



the London School of **Economics**
and **Political Science**



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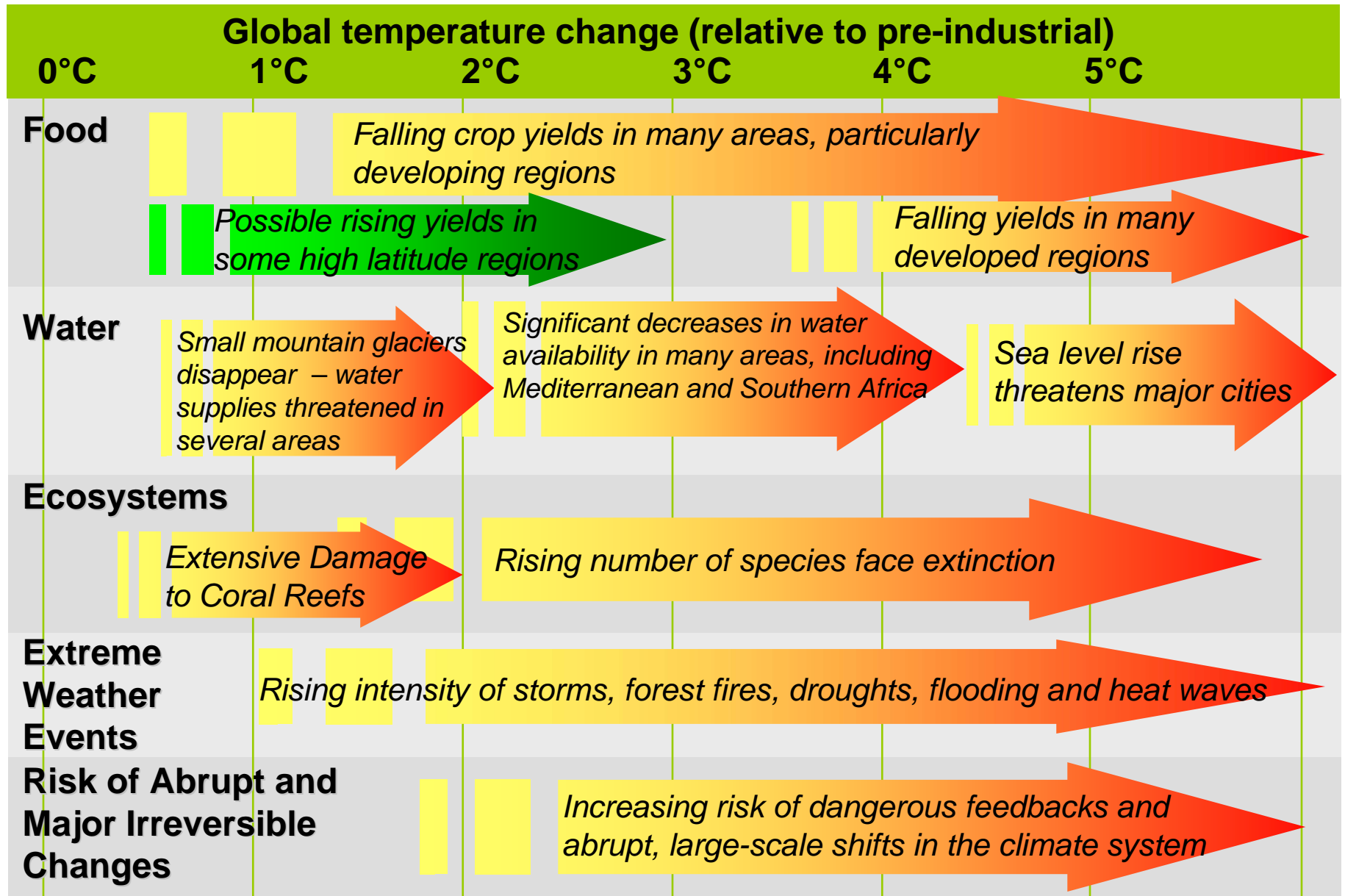


