

Effective Climate Action: The Case for Greenhouse Gas Neutrality

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18 September 2018

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Position and Perspective

- SWP is a policy-oriented research institute (70+ analysts) with offices in Berlin and Brussels
- SWP advises policymakers, primarily in German government and Parliament, but also in EU, NATO & UN
- Focus on mundane practices of energy and climate policymaking, particularly inconsistencies between talk, decisions and actions & role of (scientific) policy advisors

Paris Agreement temperature target

Holding the increase in the global average temperature **to well below 2 °C** above pre-industrial levels and to **pursue efforts to limit** the temperature increase **to 1.5 °C** above pre-industrial levels [*Article 2(1)*]

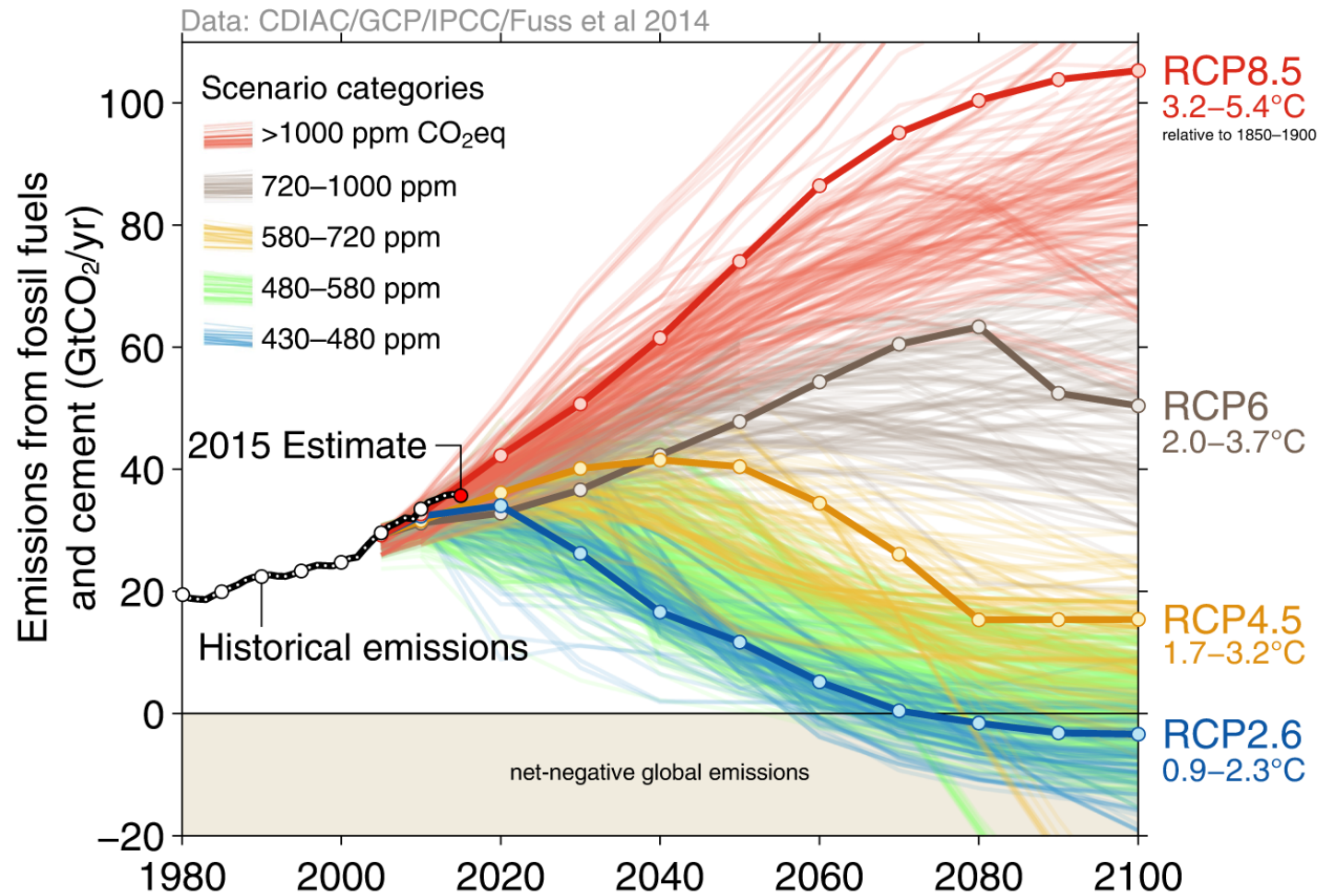
Paris Agreement *net zero* emissions target

