

Feedback on CCC Advice to Govt

Dr. Paul Winton, The 1point5 Project

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The Climate Change Commission has a unique opportunity to positively reframe the climate discussion around the scale and rate of change needed.

The targets and budgets as proposed and framed don't do that, rather allowing the status quo to prevail with incremental change. The world and future generations need this generation to do better than that.

Please deliver us budgets that are founded in conservative climate science (e.g. please don't allow for carbon capture and storage unicorns to magically turn up) and take into account historical emissions and our privileged position globally.

The Commission is recommending budgets to 2030 totalling 628 million tonnes. To be consistent with 1.5C the 2021-2030 budget must be no higher than **460 million tonnes**, and to do our fair share must be **much** less than that.

Leave the politicians to soften the targets. That's their job.



Paul Winton

Summary responses to questions – yellow shading expanded overpage

Overarching comment – you have a once in a lifetime opportunity to reframe the discussion and deliver on climate action with the urgency needed. Lets not wait for the next budget refresh when we may have gone to far. Please set ambitious targets NOW.	
Do you support the principles we have used to guide our analysis? Is there anything we should change, and why?	<ul style="list-style-type: none"> • Principle 1: Do not support the wording of this principle. The explicit 2050 target is necessary but not sufficient i.e. there are many paths to achieving the 2050 target that do not align with 1.5C or even higher temperatures. This principle should be upgraded with words that reflect the purpose of the Act. The 2050 targets encourage inaction or delayed action. The last sentence might read, "For these reasons, actions taken in the next five years will need to set Aotearoa up to deliver the deeper reductions required in subsequent emissions budgets and to deliver on the purpose of the Act meet and sustain the 2050 targets." • Principles 2-7: Support them
Do you support budget recommendation 1? Is there anything we should change, and why?	<ul style="list-style-type: none"> • No. These budgets are inadequate in terms of science and global equity. Please see working overpage.
Do you support our proposed break down of emissions budgets between gross long-lived gases, biogenic methane and carbon removals from forestry? Is there anything we should change, and why?	<ul style="list-style-type: none"> • This separation itself is ok. However separating then setting low targets, for methane in particular, absolves New Zealand of the responsibility it carries for more than half of its emissions if measured in GWP100 as the rest of the world does. If biogenic methane is separated then the short term warming impact of methane should be considered in the context of know tipping points and either tougher budgets be set for other gases or methane reductions ramped up. i.e. we should still use GWP100 (or GWP20 or other modelling) as a tool for determining the necessary scale of reductions. • So separation is ok, separation and then setting weak targets is not.
Do you support budget recommendation 4? Is there anything we should change, and why?	<ul style="list-style-type: none"> • Support this
Do you support enabling recommendation 1? Is there anything we should change, and why?	<ul style="list-style-type: none"> • Support this
Do you support enabling recommendation 2? Is there anything we should change, and why?	<ul style="list-style-type: none"> • Support this
Do you support enabling recommendation 3? Is there anything we should change, and why?	<ul style="list-style-type: none"> • Support this
Do you support enabling recommendation 4? Is there anything we should change, and why?	<ul style="list-style-type: none"> • Support this
Do you support enabling recommendation 5? Is there anything we should change, and why?	<ul style="list-style-type: none"> • Support this
Do you support our approach to focus on decarbonising sources of long-lived gas emissions where possible? Is there anything we should change?	<ul style="list-style-type: none"> • Support this
Do you support our approach to focus on growing new native forests to create a long-lived source of carbon removals? Is there anything we should change, and why?	<ul style="list-style-type: none"> • Support this
Do you support the overall path that we have proposed to meet the first three budgets? Is there anything we should change, and why?	<ul style="list-style-type: none"> • No. The budgets are inadequate and hence the path (s) is inadequate. Please see working overpage for budgets. • Methodologically the approach outlined, "To arrive at our proposed emissions budgets, we have created a path to 2035. This was developed by looking at all the available options for reducing emissions, their possible deployment in the next 15 years and whether this would put Aotearoa on a path to meet the domestic 2030 and 2050 targets.", is less likely to identify new ways of reducing emissions than an approach based on first understanding the requirements of science and equity and then finding ways to reduce emissions to meet this target. In other words the approach taken is inherently low ambition.
Do you support the package of recommendations and actions we have proposed to increase the likelihood of an equitable, inclusive and well-planned climate transition? Is there anything we should change, and why?	<ul style="list-style-type: none"> • No. Per other questions the Budgets, targets and pathways are grossly inadequate to meet New Zealand's obligations when considering science and common but differentiated responsibilities and respective capabilities. Budgets must be first aligned with science and global equity then the adequacy of the package revisited.
Do you support the package of recommendations and actions for the transport sector? Is there anything we should change, and why?	<ul style="list-style-type: none"> • Framing: On transport the path is framed, or perceived, as electrification of the fleet with most readers we have engaged with referring to the proposed path being largely around electrification of the light fleet. This section should be reworded to emphasise further the need to transform transport away from the private motor vehicle. It might suggest reallocation of capital currently targeted to large traffic-inducing road projects. • Targets – mode shift and travel reduction: set higher national targets for reduced travel and modeshift and be explicit that this path is at odds with the current road-investment-centric model. • Targets – fleet decarbonisation. Targets for light fleet electrification should be higher, with no vehicles with tailpipe emissions after 2030 (noting companies likely Volvo [https://www.bbc.com/news/business-56245618] have already committed to this), much faster per-vehicle emissions reductions including using double-cab utes as an example of reductions. Plug in vehicles only from 2025 is a suggested position.
Do you support the package of recommendations and actions for the heat, industry and power sectors? Is there anything we should change, and why?	<ul style="list-style-type: none"> • No comment
Do you support the package of recommendations and actions for the agriculture sector? Is there anything we should change, and why?	<ul style="list-style-type: none"> • Conditional No. If other sectors (long lived gases and forestry) remain low then the slack to 2030 will need to be taken up by biogenic methane.
Do you support the package of recommendations and actions for the forestry sector? Is there anything we should change, and why?	<ul style="list-style-type: none"> • No comment
Do you support the package of recommendations and actions for the waste sector? Is there anything we should change, and why?	<ul style="list-style-type: none"> • No comment
Do you support the package of recommendations and actions to create a multisector strategy? Is there anything we should change, and why?	<ul style="list-style-type: none"> • No comment
Do you agree with Budget recommendation 5? Is there anything we should change, any why?	<ul style="list-style-type: none"> • No comment
Do you support our assessment of the country's NDC? (1) Do you support our NDC recommendation? (2)	<ul style="list-style-type: none"> • (1) Agree the NDC is inadequate but believe an adequate NDC sees higher reductions than those proposed • (2) Surely it is the job of the Climate Change Commission to recommend these targets? We cannot leave this to elected members. Please propose a science and globally equitable target for the NDC AND align this with national budgets.
Do you support our recommendations on the form of the NDC?	<ul style="list-style-type: none"> • (a) Yes • (b) These should remain options as long as they don't absolve NZ from NZ action to reduce net emissions.
Do you support our recommendations on reporting on and meeting the NDC? Is there anything we should change, and why?	<ul style="list-style-type: none"> • No comment
Do you support our assessment of the possible required reductions in biogenic methane emissions?	<ul style="list-style-type: none"> • No comment