Key Elements of a Global Deal

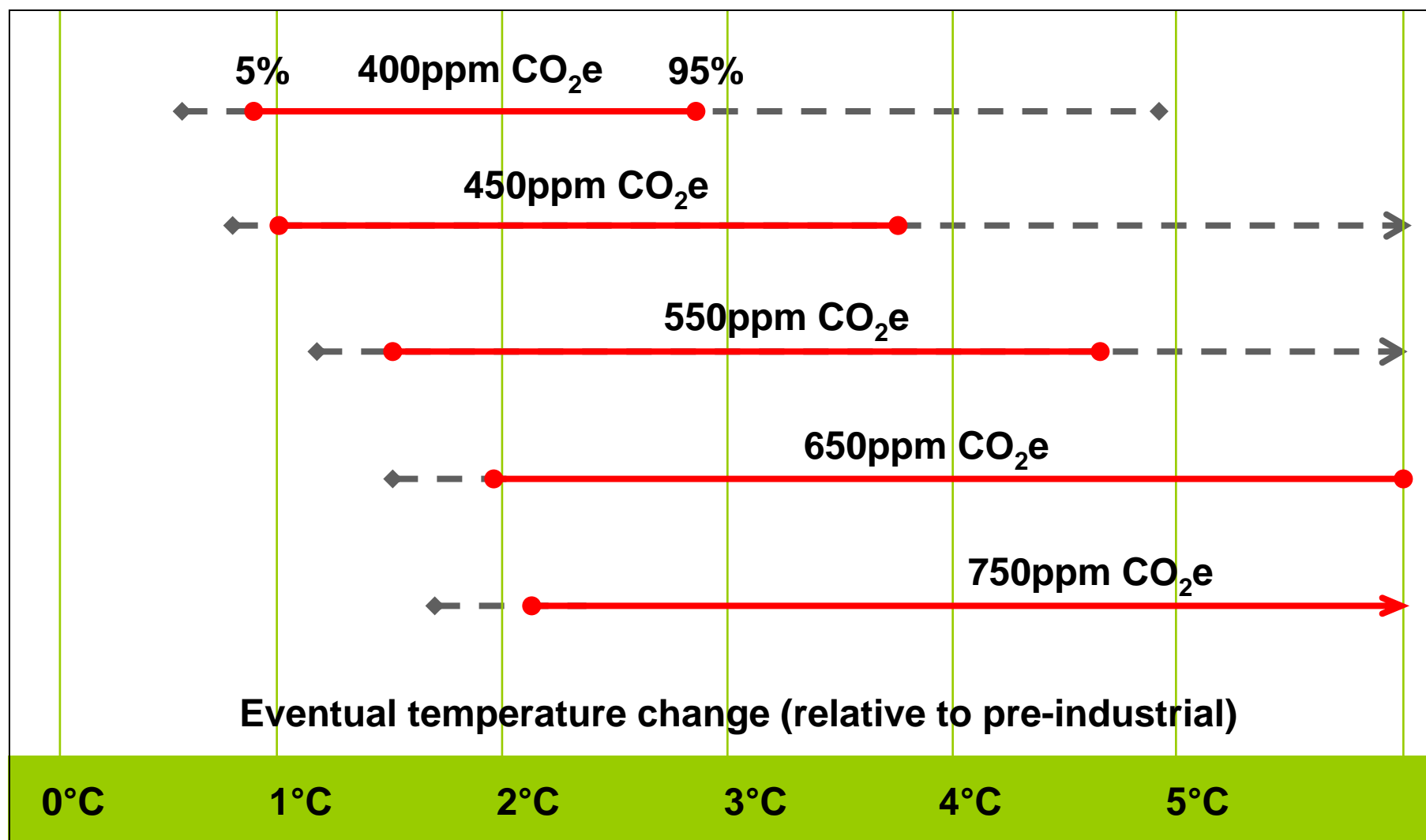
Economics of Climate Change

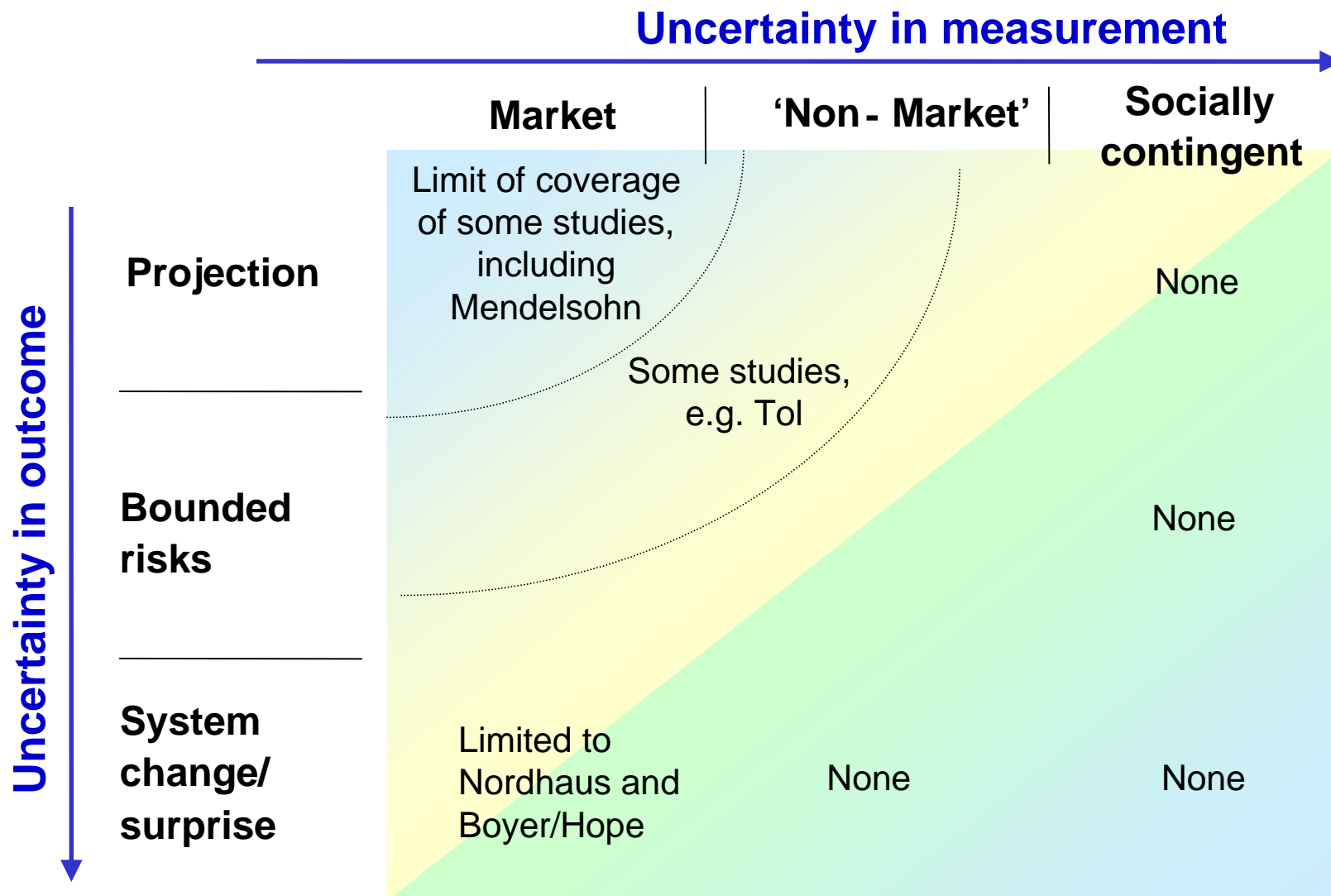
Dimitri Zenghelis
The American Response to Climate Change Conference
The Wild Center
June 25 & 26, 2008

