

Time to face the music:

Paris-compliant phaseout of Oil & Gas production



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for Climate Change Research



Banking Crisis

- 2006 *rapid social change is impossible; the public will never accept it*
- 2007 sub-prime mortgage scandal triggers banking crisis
- 2008- decade of austerity policies – hitting poorest communities
huge cuts in public services, job security, etc. *(huge social upheaval for many)*
- 2008- QE – huge transfer of public money into private sector to stimulate spending
from the impossible to the delivered in two years

Covid tragedy

2019 *rapid social change is impossible; the public will never accept it*

2019/20 Covid triggers global response

2020/21 lock-downs, rapid mobilization of science/tech (*treatments & vaccines*)
poorer key-workers (& people of colour) disproportionately impacted
from the impossible to the delivered in two years

So what of Covid-induced emissions cuts

Approx. a global drop in energy-related CO₂ of ~4-5%

That level of cut in global CO₂ continuing year on year from now

... would *almost* give us a outside chance of 2°C.

Are we learning CO₂ lessons?

The poorest & the wealthiest countries are still seeking ongoing economic growth. i.e.:

- more energy ... more oil, more gas, & ongoing coal
(remember renewables & efficiency don't matter unless they displace fossil fuels)

timely decoupling of growth from emissions at scale is an appealing myth

Certainly, economic growth is to be welcomed in poorer nations,

but in the EU, USA, UK?

... is enough ever enough?

... if so when?

Within the context of emergency responses

A bit of science related to climate change

The climate does not respond to:

- good intentions
- Machiavellian policies
- eloquent arguments
- legal niceties
- or accountancy scams

... all are trumped by the brutal beauty of physics

i.e. it's the total quantity of CO₂ & other GHGs we dump in the atmosphere that relates to temperature & impacts



PARIS CLIMAT 2015



United Nations

FCCC/CP/2015/L.9/Rev.1



Framework Convention on
Climate Change

Distr.: Limited
12 December 2015

Original: English

holding the global average temperature to well below 2°C above pre- industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre- industrial levels,

ADOPTION OF THE PARIS AGREEMENT

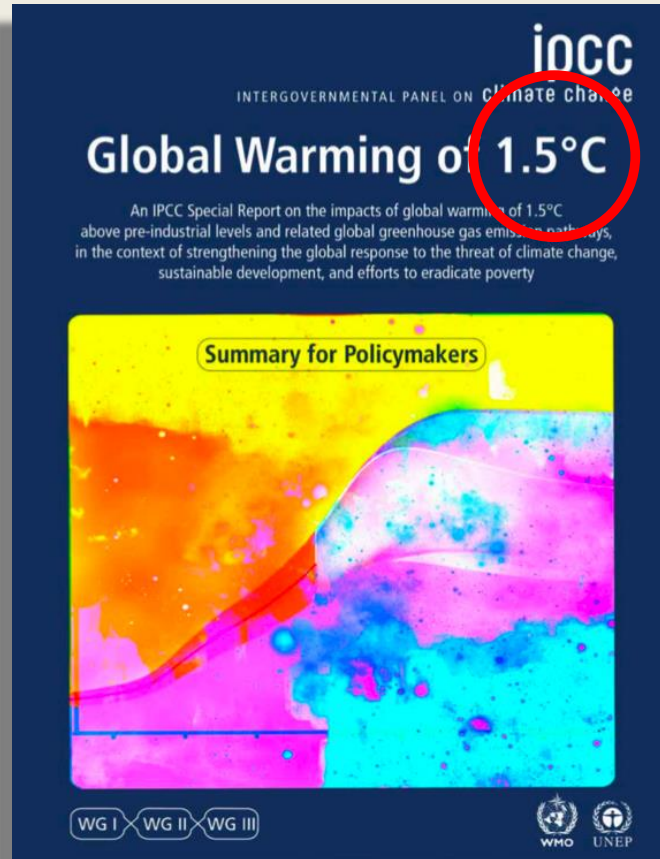
*to undertake rapid reductions in accordance with best science
... and on the basis of equity,*

Also recalling Articles 2, 3 and 4 of the Convention,

Further recalling relevant decisions of the Conference of the Parties, including decisions 1/CP.16, 2/CP.18, 1/CP.19 and 1/CP.20,

Welcoming the adoption of United Nations General Assembly resolution A/RES/70/1, “Transforming our world: the 2030 Agenda for Sustainable Development”, in particular its goal 13, and the adoption of the Addis Ababa Action Agenda of the third International Conference on Financing for Development and the adoption of the Sendai Framework for Disaster Risk Reduction,

Paris “*pursuing ... 1.5°C*” strengthened by:



in summary

- The impacts of even 1.5°C are severe across ecosystems, human systems, physical infrastructure & agriculture
... with more floods, more droughts, more extinctions and more human migration
- The impacts at 2°C are considerably worse still...

Climate Emergencies widely declared

UTRIKES



EU-parlamentet i klimatnödläge

Klart: EU-parlamentet i klimatnödläge

UPPDATERAD 1 DECEMBER 2019 PUBLICERAD 2...

EU-parlamentets ledamöter i Strasbourg... utly... dagens beslut handlar bara om semantik – några... det inte beslutats om.

Sweden first Nordic country to enter map of global climate emergency movement

Posted on 4 April 2020



Sweden first Nordic country to [declare] ... climate emergency

Lund and Malmö are the first two municipalities in Sweden that have joined the climate emergency declaration movement of close to 1,500 council's world-wide. Sweden thus becomes the first Nordic country to enter the map of the global climate emergency movement.

The municipal council in Lund in southern Sweden acknowledged a climate emergency on 4 December 2019, and Malmö followed suit on 13 January 2020.

Paris “pursuing ... 1.5°C” strengthened by:

GOV.UK

Topics Departments Government activity

→ [Coronavirus \(COVID-19\)](#) | Guidance and support

Home > [Environment](#) > [Climate change and energy](#) > [G7 Climate and Environment Ministers' meeting, May 2021: communiqué](#)

Department for Business, Energy & Industrial Strategy

Department for Environment, Food & Rural Affairs

Policy paper

G7 Climate and Environment Ministers' meeting, May 2021: communiqué

to keep a limit of 1.5°C + temperature rise

Joint commitments

We, the G7 Ministers responsible for Climate and Environment, met virtually on 20-21 May 2021.

As we continue to address the ongoing pandemic, we acknowledge with grave concern that the unprecedented and interdependent crises of climate change and biodiversity loss pose an existential threat to nature, people, prosperity and security. We recognise that some of the key drivers of global biodiversity loss and climate change are the same as those that increase the risk of zoonoses, which can lead to pandemics. We highlight that urgent and concrete action is needed to move towards global sustainability,

[Print this page](#)

Paris “*pursuing ... 1.5°C*” strengthened by:

A photograph of Sir Patrick Vallance, the UK's Chief Scientific Adviser, speaking at a podium. He is wearing a dark suit, a green tie, and glasses. A red poppy is pinned to his lapel. The background is a solid blue color. A nameplate on the podium identifies him as Patrick Vallance, Chief Scientific Adviser, UK Government. A microphone is positioned in front of him.

Sir Patrick Vallance

Government's chief scientific adviser

Patrick Vallance
Chief Scientific Adviser, UK Government

It's crucial that the **1.5** is kept alive.
I mean, I don't think this is a negotiable thing.