Consultation Question 2: Do you support budget recommendation 1? Is there anything we should change, and why? **No. These budgets are inadequate in terms of science and global equity.**

Consultation Question 12: Do you support the overall path that we have proposed to meet the first three budgets? Is there anything we should change, and why? **No. The budgets are inadequate and hence the path (s) is inadequate.**

Consultation Question 21:

Do you support our assessment of the country's NDC? (1) **Agree the NDC is “*not compatible with contributing to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5°C above pre-industrial levels*” but believe an adequate NDC sees higher reductions than those proposed.**

Do you support our NDC recommendation? (2) **Surely it is the job of the Climate Change Commission to recommend these targets? We cannot leave this to elected members. Please propose a science and globally equitable target for the NDC AND align this with national budgets.**

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Methodologically the approach outlined, “*To arrive at our proposed emissions budgets, we have created a path to 2035. This was developed by looking at all the available options for reducing emissions, their possible deployment in the next 15 years and whether this would put Aotearoa on a path to meet the domestic 2030 and 2050 targets.*”, is less likely to identify new ways of reducing emissions than an approach based on first understanding the requirements of science and equity and then finding ways to reduce emissions to meet this target. In other words the approach taken by the CCC is inherently low ambition.

The Climate Change Commission’s (CCC) first principle is:

“Align with the 2050 targets. Aotearoa must adopt actions that set it on a path to meet the 2030 and 2050 emissions reduction targets, sustain those targets and set Aotearoa up for net negative emissions later, and contribute to the global effort to limit warming to 1.5°C”.

Firstly as noted previously, the explicit 2050 target is necessary but not sufficient i.e. there are many paths to achieving the 2050 target that do not align with 1.5C or even higher temperatures. This principle should be upgraded with words that reflect the purpose of the Act. The 2050 targets encourage inaction or delayed action. The last sentence (Section 2.2. Advice to govt.) might read, “*For these reasons, actions taken in the next five years will need to set Aotearoa up to deliver the deeper reductions required in subsequent emissions budgets and to **deliver on the purpose of the Act** meet and sustain the 2050 targets.*”

Moreover, the CCC acknowledges “*The principle of common but differentiated responsibilities and respective capabilities*”, “*must be considered to determine how Aotearoa should contribute to the global 1.5°C goal*” [Section 4.2]. Application of this principle would require emissions reductions beyond those implied by science alone. No further comment is made on *common but differentiated responsibilities* except to note that reductions must be even greater than those demanded by science.