In order to achieve the long-term temperature goal set out in Article 2, Parties aim to **reach global peaking** of greenhouse gas emissions **as soon as possible**, [...] and to undertake rapid reductions thereafter in accordance with best available science, [...] so as to **achieve a balance between** anthropogenic emissions by **sources** and removals by **sinks** of greenhouse gases in the **second half of this century** [*Article 4(1)*]

Need for prioritization

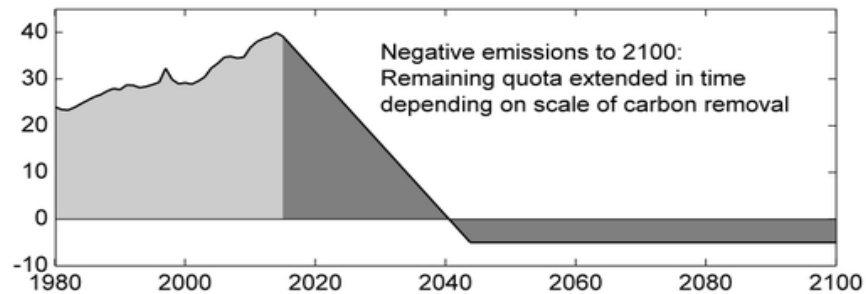
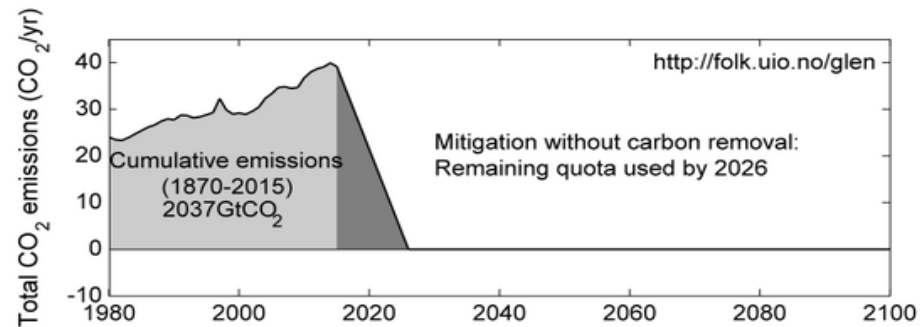
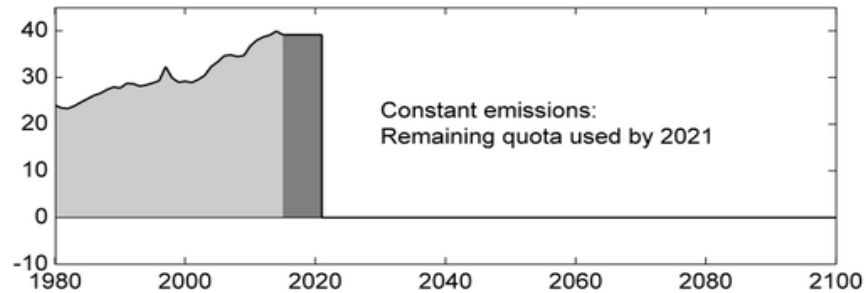
- Official answer ('zero emissions by 2099' as operationalization of 1.5–2°C) unconvincing
 - Need for clearly defined emissions pathways, with ranges for global peak years/levels, shorter time frame for reaching 'zero' and specified amount of net negative emissions
 - Operationalization of temperature targets requires exact 'carbon budgets', something UNFCCC is unwilling to adopt

IPCC AR5 WGIII scenarios



3 options to limit warming to 1.5 °C

Can emit about 210GtCO₂ from 2016 for a 66% chance at 1.5C



Main criteria for a priority target

- Capability to effectively guide policy action
 - Targets should be precise, evaluable, attainable & motivating
- Compatibility with prevalent political rationales & practices
 - Not well-represented in global climate policy discourse

Problem-centered vs. actor-centered (I)

- Problem-centered approach still dominant
 - Defining threshold(s) for ‚dangerous anthropogenic interference with the climate system‘ (DAI) (e.g., 2 or 1.5 °C)
 - Policy action to be consistently derived from DAI (e.g., global carbon budgets)

Problem-centered vs. actor-centered (II)