Headline framing of our report

- 1) Consistent with our Paris, G7 and COP26 climate commitments
- 2) Align with the IPCC's latest carbon budgets (AR6)
- 3) Be informed by the UNFCCC's framing of equity (CBDR-RC)

i.e. wealthy nations lead the way in eliminating CO₂ emissions

Our interpretation of Paris, G7 & COP26

- 1) **67%** “likelihood ... warming will not exceed” **1.5°C**
 - Good-ish chance of not exceeding **1.5°C**

- 2) **50%** “likelihood ... warming will not exceed” **1.5°C**
 - Ok chance of not exceeding **1.5°C**

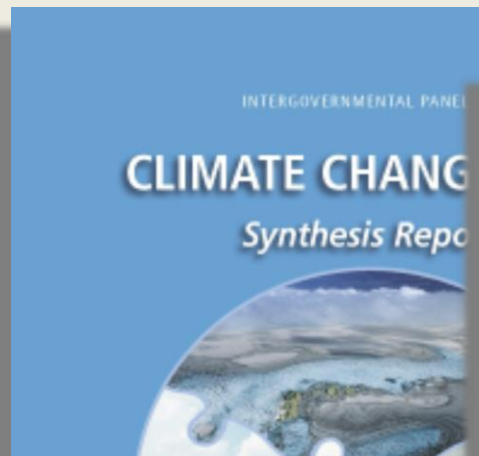
- 3) **50%** “likelihood ... warming will not exceed” **1.7°C**
 - Good chance of not exceeding **2°C**

Our interpretation of Paris, G7 & COP26

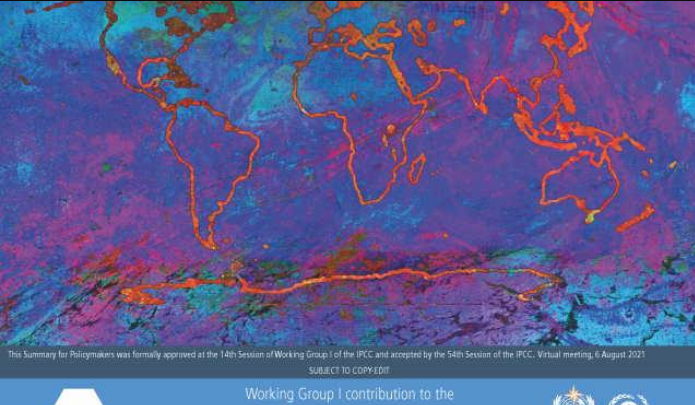
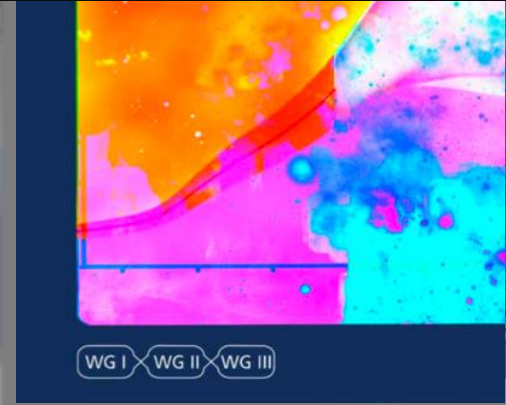
- 1) Good-ish chance of not exceeding **1.5°C**
- 2) Ok chance of not exceeding **1.5°C**
- 3) Good chance of not exceeding **2°C**

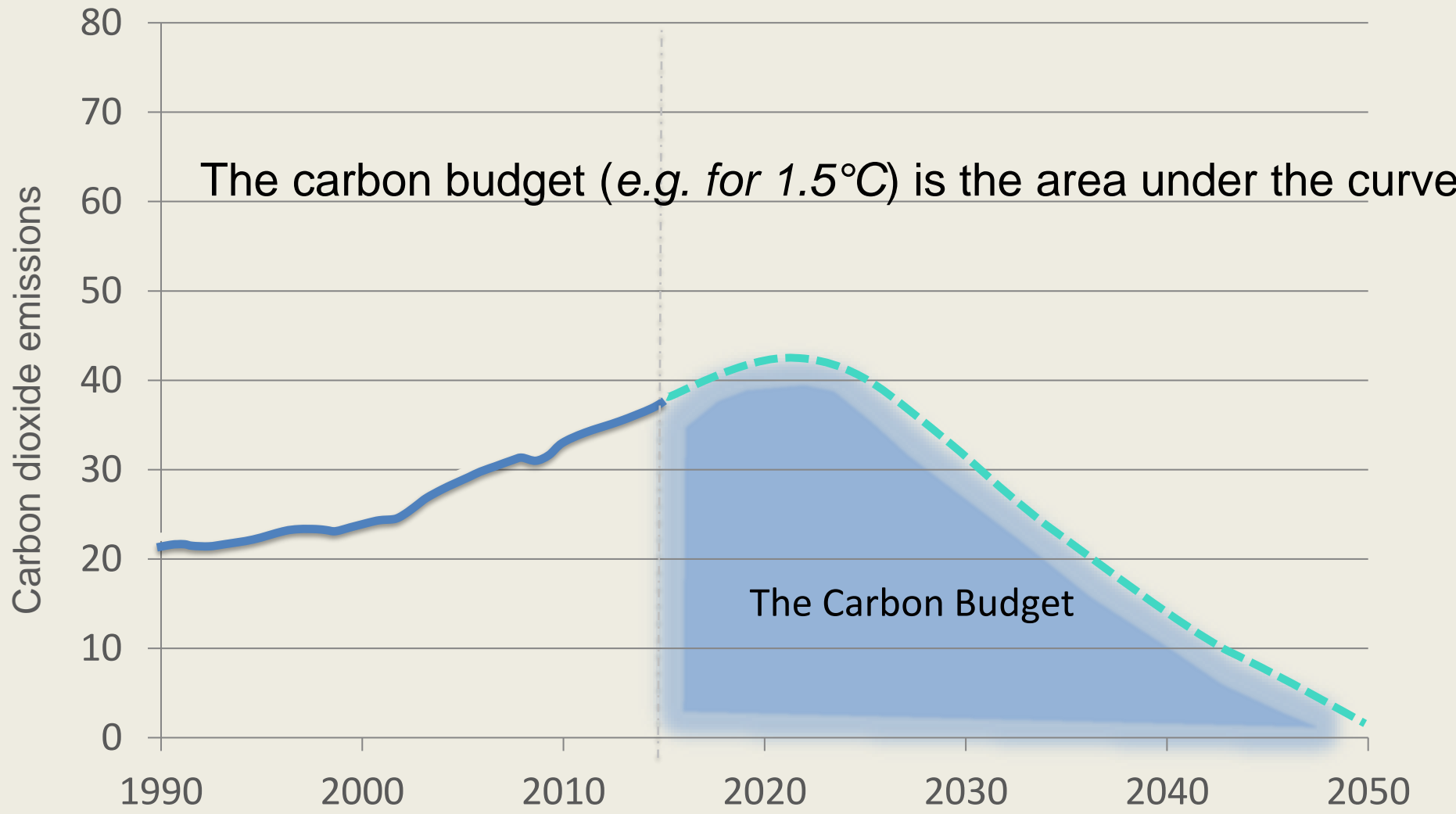
What does the IPCC
tell us about this 1.5°C?