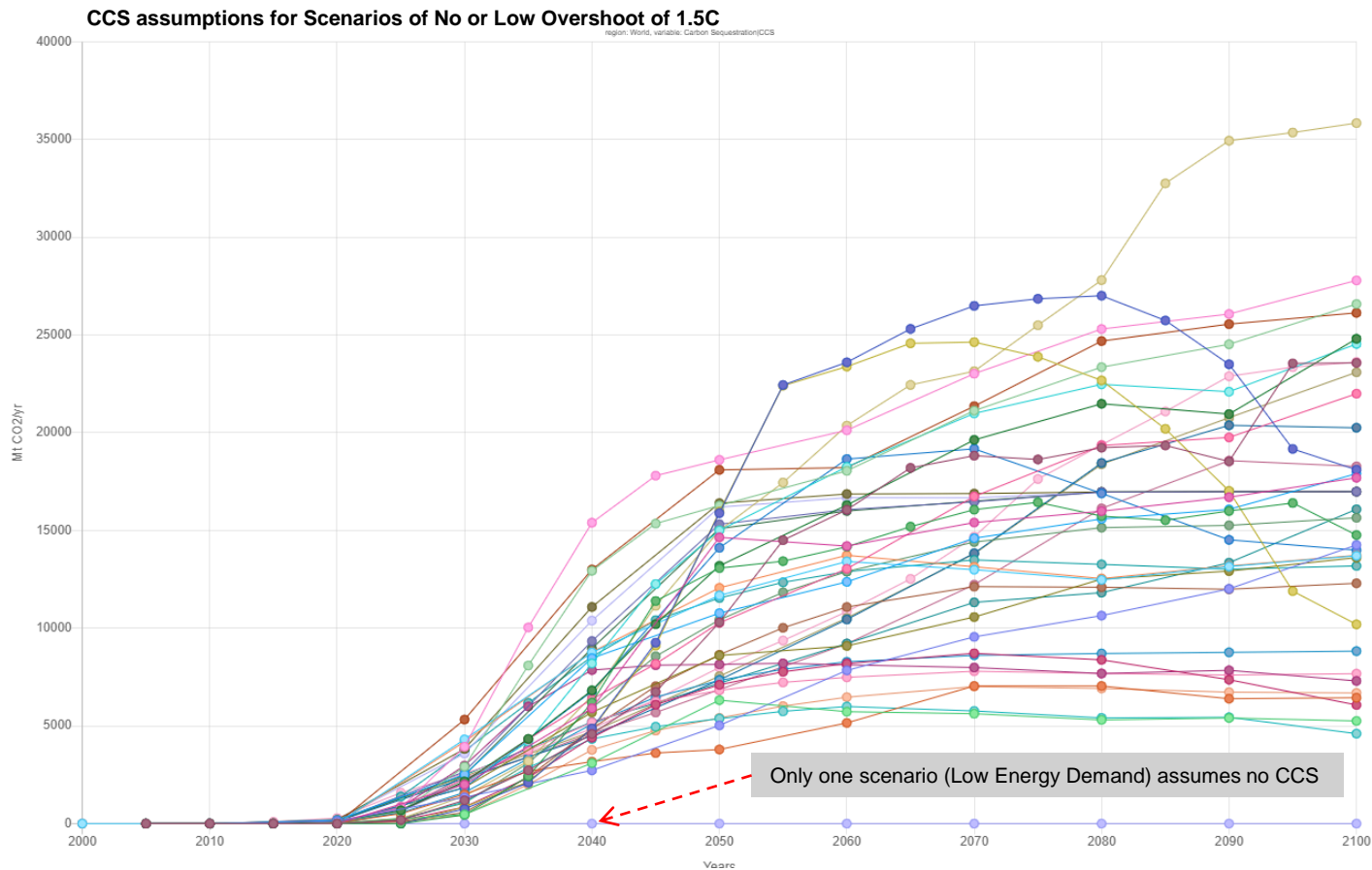
If one reads “*contribute*” as doing at least the global average AND one uses the IPCC SR1.5 pathways of No or Limited overshoot of 1.5C as the guide for Average [explained in Section 4.5] then the Budgets do not adhere to Principle 1.

This non-alignment with science is illustrated using three different methods below and prefaced by highlighting that IPCC Scenarios as comparison (i.e. to test adequacy against science) are not aligned with the CCC’s stated conservatism.

- **IPCC Scenarios as comparison are not aligned with the Commission’s stated conservatism:** Using the IPCC Scenarios for Low or Limited overshoot is not consistent with a conservative approach advocated by the CCC as all but one of these scenarios depends on large scale deployment of Carbon Capture and Storage (CCS). CCS does not yet exist in an economically and adequately scalable manner and therefore its implied inclusion by the CCC introduces significant risks to reaching 1.5C. The CCC should therefore set targets and budgets well below those implied by IPCC Low or No Overshoot of 1.5C scenarios. For simplicity the Methods below do however use these Scenarios to compare against the CCC’s advice
- **Method 1** – The CCC Report says the budgets don’t deliver on Principle 1: The Advice to Government report itself explicitly explains that the proposed budget of 628 million tonnes to 2030 doesn’t deliver in Principle 1 by showing we are above Lower Quartile (i.e. higher emissions) IPCC SR1.5 pathways for methane and carbon dioxide emissions from energy and industrial processes
- **Method 2** – The CCC proposed pathway to 2035 is well above all IPCC SR1.5 scenarios for long lived gases with No or Limited overshoot: When New Zealand 2010 net emissions for CO2 and N2O are compared against 42 IPCC Scenarios with no or limited overshoot of 1.5C it can be seen that the proposed pathway exceeds all 42 scenarios from 2020 until around 2032, not reaching the median pathway until around 2035.
- **Method 3** – Other countries will see New Zealand to be shirking its responsibilities: When viewed through a GWP100 lens (See below) New Zealand’s proposed reductions (2010 vs 2030) are lower than the least ambitious of all IPCC SR1.5 No-or-low-overshoot-of-1.5C scenarios.