■ Actor-centered approach still marginal

- Real-world policymaking not primarily concerned about solving problems but **dealing with problems**
- Policymaking maintains cultural norm of ‚consistency‘ but is actually defined by **inherent inconsistency between talk, decisions and actions** (e.g., aggregate Nationally Determined Contributions/NDCs vs. temperature targets)
- Climate policymakers are **not the most powerful** actors within respective political systems, not even in EU

Climate targets in real-world policymaking (I)

- Talk, decisions and actions as fairly independent products, to maximize external stakeholder support
- Governments choose a more progressive stance while talking and deciding, but a more modest one when acting
 - Leads to ‚hypocrisy‘ by talking/deciding about far-away future, where need for immediate action is relatively limited
=> climate policy **more about intentions than results**

Climate targets in real-world policymaking (II)

- Modest approach: targets *can* guide policymakers' *actions* if they are precise, evaluable, attainable & motivating (and able to minimize inconsistency)

The case against temperature targets (I)

- 2 °C has worked well as a focal point for *policy formulation*, but not for appropriate *action*
- Not particularly *actionable*, inviting inconsistency
 - Addressing Earth system, not telling individual governments precisely what they have to deliver (e.g. NDCs)
 - Evaluation of target attainment only globally, no government can be held responsible for missed target (hypocrisy)

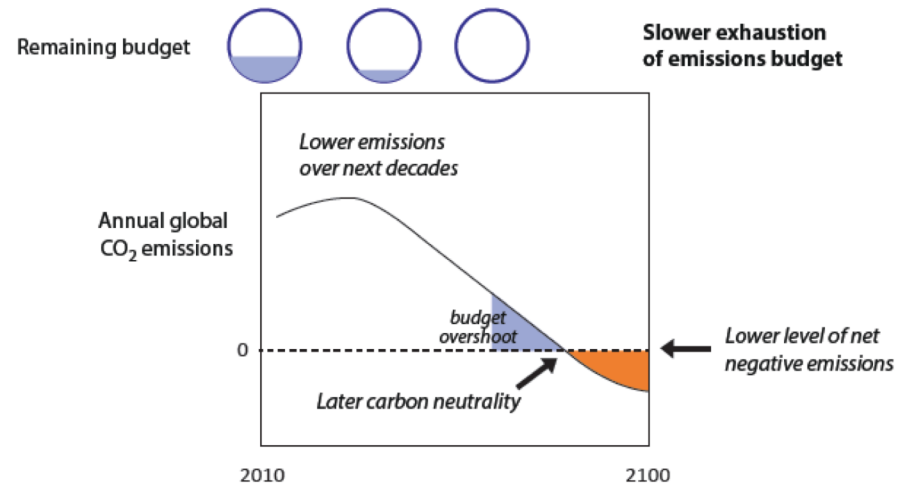
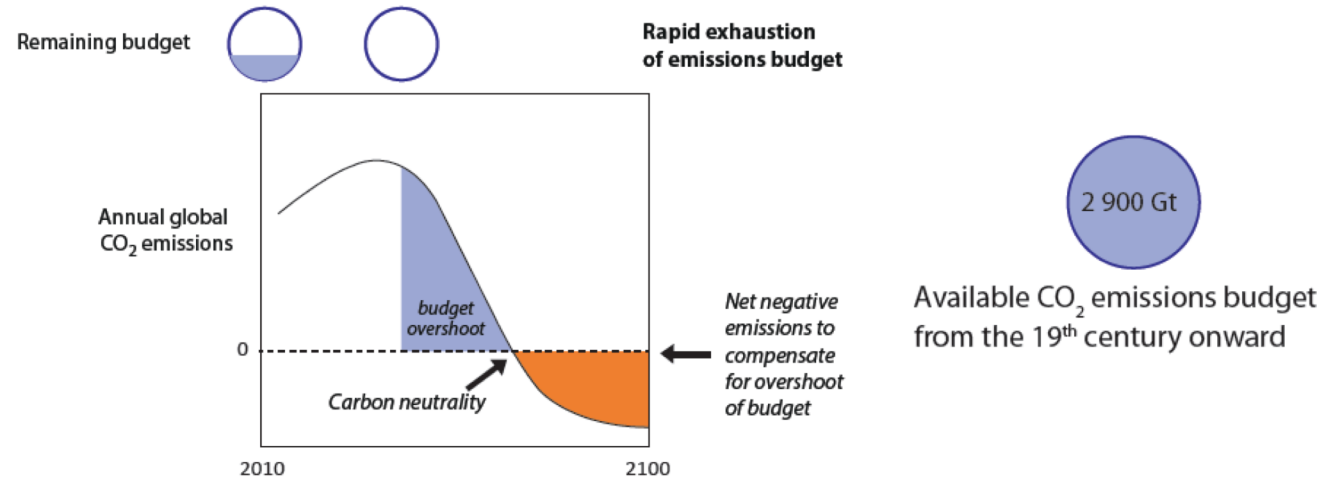
The case against temperature targets (II)