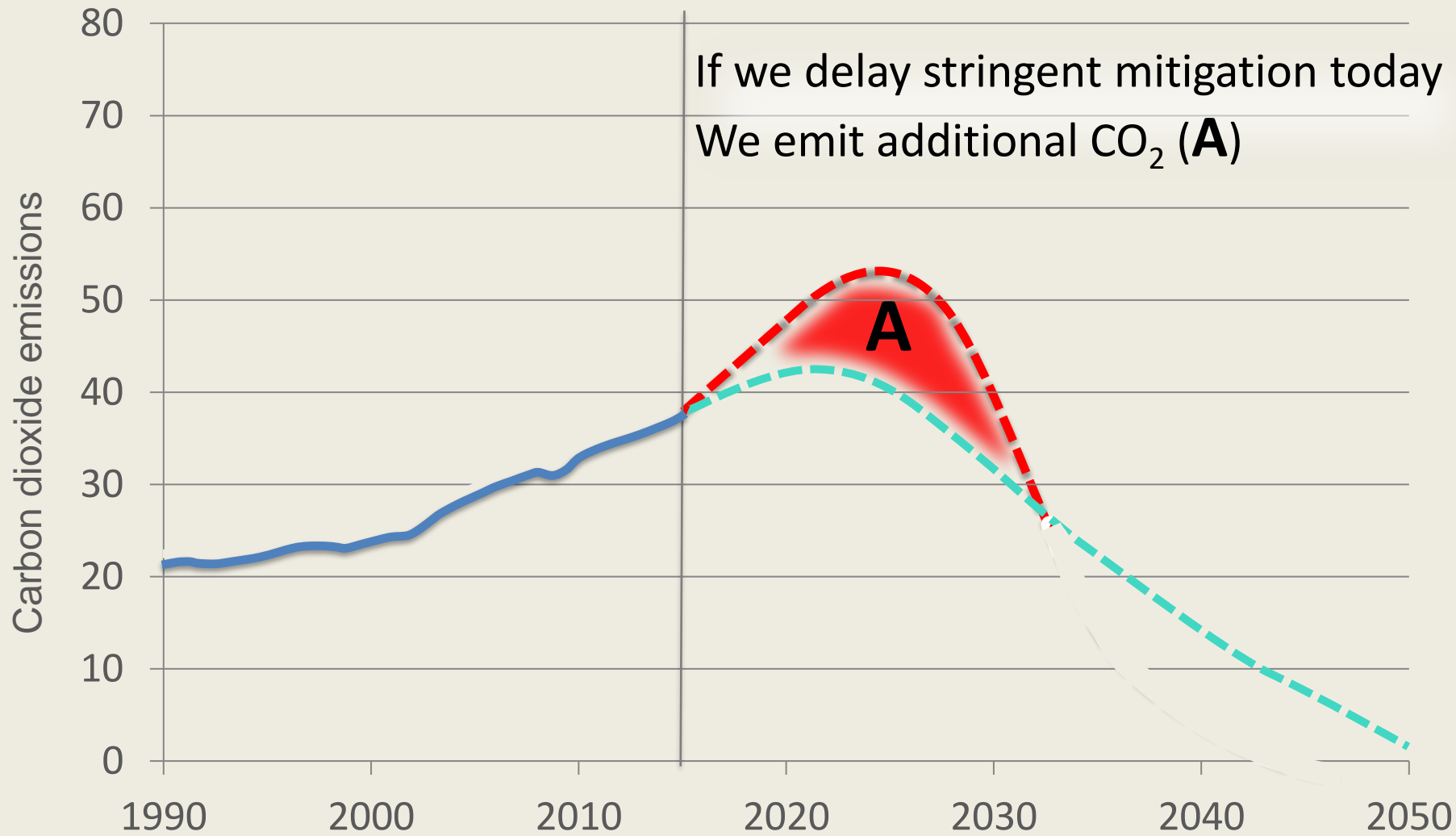


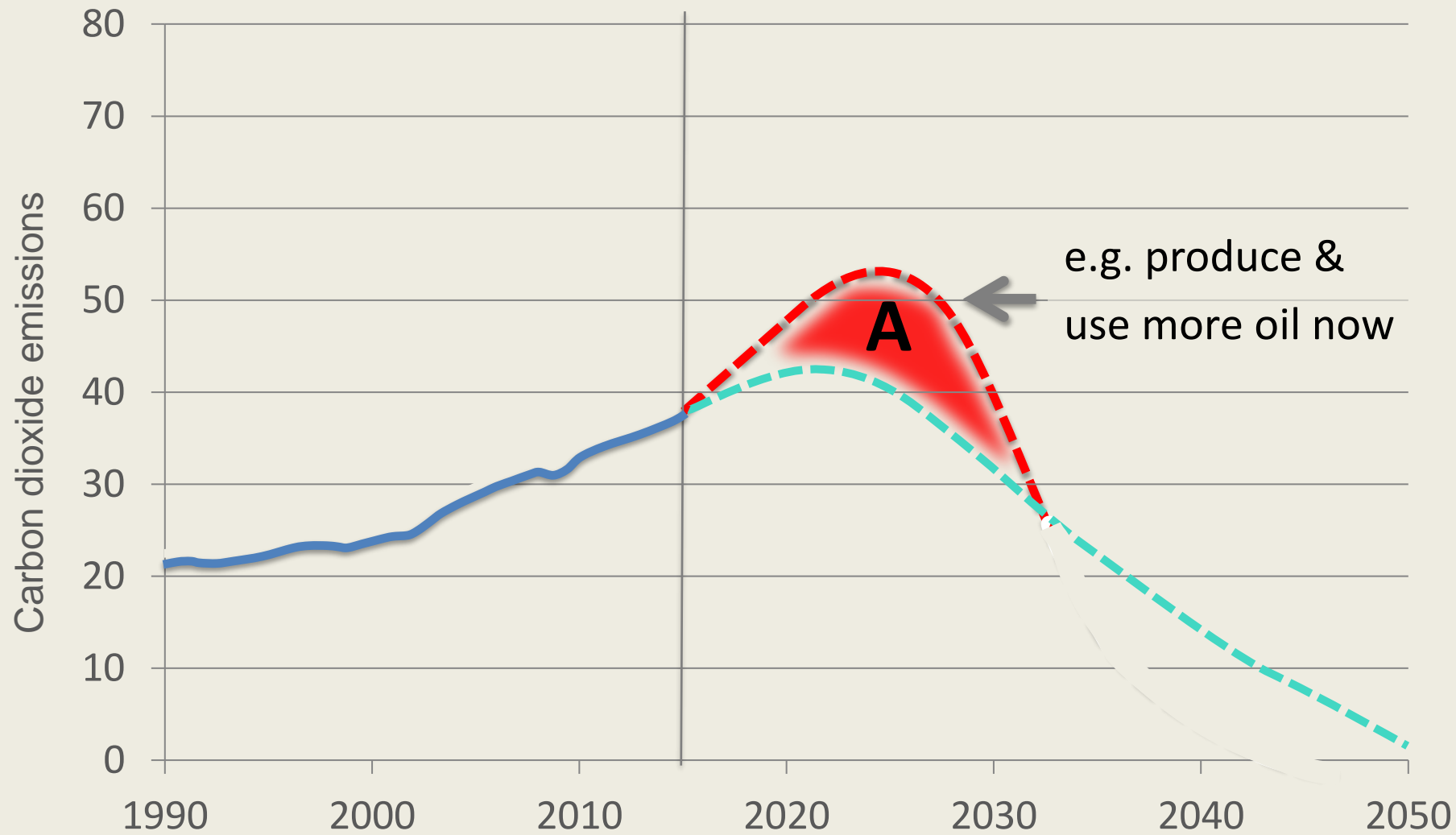


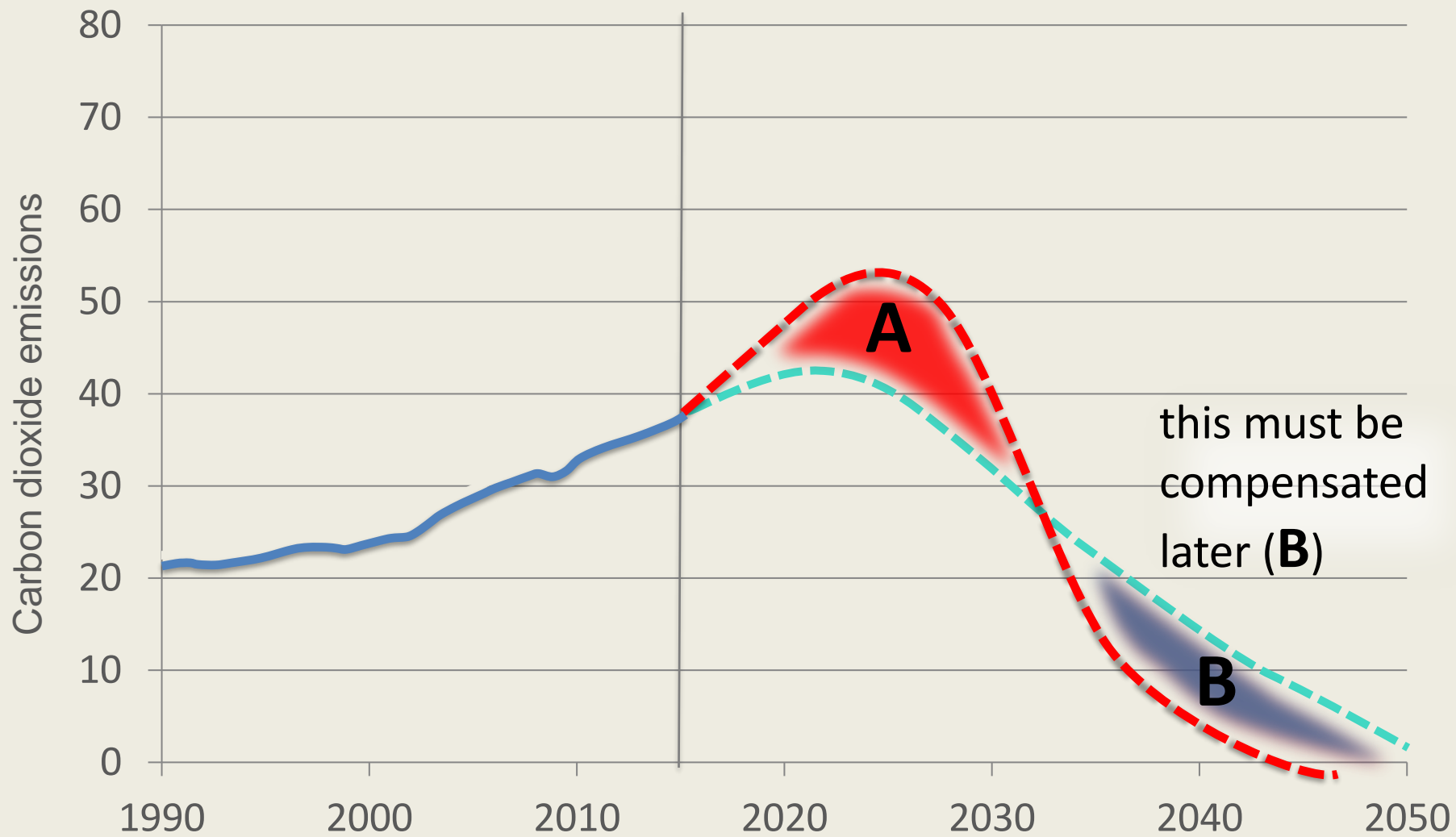
it's the total carbon budget, not long-term targets, that link with temperature rise





