Out of scope

[redacted]

From: Facts About Ruminant Methane (FARM) <info@farmemissions.co.nz>
Sent: Monday, February 1, 2021 11:03:49 AM
To: Media - Climate Commission <Media@climatecommission.govt.nz>
Subject: Fewer cows recommendation absolute nonsense

FEWER COWS RECOMMENDATION ABSOLUTE NONSENSE.

1 February 2021

'The Climate Commission's recommendation to reduce livestock numbers by 15% by 2030 is not sensible, practical or justified,' Robin Grieve, chairman of FARM (Facts About Ruminant Methane) said today.

Reducing livestock numbers will invariably cost New Zealand export income and mean that less food is grown. With an increasing global population that needs feeding this policy is not only anti human and selfish, it will also cause more global emissions as other countries with less efficient farming systems will have to produce the food New Zealand does not. **Such a recommendation by the Commission is as silly as New Zealand reducing emissions by cutting Air New Zealand flights and letting Qantas take up the slack.**

Reducing livestock might reduce carbon emissions but the bulk of these carbon emissions are sourced from methane and are not causing the warming the system attributes to them. It is a common mistake for people to assume that the carbon emissions sourced from fossil fuel have the same impact as carbon emissions sourced from ruminant methane, but they do not and the Commission should not make that mistake. The Commission by making its recommendation is in fact denying the science that ruminant methane emissions are cyclical and under New Zealand's stable herd situation are atmospherically neutral and not responsible for increases in global temperature.

The goal of the Paris Agreement was to reduce emissions to stop global temperature increasing more than 2 degrees; New Zealand's ruminant methane emissions reduced to the point they stopped increasing global temperatures years ago, if in fact they ever did have an impact. There is no need to reduce them further.

By reducing livestock numbers all New Zealand will be doing is reducing emissions of methane which do not need to reduce which is supreme virtue signaling and the height of folly.

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www.farmemissions.co.nz
facebook.com/Ruminantmethane

Adam McFerran

From: Phil Wiles
Sent: Wednesday, 3 February 2021 9:35 pm
To: Sally Garden; Harriet Palmer
Cc: Ben Abraham
Subject: RE: [UNCLASSIFIED] Points on stock numbers

Hey Harriet,

Out of scope

Phil.

We have given advice on emissions budgets and the direction of policy required to reach our legislated targets – including the 2030 biogenic methane target (to reduce biogenic methane to 10% below 2017 levels).

There are many ways that this can be done, and our modelling shows just one path. In this path, there are improvements in farming practices including feed management, breeding, and a drop of 15% in national stock numbers (some of these improvements fall within a 'regenerative approach') – and overall production is maintained.

Farmers will need policy support to achieve these goals. Industry and Government are working together via the He Waka Eke Noa partnership to give farmers the tools to take action.

From: Sally Garden <Sally.Garden@climatecommission.govt.nz>
Sent: Wednesday, 3 February 2021 3:39 pm
To: Harriet Palmer <Harriet.Palmer@climatecommission.govt.nz>
Cc: Phil Wiles <Phil.Wiles@climatecommission.govt.nz>; Ben Abraham <Ben.Abraham@climatecommission.govt.nz>
Subject: FW: [UNCLASSIFIED] Points on stock numbers

[UNCLASSIFIED]

Forwarding to Harriet who is asking for them…

He Pou a Rangi Climate Change Commission

Sally Garden | **Principal Analyst**
M S 9(2)(a)
W climatecommission.govt.nz

[UNCLASSIFIED]

From: Ben Abraham <Ben.Abraham@climatecommission.govt.nz>
Sent: Wednesday, 3 February 2021 2:51 pm
To: Sally Garden <Sally.Garden@climatecommission.govt.nz>; Phil Wiles <Phil.Wiles@climatecommission.govt.nz>
Subject: RE: [UNCLASSIFIED] Points on stock numbers

Another stab…

- Our analysis shows that it is possible to meet the biogenic methane targets by driving hard on low emissions farming practices such as adjusting stocking rates, supplementary feed and nitrogen inputs, as well as breeding low emissions sheep and using low nitrogen feeds.
- By adopting these where appropriate, farmers could build upon historic trends of producing more per animal and reducing methane emissions per unit of product. Achieving this will allow farmers to reduce emissions while maintaining production at similar levels to today.
- Our recommendations focus on policies that support farmers to achieve this. The work of the He Waka Eke Noa partnership to develop guidance, tools and an agricultural emissions pricing mechanism will be critical.
- As low emissions practices and technologies are adopted, our pathway projects total milking cows and sheep and beef stock numbers to decline by 15% by 2030. This compares to the 8-10% reduction expected by 2030 under current policy settings.
- The additional reductions in our pathway occur as more farmers reduce stocking rates to optimise production and as some less productive pastoral land is converted into forests or horticulture.

