

Emissions trading: Much potential but can it deliver?

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The Challenge of Climate Change Workshop

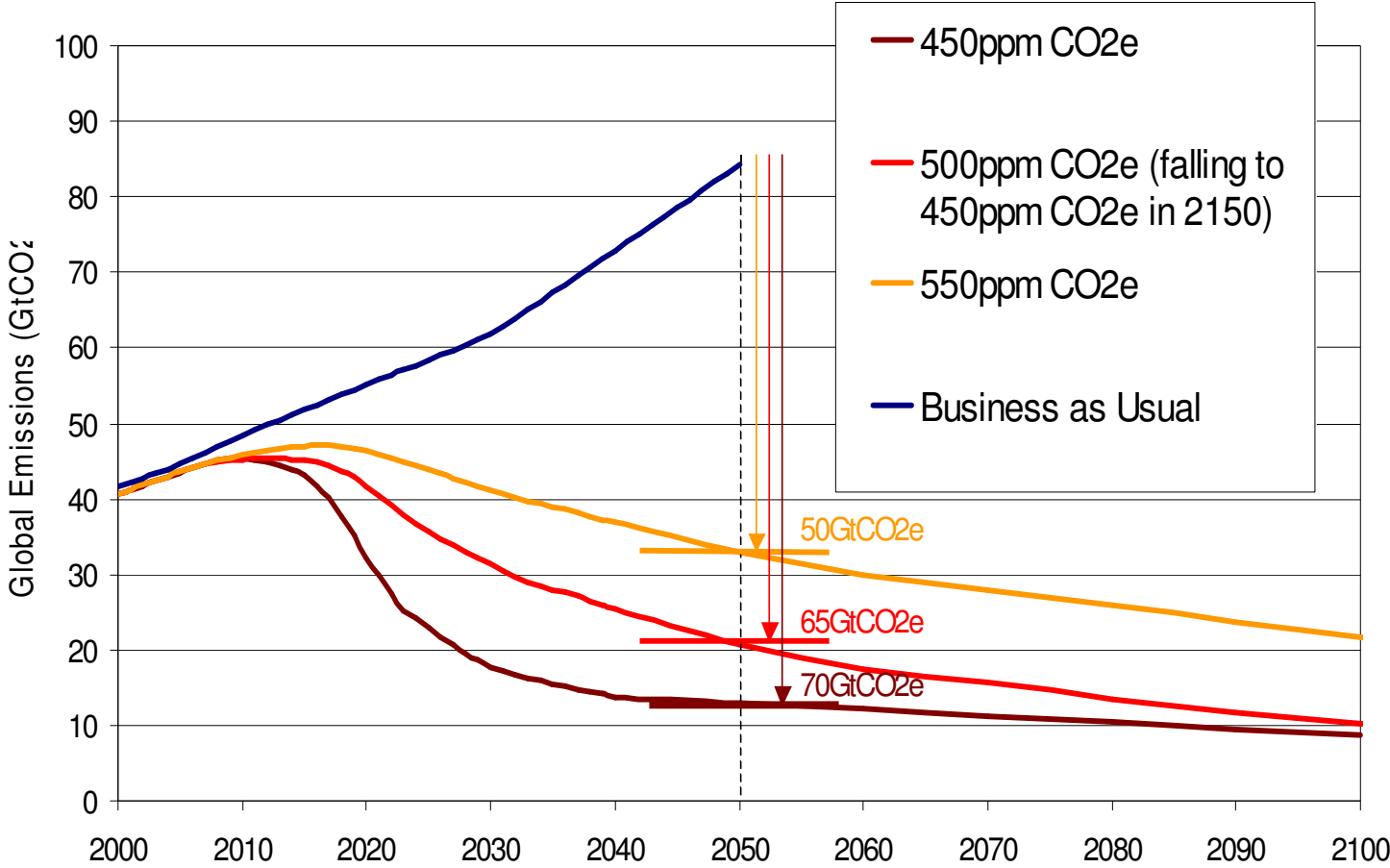
Warwick University, 22 January 2008