Projected impacts of climate change



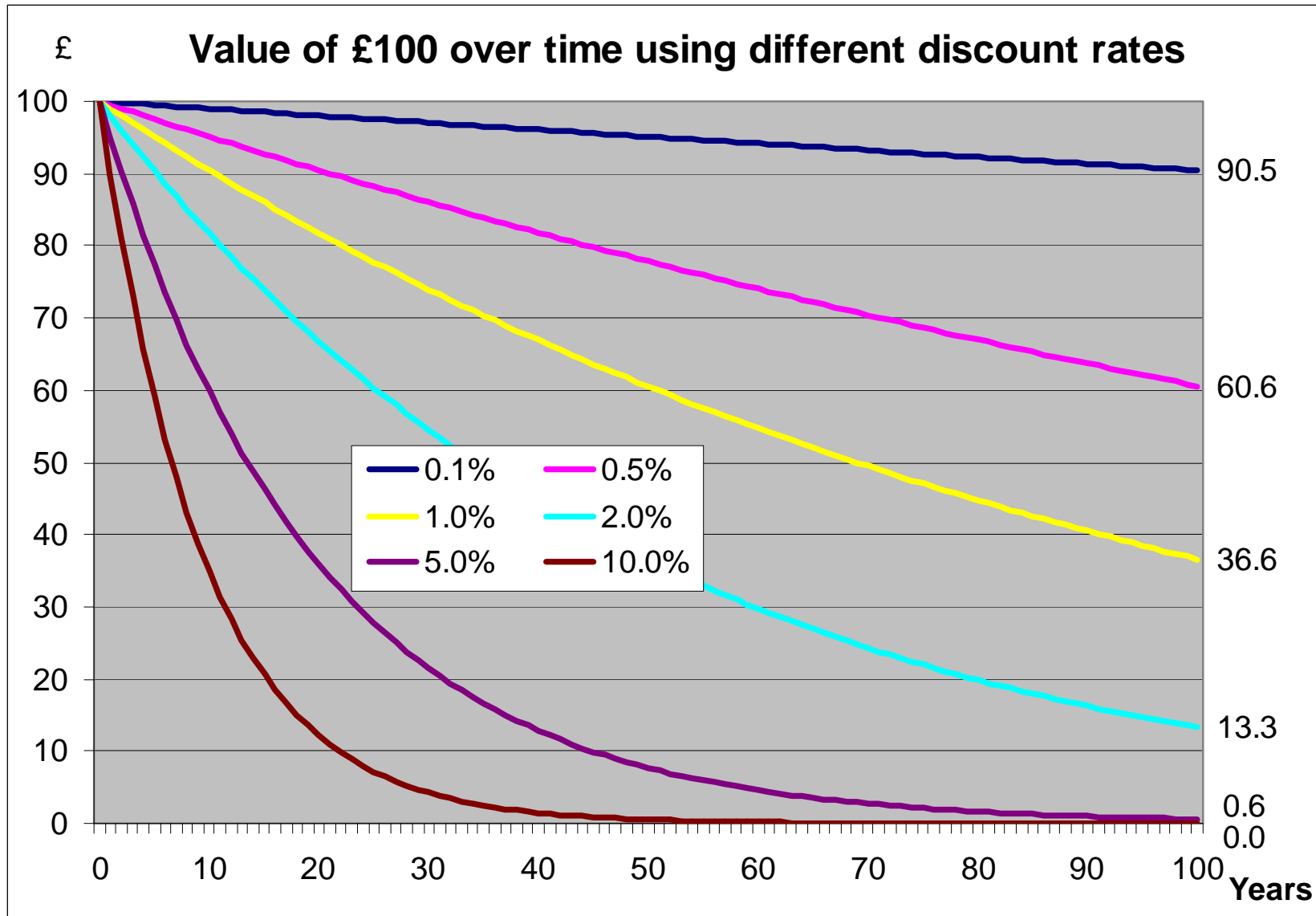
Stabilisation and eventual change in temperature