Your turn, Phil!

- P.S. just now wondering whether we should say something like "Achieving this will allow farmers to reduce emissions while maintaining production at similar levels to today **with fewer animals**"

From: Sally Garden <Sally.Garden@climatecommission.govt.nz>
Sent: Rāapa, 03 Huitanguru, 2021 1:56 p.m.
To: Phil Wiles <Phil.Wiles@climatecommission.govt.nz>
Cc: Ben Abraham <Ben.Abraham@climatecommission.govt.nz>
Subject: [UNCLASSIFIED] Points on stock numbers

[UNCLASSIFIED]

Out of scope [redacted]

- The Climate Change Commission's analysis shows that Aotearoa is not on track to meet its target for reducing biogenic methane 10% below 2017 levels by 2030.
- Under current policies, biogenic methane emissions are projected to fall by 7% below 2017 levels by 2030. This is expected to happen through a combination of land use change, freshwater policy, and ongoing efficiency improvements.
- Our analysis shows that it is possible to meet the biogenic methane target using technologies and practices that already exist.
- Our path to meeting emissions budgets would push hard on driving changes to low emissions farm practices. This would allow farmers to reduce emissions while maintaining production at a similar level to today.
- Policy focus should be on supporting farmers to become even more efficient. This includes adjusting stocking rates, supplementary feed and nitrogen inputs for emissions efficiency, as well as breeding low emissions sheep and using low nitrogen feeds.
- Under our path we project animal numbers to decline due to a small amount of dairy land shifting into horticulture, some less productive land being converted to forest, and continued improvements in productivity in line with historical trends while maintaining total production.

- Policy support will be needed achieve the emissions reductions required. The work the He Waka Eke Noa partnership is doing to develop guidance, tools and an emissions pricing mechanism to support emissions reductions from agriculture will be critical.

Sally Garden | **Principal Analyst**
M S 9(2)(a)
W climatecommission.govt.nz

[UNCLASSIFIED]

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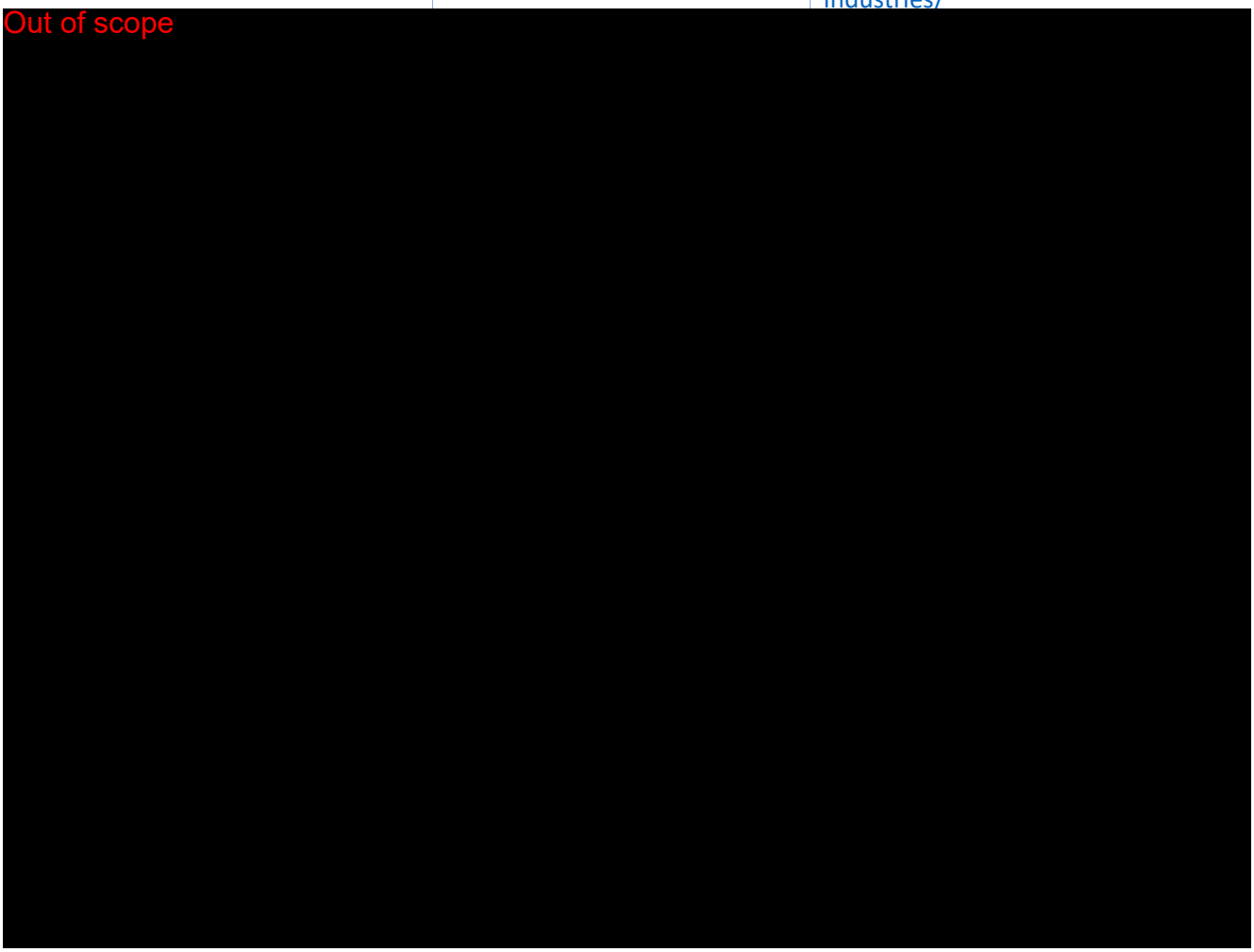
Document 4

