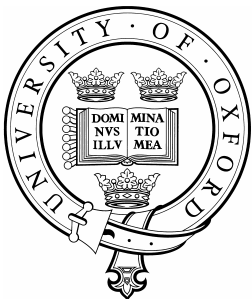


# Climate economics post Stern

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**11 April 2007, Prague**

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Senior Research Fellow, Oxford Institute of Energy Studies  
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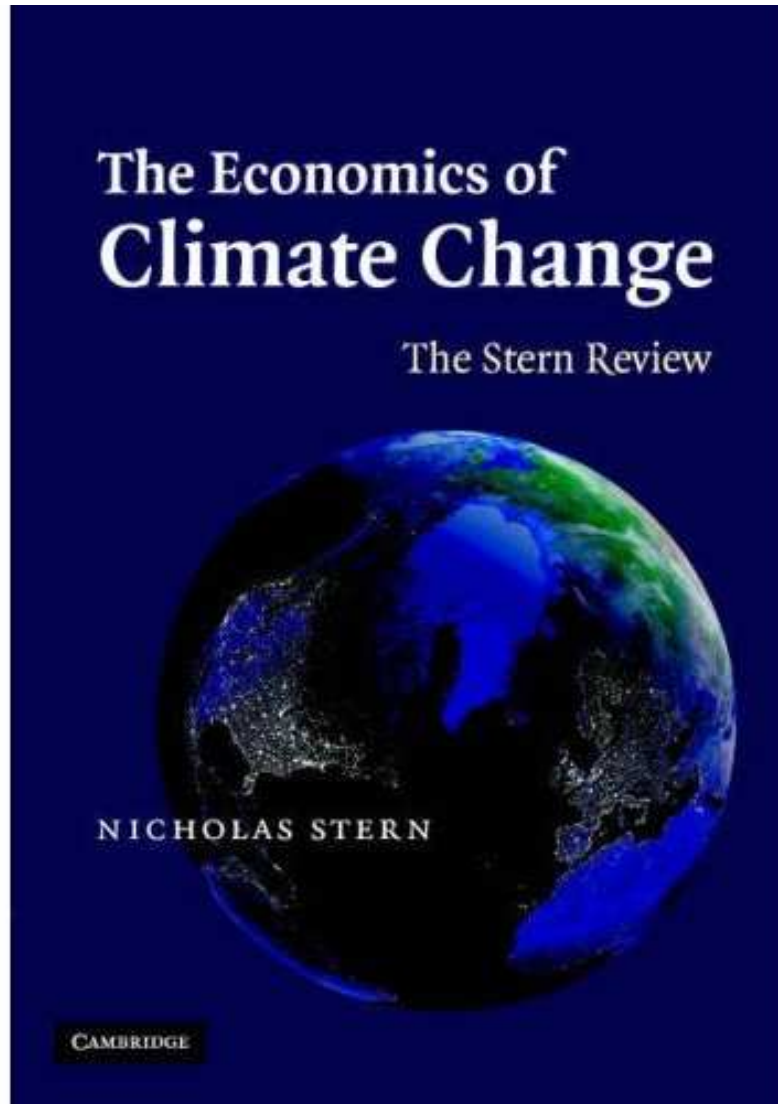


# Presentation structure

1. Stern headlines
2. The magic of climate economics
3. Climate policy post Stern
4. Climate economics post Stern
5. Concluding thoughts



