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The role of science in climate policy making

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University of Melbourne, 27 April 2016



In today's talk...

- Life at the science-policy interface: The path from post-doc to policy
- Gathering and using the evidence
 1. Geoengineering
 2. Greenhouse gas metrics
 3. The long-term global temperature
- The Paris Agreement: future evidence



No policy
here!
Science
only!



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Life at the science-policy interface



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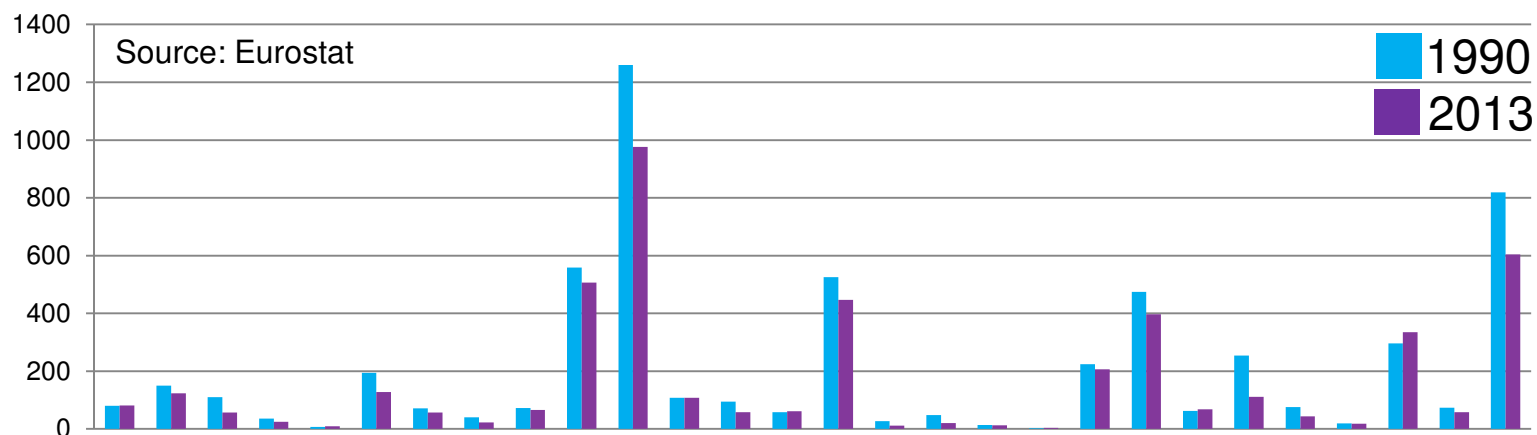
The DECC Science team

- Scientific support to DECC policy teams
- Provides scientific advice to inform UK, EU and international climate policy
- UK focal point for IPCC
- Commissions evidence and engage with the research community and research councils
- International engagement and science diplomacy
- Greenhouse gas inventory and statistics
- Climate science capability including Met Office Hadley Centre