■ Creating 'either/or' constellation

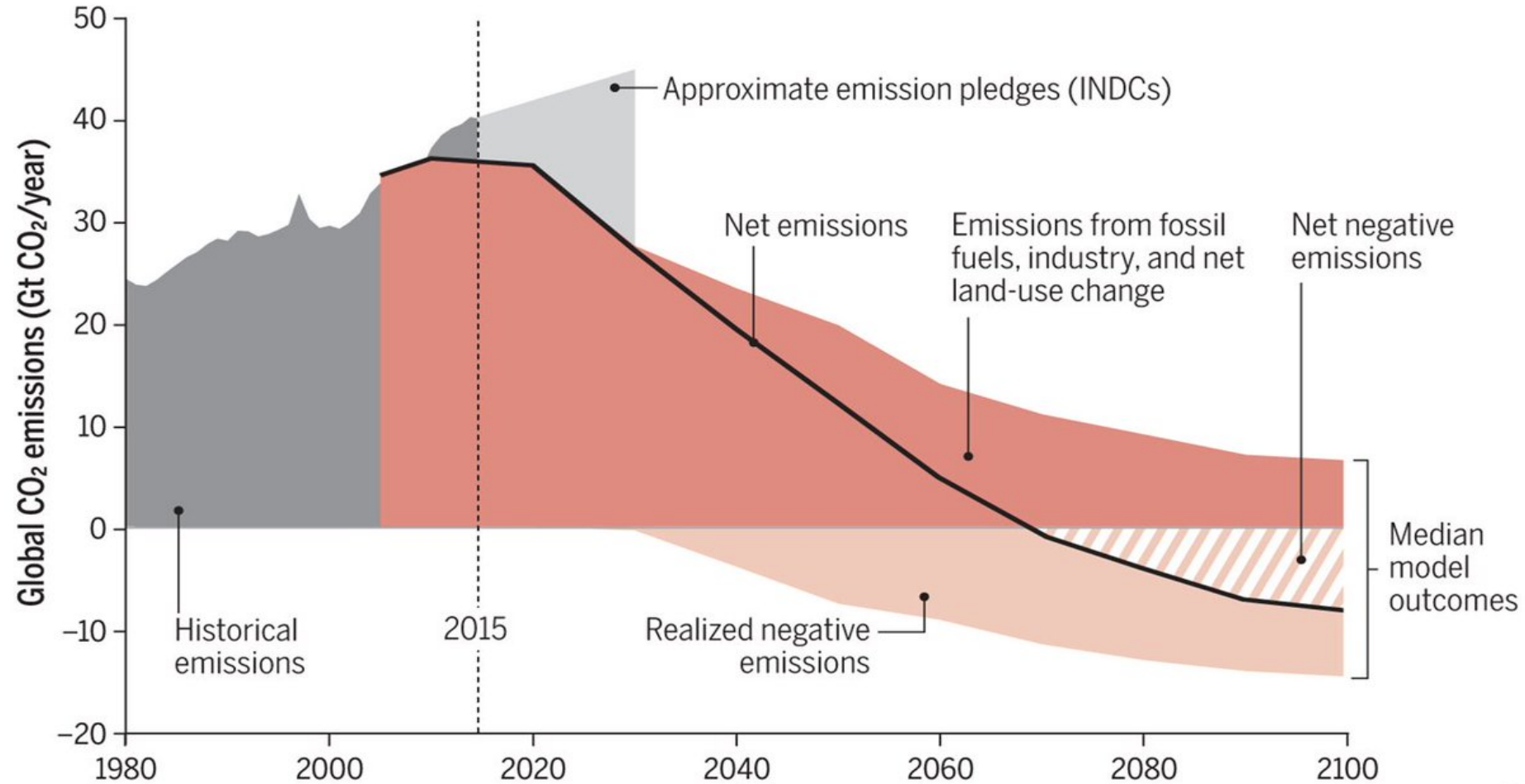
- Fear that likely failure of ambitious temperature targets would reduce motivation for stringent mitigation action