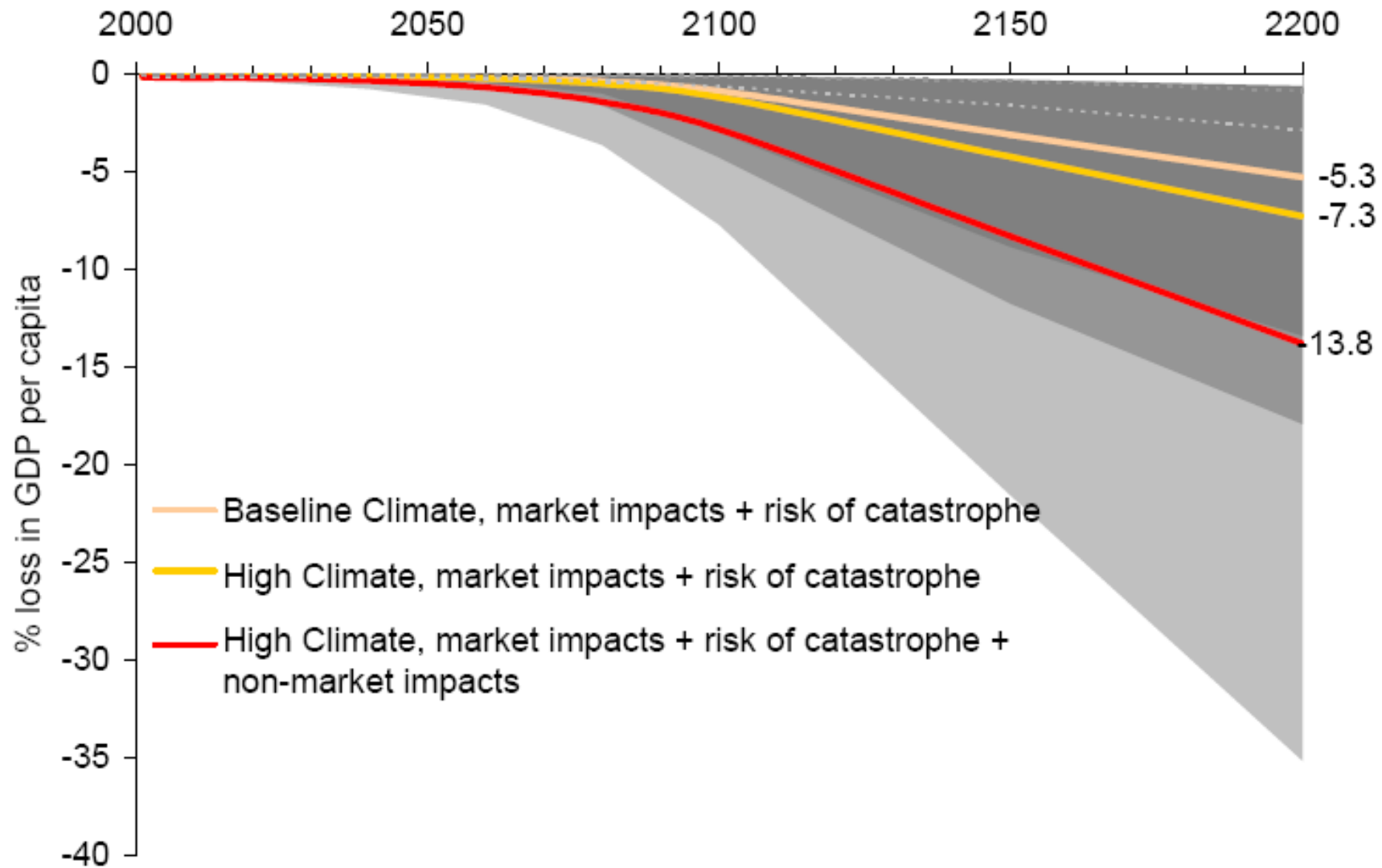
# 1. Stern headlines



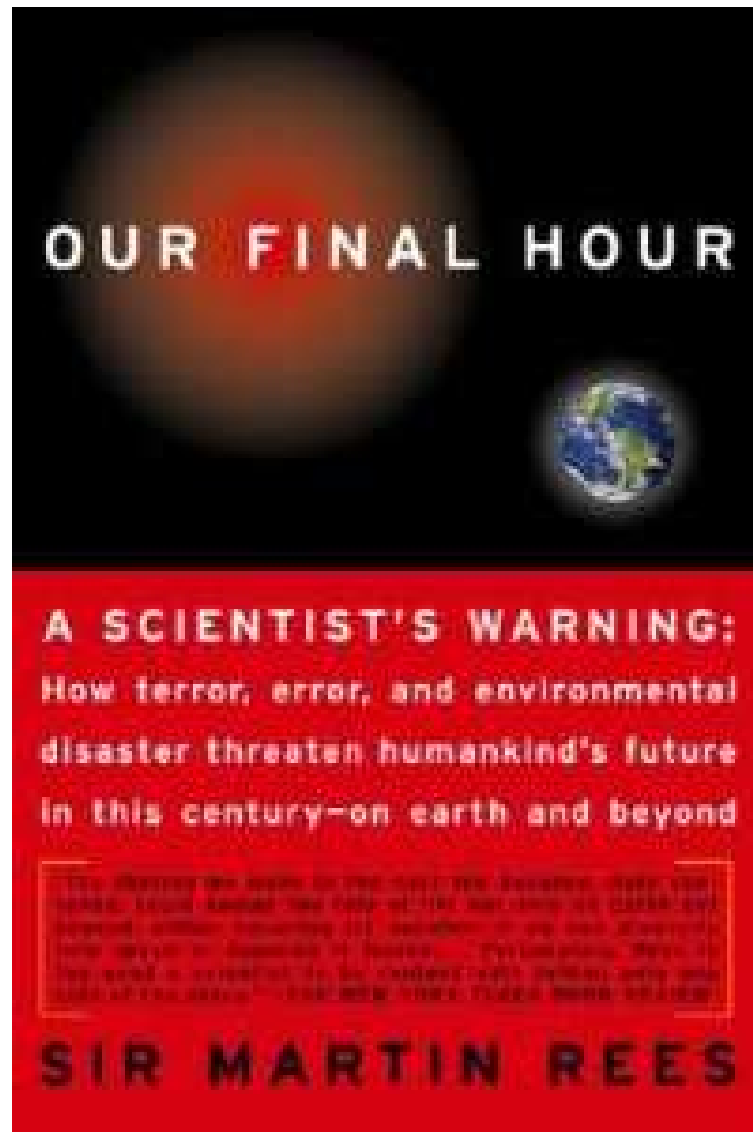
*If we don't act, the overall costs and risks of climate change will be **equivalent to losing at least 5% of global GDP each year, now and forever**. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to **20% of GDP or more**.*

*In contrast, the costs of action – reducing greenhouse gas emissions **to avoid the worst impacts** of climate change – can be limited to around **1% of global GDP each year**.*

# Losses over two centuries



# Lord Rees: Our final century?



*Humanity is more at risk than at any earlier phase in its history. The wider cosmos has a potential future that could even be infinite. But will these vast expanses of time be filled with life, or as empty as the Earth's first sterile seas? The choice may depend on us, this century.*

# Would you bet on our survival?

## Rees (2003)

*“I think the odds are no better than fifty-fifty that our present civilisation on Earth will survive to the end of the present century.”*

