

Secretariat Presentation Carbon Budget Committee

28th June 2021

What will the Committee hand over to the Council?


- Numbers for the 3 carbon budget periods
- A report of its work




Two Dimensions;




- What has the Committee done and concluded with respect to the *criteria*
- What has the Committee done and concluded with respect to the *methodology*
- *What follows is a proposal for *how* to report the Committee's work and conclusions*

Carbon Budget Committee Outputs

- Draw up draft carbon budgets for the periods 2021-25, 2026-30 and 2031-35 to be considered by the Climate Change Advisory Council.
- As part of this task, the Committee will include the criteria set out in the Climate Action and Low Carbon Development Act (2015) and the current draft of the Climate Action and Low Carbon Development Amendment Bill (2021) in its consideration of carbon budgets.

Criteria Shorthand	Quoted Text from the 2021 Bill	Statement of work done and conclusions	
'National Climate Objective'	<p>6A(1) A carbon budget, consistent with furthering the achievement of the national climate objective, shall be proposed by the Advisory Council</p> <p>National Climate Objective:</p> <p>3(1) “The State shall,.., by ...2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy</p>	<p>The bill defines a ‘climate neutral economy’ as “a sustainable economy and society where greenhouse gas emissions are balanced or exceeded by the removal of greenhouse gases”.</p> <p>We would note that the word ‘balance’ does not presuppose which metric is used.</p> <p>Council will hear evidence on the question of biodiversity as this will not be ready in time for the Committee.</p>	
'51%'	<p>6A(5) “The first 2 carbon budgets proposed by the Advisory Council shall provide for a reduction of 51% in the total amount of greenhouse gas emissions over the course of the first 2 budget periods ending on 31 December 2030, from the annual greenhouse gas emissions reported for the year ending on 31 December 2018, as set out in the national greenhouse gas emissions inventory prepared by the Agency.”</p>	<p>Still in progress.</p> <p>The Council offered the following guidance:</p> <ul style="list-style-type: none"> - GWP100 (AR5) - All sectors (excl international aviation, maritime) - Role of LULUCF uncertain 	

Criteria Shorthand	Quoted Text from the 2021 Bill	Statement of work done and conclusions	
'UNFCCC'	<p>6A (9) (a) (i) that is consistent with the ultimate objective specified in Article 2 of the UNFCCC</p> <ul style="list-style-type: none"> Stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. - allow ecosystems to adapt naturally to climate change, - ensure that food production is not threatened - enable economic development to proceed in a sustainable manner. 	Literature reviews, Top Down analysis and estimate	
'Paris Agreement'	<p>3(3)(a)(ii) “the steps specified in Article 2 and 4(1)” Both 2.0°C or 1.5°C are mentioned as objectives in Article 2 of the Paris Agreement, alongside an adaptation goal and a goal for financial flows.</p> <p>Article 4 includes concepts such as global peaking of GHGs as soon as possible, .., best available science, achieving a balance between emissions and removals in the 2nd half of the century, equity, sustainable development and the eradication of poverty.</p>	Literature reviews, Top Down analysis and estimate	
'EU'	<p>3(3)(a)(i) any mitigation or adaptation commitments. i.e. the EU Climate and Energy Framework, the LULUCF Regulation and the EU Climate Law.</p> <p>EU ambition is 55% emissions reduction overall by 2030 rel. 1990, and a long term ambition of net zero by 2050.</p>	<p>Note and presentation by Prof. Brian O Gallachóir.</p> <p>LULUCF question still outstanding</p>	

Criteria Shorthand	Quoted Text from the 2021 Bill	Statement of work done and conclusions	
'inventories and projections'	(ii) which takes account of— (I) the most recent national greenhouse gas emissions inventory and projection of future greenhouse gas emissions, prepared by the Agency,	Modelling has been based on the most recent EPA emissions inventory and projections data.	
'science'	(II) relevant scientific advice, including with regard to the distinct characteristics of biogenic methane,	Literature reviews, top down estimate and expert meeting.	
'reporting'	(III) international best practice on the reporting of greenhouse gas emissions and removal,	Guidance from the Council to employ GWP100 AR5 values. LULUCF question still outstanding.	
'economy'	(IV) “in so far as practicable, the need to maximise employment, the attractiveness of the State for investment and the long term competitiveness of the economy,”	Still in progress. Draft report from McKinsey and from UCD. Awaiting ESRI analysis. Sectoral engagement in process.	
'climate justice'	(b) “have regard to climate justice when carrying out its functions under this section”	Still in progress. Draft report from McKinsey and from UCD. Awaiting ESRI analysis. Sectoral engagement in process.	