Consultation questions 2 and 12 [2 of 5]: IPCC Scenarios as comparison are not aligned with the Commission's stated conservatism

IPCC Scenarios as comparison are not aligned with the CCC's stated conservatism: Using the IPCC Scenarios for Low or Limited overshoot is not consistent with a conservative approach advocated by the CCC as all but one of these scenarios depends on large scale deployment of Carbon Capture and Storage (CCS). CCS does not yet exist in an economically and adequately scalable manner and therefore its implied inclusion by the CCC introduces significant risks to reaching 1.5C. The CCC should therefore set targets and budgets well below those implied by IPCC Low or No Overshoot of 1.5C scenarios. For simplicity the Methods following do however use these Scenarios to compare against the CCC's advice. The amount of CCS for the Scenarios outlined in IPCC SR1.5 for Low or No overshoot of 1.5C are shown below and source data settings to the right.



42 scenarios 1 variable 1 region

Select Scenario Data Selection Regions Ranges Options

Select by category & indicators

Category: 1.5C low overshoot Below 1.5C

Project: ADVANCE C-ROADS CD-LINKS CEMICS DAC EMC EMF33 GE4 GEN IEA-ETP IEA-WEM IM4.5 LED PEP SFCM SMP SSP SSP (1.996m2) Shell World Energy Model 2018 TERL unknown

Additional filters by groups & quantitative indicators

Kyoto-GHG2070 (SAR) (string value)

Kyoto-GHG2010 (SAB)

in range

Nothing to add Nothing to remove

42 scenarios 1 variable 1 region

Select Scenario Data Selection Regions Ranges Options

Groups: All Energy Emissions Others

Timeseries variables: Carbon Sequestration/CCS (TOTAL)

Clear selection Show only available variables from scenario selection

Variable	Unit	Min/Max	Scale
Carbon Sequestration/CCS	Mt CO2/yr		Linear (per unit)

Apply

Method 1 – CCC says the budgets don't deliver on Principle 1: The CCC explains that Long life gases budgets are inadequate with the following statement, “However, our path would fall short when comparing overall reductions in carbon dioxide emissions from energy and industrial processes.” Net carbon dioxide emissions represent approximately 30 million tonnes in 2020 and result from Energy and Industrial Processes*. As Figure 4.4 (CCC Advice to Govt) shows, by 2030 the proposed path lags the Upper Quartile by 7-8 years. If we don't deliver on this we don't deliver as a country.

In addition Agricultural Methane is only just inside the Upper Quartile in 2030 and outside it in 2035 in spite of it representing ~32.2Mt of the 60.7Mt of net emissions (2020, CO₂ eq)**. Put otherwise the proposed Agriculture Methane pathway (light blue line below) hits emissions equal to the Upper Quartile pathway of the IPCC scenarios (middle of interquartile range) around **ten years** later than the Upper Quartile methane pathway (see red line below). Methane's impact on global warming on a shorter timeline is much higher than reflected under GWP100 (e.g. CH₄ GWP20 is 86 (AR5) per Table 8.7 https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf)

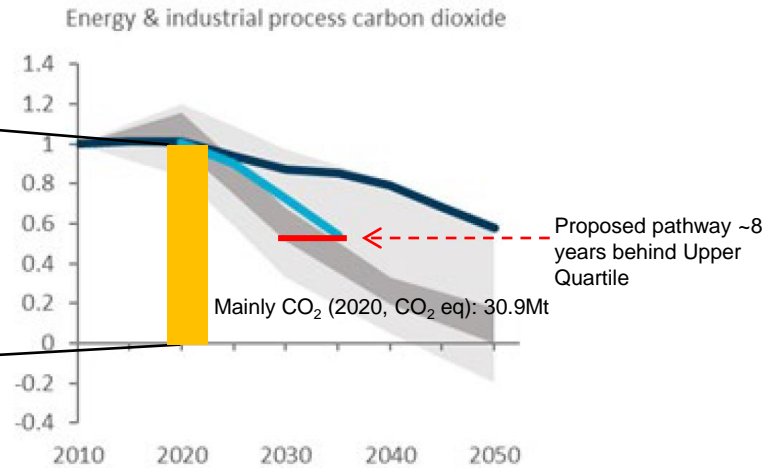
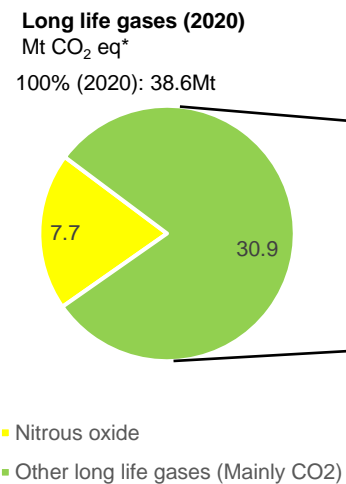


Figure 4.4 (Top left) CCC Advice to Govt.