=> stretching carbon budgets by introducing *negative emissions* & *temperature overshoot* (masking policy inaction)

2 °C warming limit depends on CO₂ removal

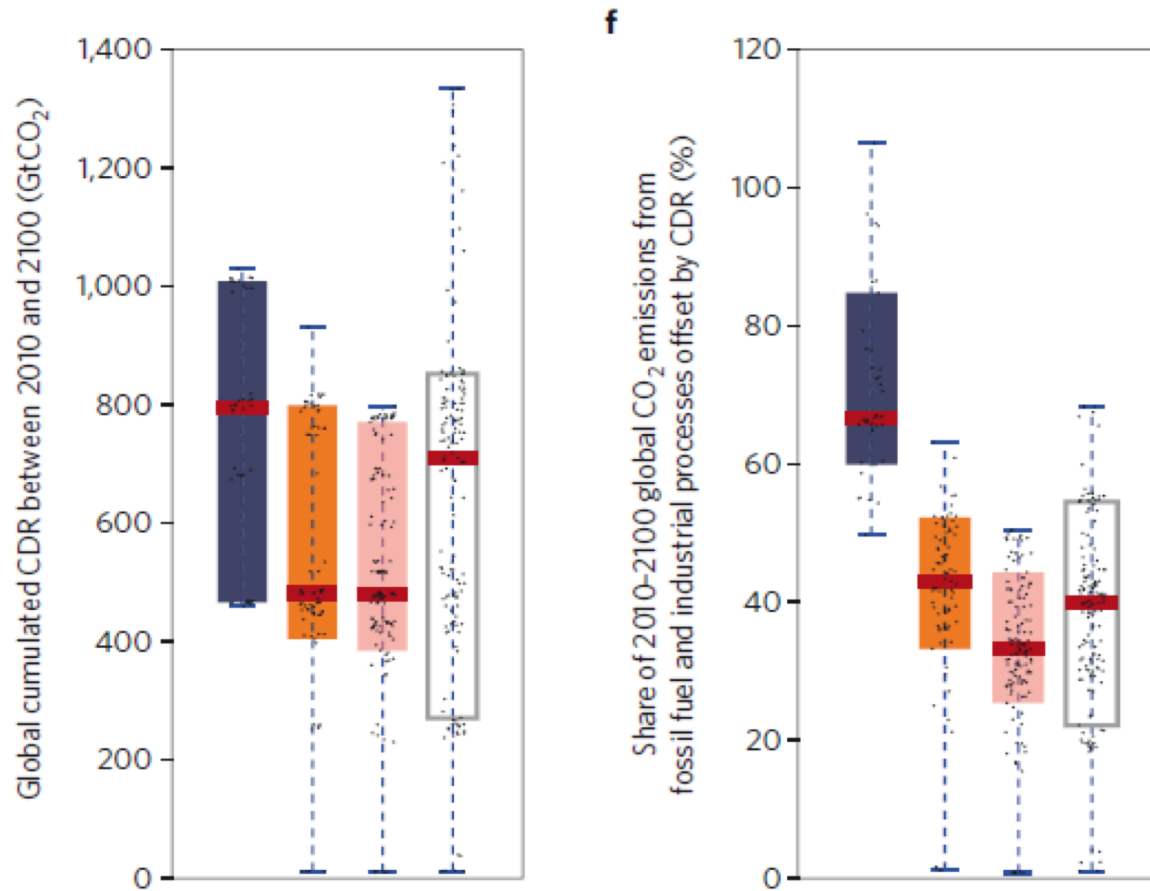


Net vs. gross CO₂ removal