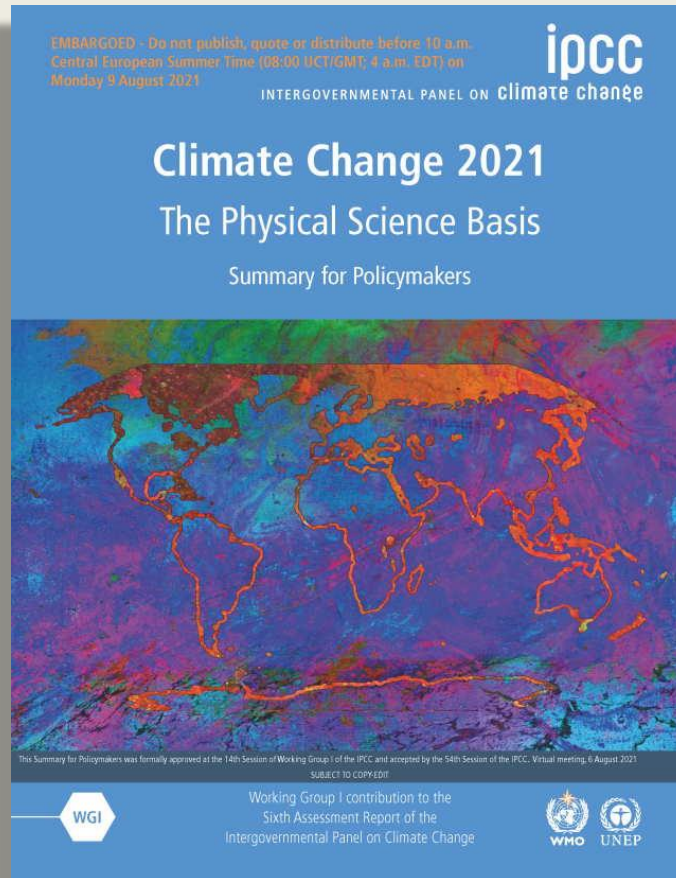






From 1.5-2C commitments to carbon budgets

What does science (AR6) tell us?



What does science (AR6) tell us?

EMBARGOED - Do not publish, quote or distribute before 10 a.m. Central European Summer Time (08:00 UTC/GMT; 4 a.m. EDT) on Monday 9 August 2021

ipcc
INTERGOVERNMENTAL PANEL ON climate change

Approximate global warming relative to 1850–1900 until temperature limit (°C)* ⁽¹⁾	Additional global warming relative to 2010–2019 until temperature limit (°C)	Estimated remaining carbon budgets from the beginning of 2020 (GtCO ₂)					Variations in reductions in non-CO ₂ emissions* ⁽³⁾
		<i>Likelihood of limiting global warming to temperature limit*⁽²⁾</i>					
		17%	33%	50%	67%	83%	
1.5	0.43	900	650	500	400	300	Higher or lower reductions in accompanying non-CO ₂ emissions can increase or decrease the values on the left by 220 GtCO ₂ or more
1.7	0.63	1450	1050	850	700	550	
2.0	0.93	2300	1700	1350	1150	900	

This Summary for Policymakers was formally approved at the 14th Session of Working Group I of the IPCC and accepted by the 54th Session of the IPCC, Virtual meeting, 6 August 2021
SUBJECT TO CORRECTION

WGI

Working Group I contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change



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But we're sticking with an "Ok chance of 1.5°C"

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ipcc
INTERGOVERNMENTAL PANEL ON climate change

Approximate global warming relative to 1850–1900 until temperature limit (°C)* (1)	Additional global warming relative to 2010–2019 until temperature limit (°C)	Estimated remaining carbon budgets from the beginning of 2020 (GtCO ₂)					Variations in reductions in non-CO ₂ emissions*(3)
		<i>Likelihood of limiting global warming to less than (2)</i>					
		17%	33%	50%	70%	83%	
1.5	0.43	900	650	500	300	300	Higher or lower reductions in accompanying non-CO ₂ emissions can increase or decrease the values on the left by 220 GtCO ₂ or more
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Which we update to 2022 & energy-only CO₂:

Energy-only CO₂ budgets of:

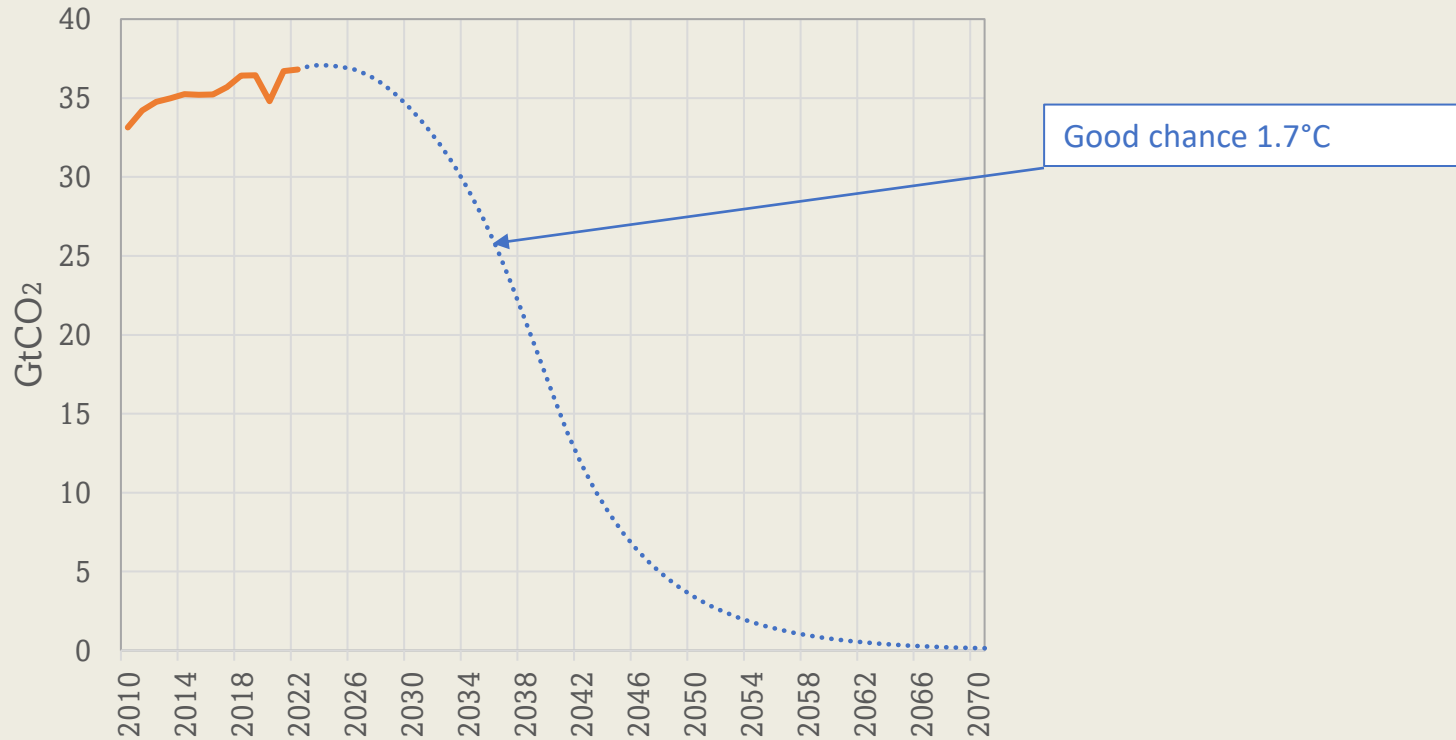
- 1) Good-ish chance of not exceeding 1.5°C
- 2) Ok chance of not exceeding 1.5°C
- 3) Good chance of not exceeding 2°C