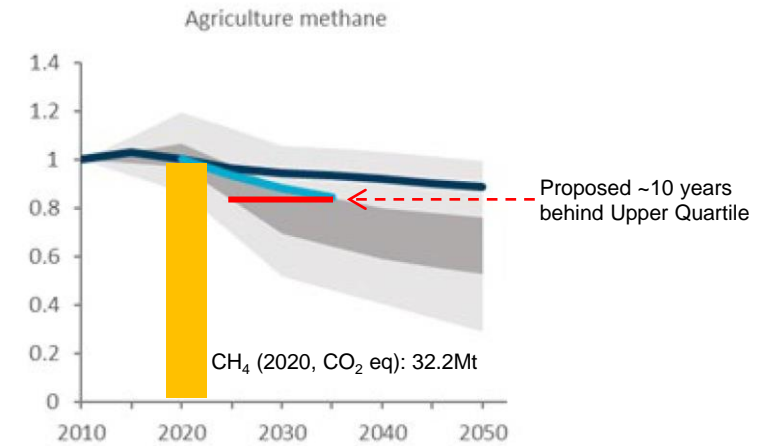
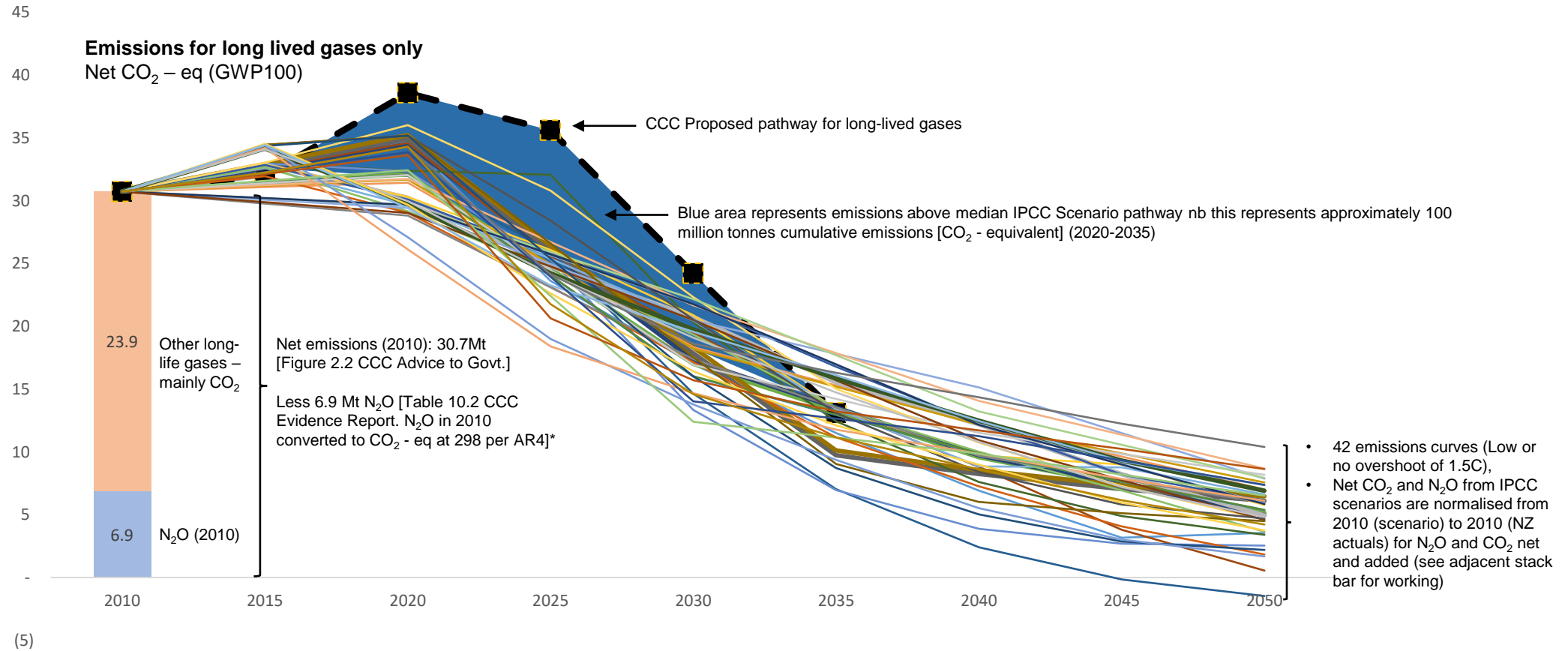


Figure 4.4 (Middle left) CCC Advice to Govt.