Out of scope

BERG Report	The Biological Emissions Reference Group 2018 report has data on the potential costs and effectiveness of emissions reductions measures in agriculture	Publicly available at https://www.mpi.govt.nz/funding-rural-support/environment-and-natural-resources/biological-emissions-reference-group/
MPI land sector activity and greenhouse gas projections	Historic and projected changes in national land use, agricultural production and greenhouse gas emissions out to 2050 under current policy settings. The data was used to inform assumptions on future changes in agricultural yields and emissions intensity.	Unpublished, but some data available in 2019 Fourth Biennial Report (see above). Related to short-term forecasts undertaken for MPI's Situation and Outlook for Primary Industries, publicly available at https://www.mpi.govt.nz/resources-and-forms/economic-intelligence/situation-and-

		outlook-for-primary-industries/

Out of scope



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Dr. Rod Carr

Chairman of the Climate Change Commission

Dear Dr. Carr

My objective is to stop people in the western world feeling guilty when they eat pastural red meat and stop New Zealand pastoralists feeling guilty when they produce it. Also, to show just how bad things can get when people are given zombie jobs. I wrote to the Ombudsman, copy included, to complain about the Climate Change Commissions requirements that farmers reduce animal numbers by 15%. Climate change is about science and the financial advice following from it, could you please explain to the pastural farmers of New Zealand the science behind advising New Zealand to reduce pastural ruminants by 13%. To help we asked the following questions:

1. Is every atom of carbon emitted by a pastoral animal recently captured from the atmosphere?

2. Does methane CH4 belched by farm animals break down in in the atmosphere to carbon dioxide and water?

3. Do you acknowledge that if methane is produced at a constant rate the amount of methane in the atmosphere will be constant?

4. Do you acknowledge that if pastoral animals are farmed at a constant rate, we are already at methane carbon zero?

5. Was your advice based on the world methane research institute at Palmerston Norths insistence that 48% of New Zealand greenhouse gases were from farm animals belching?

6. Was your advice based on their position and the enormous political momentum fuelled by wishful thinking and populous politics that abound?

I believe that the financial advice you give to our government and our people must comply within the lawful requirements of a financial advisor, it must be fair, have integrity and competence. I claim that the ethical standard of your advice falls short of these requirements and is unlawful. I repeat, please explain the science behind on which your advice is based.

Yours faithfully,

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The Chief Ombudsman Wellington

I left school in 1958 with a university entrance qualification in chemistry, physics and biology and have spent the intervening years in pastoral red meat production. I have a good understanding of the carbon cycle. I understand the miracle or photosynthesis. I understand respiration, oxidation and anaerobic decay of organic compounds which produces natural gas, marsh gas or methane CH4 a violent unstable gas. I understand that if methane did not break down into (CO2 and H2O) the planet would not be habitable.