Energy-only CO₂ budgets of:

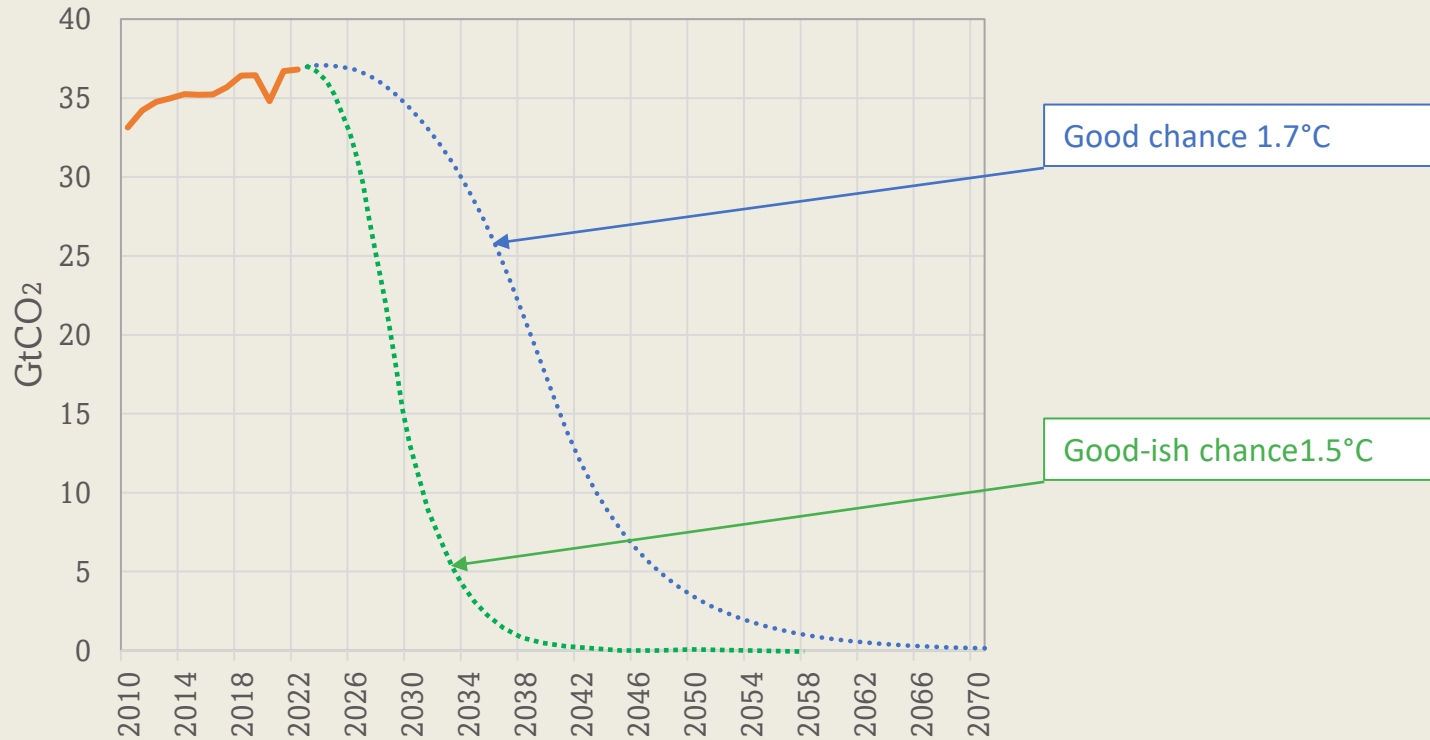
GtCO₂ from 2022

- 1) Good-ish chance of not exceeding **1.5°C** **260 (7yrs)**
- 2) Ok chance of not exceeding **1.5°C** **360 (10yrs)**
- 3) Good chance of not exceeding **2°C** **680 (18yrs)**