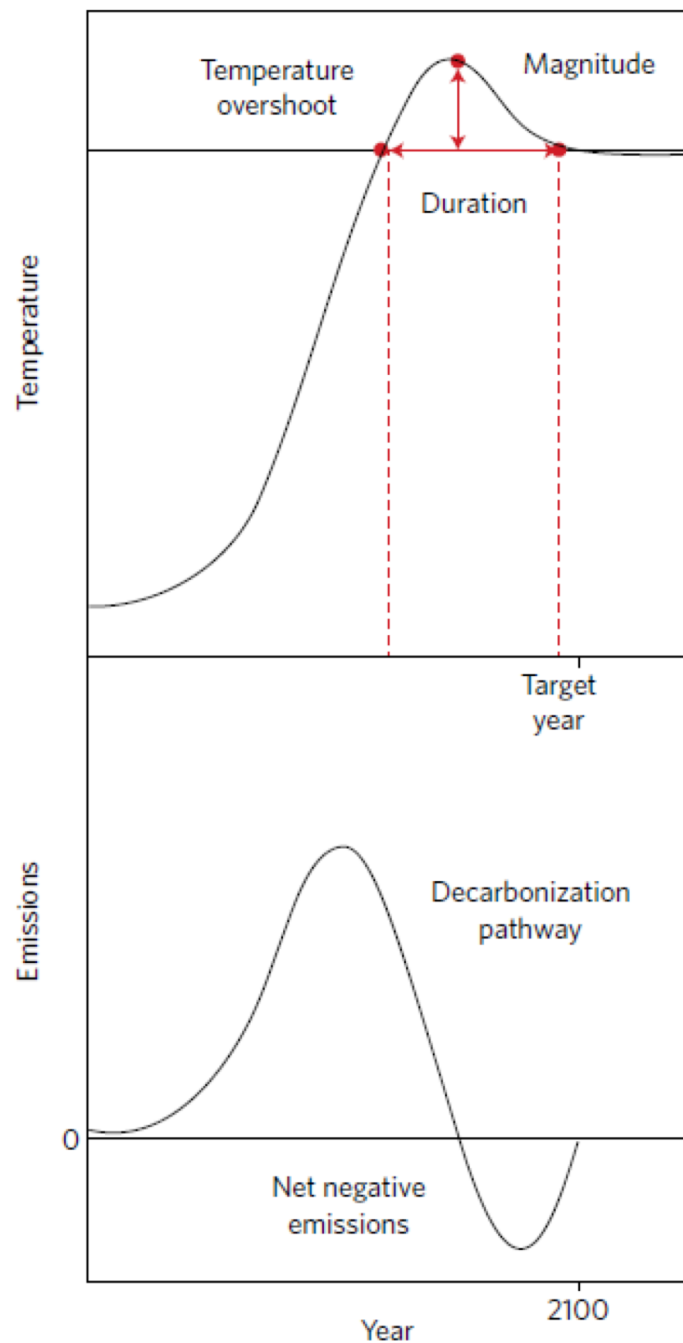
Anderson/Peters (2016), The trouble with negative emissions,
Science

Carbon removal for 1.5/2 °C



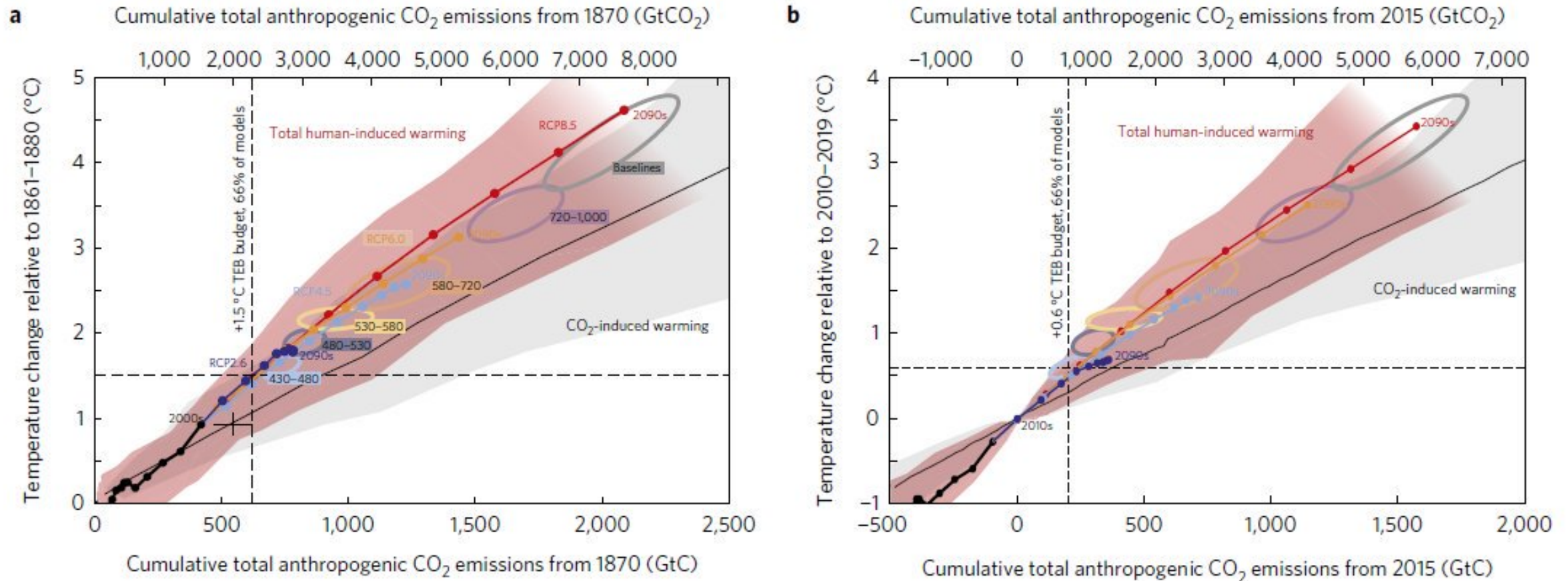
Rogelj, J. et al (2015): Energy system transformations, *Nature Climate Change*