Carbon Budget Committee Outputs

“the Committee would;

Top-down:


- “Estimate an appropriate carbon budget for Ireland for the period 2021 – 2050 based on consideration of the global carbon budget...”

Bottom-up:

- “Consider what legislative requirements at national and EU level mean for emissions up to 2030, covering the first two carbon budgets..”

Top Down

[addressing criteria:
national climate objective,
UN, Paris Agreement,
science, climate justice]

Committee Mandate	Statement of work done and conclusions	
The potential for negative emissions	The Scientific Aspects of LULUCF have been discussed by experts and fed back to the Committee, including current status and potential out to 2050. The treatment of LULUCF towards the 51% emission reduction target is not yet clear.	
The role of different gases	The Ctte received and considered literature reviews from two CCAC Carbon Budget fellows. An expert meeting was held on 22 nd June with international speakers including Dr. Andy Reisinger, NZ/IPCC, Dr Joeri Rogelj, ICL, Prof. Myles Allen, Oxford, and Mr. Florin Vladu, UNFCCC. A note of the meeting was provided by Met Eireann.	
The global carbon budget		

Top Down estimate of appropriate carbon budget for Ireland

	Megatonnes (Mt) of Carbon Dioxide	
An estimate of the Global Carbon Budget consistent with the Paris 1.5°C temperature goal is	440,000 MtCO ₂	50-50% chance of 1.5°C Better than 67% chance of 2°C
An estimate of the simple downscaled Global Carbon Budget for Ireland up to 2050 is	280Mt CO ₂	Based on population, allowed emissions of long-lived GHGs (~an inheritance/wealth)
An estimate of negative emissions potential in Ireland is	200Mt CO ₂	Negative emissions or removals of CO ₂ can compensate for emissions of greenhouse gases so we can add this negative emissions potential to the simple budget (~additional one-off income)
An estimation of the negative emissions equivalent impact of methane reduction of; 1) 33% by 2030 (37% by 2050) is: 2) 25% by 2030 (30% by 2050) is:	260Mt CO ₂ 150Mt CO ₂	A reduction in rate of emission has a 'cooling effect' and may be added to the simple budget (~an additional one-off income)
Net total available carbon budget to Ireland up to 2050 is thus For the 33% scenario: For the 25% scenario:	740 Mt CO₂ 630 Mt CO₂	Adding up the simple carbon budget calculation, the negative emissions of CO ₂ and the negative impact of reduced rate of methane emissions

Bottom Up

[addressing criteria: national climate objective, 51%, EU, inventories and projections, science, reporting, economy, and climate justice]