50/50

## Stern (2006)

*A 10% chance of extinction by the end of the century “seems high”*



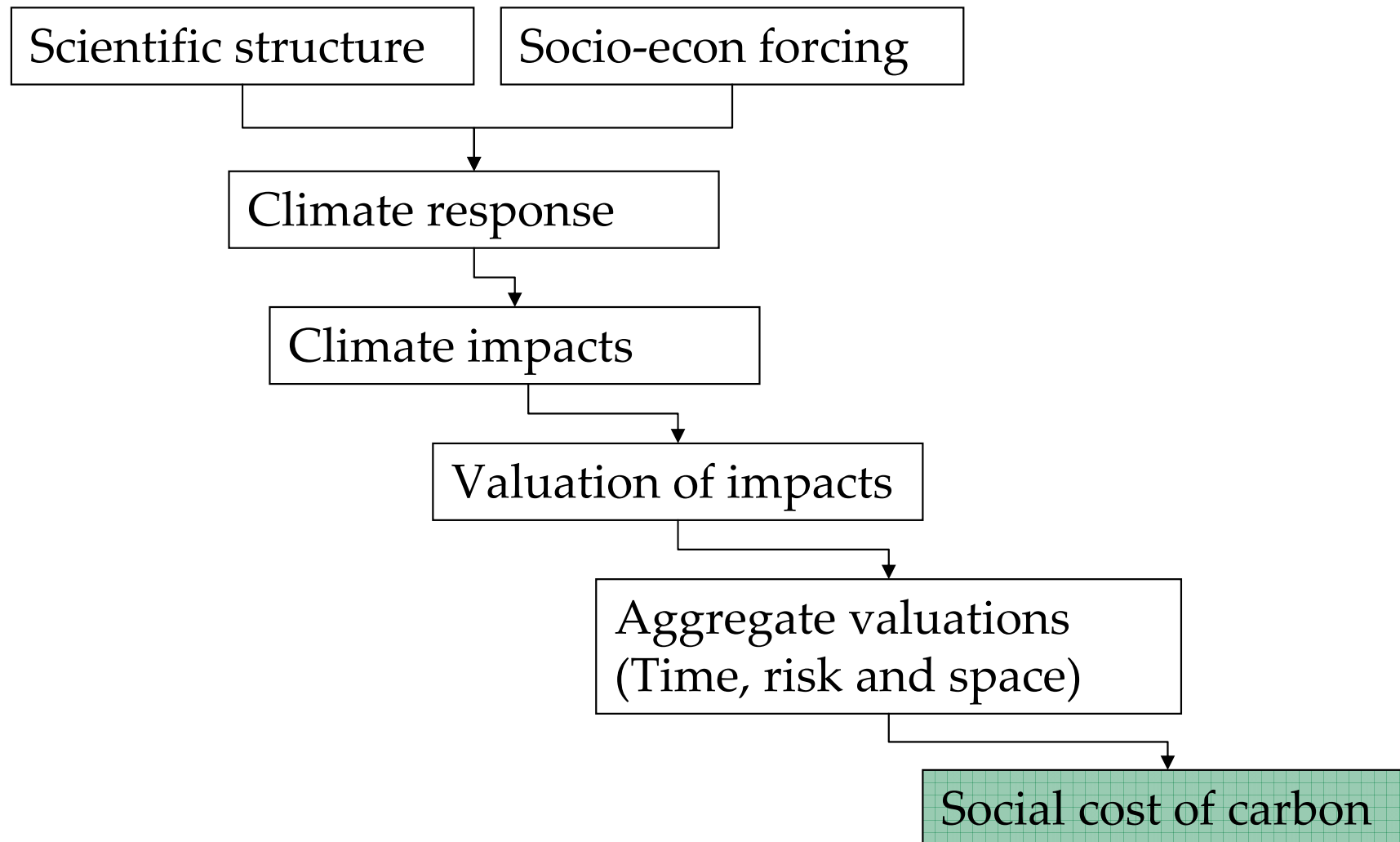
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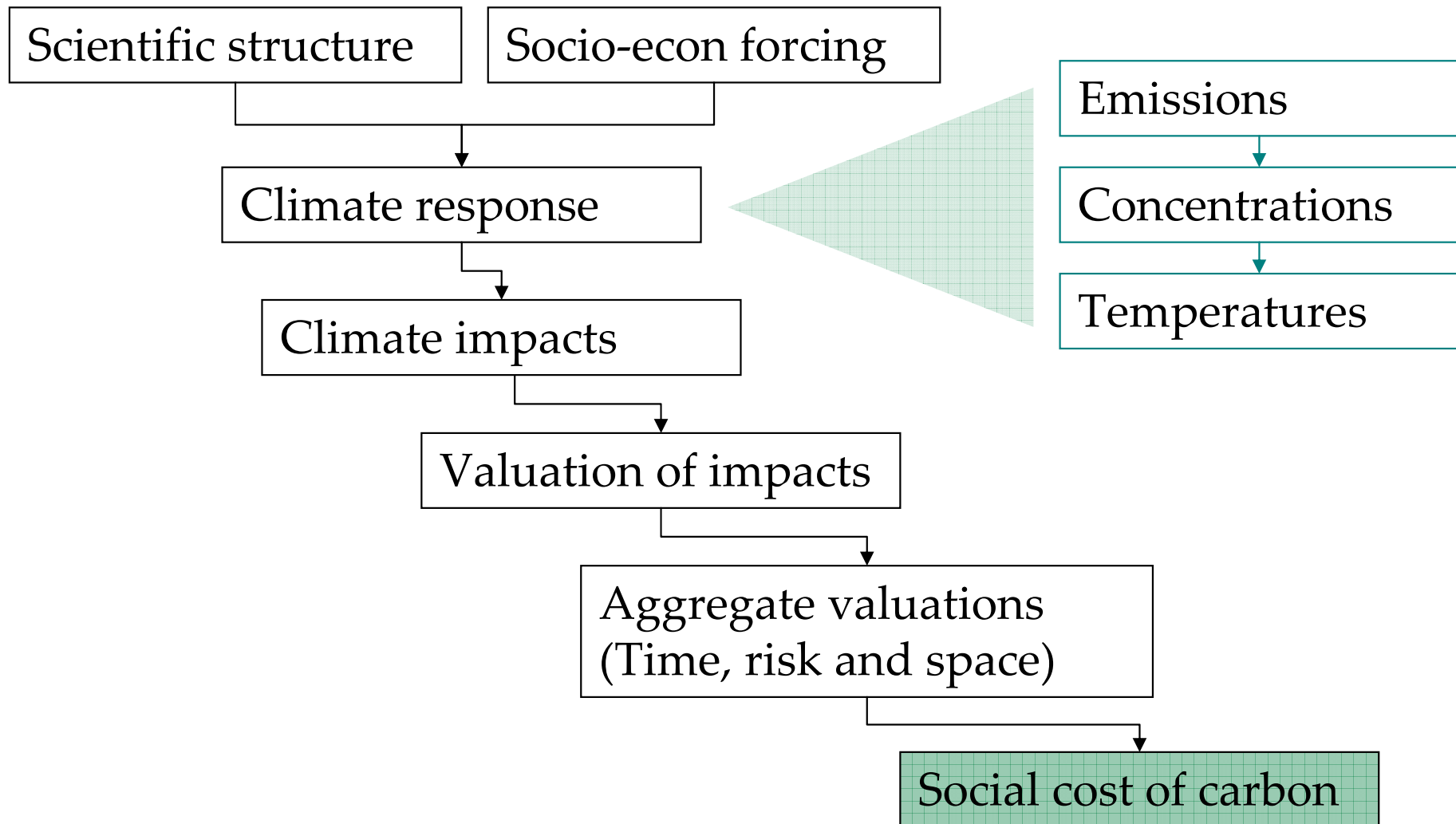