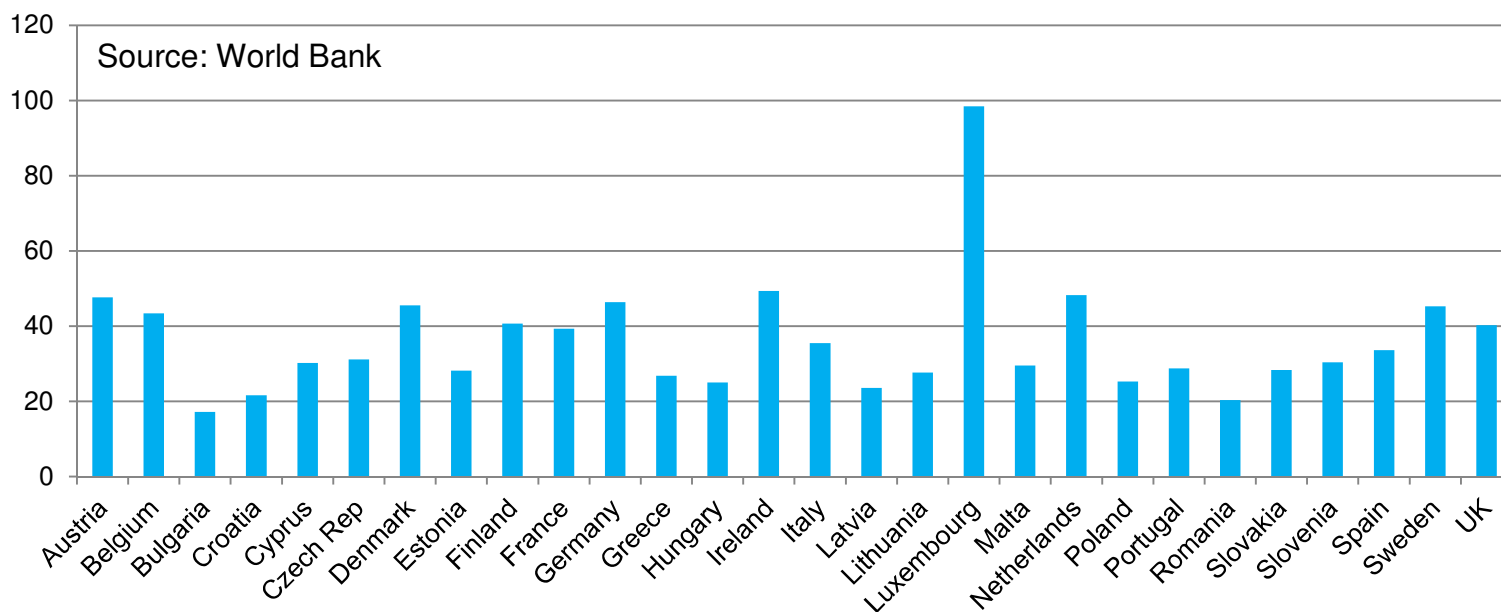


EU climate policy making: context

Total GHG
emissions in
(Mt CO₂e)



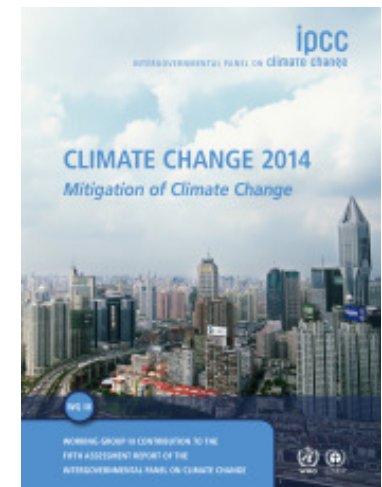
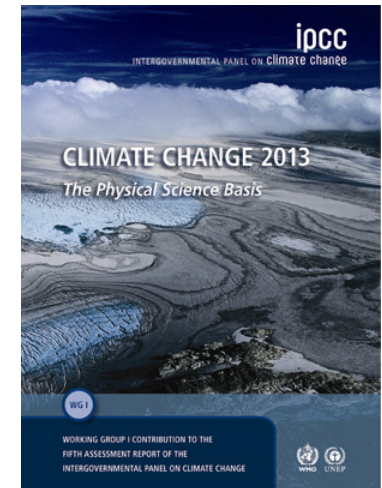
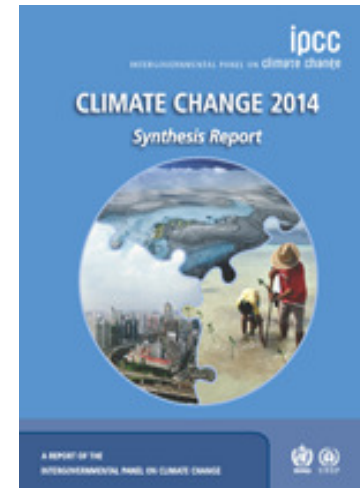
GDP per
capita in 2014
(PPP)
(\$ x 1000)