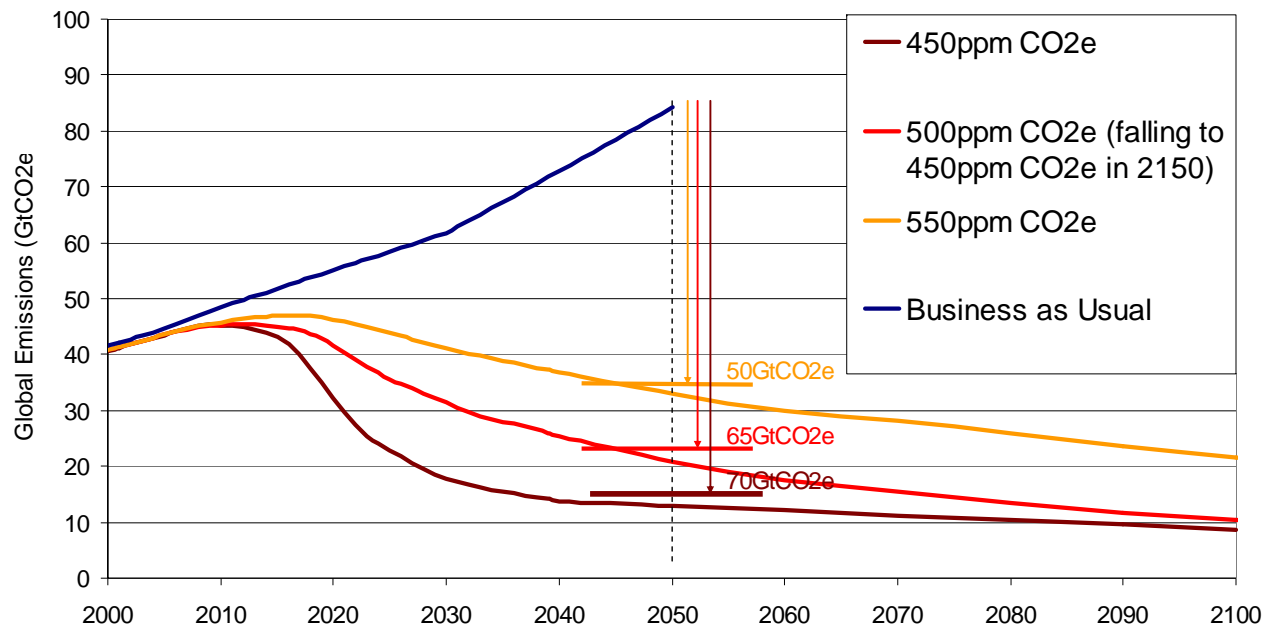


***Models only have partial coverage of impacts
Values in the literature are a sub-total of impacts***

Sensitivity analysis: discounting



Delaying mitigation is dangerous and costly



Stabilising below 450ppm CO₂e would require emissions to peak by 2010 with 6-10% p.a. decline thereafter.

If emissions peak in 2020, we can stabilise below 550ppm CO₂e if we achieve annual declines of 1 – 2.5% afterwards. A 10 year delay almost doubles the annual rate of decline required.

Mitigation policy instruments

- Pricing the externality- carbon pricing via tax or trading, or implicitly through regulation
- Bringing forward lower carbon technology- research, development and deployment
- Overcoming information barriers and transaction costs– regulation, standards
- Promoting a shared understanding of responsible behaviour across all societies – beyond sticks and carrots

Three 'E's

- **Effectiveness:** The frameworks avoid dangerous climate change
- **Efficiency:** mitigation should be undertaken where it is **cheapest**, with markets playing a central role in determining type and origin of mitigation
- **Equity:** mitigation should be paid for on the basis of **fairness** - this is as shared problem with differential responsibilities, ('reservoirs', targets and one-sided trading)

Note demand/supply dichotomy: separate out where mitigation takes place from who pays for it!

Efficiency

Least cost options mean global in scope

- **Efficient institutions** and implementation mechanisms
- Broadly uniform, **credible, long term, global price** for the externality
- carbon pricing via tax or trading (or implicitly through regulation)
- **Financial and technology flows** - support to bring forward lower carbon **technology**- research, development and deployment
- **Overcoming information barriers** and transaction costs – regulation, standards
- Promoting a **shared understanding** of responsible behaviour across all societies – beyond sticks and carrots

Basic arithmetic

- Current 40-45 GtCO₂e p.a.
- **50% reduction by 2050 requires per capita global GHG emissions of 2-3T/capita** (20-25 Gt divided by 9 billion population)
- Currently US ~ 20+, Europe ~10+, China ~5+, India ~2+ T/capita
- **At the COP15 meetings in 2009, developed countries should commit to cutting emissions by 80-90% from 1990 levels by 2050 together with credible interim targets**
- Many developing countries would have to cut strongly too if world average of 2-3 T/capita is to be achieved

Effectiveness - commitments

All countries will eventually need to take on binding national targets

- G8 Heiligendamm – **50% by 2050 (consistent with stabilisation ~ 500ppm CO₂e)**
- California (and US under e.g. H. Clinton) - 80% from 1990 levels by 2050
- France – 75% by 2050 (Factor 4), relative~1990
- EU Spring Council: 60-80% by 2050 & 20-30% by 2020, relative~1990
- Germany – 40% by 2020, relative~1990

Equity

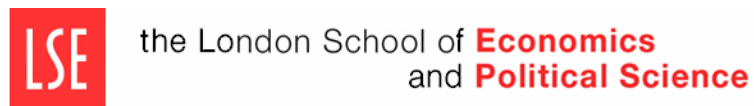
- **Developed countries** will need to take on **immediate binding national emissions targets**
- **Developing countries should be at the forefront** of work to shape a global deal...
- **Developed countries** must **demonstrate** that they can achieve low carbon growth, and transfer resources and technologies to developing countries
- **Developing countries** take on binding national targets of their own **by 2020**
- **Developing countries must draw up emissions reduction plans now**, and be able to benefit from scaled-up opportunities to sell emissions reduction certificates

Implementation & institutions

- Put principles to work in the run up to the UNFCCC COP in Copenhagen in 2009 and to guide national governments
- Three key phases of implementation:
 1. **Copenhagen 2009**: determine international targets; establish developed country caps; set developing country responsibilities
 2. **2010-2020**: build effective and cooperative institutions on finance and technology as a basis for establishing developing country caps. Coordinate heterogeneous measures. Bottom-up links
 3. **post-2020**: all countries form part of an international cap-and-trade system and adhere to technological agreements

Institutions: long-term yet flexible, not overly prescriptive, reflecting the current world community, promote trust.

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