For both Agricultural Methane and Carbon Dioxide from Energy and Industrial Processes, representing most emissions in CO₂ eq., Proposed Budgets and therefore implied pathways are years behind average or median IPCC scenarios. A decade is a very long time in a climate crisis years, in particular if we're to have a credible chance of avoiding tipping points or elements e.g. Lenton et al, “Climate tipping points — too risky to bet against”, Nature Vol 575, 28 November 2019.

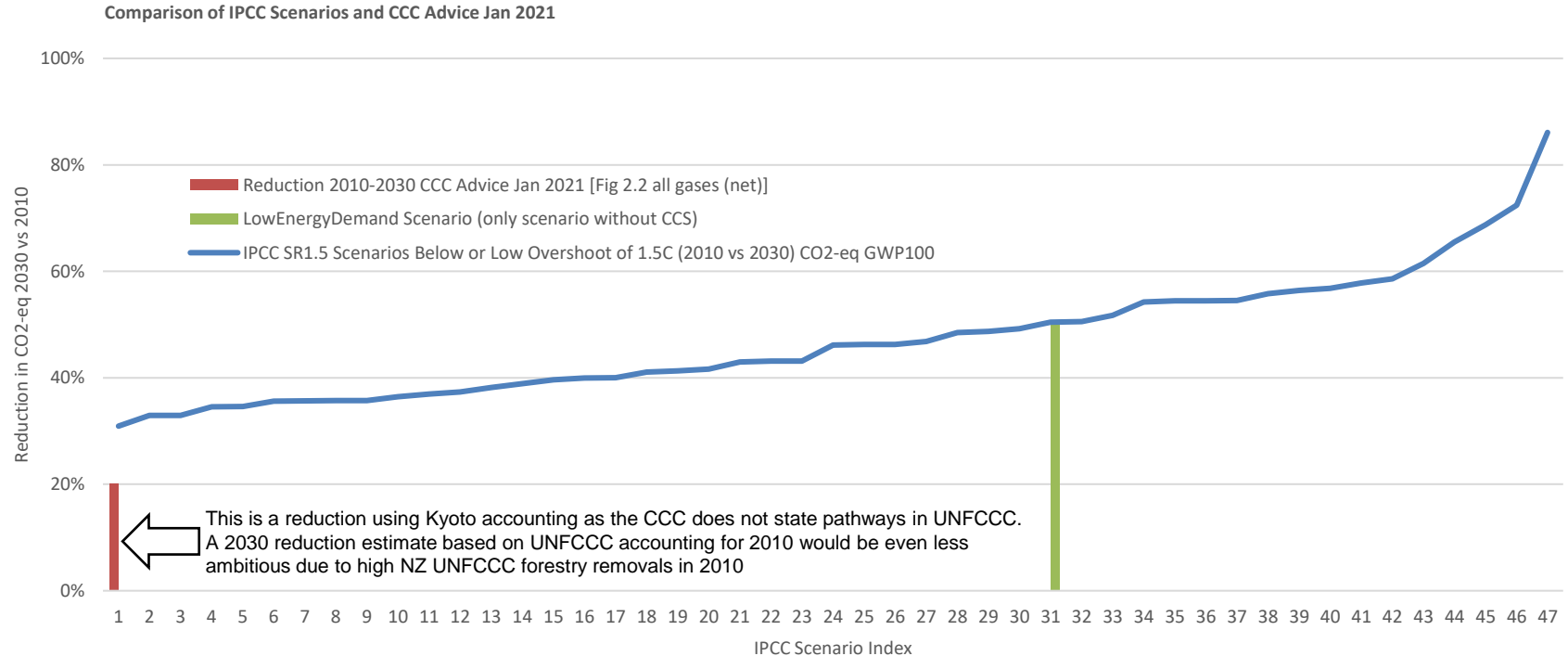
* Assumes long lived gases are 38.6m (2020) tonnes net (Figure 2.2 CCC Advice to Govt) less 7.7m tonnes of N₂O (MFE Emissions Tracker, 2018). These carbon dioxide emissions lie mainly in Energy and Industrial Processes and Product Use (MFE Emissions Tracker, 2018) though not calculate here due to GHG versus Accounting emissions differences; ** Figure ES1 CCC Advice to Govt. convert CH₄ at 25.

Method 2 - The Commission proposed pathway to 2035 is well above all IPCC SR1.5 scenarios for long lived gases with No or Limited overshoot: The CCC has elected to cluster long life gases, notably CO₂ and N₂O into one group. When New Zealand 2010 net emissions for CO₂ and N₂O are compared against 42 IPCC Scenarios with no or limited overshoot of 1.5C it can be seen that the proposed pathway exceeds all 42 scenarios from 2020 until around 2032, not reaching the median pathway until around 2035. Further details below.