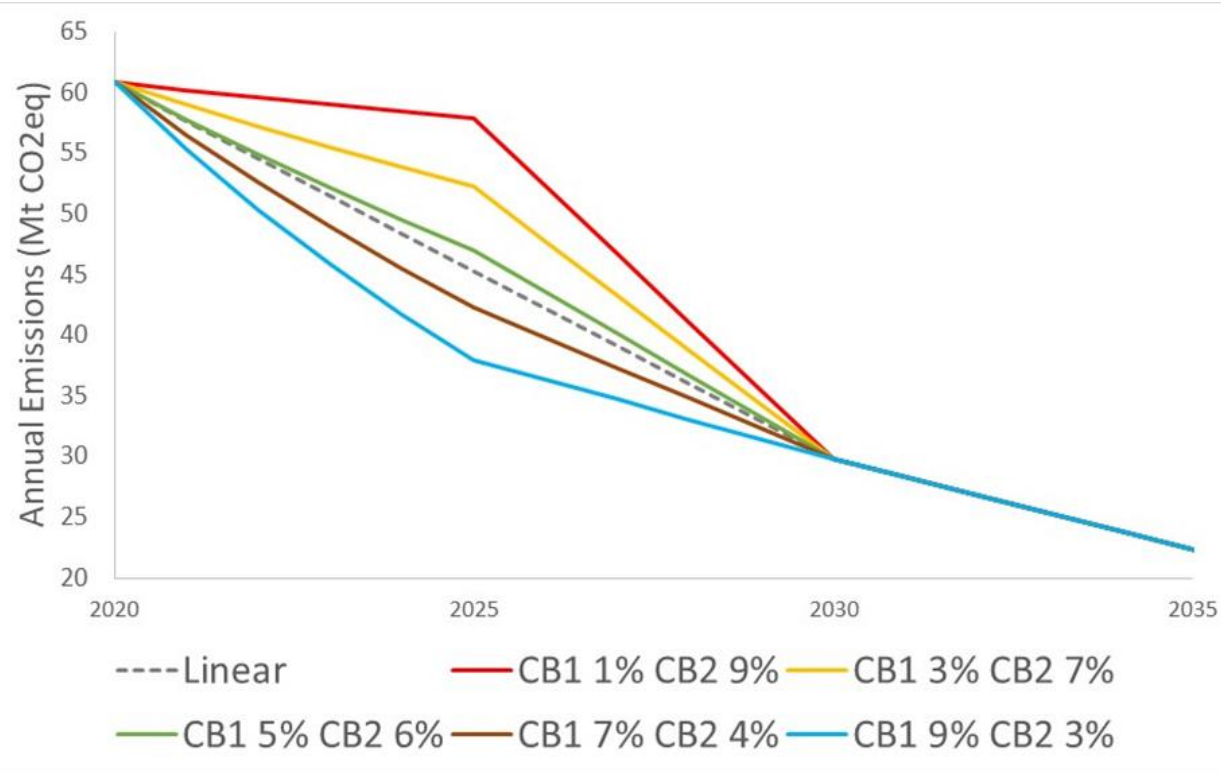
Committee Mandate	Statement of work done and conclusions
The implication of required compliance with EU and National Targets (e.g. 51%) incl. treatment/inclusion of LULUCF	<ul style="list-style-type: none">• EU consideration as previously noted,• LULUCF to be resolved• 51% to be resolved
Feasibility, competitiveness impacts, implications for investment	<ul style="list-style-type: none">• Modelling by 3 groups; UCC TIMES Ireland Model, Teagasc FAPRI and UL Goblin model. As well as insights from EPA inventory and projections• Work is now underway to use the model outputs appropriately to assess the feasibility, competitiveness impacts, implications for investment.• ESRI is using scenario outputs to inform further economic analysis.• Teagasc provided input on the economic and social profile of the agriculture and associated food/drink sector.
Distributional impacts, jobs	<ul style="list-style-type: none">• A small scale study with UCD focussed on investment and jobs impacts of TIM energy modelling outputs• McKinsey analysis focussed on employment, the attractiveness of the State for investment and the long term competitiveness of the economy.

Scenarios Modelled Indicative Numbers

Mt GWP100 AR5	2021-2025 All gases CB1	2026-2030 All gases CB2	2021-2030 All gases Total	2031- 2035 All gases CB3	2021-2035 All gases Total
Scenario 1 E57-A40	279	190	468	140	608
Scenario 2 E61-A33	279	191	470	141	611
Scenario 3 E65-A25	279	191	471	143	614
Scenario 4 E70-A19	280	192	472	143	615
Scenario 5 E51-A51	276	192	468	141	609
Average	279	191	470	142	611