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Outline

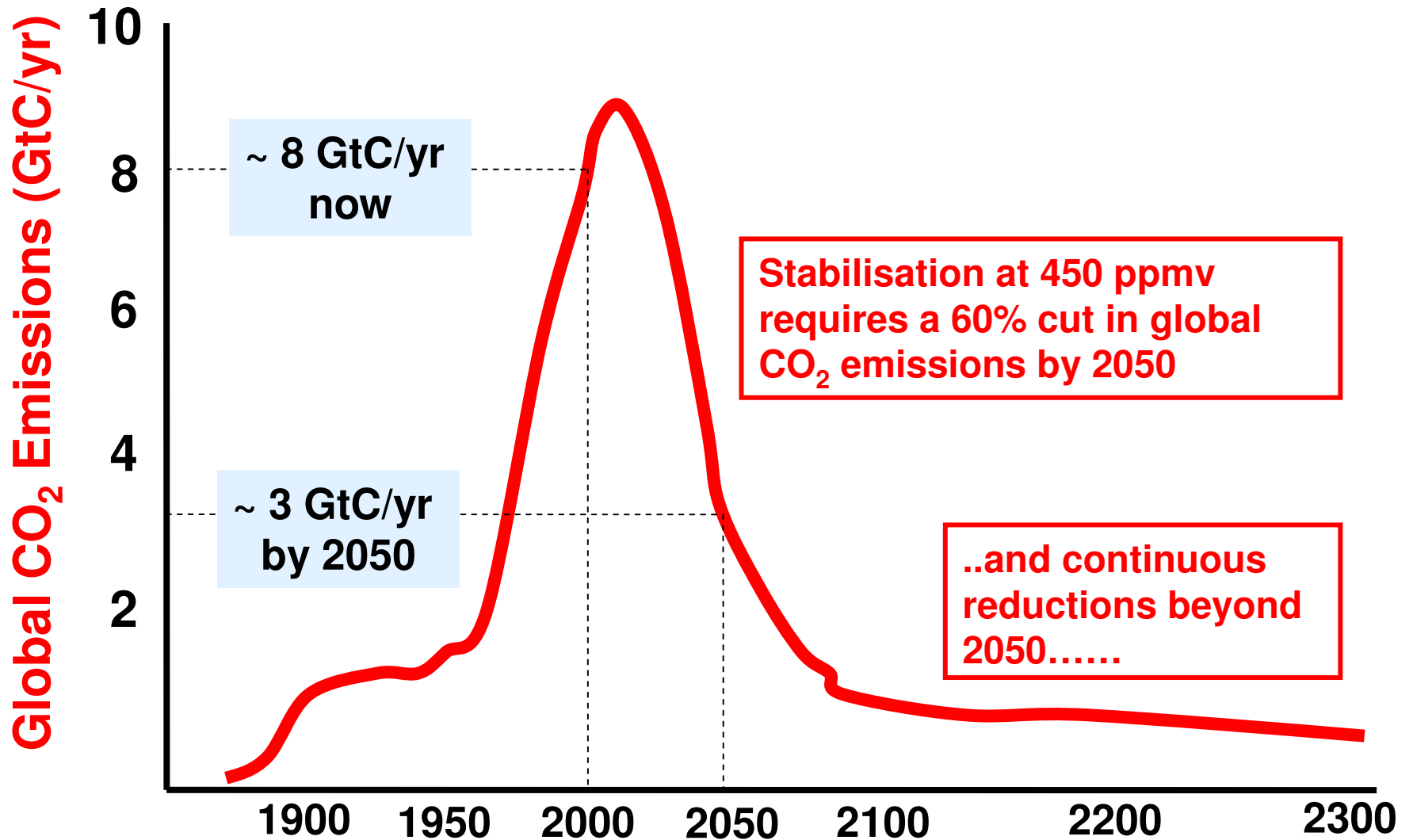
- Building the “low carbon economy”
- Carbon pricing and emissions trading
- Emissions trading in practice
- Policy implications