Method 3 - Other countries will see New Zealand to be shirking its responsibilities: New Zealand has committed to reporting against an all gases measure under the Paris agreement using GWP100. While the CCC is arguing for split gases it is clear other nations may see this as New Zealand shirking its responsibilities. When viewed through a GWP100 lens (See below) New Zealand's proposed reductions (2010 vs 2030) are lower than the least ambitious of all IPCC SR1.5 No-or-low-overshoot-of-1.5C scenarios. Comments are already coming thick and fast.

- “Lord Deben says New Zealand's practice of splitting agricultural methane emissions off from the rest of our greenhouse gases damages our reputation overseas."It doesn't really wash. I think you have to be a bit careful about the idea that somehow or other, because it is short-lived compared with long-lived, it doesn't really count in the same way," he says" Source: <https://www.newsroom.co.nz/uk-climate-advisor-nz-can-lead-the-world>



Consultation Question 2: Do you support budget recommendation 1? Is there anything we should change, and why? **No. These budgets are inadequate in terms of science and global equity.**

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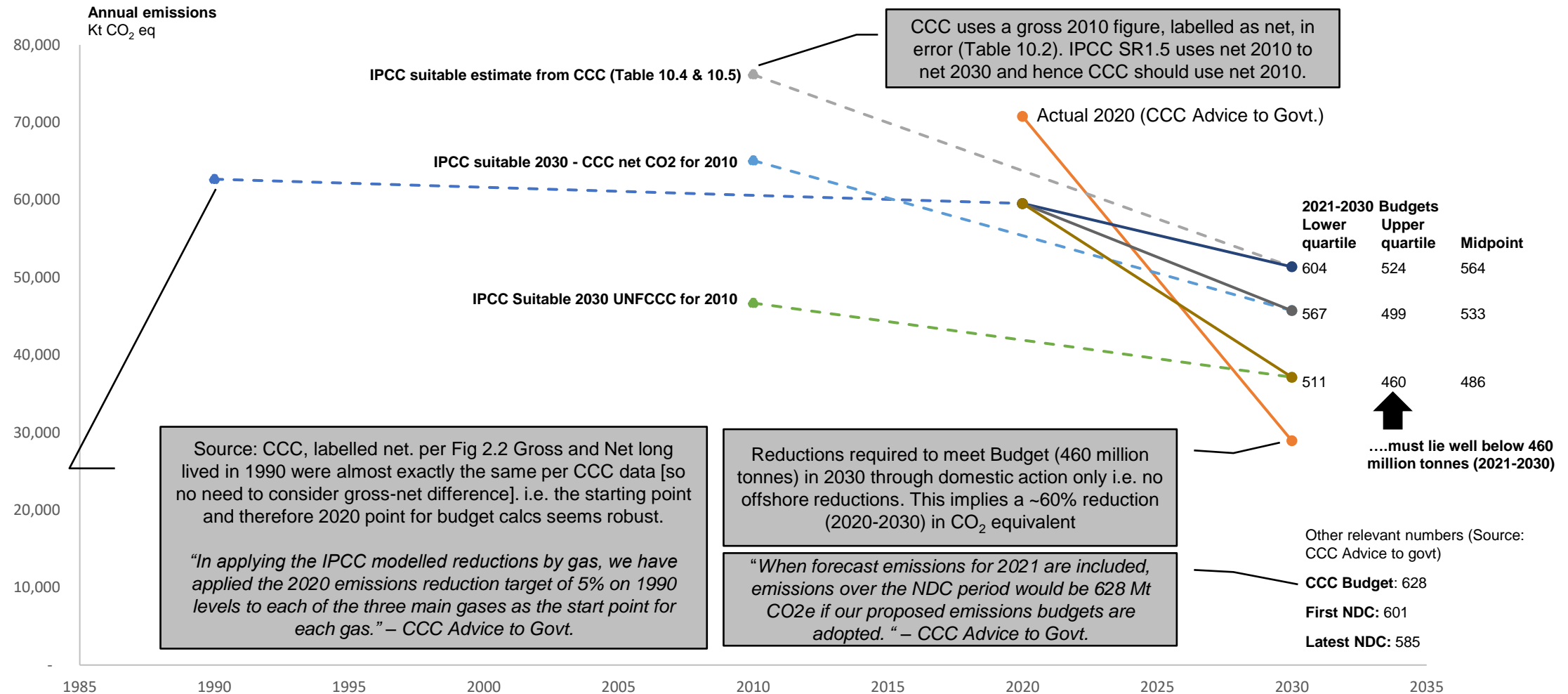
Consultation Question 21:

Do you support our assessment of the country's NDC? (1) **Agree the NDC is “*not compatible with contributing to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5°C above pre-industrial levels*” but believe an adequate NDC sees higher reductions than those proposed.**

Do you support our NDC recommendation? (2) **Surely it is the job of the Climate Change Commission to recommend these targets? We cannot leave this to elected members. Please propose a science and globally equitable target for the NDC AND align this with national budgets.**

Telling the NDC story: A suitable NDC (2031-2030) is well below 460 million tonnes

The CCC is recommending budgets to 2030 totalling 628 million tonnes. Given the CCC's desire for technical conservatism it is not reasonable to assume global CCS exists at the scale implied in IPCC Scenarios with No or Low overshoot of 1.5C and hence New Zealand's science-based NDC Budget **must lie well below 460 million tonnes (2021-2030)**. Note as before that "To be compatible with a developed country's contribution, the NDC would need to reflect deeper emission reductions than what is required of the world as a whole." This further supports a suitable NDC being well below the bottom end of these budgets.