The Helen Clarke government of the early 2000 did not understand that methane breaks down and because New Zealand had a lot of hydroelectricity and a lot of livestock they said that 48% of our greenhouse gas production was from "animal emissions" farm livestock belching. They got so excited that they formed a world centre for methane research based in Palmerston North. This is where the trouble started. People employed in this research had a conflict of interest between explaining that at a constant production of methane the level in the atmosphere stayed the same and agreeing with the politicians driven by wishful thinking territorial and lifestyle envy populist politics and more latterly embarrassment that they put their salaries ahead of the science and still today produce a pie chart showing 47.8% of New Zealand greenhouse gas emission come from animal methane continuing the confusion.

This leaves us in the amazing position of damaging world perception of our major exports, pastoral/animal protein products.

The preliminary advice of the climate change commission is to reduce livestock by 15%. If we export just 20 billion of pastoral products this is an annual reduction of 3 billion in export returns which would buy a lot pharmaceuticals.

May I humbly suggest you in your role of chief ombudsman meet with the climate change commission who produce their advice to the government by the end of May. They have received 10,000 submissions from the public, please read mine enclosed. They are giving financial advice to the citizens of New Zealand and should comply with the ethical standards of a finical adviser. To act within the law they should act fairly with integrity and competence.

Attempting to hide a 15 year mistake to save face is neither fair nor competent and will continue to damage the New Zealand economy until such time as they are called to account.

The world methane research unit have had 15 years to solve a problem that did not exist, they should be redirected. Capturing methane from sewerage would be a good place to start. If the job of the ombudsman is to correct government mistakes this is a big one, it must be tackled for the sake of beleaguered pastoralists and our nation.

Could you please acknowledge receipt of this letter.

Yours sincerely

9(2)(a) [redacted]

9(2)(a) [redacted]

He Pou a Rangi
Climate Change Commission

9(2)(a)
[redacted]
[redacted]

21 July 2021

Dear 9(2)(a)

Thank you very much for your recent letter to the Climate Change Commission.

One of the roles of the Commission is to advise on achieving New Zealand's legislated emissions reduction targets. The Zero Carbon Act fixes the current targets which require biogenic methane emissions to reduce by 10% below 2017 levels by 2030 and 24-47% by 2050, and net-zero all other gases (such as carbon dioxide and nitrous oxide) by 2050. These targets were set based on scientific evidence about the emissions reductions required to contribute to limiting global warming to 1.5 degrees above pre-industrial levels.

Agriculture has a large role to play in reducing emissions, but our advice does not suggest forcibly reducing livestock numbers across Aotearoa. The advice highlights how the 2030 biogenic methane target can be met if farmers are supported to continue adopting on-farm practices that improve efficiency and reduce emissions. This includes reducing animal numbers and using better animal pasture and feed management. Our demonstration path shows how adopting these practices help achieve the target with less total livestock across Aotearoa as a whole and only small reductions in total agriculture output. Additional information on our demonstration path can be found in Chapter 7 of *Ināia tonu nei: a low emissions future for Aotearoa* on pages 116 and 117.

Methane is a short-lived gas that has an intense warming effect for the first few decades after its emitted. It also breaks down into carbon dioxide, which continues to have an ongoing radiative forcing effect. An in-depth discussion on the science of effects of long-lived and short-lived greenhouse gas emissions can be found in Chapter 1 of our *2021 Supporting Evidence* on pages 14 and 15. Further explanation of the science of methane can be found in Chapter 7.

We would also like to thank you for taking the time to provide your submission during the recent consultation on the Commission's draft advice.

The Commission received an Official Information Act (OIA) request for all submissions made to the Commission. This requires us to consider your submission on the draft advice to the Government for public release and release to the requester. As such, we will also be publishing your submission with all personally identifying information removed, a copy is attached for your noticing. If you have any questions, please feel free to contact us.

Thank you again for your letter to the Commission.

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a price is to internalise the cost of GHG emissions, which may or may not lead to a change in behaviour.

In practice, a price on GHG means foresters can earn income from the GHG emissions their forests remove, and (in the future) pastoral farmers will have to reduce their emissions by changing farming practice or reducing output,[1] or just paying for (internalising the cost of) their emissions.

At current emissions prices, forestry is likely to provide an attractive option for at least some sheep and beef farmers. If emissions prices increase as many people expect, there may be a widespread shift of land into forestry (Daigneault 2019). We look at the potential effect on the current account balance.