Stabilising the global climate

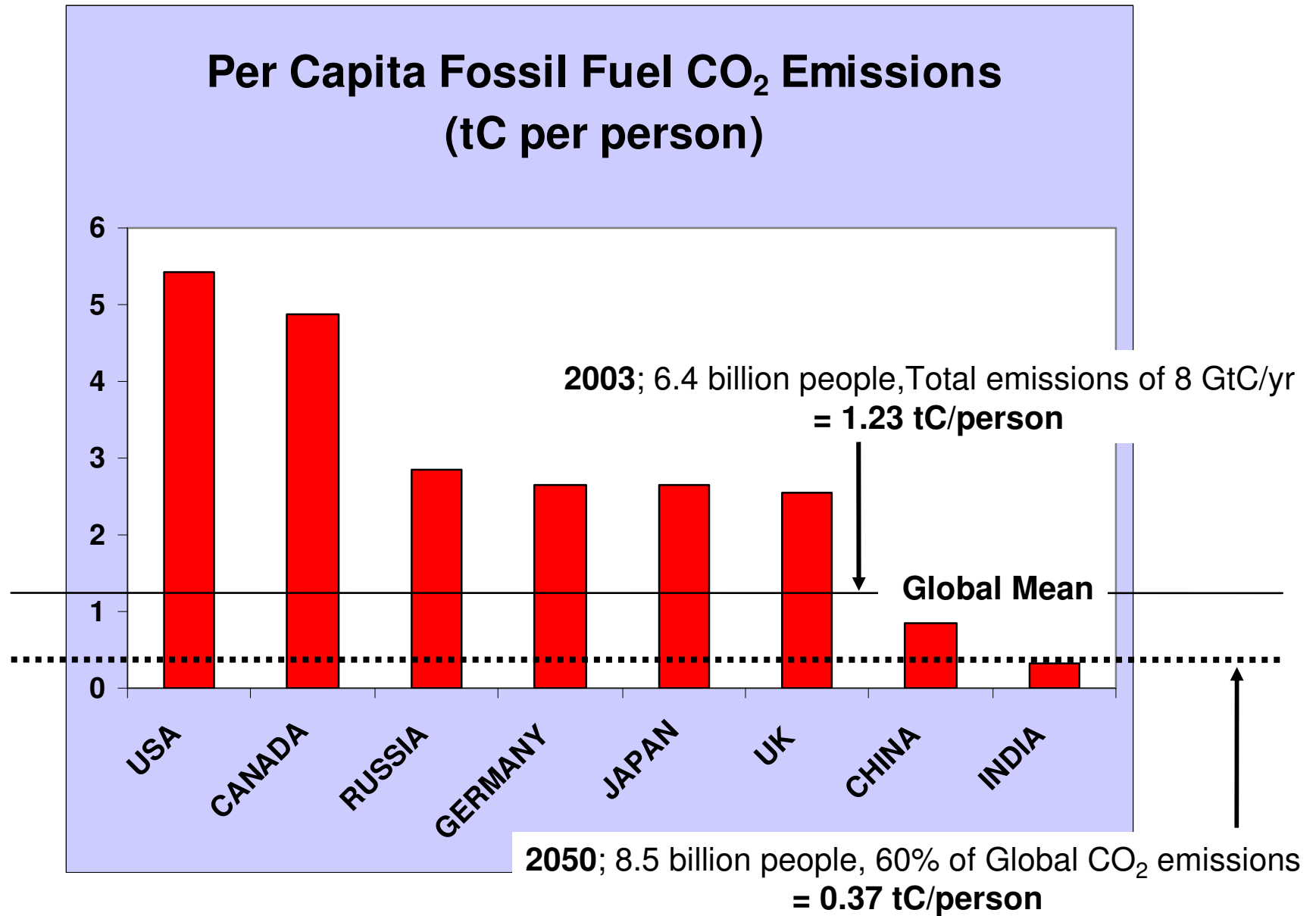


Source: Stern Review

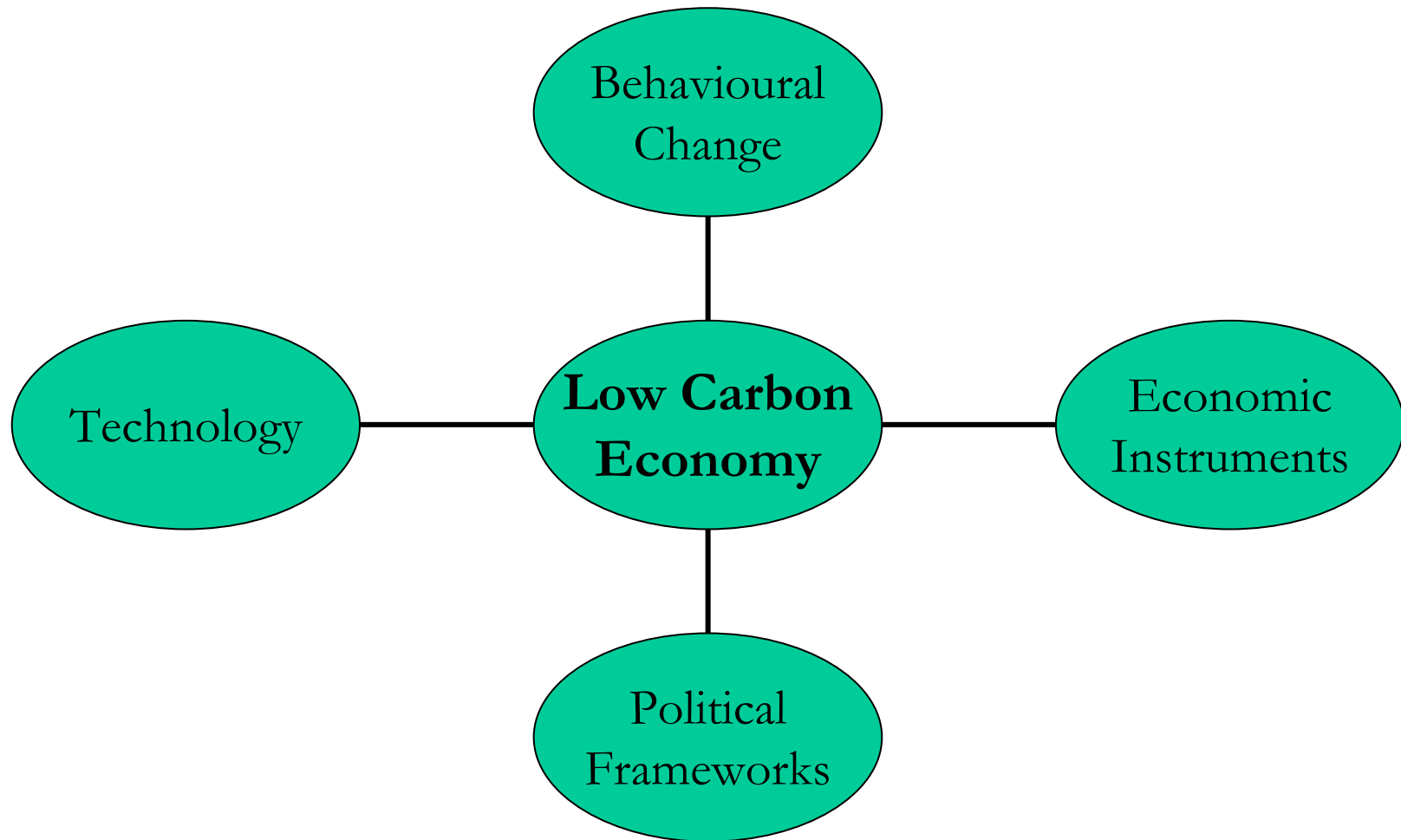
CO₂ Emissions targets in context



The CO₂ Emissions Reduction Challenge



Building the “low carbon economy”