Deliberate temperature overshoot



Geden/Löschel (2017): Define limits for temperature overshoot targets, *Nature Geoscience*

Expanding the remaining carbon budget for 1.5 °C



Millar et al. (2017): Emission budgets and pathways consistent with limiting warming to 1.5 °C, *Nature Geoscience*

Targeting human activity (I)

- *Net zero emissions* more *actionable*, hedging inconsistency
 - Addressing every single actor, telling (more) precisely what they all have to deliver eventually
 - Comparably transparent system for evaluating actions of national governments, cities, economic sectors & companies
 - Possibly creating a new cultural norm, encouraging competition to get to the finish line first

Targeting human activity (II)

- Creating *sooner/later* or *faster/slower* constellation
 - Providing a clear direction while not dictating a strict/detailed timetable, avoiding hubris
- *Net Zero* as relatively new policy approach (chosen in Paris Agreement to avoid *decarbonization*), emerging debate in some countries & states (SWE, NZL, UK, CAL, EU)

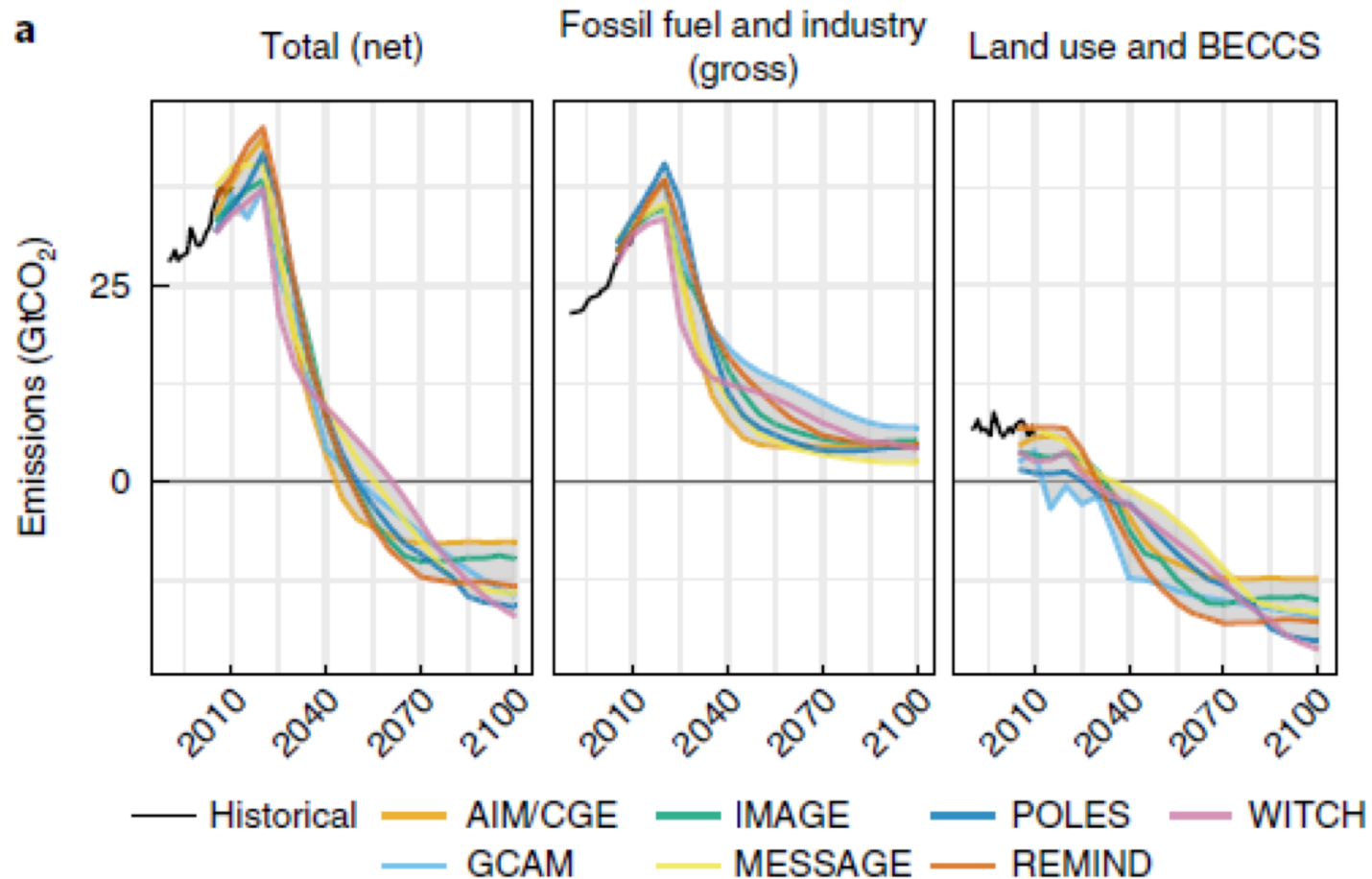
Differentiated tasks

- *Net Zero* can support choosing entry points for profound mitigation efforts now
 - but still room for target gaming, ambiguity & distributional conflicts
- 1.5-2°C as long-term *environmental quality objective*
 - Indicating desirable goal, serving as long-term benchmark
 - Accompanied by a range of impact-related goals to avoid merging a multitude of factors into a single indicator
 - Enabling scientists to avoid pragmatic policy concessions

Sequential political strategy

- Decarbonization first, tackling 'residual emissions' with limited carbon dioxide removal (CDR)
- If successful, followed by enhanced CDR later (*net negative*), as integral part of a climate recovery strategy

‘Residual Emissions’ as a contested category



Luderer, G. et al (2018): Residual fossil CO₂ emissions in 1.5–2 °C pathways, *Nature Climate Change*

Net Zero: more ambitious & more pragmatic

■ *Net Zero* as conceptual challenge for OECD countries

- Long-term targets <100% (e.g., 80-95% by 2050) allow many governments & companies to think they'll only be partially affected
- Environmentalists feel comfortable focusing their proposals on expanding renewables and increasing efficiency, avoiding unpopular & costly measures (e.g., Carbon Capture and Storage for industrial processes, synthetic fuels, limited CO₂ removal)
