumption and enteric methane emissions for dairy cattle is included in our analysis (see for example p. 46 of Evidence report Chapter 8).

Our scenarios and path to 2035 are not trying to predict what would happen under a continuation of current farmer behaviours and incentives. We agree that past efficiency gains have generally been taken as increased production rather than keeping production constant and reducing inputs and emissions. We wouldn’t expect this to happen without policy to encourage this change in behaviour. In part we expect the changes in freshwater policy to encourage this change in practice. It’s also important to note that while the efficiency of an individual dairy cow may increase, there are also likely to be efficiency gains across the whole herd – for example through reducing replacement rates.

Note the approach we have taken is consistent with the BERG’s assessment of improving animal performance while reducing stocking numbers.

A final point in response is it’s important to distinguish production efficiency from cost efficiency. We have not assumed that improving animal performance and reducing stock numbers necessarily reduces total costs or improves profitability. While this was the finding of modelling undertaken for the BERG, we are aware there are other views that hidden costs not captured by the modelling, or failure to achieve the modelled production outcomes in practice, could lead to different impacts on profitability.

- Here it is also important to look at the relationship between GHG and land in dairy. The Commission is assuming land in dairy falls 4% while dairy enteric methane falls 16 per cent. As has been noted in the submission by DairyNZ, dairy enteric methane is directly proportional to dry matter consumed (it is a linear equation).
- So, the only way you can have dairy land fall only 4% while dairy enteric methane falls 16% is if you assume dairy dry matter consumed per hectare drops by 13 per cent. *Is this the assumption of the Commission?*
- This could happen a few ways:
 - Dairy farmers grow less grass per hectare
 - Dairy farmers use less imported supplement
 - Dairy farmers use less off-farm grazing
- Each of the second of these two have some problems:
 - Less imported feed could occur, but DairyNZ point out in their submission that total imported feed is 7.8%, so this would need to reduce to zero and still wouldn’t achieve a 13% reduction – *is zero supplement assumed? (It would also be very very difficult for a farmer to have less supplement and higher production per cow)*

- Less off farm grazing could certainly occur. Here it is important to understand risks of “rebound effect” and “double counting”. If dairy farmers use less winter grazing this land, currently in pasture, would need to be used for something else.
 - Most often, it could assume to stay in pasture but be used for sheep and beef. This would create the same emission as if the pasture was fed to a dairy animal (dairy and beef come from the same species after-all with the same digestion system). So an increase in sheep and beef emissions should be assumed as a result of less demand for dairy support land.
 - If the land that was used for dairy support was converted to forestry, this would be counted already in the model. Assuming this land just disappears could be a form of double counting.
 - *How is dairy support land treated in the model?*
- Producing less grass per hectare would be a very strange assumption. Dairy farmers largest investment is typically in land. Once that land is bought, the cheapest marginal cost feed is generally grass. The report talks a lot about more advice to farmers, all the industry groups will talk about “pasture first”; the idea that a profitable dairy business is one that focuses on maximising the utilisation of pasture. The advice at the below link is all about good pasture management driving more pasture production (not less) <https://www.dairynz.co.nz/feed/pasture/growing-pasture/grazing-management-tips/#:~:text=Pasture%2C%20without%20any%20input%20other,farmers%20can%20reap%20the%20rewards.>

In the ENZ model, we do not model feed explicitly but look at the relationship between the production per head and the emissions per head, calibrated to MPI’s projections.

Your calculation of a 13% reduction in DM per hectare for dairy is accurate at face value, however this excludes any reduction in the effective pastoral land area farmed (see point below on native forestry). The reduction in DM could be through a combination of the three ways you mention (reduced imported supplement, lower fertiliser use, reduced off-farm grazing). We haven’t explicitly modelled the balance between those options. We avoided being prescriptive about the balance between them because from an emissions point of view the balance is not important.

An important missing factor is the conversion of some lower-quality pasture on dairy and sheep and beef farms to native forest. Note that we did not adjust the reported land areas for dairy or sheep and beef farming to account for this, but we expect that the 300 kha of new native forestry will reduce the effective area farmed and total DM production. To the extent this occurred on dairy farms (or on dairy support farms), it would mean a smaller reduction in use of supplement, fertiliser and off-farm grazing. This also relates to your point about the risk of rebound effects from reduced off-farm grazing.

By looking at the potential contribution from the four ways above, we’ve sense-checked that the DM reduction in the path is feasible, and believe that there are a number of ways that this could be achieved. We intend to look into this further for our final report, and appreciate you raising the point. We have heard from other agriculture stakeholders that it would be useful to have more detail on how changes in farm management could play out on the ground – we are trying to balance this with getting overly prescriptive.

From: [REDACTED]
Sent: Monday, 15 March 2021 9:24 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: [UNCLASSIFIED] follow-up information on Commission's assumptions

[UNCLASSIFIED]



Kia ora [REDACTED]


Thanks for the call and follow-up discussion on Friday. As discussed, here are the links to the publicly available information on the assumptions.


- In Chapter 8, there is a high-level overview in table form of the assumptions for the different scenarios. This information starts on page 63 [Evidence-CH-08-what-our-future-could-look-like-28-Jan-2021-compressed.pdf \(amazonaws.com\)](#). If you are looking for information for the current policy reference this is available on page 78 of Chapter 7 - [Evidence-CH-07-Where-we-are-currently-heading-26-Jan-2021-compressed-1.pdf \(amazonaws.com\)](#).
- Chapter 9 provides the qualitative outline of the assumptions. This is available here. [Evidence-CH-09-which-path-could-we-take-20-Jan-2021.pdf \(amazonaws.com\)](#).

In the spreadsheets, the scenarios dataset (*2021 draft advice scenarios dataset*) is the best place to start on the tab “our path to 2035” which is the proposed pathway in the draft advice. The other two spreadsheets, which would be relevant, are the more detailed technical assumptions. I’ve cut and paste a snapshot of this info from the website so you know what you are looking for in the link below.

[Data and modelling » Climate Change Commission \(climatecommission.govt.nz\)](#)

[2021 draft advice scenarios dataset.xlsx](#)  : contains further data for our proposed path to 2035 and the other scenarios featured in our draft advice and evidence reports, for those who want to dive deeper into the numbers.

[Technical assumptions in ENZ – energy and transport.xlsx](#) : contains more detailed technical assumptions for the energy and transport sectors used in our scenarios model, ENZ.

[Technical assumptions in ENZ – land and waste.xlsx](#) : contains more detailed technical assumptions for the agriculture, forestry and waste sectors used in our scenarios model, ENZ.

If you are looking for something particular in the datasets and can’t find it, [REDACTED] is happy to respond to more detailed questions on where the information is located.

Cheers, [REDACTED]



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