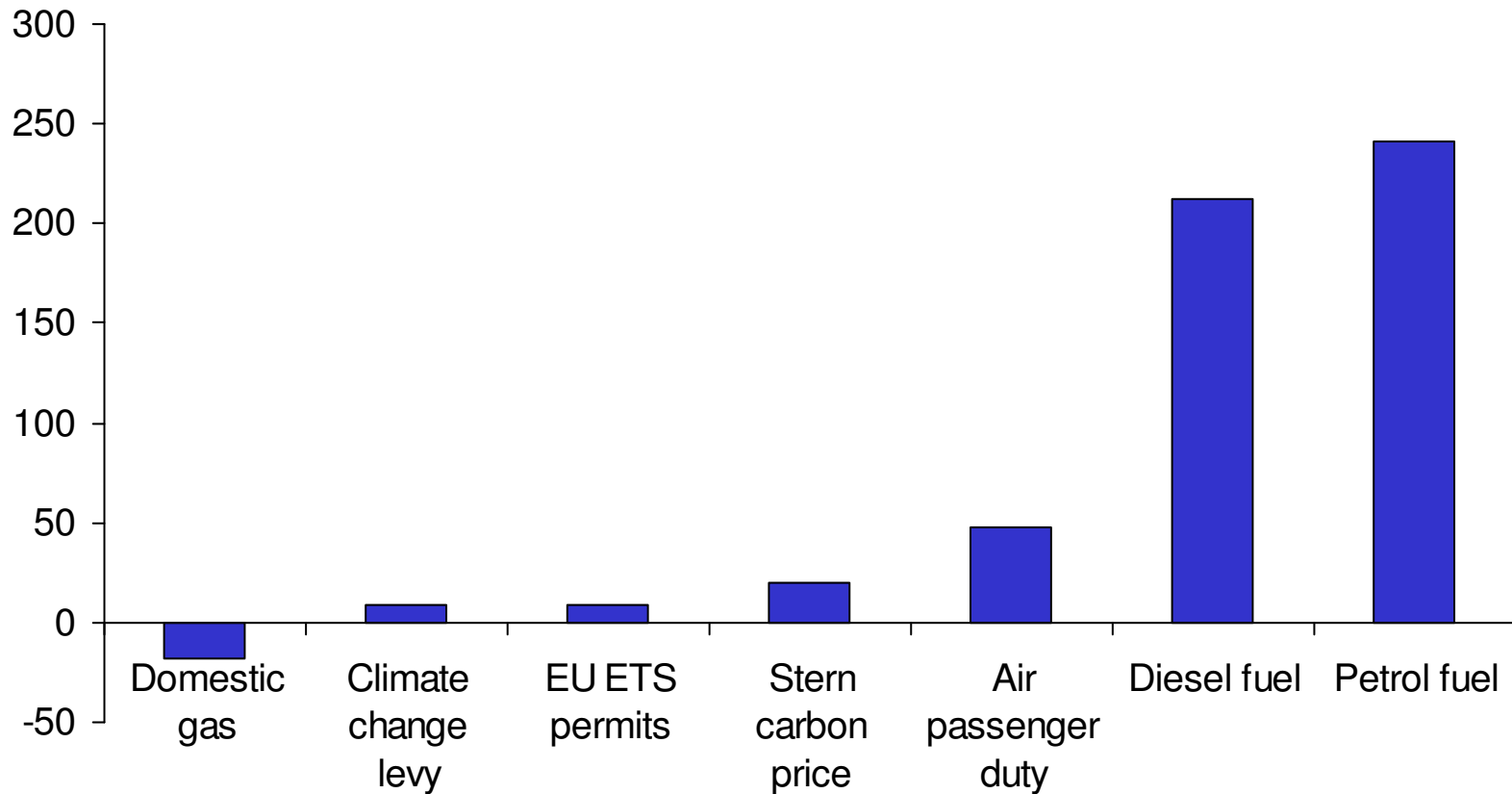


“It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest.”