- Reduction targets of 100% would push all sides out of their comfort zones & **increase level of seriousness in climate policy**

Thank you very much for your attention!

commentary

An actionable climate target

Oliver Geden

The Paris Agreement introduced three mitigation targets. In the future, the main focus should not be temperature targets such as 2 or 1.5 °C, but on the target with the greatest potential to effectively policy: net zero emissions.

Prior to the Paris climate summit, the United Nations had one single target for mitigating climate change, based on a decision adopted at the 2010 UN Climate Change Conference in Cancun: to limit the

report is unlikely to inspire more mitigation action. Climate researchers might find the situation unsatisfactory, but the post-Paris constellation can be seen as an opportunity to rethink climate targets and to better assess

But even on a national level, every governance practices are usually not driven by objectively defined problems that require specific solutions. Here, real-world policymaking is not so

Opinion

The Paris Agreement and the inherent inconsistency of climate policymaking

Oliver Geden*

Edited by Mike Hulme, Domain Editor and Editor-in-Chief

Since the adoption of the Paris Agreement, the actual meaning of many crucial aspects of that agreement still remains fairly unclear. This has led to extensive framing efforts, for example on the 5-year review mechanism. What has been largely overlooked, however, are the decisions on quantified climate stabilization

comment

Define limits for temperature overshoot targets

Temperature overshoot scenarios that make the 1.5 °C climate target feasible could turn into sources of political flexibility. Climate scientists must provide clear constraints on overshoot magnitude, duration and timing, to ensure accountability.

Oliver Geden and Andreas Löschel

To the surprise of many, achieving consensus between industrialized nations, emerging economies and developing countries did not result in

0.3 °C, peaking at 1.8 °C¹. But there was — and still is — insufficient knowledge about the geophysical climate responses to such pathways. For example, it is unclear

technologies at the assumed scale of 670–810 gigatonnes by 2100². The assumptions in current integrated assessment models regarding carbon dioxide

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