The importance of the IPCC

- An assessment of the current literature
- Policy relevant, not policy prescriptive
- 195 parties signed up to the findings





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Gathering and using evidence

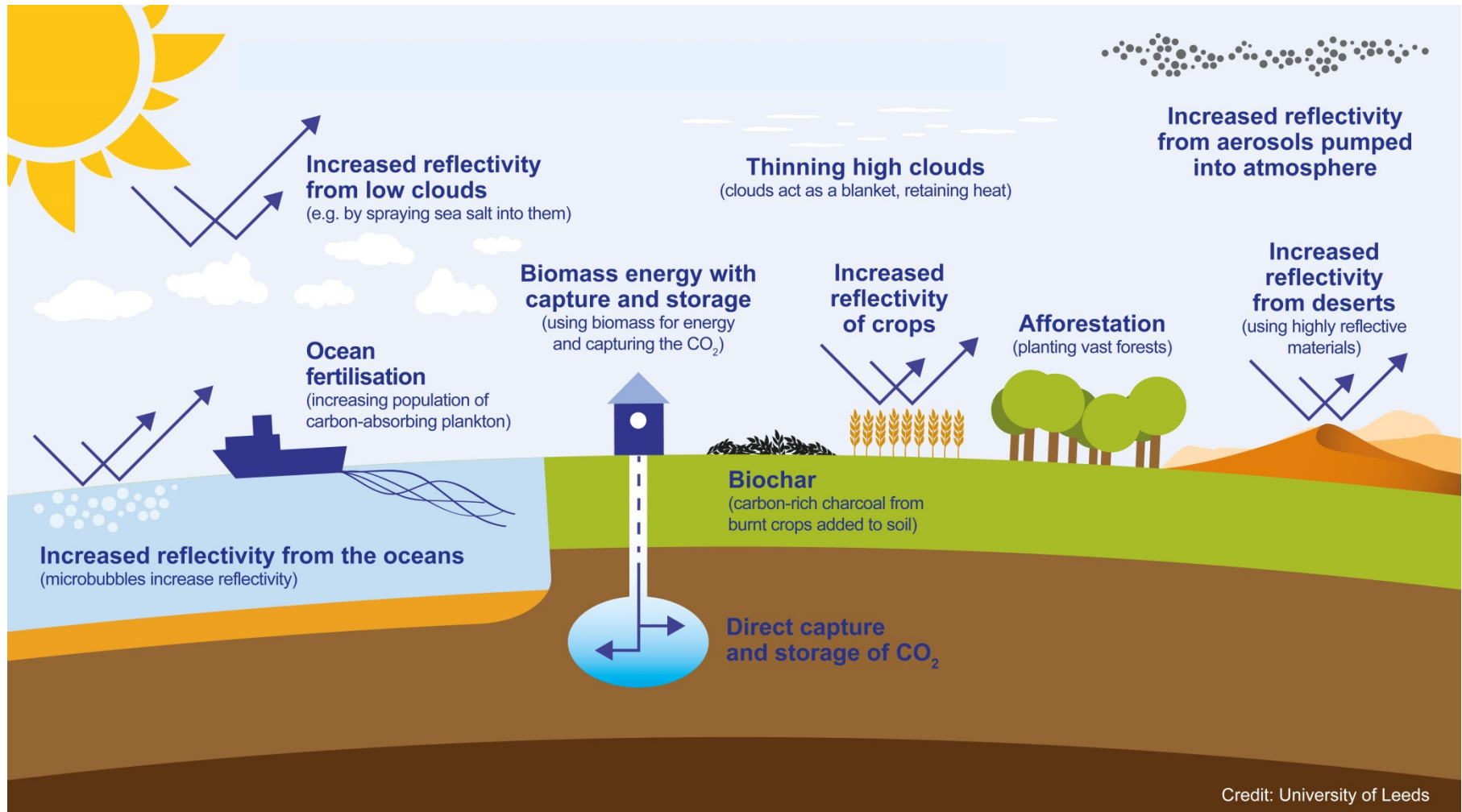


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Example 1: A new and controversial area