Out of scope

CAB Implications of Converting Sheep and Beef Land to Forestry

Below we look at two scenarios that involve changing land use from sheep and beef farming to forestry:

1. No international purchases of emission units to meet New Zealand's domestic and international emissions targets.

2. Participation in international trading of emission units, either purchasing units to meet New Zealand's emissions targets, or selling surplus units.

Scenario 1: New Zealand does not participate in international trading of emission units

We assume that New Zealand does not trade in international emission units. That could be for various reasons:

- there is no opportunity to buy trustworthy units from other countries,
- the government chooses not to engage in such trading (see Appendix A).
- New Zealand does not need international units to meet its international emissions target so the issue is moot – but what happens if New Zealand has surplus units?

A large scale conversion of pastoral farming to forestry could worsen (or rather risk worsening) New Zealand's Current Account Balance.[3] This is because it could take decades before exports of forestry products would be sufficient to replace lost meat exports, if they ever do.

Under a change in land use from pastoral farming to forestry, farm emissions of CH_4 and N_2O would decline as the carbon price rises – perhaps more quickly if rising prices are seen as inevitable. As new forests are established total CO_2 sequestration would increase.

The pressure on the CAB is an empirical question. However, we can make some approximate estimates for a plausible scenario for the period to 2050:

1. From Motu (2018),[4] land use by sheep and beef farming is projected to be around 7.1mha by 2050 under a Business as usual (BAU) scenario, falling to 6.5mha under the BERG 'high ambition' (HA) scenario.

2. We conservatively assume that the entire 0.6mha converted is take from productive sheep and beef land goes into forestry, linearly over 28 years. So each year about 21,400 ha is planted. (Note, however, that in the BERG modelling although some land does convert from sheep and beef to forestry, most of the projected increase in forestry is on land that is currently scrubland).

[3] We treat payments for emissions units like a tax, although the units could also be treated as a stock (asset) rather than a flow. This doesn't affect the essence of the argument.

[4] Motu (2018) *Land-use Change as a Mitigation Option for Climate Change*, Motu report to BERG, December 2018.

3. The entire change in land use translates into lost meat export revenue. At an assumed $980/ha that implies lost exports worth approximately $0.6b.

4. However, at $99,000 per harvested ha the annual export value of a mix of forestry products (logs, sawn timber, pulp etc) from 2048 onwards is $2.1b.

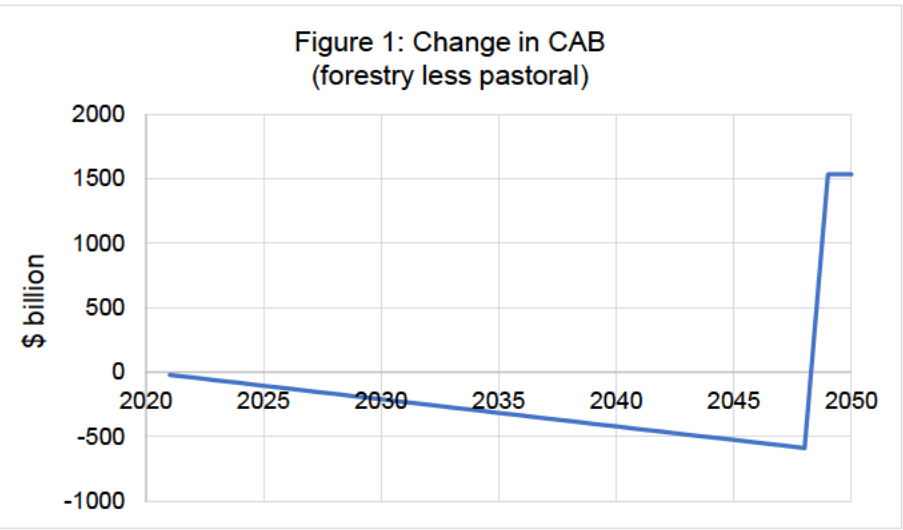
Table 1 summarises the above, for 2050 relative to BAU. By 2050 there is a projected net increase in forex of $1.5b, albeit subject to a wide error margin.[5] However, before 2050 the potential CAB effect is dominated by the decline in meat exports. The increase in forestry exports would not occur until the first rotation is harvested in 2048.