Working for previous slide (Telling the NDC story:.....)

The CCC argues that the IPCC SR1.5 Scenarios should be used as a basis for assessing the NDC. It further argues that an acceptable range might lie between the upper and lower quartiles of scenarios with No or low overshoot of 1.5C. Lastly Section 8.1 argues that the total budget under the NDC is equivalent to 585 Mt from 2021-2030.

The CCC appears to have made a mathematical error in calculating NDC suitability. Table 8.1 (CCC Advice to Govt) and Table 10.2 (Supp. Chapter 10) reference net emissions changes relative to 2010 however the number used in Table 10.2, highlighted below in red, is a gross number. The budgets suggested by the CCC are replicated below along with two others –CCC (CCC Advice to Govt) data [IPCC suitable 2030 - CCC net CO2 for 2010] and UNFCCC data [IPCC Suitable 2030 UNFCCC for 2010]. Using CCC net data the range (2021-2030), assuming interquartile ranges from SR1.5, is **499-567Mt**. UNFCCC data shows a range of **460-511 Mt**.

	As calculated by CCC						Current CCC data for 2010 baseline for long lived gases (lower than MFE)						If we used net-net and UNFCCC data for 2010 baseline for long lived gases (lower than MFE)														
	Start point		End point		2010 emissions (CO2-e)	End point (CO2-e)	2021 startpoint		Implied budgets		2010 net emissions (CO2 e)	IPCC 2030		2021 startpoint		Implied budgets		2010 net emissions (CO2 e)	IPCC 2030		2021 startpoint		Implied budgets				
	1990 emissions	2020 target 5% reduction of 1990	2010 emissions	IPCC 2030 Lower Quartile reductions			IPCC 2030 Upper Quartile reductions	IPCC 2030 Lower Quartile reductions	IPCC 2030 Upper Quartile reductions	IPCC 2030 Lower Quartile reductions		IPCC 2030 Upper Quartile reductions	IPCC 2030 Lower Quartile reductions	IPCC 2030 Upper Quartile reductions	IPCC 2030 Lower Quartile reductions	IPCC 2030 Upper Quartile reductions	IPCC 2030 Lower Quartile reductions		IPCC 2030 Upper Quartile reductions	IPCC 2030 Lower Quartile reductions	IPCC 2030 Upper Quartile reductions	IPCC 2030 Lower Quartile reductions	IPCC 2030 Upper Quartile reductions	IPCC 2030 Lower Quartile reductions	IPCC 2030 Upper Quartile reductions		
Net carbon dioxide	25,446	24,174	34,958	20,975	14,682	1	20,975	14,682	23,854	23,225	224,143	189,535	23,856	14,314	10,020	23,188	22,758.30	187,508	163,890	3,539	2,124	1486.4561	21,969	21,905	120,461	116,957	
Methane	1,292	1,227	1,373	1,222	961	25	30,550	24,025	1,227	1,201	306,103	270,234	34,325	30,549	24,028	30,671	30,019.25	306,103	270,234	34,320.93	30,546	24024.654	30,671	30,019	306,083	270,218	
Nitrous Oxide	17	15.7	23	24	18	298	7,092	5,424	16.5	15.9	60,017	50,930	6,884	7,090	5,438	4,913	4,747.86	60,017	50,930	8,824.96	9,090	6971.7185	5,113	4,901	71,014	59,365	
							58,617	44,131			590,263	510,699						553,628	485,054			32,483			497,558	446,540	
Flourinated gases		1,903		892	892		892	892			13,472	13,472						13,472	13,472			892	892			13,472	13,472
											603,735	524,171						567,100	498,526			42,651	33,375			511,030	460,012

Methodological error (Table 10.2 Supp. Chapter 10)

IPCC suitable estimate from CCC (Table 10.4 & 10.5): This represents a replica of the calculation in the CCC report arguing that an appropriate 2021-2030 budget range lies between **524-604Mt**

IPCC suitable 2030 - CCC net CO2 for 2010: Using net CO₂ CCC (Draft Advice to govt.) a 2021-2030 range of **567-499** is estimated. 533 Mt is the average.

2010 Net CO₂ estimate is Net Long Lived Gases (2010, CCC Advice to Govt Fig ES1 from dataset) less Net N₂O from table 10.2 converted at 298

IPCC Suitable 2030 UNFCCC for 2010: using UNFCC data (2010 baseline data) a 2021-2030 range of **460-511** Mt is estimated. 486Mt is the average.

2010 Net CO₂ from "2050-historical-and-projected-sectoral-emissions-data-2019-BR4.xlsx" from MfE.