## 2. The magic of climate economics

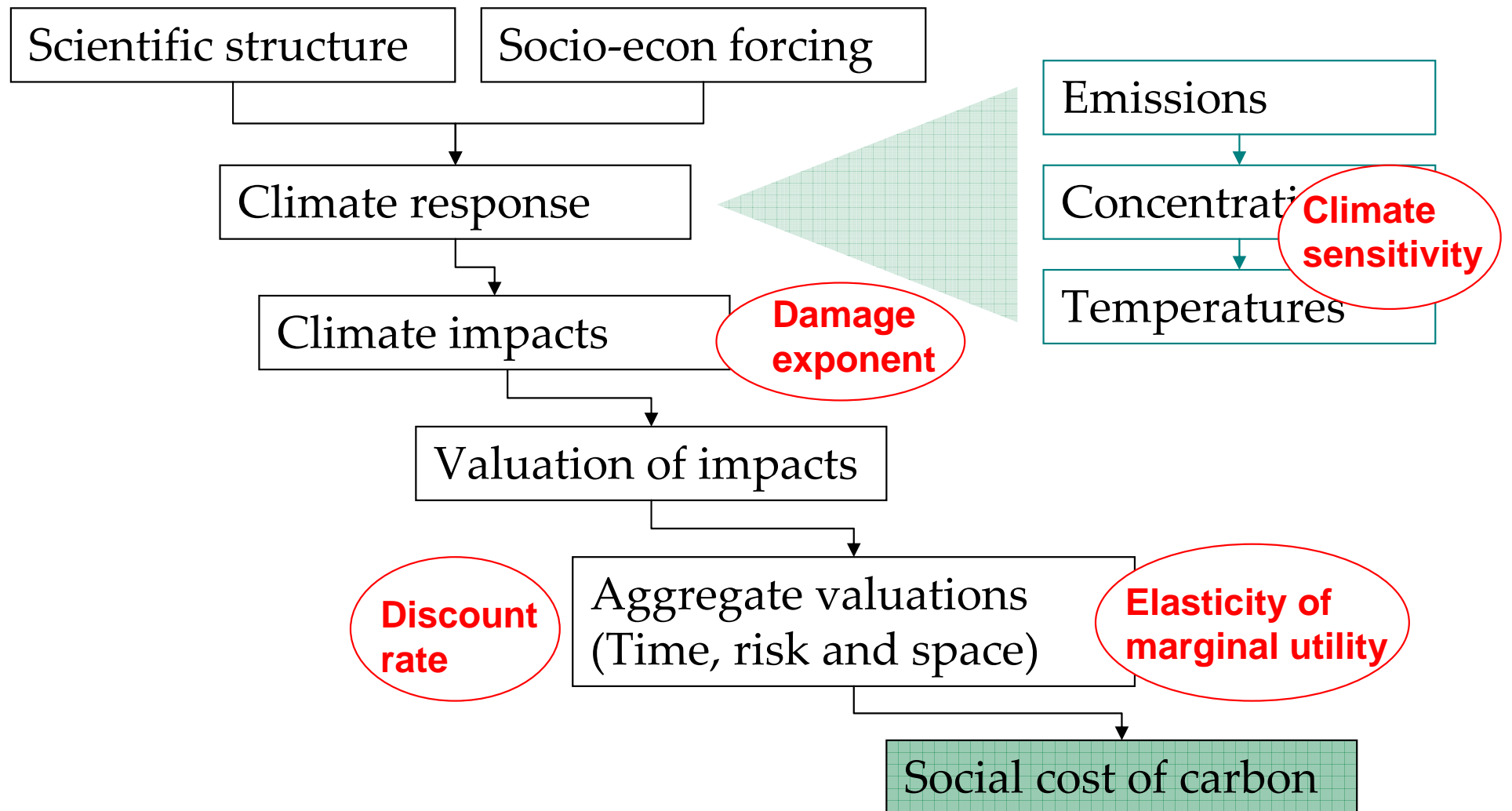
- What should we do about climate change? How should we do it?