Table 1: Changes to CAB Relative to BAU in 2050 ($billion)

	Scenario 1	Scenario 2
Change in pastoral exports	-0.6	-0.6
Change in forestry exports	2.1	2.1
Net change in CAB	1.5	1.5
CO_2e reduction		0.1
CO_2 sequestration		1.8
Total carbon credits		1.9

A stylised picture of the net effect, assuming a linear decline in pastoral exports and the first year of more forestry exports in 2048 (28 years hence) is shown in Figure 1. Exchange rate effects are ignored. Over the period to 2050 the cumulative net incremental effect on the CAB is $-5.5b undiscounted, and $-3.8b discounted at 3% pa.

Figure 1: Change in CAB (forestry less pastoral)



As noted above it is an accounting identity that in any year a deterioration in the CAB needs to be offset by a forex inflow on the Capital or Finance account, usually by way of overseas borrowing. Potential foreign lenders would demand a higher rate of return for lending to New Zealand to compensate them for the increased risk of a fall in the exchange rate.[6] However, if the RBNZ wishes to keep the OCR stable, the fall in the exchange rate could be relatively quick.

Eventually a lower (that is depreciated) exchange rate improves the competitiveness of other exports such as (non-CO_2 intensive) manufactured products and services such as international

[5] More robust numbers require general equilibrium modelling.

[6] Under 'covered interest parity', the interest rate differential between two currencies equals the differential between the forward and spot exchange rates. Thus if the forward rate is expected to be lower (ie fewer foreign currency units per NZD) than the spot rate, New Zealand would have to offer a higher rate of interest.

education, and of industries that compete with imports such as food production and domestic tourism. Both effects combine to offset the adverse shock to pastoral exports.

Although much short term volatility is likely to prevail during this adjustment process, fundamentally the size of a country's CAB deficit is determined by the rate of return it can provide on foreign borrowing, relative to the risk of a depreciation of the exchange rate.

Think of it this way: if New Zealand experiences an adverse shock that potentially worsens the current account deficit, international lenders do not say "Oh that's unfortunate, but never mind we'll lend you some more money on the same terms as before." If they did, they should have been even more willing to lend us greater amounts before the adverse shock. Instead they demand a higher rate of interest to compensate for the now higher lending risk.

In summary, meeting an emissions reduction target without international trade in emission permits has a negative effect on net export revenue if land use changes from sheep and beef farming to forestry. That leads to a depreciation of the exchange rate which reduces the country's purchasing power and therefore the standard of living. This is what the abatement cost equation for New Zealand looks like – before the forest is harvested.

Note that the cost would likely be higher if the change in land use was somehow impeded as larger and more costly reductions in emissions would be required elsewhere.

The two C-PLAN scenarios show that the costs of meeting emissions budgets rise exponentially as the limits to what technology can be used/modelled are reached, and economic output is instead reduced to meet targets. The GDP cost of achieving the demonstration path is approximately $30 GDP/tonne abated. The additional cost of reaching TP4 is approximately $300 GDP/tonne abated.

In TP4 biogenic emissions were held constant, and only remaining emissions were reduced to meet a more stringent 2030 target (long-lived gases and fossil methane). Further modelling runs would be required to accurately represent a scenario in which a greater proportion of the NDC was met domestically – however this is not straightforward, as C-PLAN does not model land-use change directly.

There would likely be cheaper mitigation options available in the NDC period for biogenic methane that were not included in TP4 – particularly in converting sheep and beef land to forestry, which can be economic over the long-term. This option generates more than 90% of its mitigation benefits after 2030 largely in the form of forest sequestration – which does not contribute to meeting the 2030 NDC. The mitigation benefits that occur before 2030 are small on a per hectare basis. To achieve mitigation at sufficient scale to contribute meaningfully to meeting the NDC, wide-scale conversions from sheep and beef farming to forestry would be required.

For a sense of scale, the demonstration path assumes 25,000 ha per year of new forests in the NDC period. If we were to double that to 50,000 ha per year, we would generate an additional 16 Mt CO_2-e abatement in the NDC period.

In the long-term, forestry's economic returns are commensurate or better than sheep and beef farming, but in the short to medium term conversion at that scale would come with significant regional impacts. It is also potentially a faster pace of afforestation than is desirable for the long-term transition to a low emissions economy in Aotearoa, as it may inhibit reductions in gross emissions over the 2030s.

To achieve and maintain net zero emissions in 2050 requires a sustained level of forest planting into the long term. Accelerating forestry conversions early in the NDC period also potentially risks the social license for continued afforestation and therefore the net zero target.