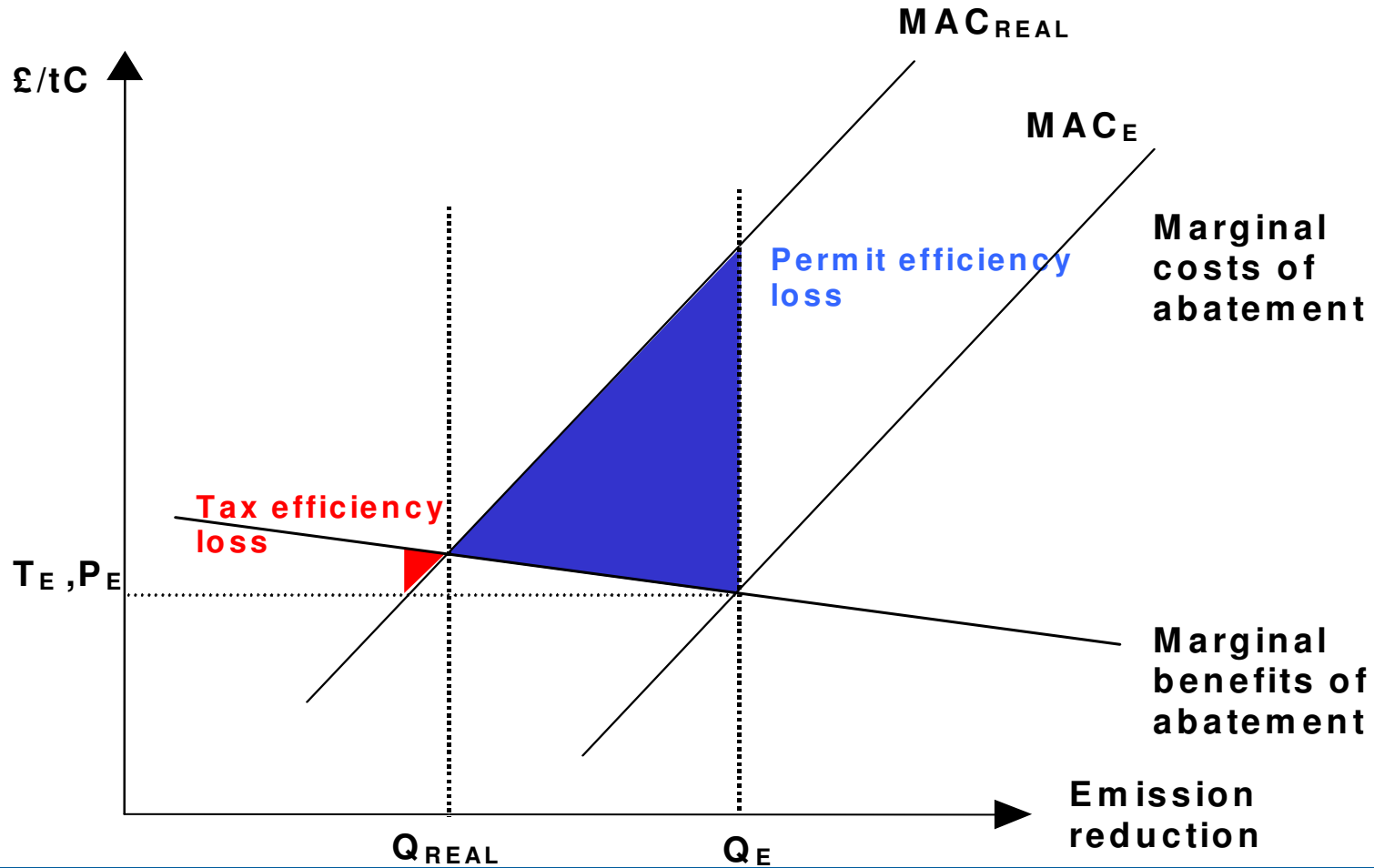
Adam Smith, *Wealth of Nations*, 1776

UK carbon “taxes”