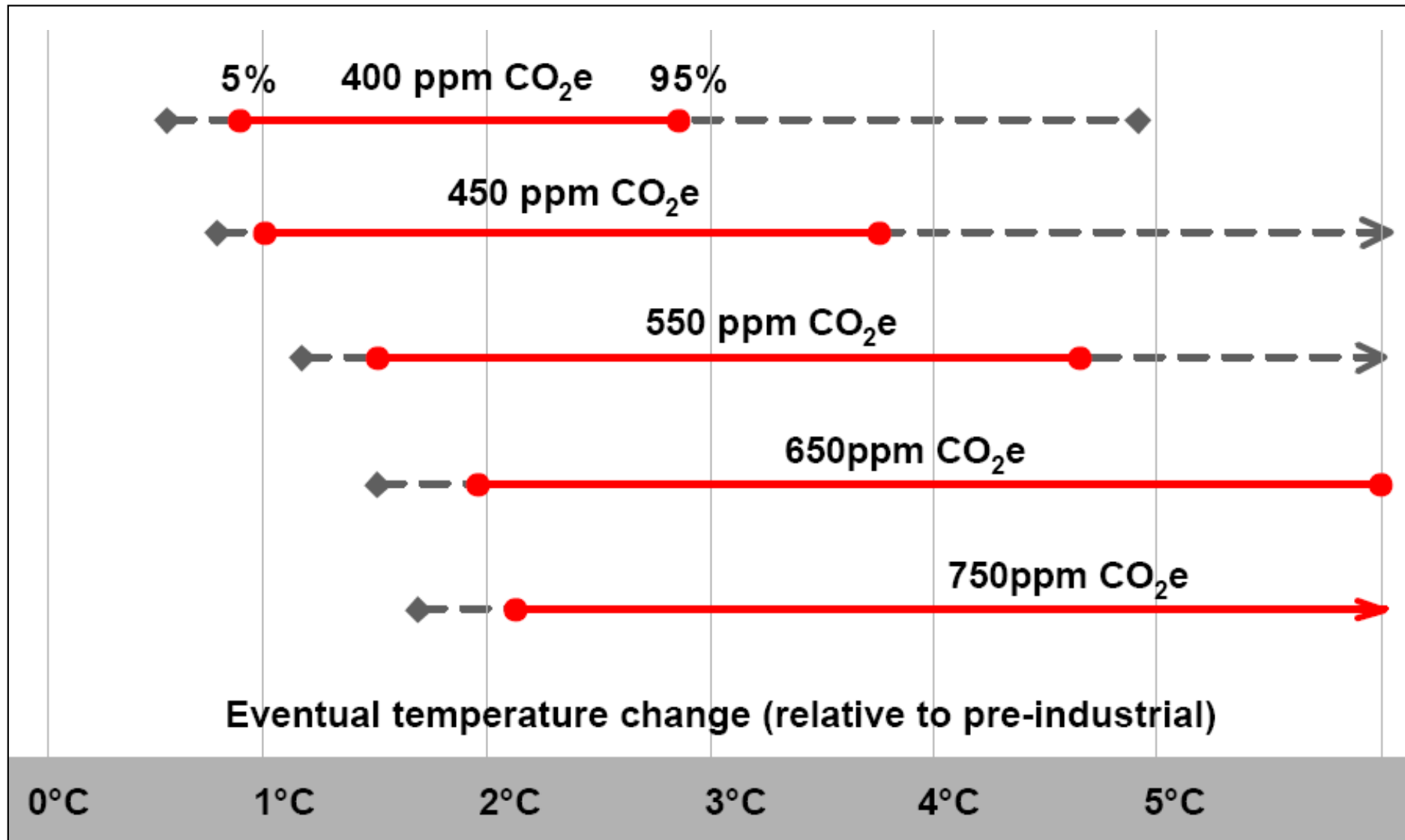
# Climate economic modelling



# Climate economic modelling



# Climate sensitivity



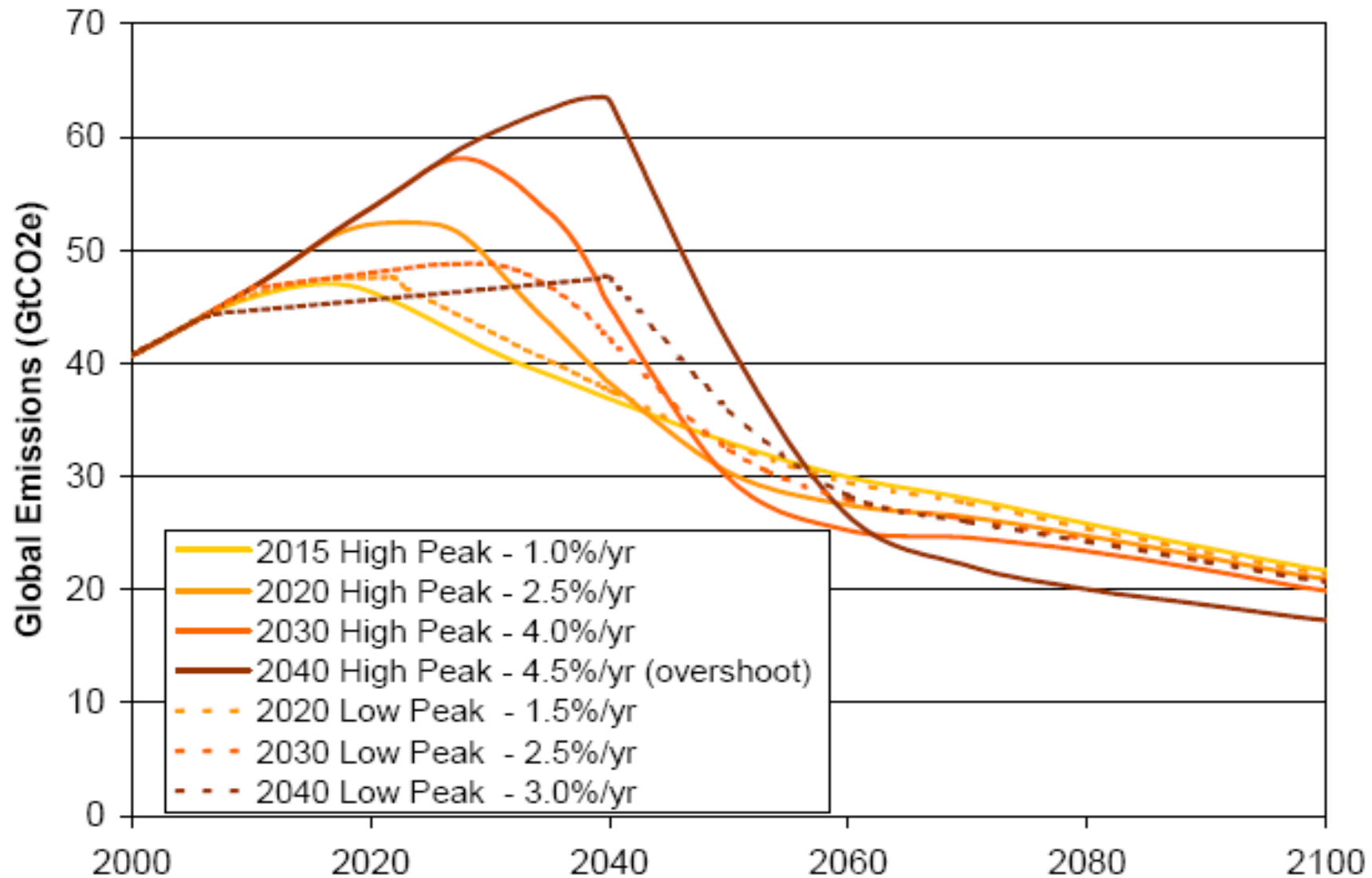
# Presentation structure

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### 3. Climate policy post Stern