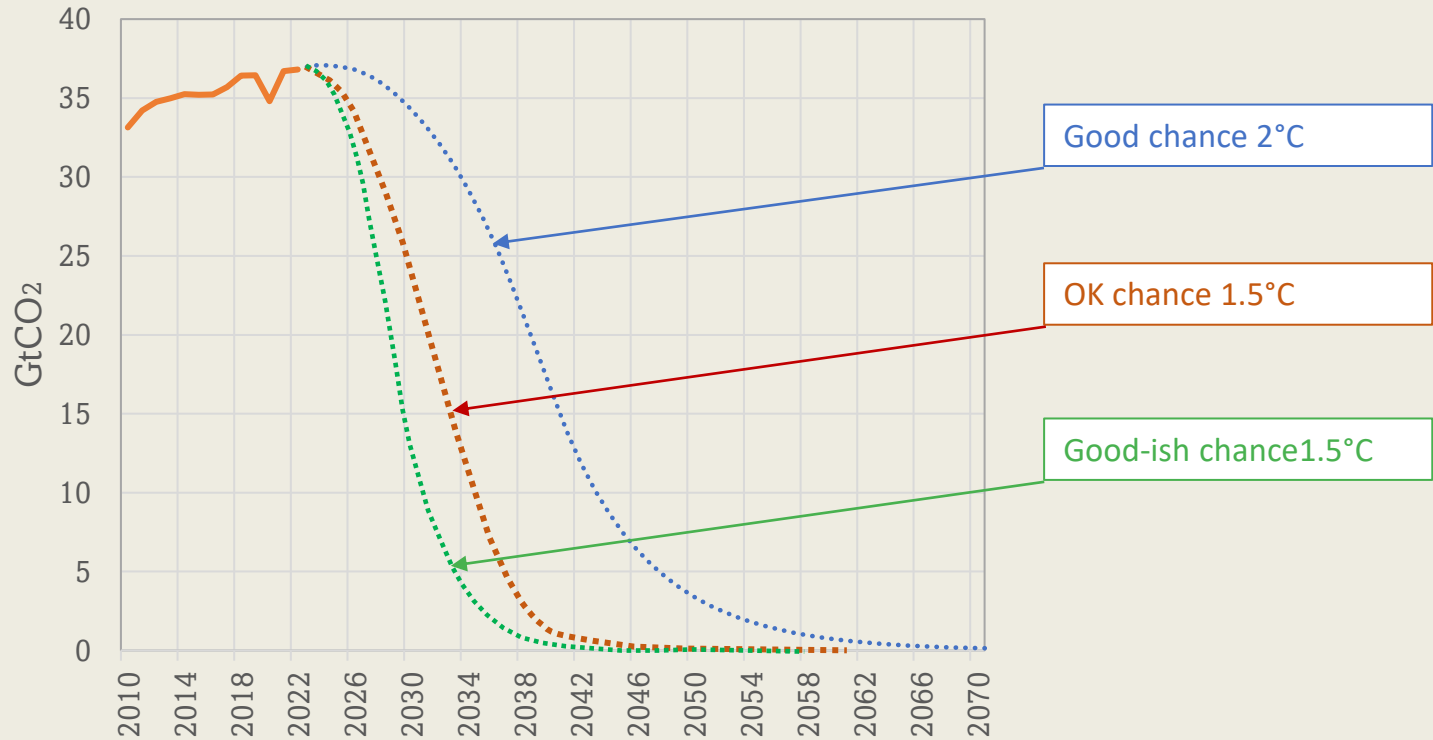
Indicative Energy-only CO₂ pathways



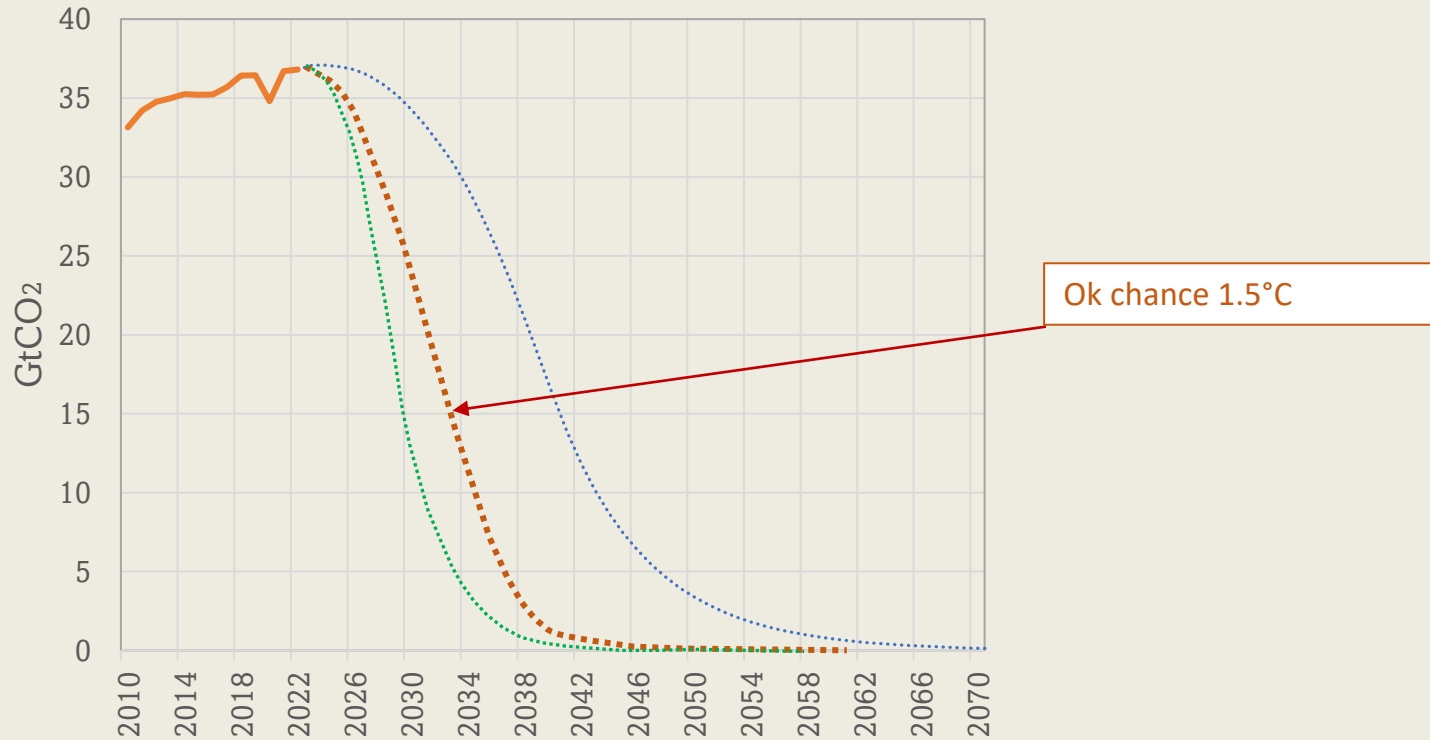
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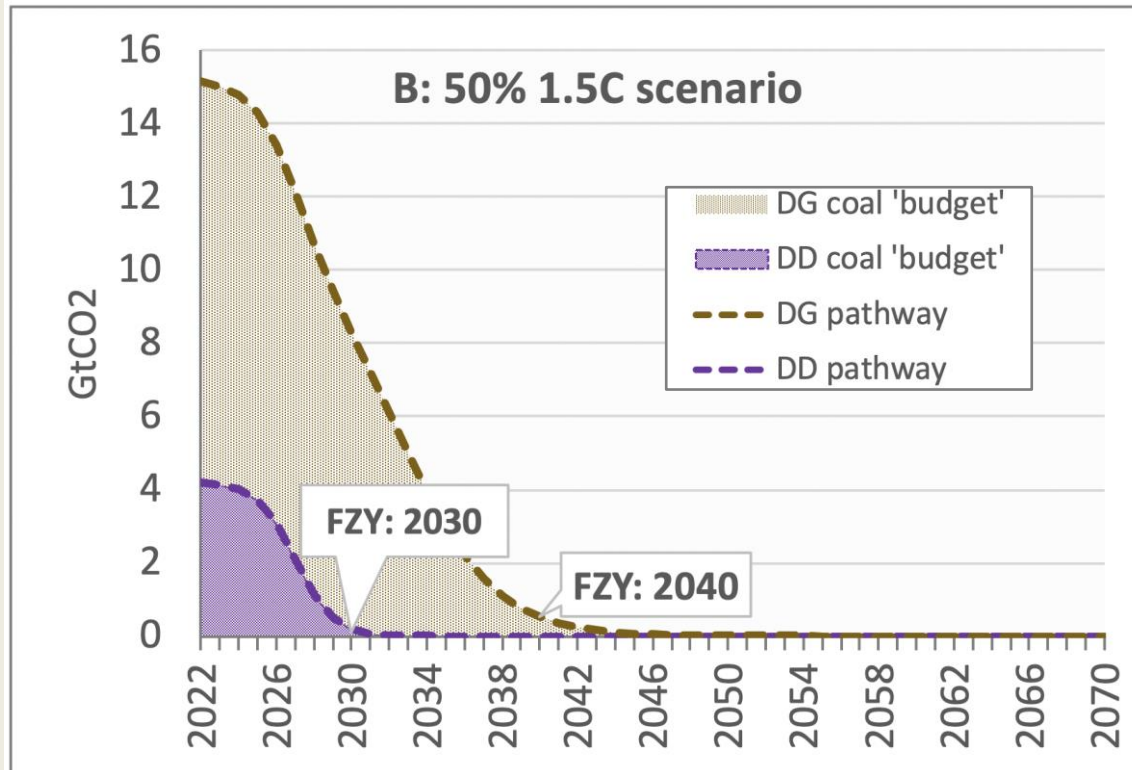


We then considered the phase-out of coal

Recognising:

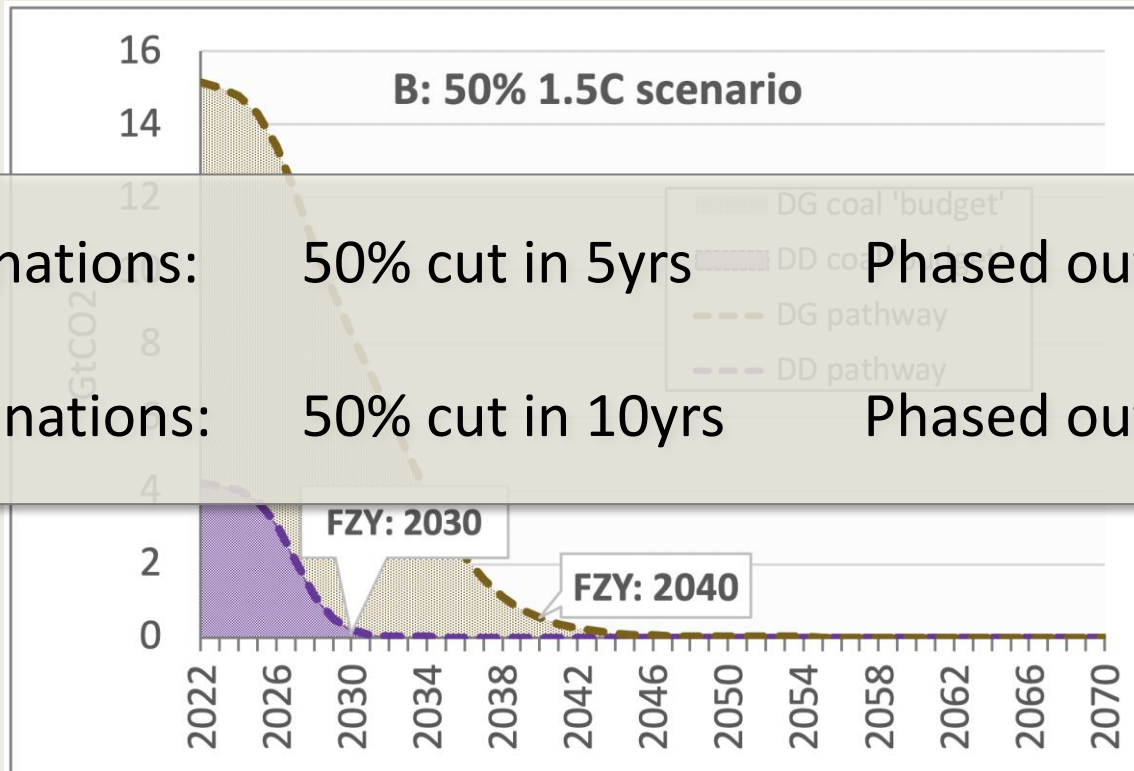
- Coal is most carbon intense fuel – (best to phase it out first)
- But coal is not traded globally as much as oil & gas
- Wide use of indigenous coal in poorer nations