Geoengineering





Geoengineering: considerations

Efficacy

Technical
feasibility

Costs

Side effects

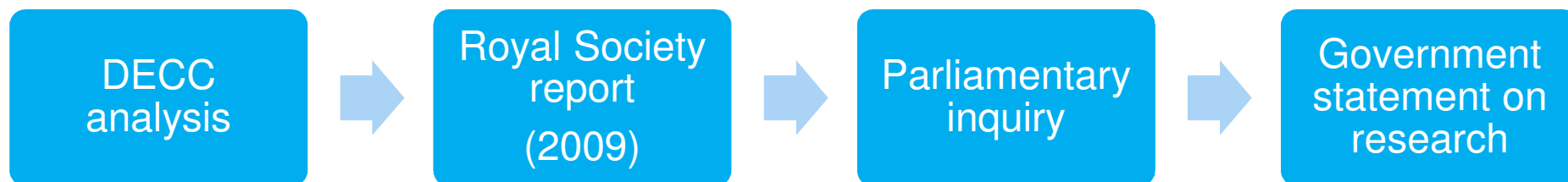
Legality

Ethics

Social
acceptability

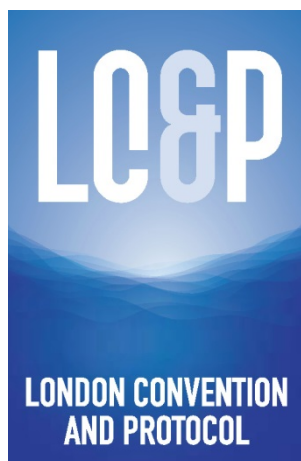
Reversibility

Forming policy on research



Government response

Cross-Government
working group



Convention on
Biological Diversity

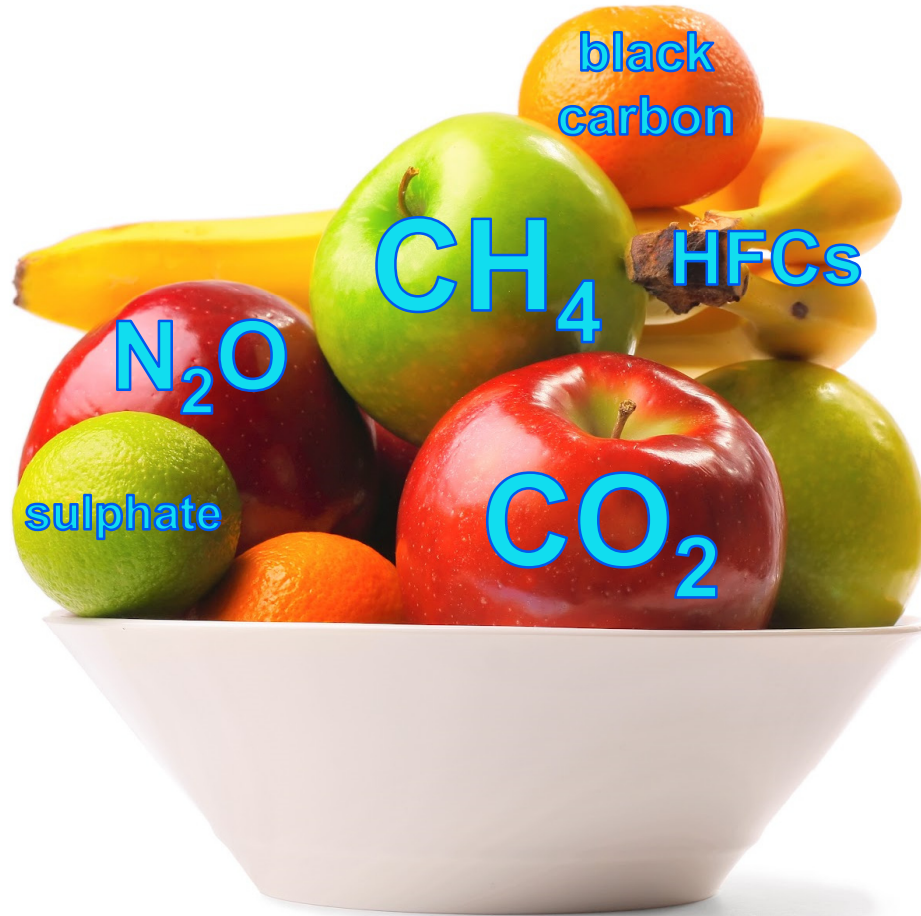


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Example 2: Combining science with value judgements