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Document 10

Agriculture Behaviour change assumptions

	Base case	Low further behaviour change	High further behaviour change	Reasoning and evidence base
All pastoral: On farm management changes that can be achieved through existing practices **(Info from BERG that builds into this is below)**	Dairy stocking rate declines from 2.9 in 2018 to 2.6 in 2050. S&B stocking rates decline from 5.85 in 2018 to 5.64 in 2050.	2% reduction in 2030, 5% reduction in 2050. Methane and nitrous oxide. In ENZ, this occurs through additional changes to stocking rate. Dairy stocking rates decline from 2.9 in 2018 to 2.4 in 2050 S&B stocking rates decline from 5.85 in 2018 to 5.4 in 2050.	5% reduction in 2030, 10% reduction in 2050. Methane and nitrous oxide. In ENZ, this occurs through additional changes to stocking rate. . Dairy stocking rates decline from 2.9 in 2018 to 2.2 in 2050 S&B stocking rates decline from 5.85 in 2018 to 5.0 in 250.	BERG reports Suggests that if there was widespread adoption of currently available mitigation options (mainly farm management practices) an up to about 10% reduction in absolute biological emissions from pasture-based livestock is possible. The BERG also noted that the ability of farmers to implement these options varies widely. Therefore, we use this 10% as the upper end achievable by 2050 in the high scenario and input lower numbers for the low scenario. The mechanism through which the management practices reduce emissions vary, but we incorporate them into ENZ through a reduction in stocking rate. Additionally, reductions in stocking rate is itself the specific management practice with the largest emissions reduction potential listed in the BERG reports (3-9%).
Production per animal		Assumes production per animal is unaffected by decreasing stocking rate. Total production decreases.	Assumes total production is unaffected by stocking rate due to corresponding increases in production per animal.	The BERG and others note there is variation in the ability of farmers to increase production per animal through reducing stocking rates. It also comes with a variable risk profile.

				As such we take the optimistic assumption that total production can be maintained for our high scenario (3) and the less optimistic assumption that no productivity gains per animal are made in our low scenario (2).
Fertiliser N2O emissions per hectare (tCO2-e)	Dairy: 0.6 S&B: 0.06 Exotic forestry: 0 Horticulture: 0.32 Arable: 0.72	Unchanged across scenarios	Unchanged across scenarios	This information is taken from Fertilizer NZ, who only have a breakdown of its application across land uses for a single year (2017). We extrapolate this and assume no difference in the relationship between N fertiliser application and N2O emissions across land uses. These emissions were previously shown as separate fertiliser emissions but are now being grouped into the total emissions for each land use.
Organic conversion - Dairy	None	None	None	Conversion to organic agriculture is not included because of a lack of data to estimate a material effect on emissions. According to OANZ Market Report 2018, Current area under organic certification is very small (0.5% for livestock) with an uncertain trend. There are no projections of how much might convert to organic in the future, although there are less barriers to this change then for expansion of horticulture. The emissions reductions from conversion to organics would occur through the same mechanisms as the general management practice changes we include, but may potentially increase the overall impact. However, it is likely that organic farming would be incompatible with many of the technology options such as a methane inhibitor or vaccine. We lack the data to calculate a meaningful, material estimate through these uncertainties.
Organic conversion – Sheep, beef, and deer	None	None	None	See above

Land Use Change Assumptions

	Base case	Low further behaviour change	High further behaviour change	Justification and additional assumptions
Dairy	Grows slightly from 1.75Mha in 2018 to 1.78Mha in 2050.	Same as base case	An additional 5% of dairy land area changes into horticulture by 2050 (+89,000ha) Total dairy land reaches 1.77Mha in 2050.	We assume the most likely change of dairy land is into horticulture. This could be change within a dairy system or total land conversion. There are significant barriers to land use change into horticulture, see below
Sheep, beef and deer	Declines from 8.1Mha in 2018 to 6.0Mha in 2050 (1.1Mha goes into forest by 2050. 1.3Mha goes out of farm or forest use by 2050)	Depends on afforestation scenarios	Depends on afforestation scenarios	Exotic afforestation is assumed to come out of sheep, beef, and deer land.
Post-1989 exotic forest	Increases by 1Mha from 2020-2050 (1.8Mha in 2020 to 2.8Mha in 2050) 6% is assumed to be permanent carbon forestry. This is based on the % of existing p89 forest that is expected to not be harvested, according to an MPI study by Bruce Manley.	Depends on afforestation scenarios	Depends on afforestation scenarios	All exotic afforestation is assumed to come out of productive sheep, beef, and deer land. <u>Productivity Commission</u> Uses the LURNZ model that assumes not all exotic afforestation comes at the expense of S&B land (approx. 50%). They also do not assume as much S&B land being retired from productive use. As such, they maintain higher levels of S&B land (5.9-6.8Mha) in their projections at 2050 alongside even higher levels of afforestation (2.8-0.9Mha). **Question:** What should this assumption be about where exotic afforestation land comes from?
Post-1989 native forest	Increases 70,000ha 2020-2050 (60,000ha in 2020 to 130,000ha in 2050)	Depends on afforestation scenarios	Depends on afforestation scenarios	Native afforestation is assumed to not come at the expense of productive farmland. We model it to come out as a share of the sheep, beef, and deer land that otherwise leave farm/forest use. **Question:** Would we change this assumption at higher levels of native afforestation?
Horticulture	Increases from 111,000ha in 2018 to 130,000ha in 2050	Same as base case	5% of 2018 dairy land shifts to horticulture by 2050.	<u>Productivity Commission</u> They project scenarios where 0.5Mha and 1.0Mha of land use change to horticulture.