For the headline 50% of 1.5°C ... for coal:



DG - developing
DD - developed

For the headline 50% of 1.5°C ... for coal:



Developed nations: 50% cut in 5yrs Phased out by 2030

Developing nations: 50% cut in 10yrs Phased out by 2040

DG - developing

DD - developed

But we're interested in production of Oil & Gas

- 88 nations produce Oil & Gas
- For various reasons we consider oil & gas collectively
 - Gas has lower CO₂/kWh,
 - Oil has greater flexibility
 - Oil more widespread in poorer nations
 - Gas primarily used in wealthy nations
 - Gas significantly used in powergen' – where lo-CO2 alternatives exist

Dividing the Oil & Gas budgets between nations?

- 1) Considered various metrics for 'fairly' allocating budgets
 - 2) Settling on PPP/capita **excluding** income from O&G
 - 3) Use this as a proxy for capacity for a just transition
- *But data partial, often poorly specified & mixed/missing dates*
 - *So we **grouped** nations to avoid spurious precision*

Divide the O&G budget between groups

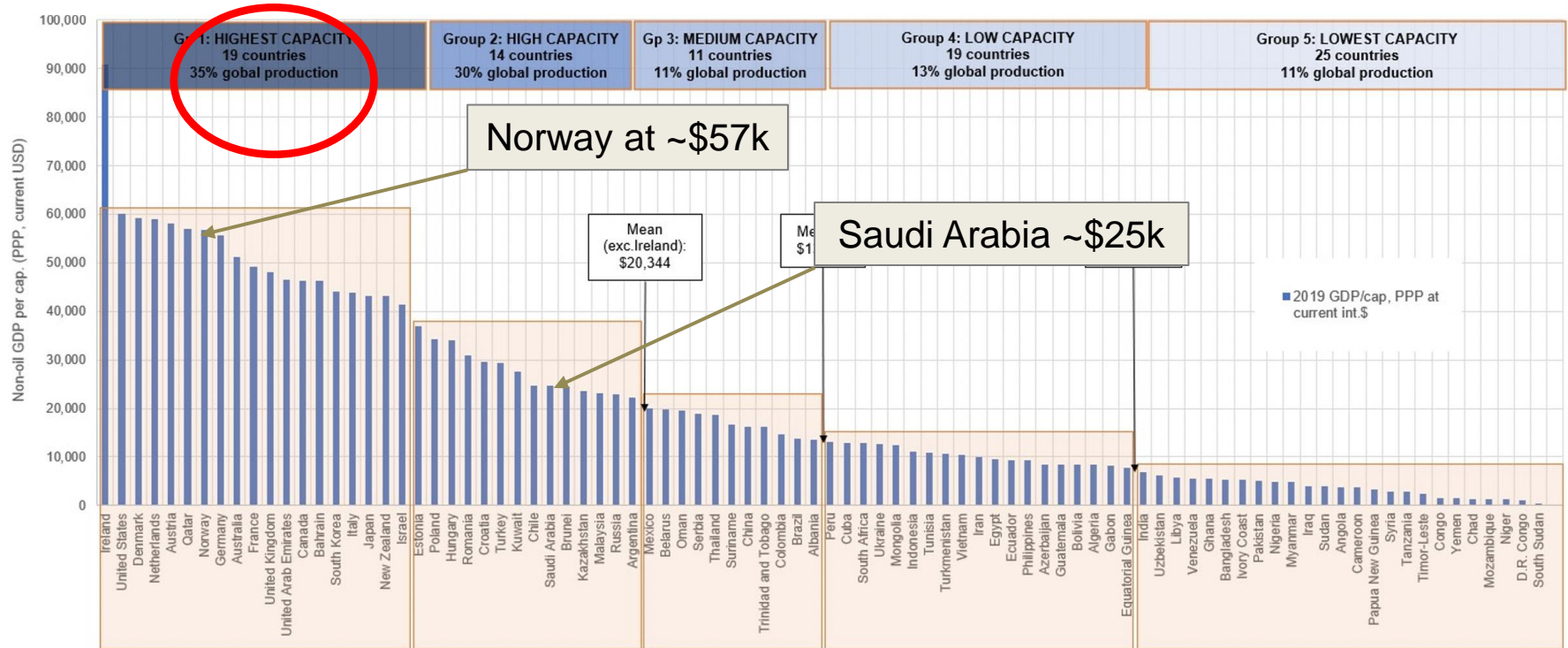
Started with Grandfathered budget for each 'group'

Applied judgment & iteration to make different 'transfers' between groups guided by:

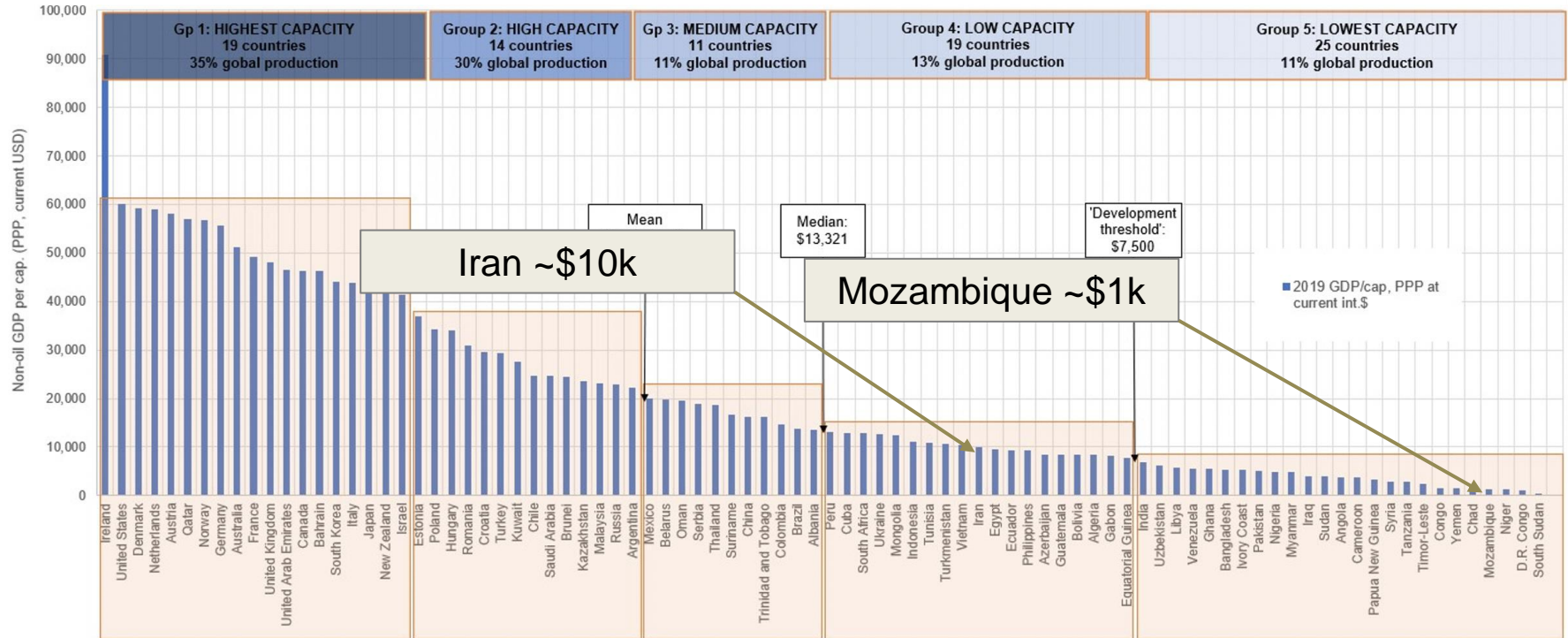
- 1) Fairness
- 2) The level of current emissions
- 3) Proportion of GDP related to O&G *revenue* (eg. UK 1%, US 8%, Norway 14%, Qatar 40%, Iraq 65%)