A basket of gases



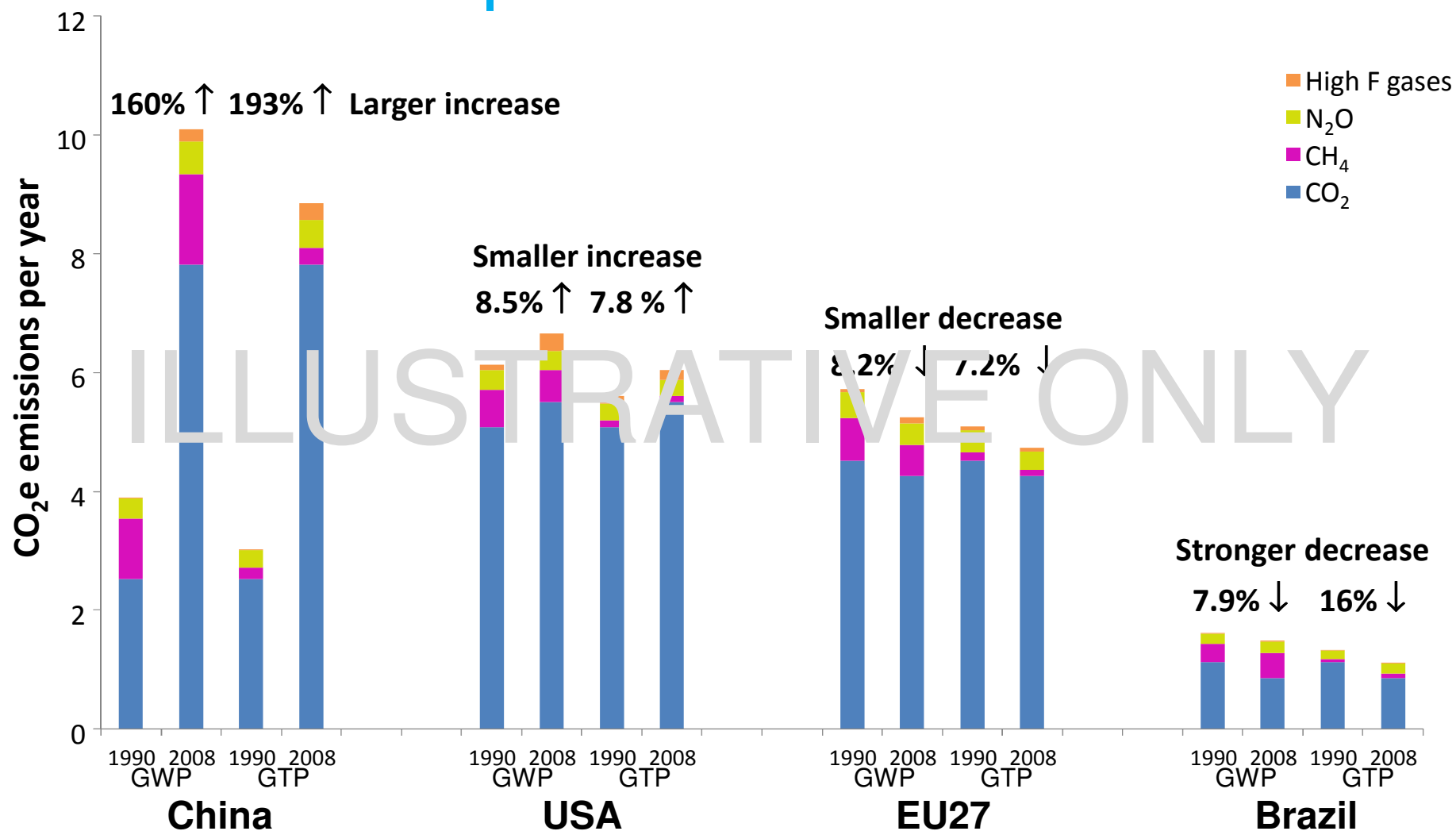


Choice of metric and time horizon

	GWP100		GWP20	GTP100
	SAR	AR5	AR5	AR5
CO ₂	1	1	1	1
CH ₄	21	28	84	4
N ₂ O	310	265	264	234
HFC23	11,700	12,400		12,700
SF ₆	23,900	23,500		28,200
NF ₃	-	16,100		18,100
Other HFCs	140 – 9,200	1-8,060		19 – 12,700



The impact of choice of metric





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Example 3: Science in the Paris Agreement

The Paris Agreement: an overview



- **A historic step forward:** almost 200 countries committing to climate change action to which they will be held to account
- **National commitments:** not yet on a cost-effective 2°C trajectory but a major deviation from business as usual
- A framework for revisiting and **raising ambition in the future**
- A long-term goal of **net zero emissions** in the second half of the century