			Total area increases from 111,000ha in 2018 to 219,000ha in 2050	Based on our conversations with the Board and industry we understand there to be significant barriers to large scale land use change to horticulture. The scale used by Prod Comm seems unrealistic. A shift of 5% of dairy land to horticulture by 2050 leads to a doubling of horticulture land area. This seems appropriate for a high behaviour change assumption.
Arable	Decreases from 166,000ha in 2018 to 130,000ha in 2050	Same as base case	Same as base case	The likely shift in farming type seems to be to horticulture, given the higher returns. **Question:** Should we be looking more closely at the potential of shifts to more arable farming?
Other farmland	Increases from 1.7Mha in 2018 to 1.8Ma in 2050	Same as base case	Same as base case	We assume this is mostly vegetation on farms/non-grazing land, but also other livestock farming.

Potential afforestation scenarios

The original scenarios we presented to the Board all had the same amount and type of afforestation as the base case. Given the large amount of emissions removals this leads to and ongoing discussions about the role of forests in meeting our emissions budgets and targets, it is worth considering alternative afforestation scenarios. These are some to spark discussion.

	Afforestation rate	Total afforestation 2020-2050
Baseline	Steadily increasing afforestation averaging ~ 32 kha exotic + ~4 kha native from 2020-2050	~1 Mha exotic, 130 kha native
Lower afforestation rate	From 2025 the afforestation is constant at 20 kha exotic + 2kh native per year	0.65 Mha exotic, 88 kha native
Peak and decline	Follow baseline to 2030 and then decline to zero by 2050	0.54 Mha exotic, 82 kha native
Native only	Exotic decline to zero by 2030, native planting ramps up to ~40 kha by 2031	140 kha exotic, ~1 Mha native

padlet

[redacted]

Session 1: Assessing proposals for mechanisms to price farm-level emissions

The Commission is preparing to assess proposed Pricing Mechanisms for farm-scale emissions. SCROLL RIGHT FOR OTHER LENSES, AND DOWN FFOR MORE SPACE

Document 11

[redacted]

ut o scope

Farm advisors - particular skills farmers will need help with in terms of farm planning?

People who can sit and have the time 1:1 with farmers
Education and support
Expanding - constraint on how well farmers can implement the regulations and understand what their options are in terms of reducing emissions and diversifying land use

2 0

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Concern around whole farm afforestation, tying up productive land - options around regen ag

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Session 3: Advice on Agricultural Assistance

What should the CCC consider when it gives advice on the whys and wherefores of agricultural assistance? SCROLL RIGHT OR DOWN FOR MORE SPACE

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Partial land use change should be rewarded, recognising non-ETS planting and anything with more tangible co-benefits, e.g. water where the difference can be better observed will incentivise behavior change and should be incentivised

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BIG IMPLICATIONS

1. Farmers out of farming?

2. Trends - alternative protein -

3. Danger of high admin cost - follow rules that don't reduce emissions (goals)

4. Mitigate by planting trees and product wouldn't be sent overseas - need overseas $ to support our livestyles (EVs, etc)

5. Concerned with land use change to forests - impact rural communities and countries; wholesale conversion and C farming. Mixed messages from cental gov and local govt; water availability - w/climate change, eg. Northland.

Clarity on guidelines? eg LUC 6A and below - shelter, riparian, woodlots

6. Co-benefits of all trees - riparian margins, shade, shelter, erosion control, that a system would incentivise more of

7. Administration costs of on-farm system accounting - overstated

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