To be blunt ... it's a dynamic & lengthy process of maths, art & narratives

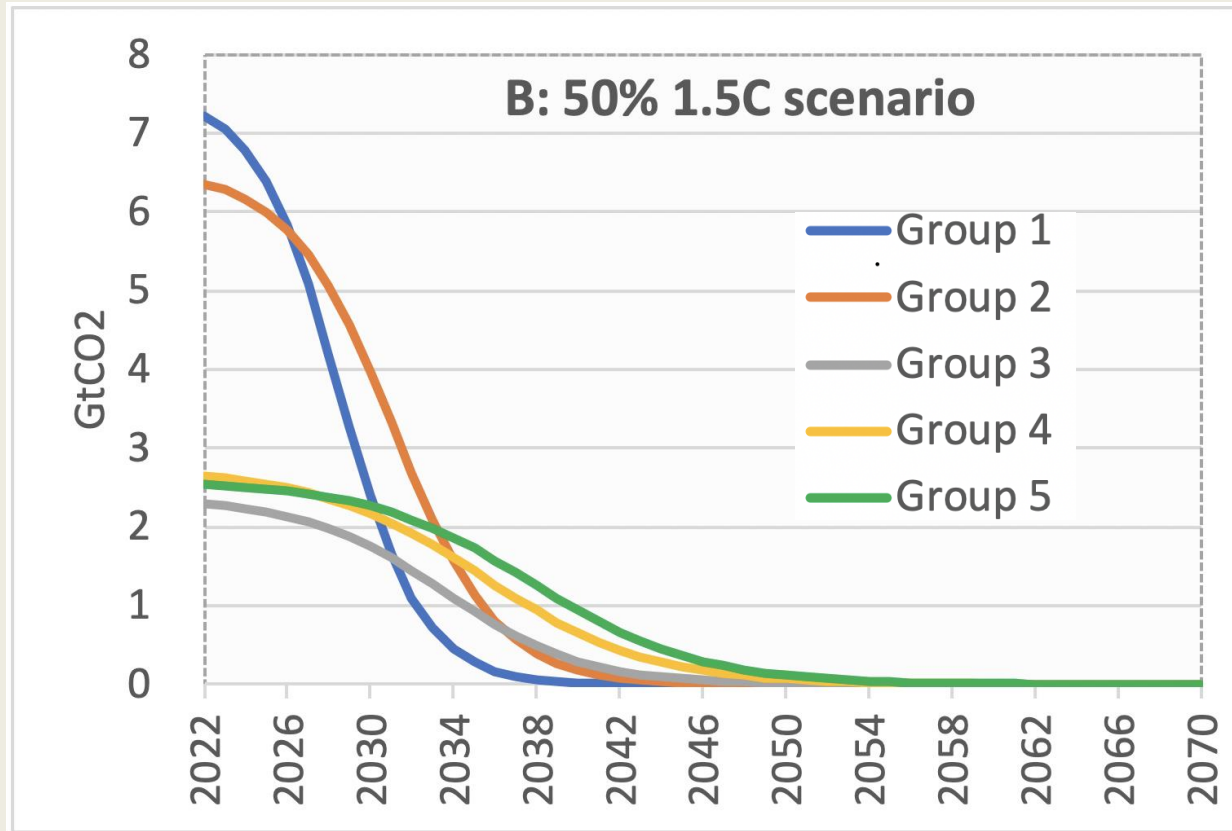
Five groups - by non-O&G \$ppp/capita



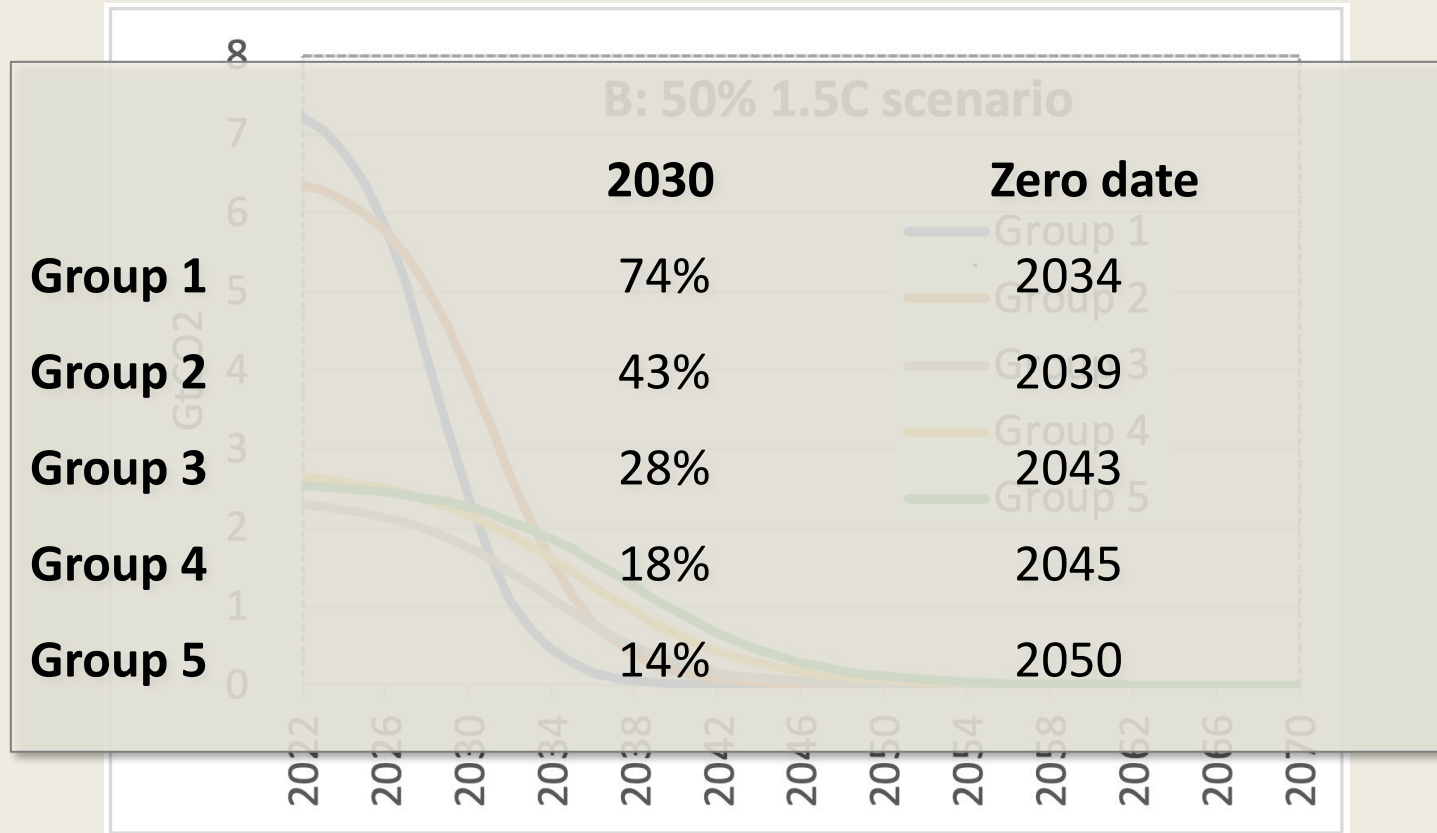
Five groups - by non-O&G \$ppp/capita



Headline findings 50% of 1.5°C ...for O&G:



Headline findings 50% of 1.5°C ...for O&G:



Conclusions

1. AR6 carbon budget much more challenging than many realise
2. Rapid & early phaseout of coal: 2030 for “developed”, 2040 for “developing
3. Wealthy producers – cut production by $\frac{3}{4}$ by 2030 & phaseout by 2034
4. Poorest producers – cut by 14% by 2030 & phaseout by 2050
5. No new production of any fossil fuels – anywhere!
6. Mitigation alone cannot meet equity criteria (CBDR-RC)
7. So major financial transfers are a prerequisite of delivering a fair phaseout schedule

Twitter: @KevinClimate

Thanks for listening



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1824

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