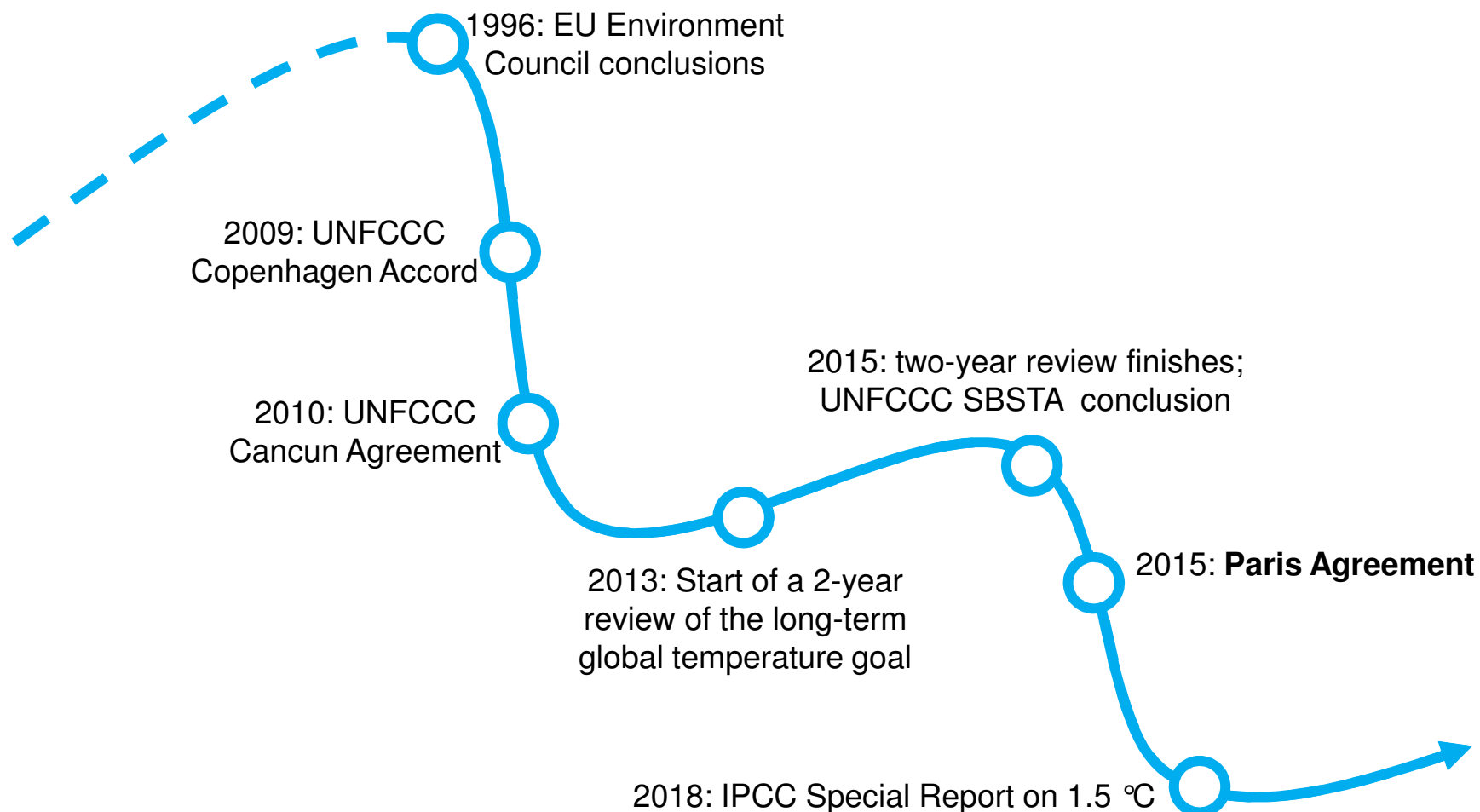


The long-term goal in the Paris Agreement

*“...aims to ... [hold] 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...” (Article 2)*

“...to undertake rapid reductions ... to achieve a balance between anthropogenic emissions by sources and removal by