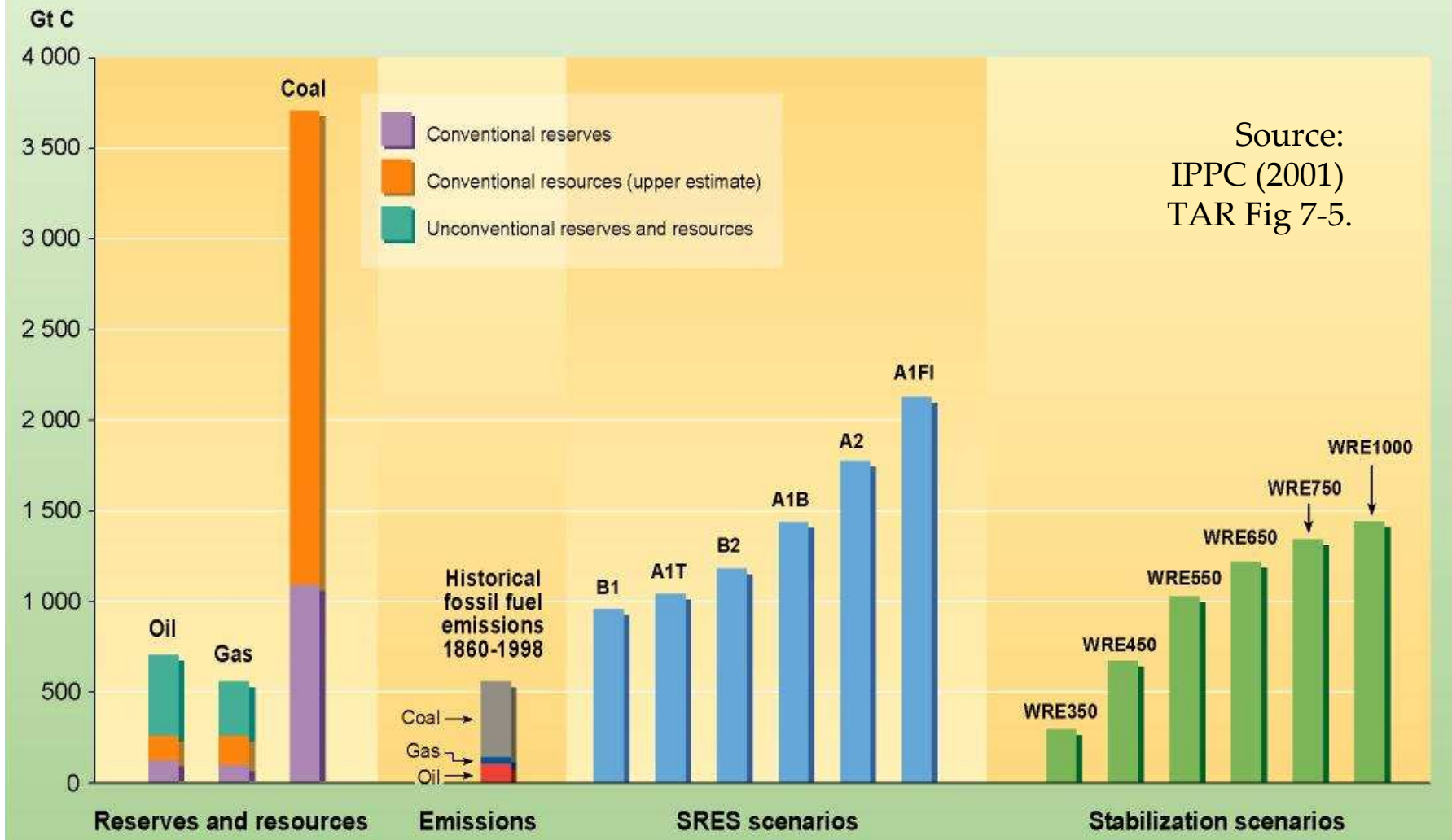
- Build **shared understanding** around an agreed global target
  - Stern recommends below 550ppm
- Set a **credible target** emissions pathway (or corridor to allow for uncertainty)
  - Consider a cumulative emissions target
- Choose **instruments** to achieve the target
- Different countries will adopt different instruments backed by different **institutions**
- **Optimism** achieves more than pessimism

# Emission pathways to 550ppm



# The 'market' will not sort it out

Carbon in fossil fuel reserves and resources compared with historical fossil fuel carbon emissions, and with cumulative carbon emissions from a range of SRES scenario and TAR stabilization scenarios up until the year 2100