- There are multiple, technically feasible scenarios to achieve 51% by 2030

Illustrative pathways to 51% emissions reduction by 2030

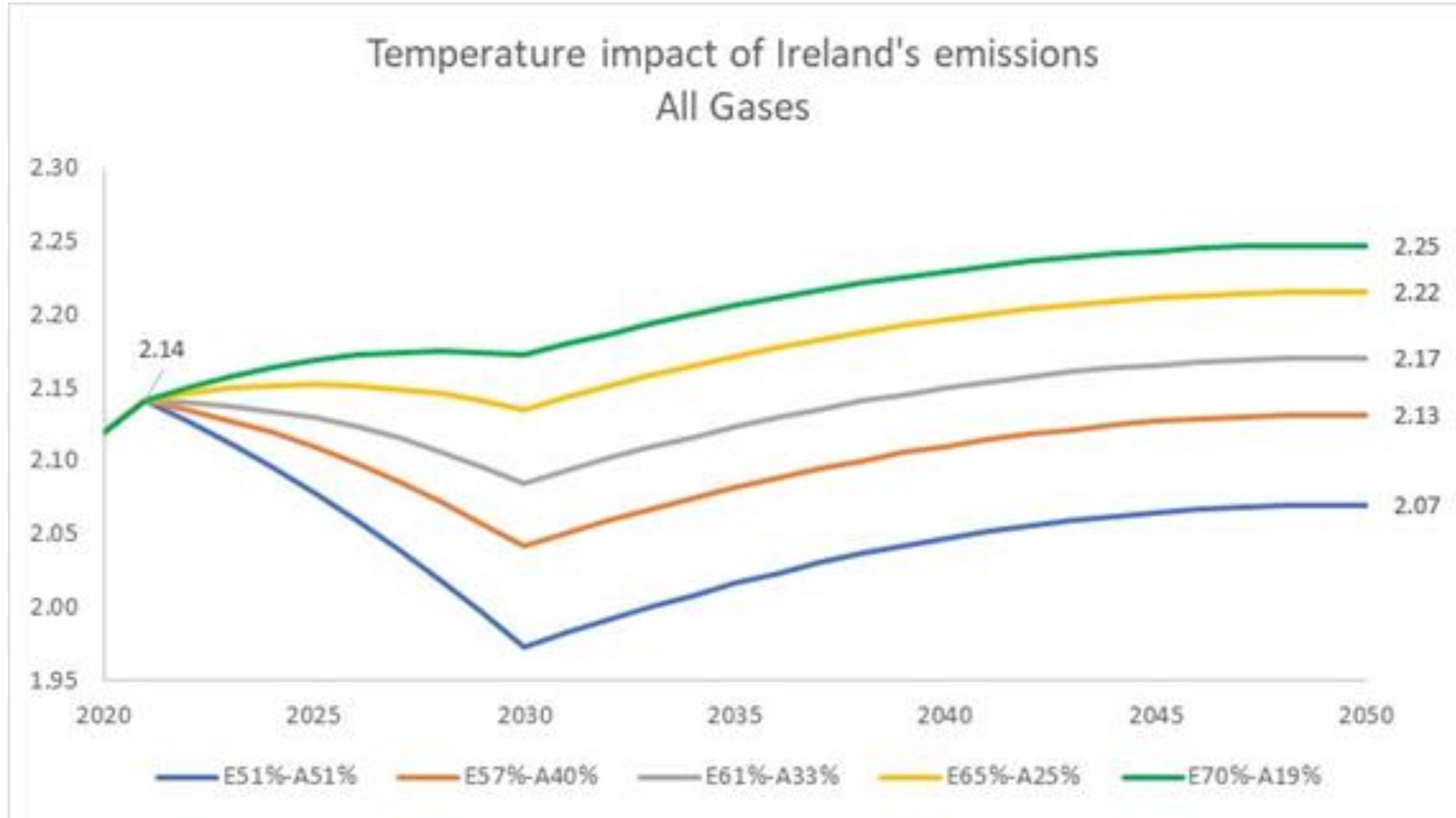


	Linear	CB1 1% CB2 9%	CB1 3% CB2 7%	CB1 5% CB2 6%	CB1 7% CB2 4%	CB1 9% CB2 3%
2021-2025	257	295	278	261	246	231
2026-2030	180	205	194	183	174	165
2031-2035	127	127	127	127	127	127
CB+CB2	437	500	471	445	420	396
CB1+CB2+ CB3	564	626	598	571	546	523

cb1\cb2	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1%	90%	86%	81%	76%	71%	67%	62%	57%	52%	48%
2%	86%	81%	77%	72%	68%	63%	59%	54%	50%	45%
3%	81%	77%	72%	68%	64%	60%	55%	51%	47%	43%
4%	76%	72%	68%	64%	60%	56%	52%	48%	44%	40%
5%	71%	68%	64%	60%	56%	53%	49%	45%	41%	38%
6%	67%	63%	60%	56%	53%	49%	46%	42%	39%	35%
7%	62%	59%	55%	52%	49%	46%	42%	39%	36%	33%
8%	57%	54%	51%	48%	45%	42%	39%	36%	33%	30%
9%	52%	50%	47%	44%	41%	39%	36%	33%	30%	28%
10%	48%	45%	43%	40%	38%	35%	33%	30%	28%	25%

Illustrative pathways to 51% emissions reduction by 2030

Unit:
Milli-degrees C



Committee's Draft Carbon Budgets

Mt GWP100 AR5	2021-2025 All gases CB1	2026-2030 All gases CB2	2021-2030 All gases Total	2031- 2035 All gases CB3	2021-2035 All gases Total
With LULUCF					
Without LULUCF					

- CB3 will be calculated on the basis of a linear trajectory from 2030 to 2050.

Summary

- A table reporting work done and conclusions against each of the criteria
- A table reporting work done and conclusions against the methodology
- A description of scenarios modelled
- A temperature impact assessment of the proposed carbon budgets
- A table of carbon budget numbers