sinks of greenhouse gases in the second half of this century...” (Article 4)

The long-term temperature goal: A potted political history

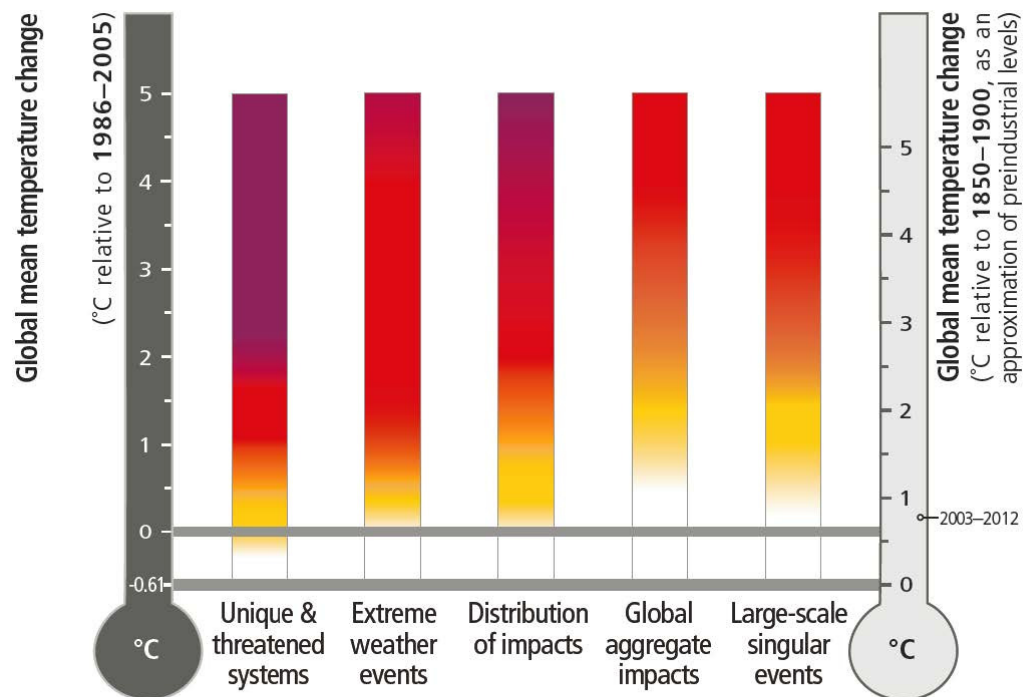




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The Paris Agreement and the long-term goal: Future evidence needs