# Sometimes being tied up is good...

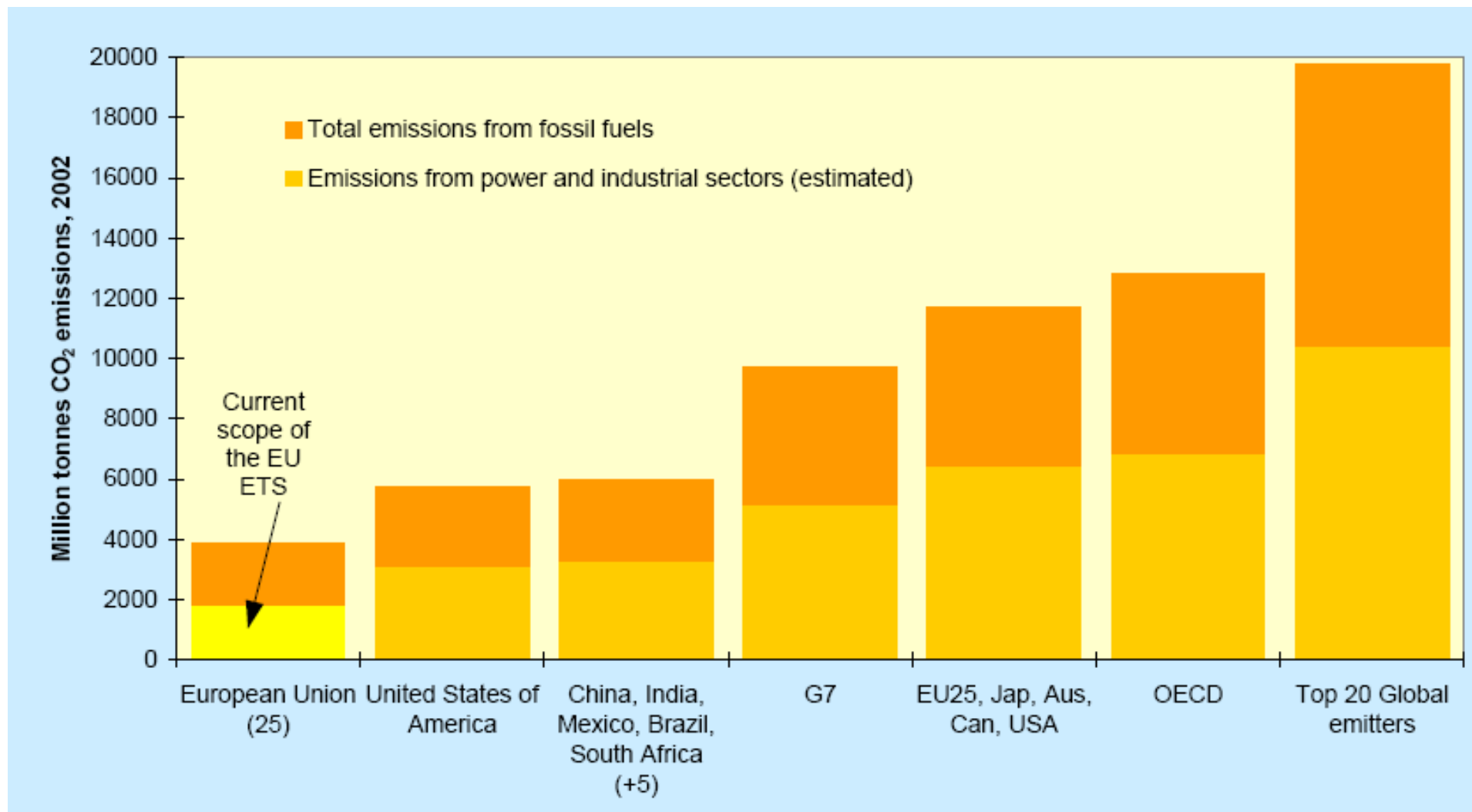


Passage devant le rocher des sirènes. Liebig 1914. Photo ©Maicar Förlag-GML

# The way ahead

1. **Carbon pricing** for the carbon externality
  - Global trading more potential than taxes, as:
    - Status quo bias and institutional inertia
    - Automatic transfers from rich to poor
    - Industry support
  - But countries will use ‘package of policies’ nationally that are likely to include taxes
2. **Technology policy** for the R&D externality

# Expand global emissions trading



# Correct the flaws in current EU ETS

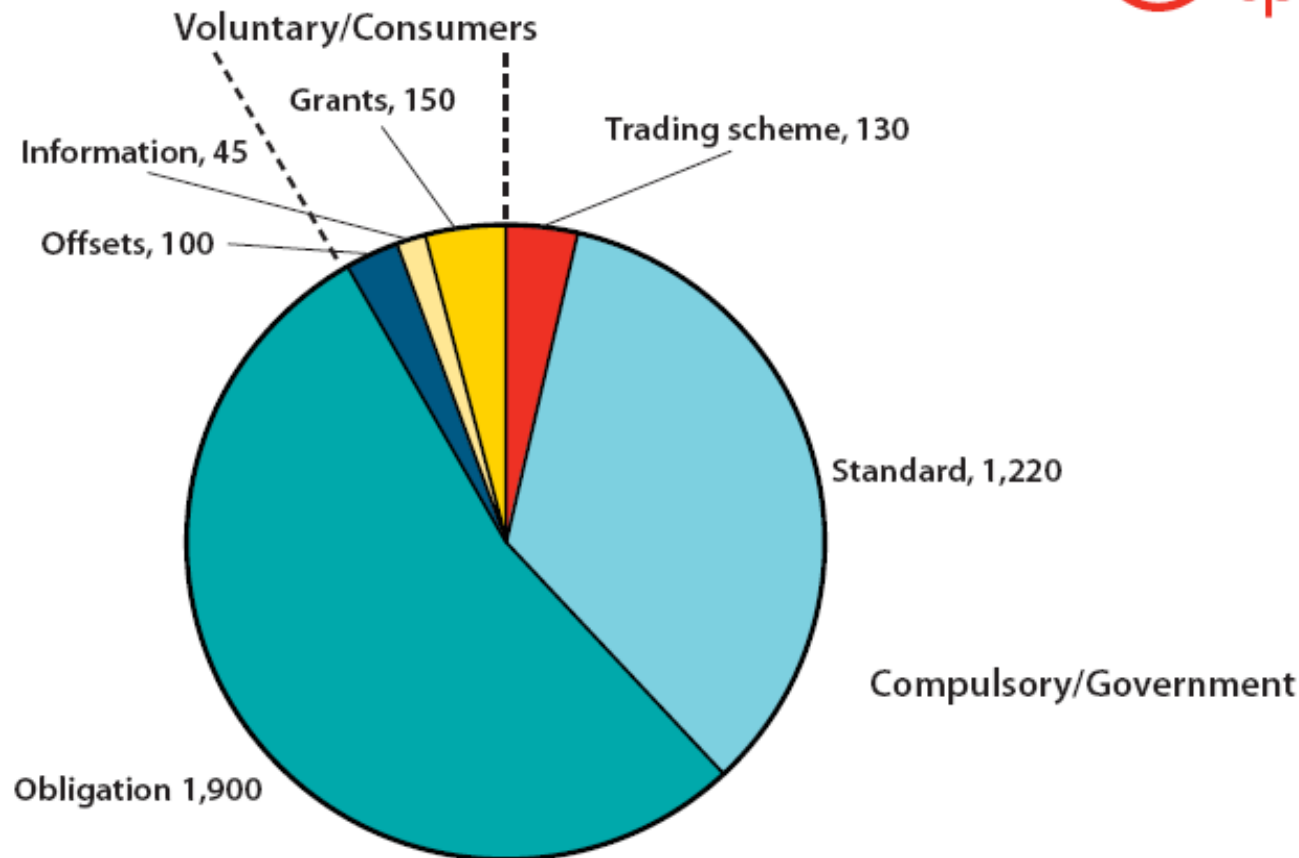
Improvements needed include:

- Longer-term trading periods
- Tigher caps to ensure scarcity
- More auctioning (at least benchmarking)
- Better information release
- Sector participation
- Link to other geographies
- Continue the CDM
  
- Share a bath??



# A massive business opportunity

: vivideconomics



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# 4. Climate economics post Stern

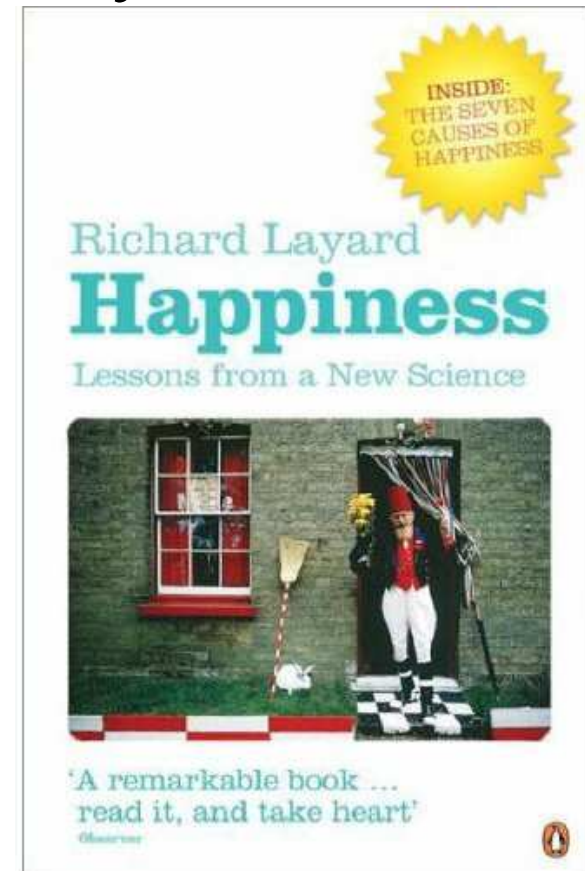


- Five important areas for research:
  1. What is our **real objective**?
  2. How do we choose between competing **ethical views** for long-range policy problems?
  3. How do we employ richer **behavioural** assumptions in climate economics?
  4. How should we deal with **ambiguity**?
  5. How can economics help design better **international agreements**?



# 1. What is our real objective?

- Boo to mindless consumerism
- Hooray for the 'experience economy'
- Shift to happiness economics





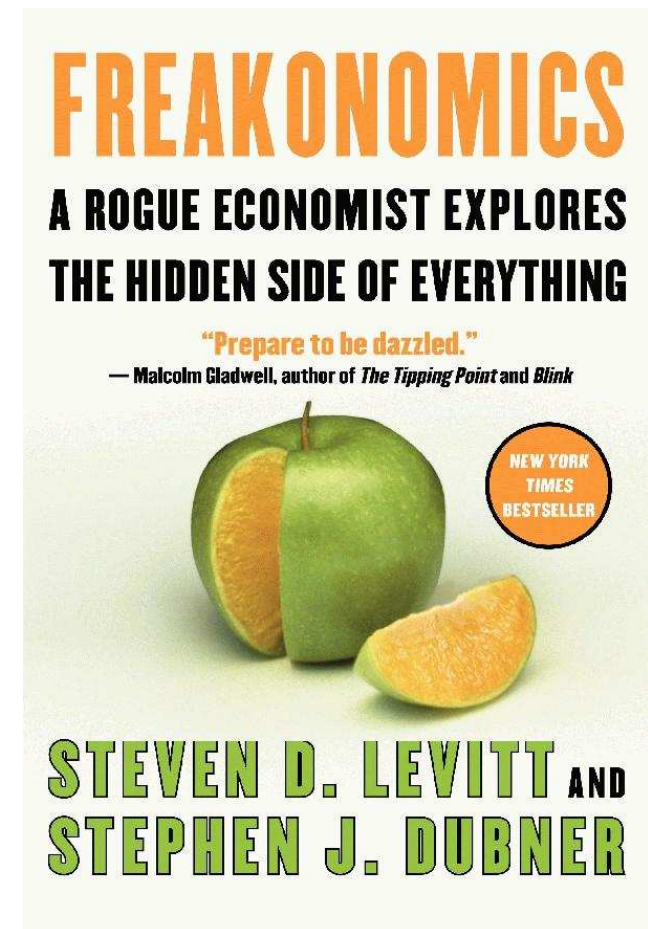
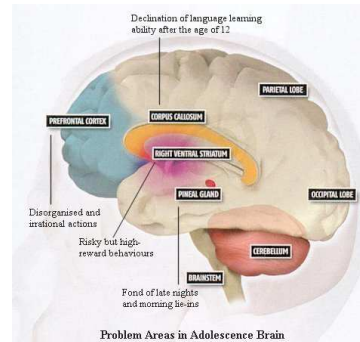
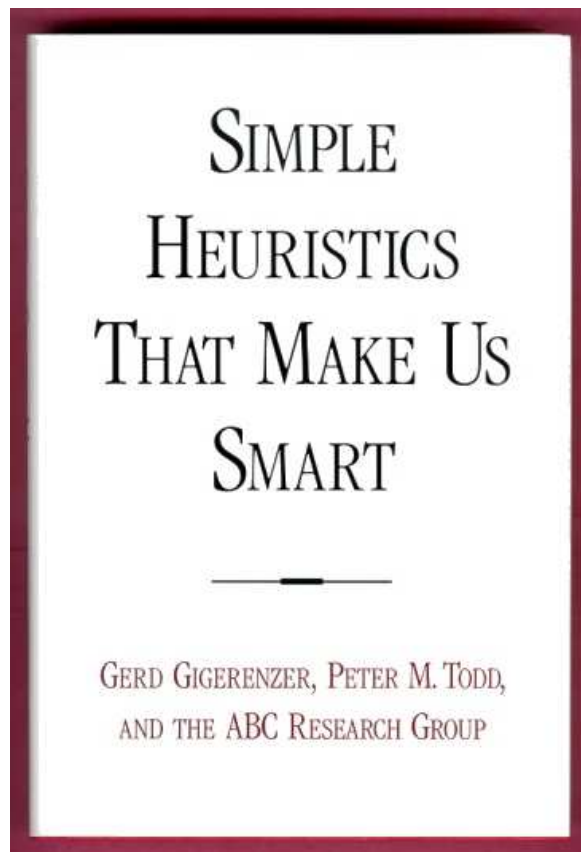
## 2. Ethical underpinnings

- Impersonal consequentialism?
  - Agent-relative ethics?
  - Duties?
  - Other approaches
- 
- Economics can help, but cannot decide
  - Assistance from moral philosophers is needed
  - Public debate on intergenerational justice is desirable



# 3. Behavioural economics

- We need to apply sophisticated understanding of real human behaviour to make good climate policy





# 4. Ambiguity

- Economics is very good at addressing risk (where probability distributions are known)
- But rather poor at addressing ambiguity (where we don't know the odds)
- Improvements in the theoretical literature over last few years (e.g. reinsurance)
- Two recent applications to climate change





# 5. International agreements

- International difficulties at the heart of the current negotiations
  - It is one enormous prisoner's dilemma
- Economics explains why climate negotiations are so difficult, but also provides insights into treaty design to encourage self-enforcement, participation and compliance
- Can also help explain 'first-mover advantages'

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# 5. Concluding thoughts

- Reactions to climate change:
  - Fear
  - Anger
  - “Your generation doesn’t care about my generation”
- Need to convert this reaction into an energised and optimistic response to the challenge
- Recognise the importance of sticks and carrots
- Work to increase shared understanding, build goodwill

# Thank you for listening!