Impacts at 1.5/2/2.5 °C

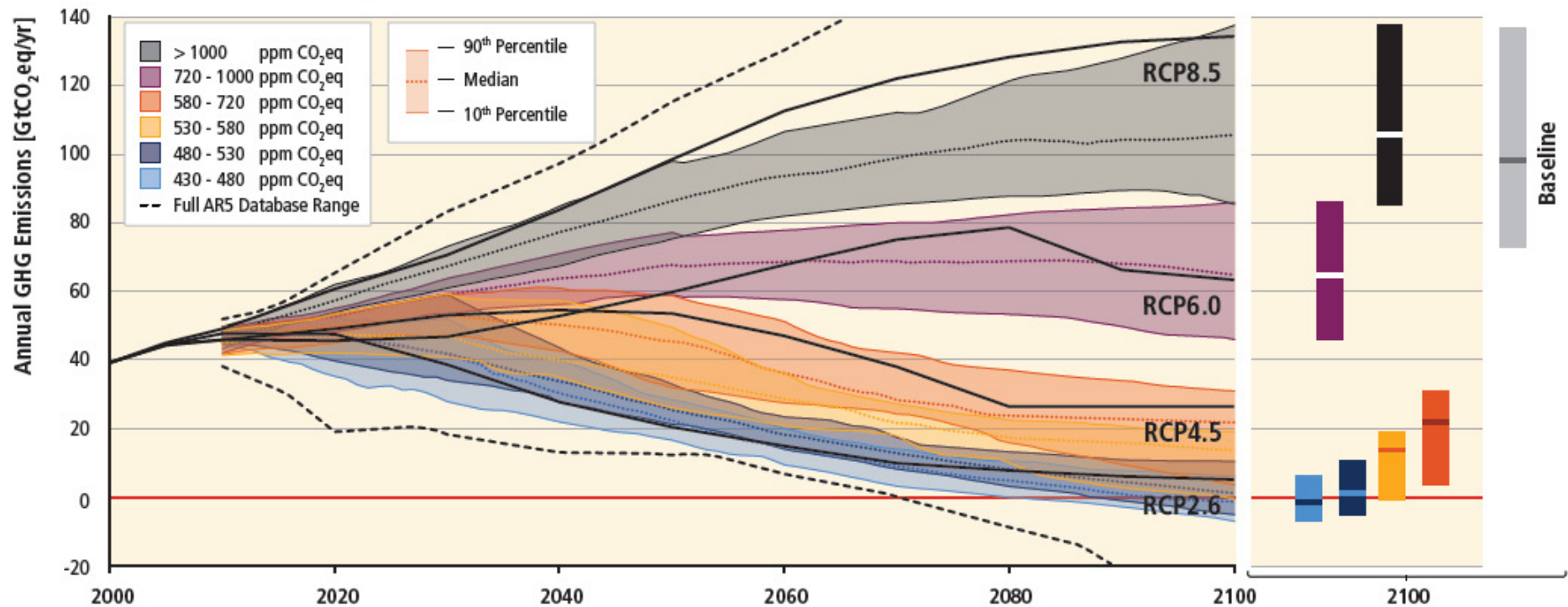


From IPCC AR5 WGII



Actions and targets

GHG Emission Pathways 2000-2100: All AR5 Scenarios



IPCC AR5 WGIII, Summary for Policymakers



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Feasibility, challenges and risks



MISSION INNOVATION
Accelerating the Clean Energy Revolution



Regional/country implications of 1.5°C





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Final remarks



The big picture

Interdisciplinary collaboration

Good communication!



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