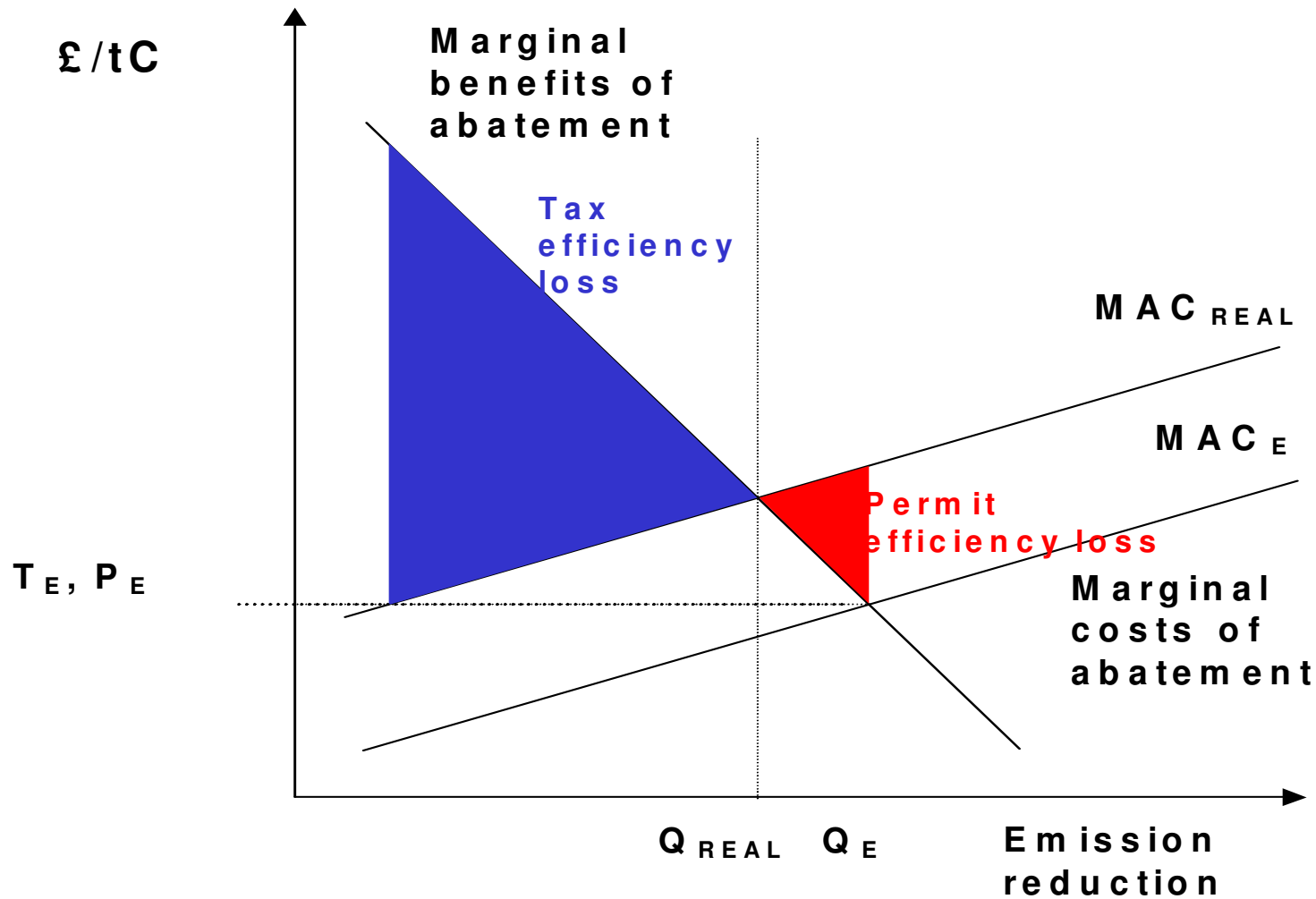
£/T of CO₂, 2007 values



The efficiency of taxes and tradable allowances in the short term



The efficiency of taxes and tradable allowances in the long term



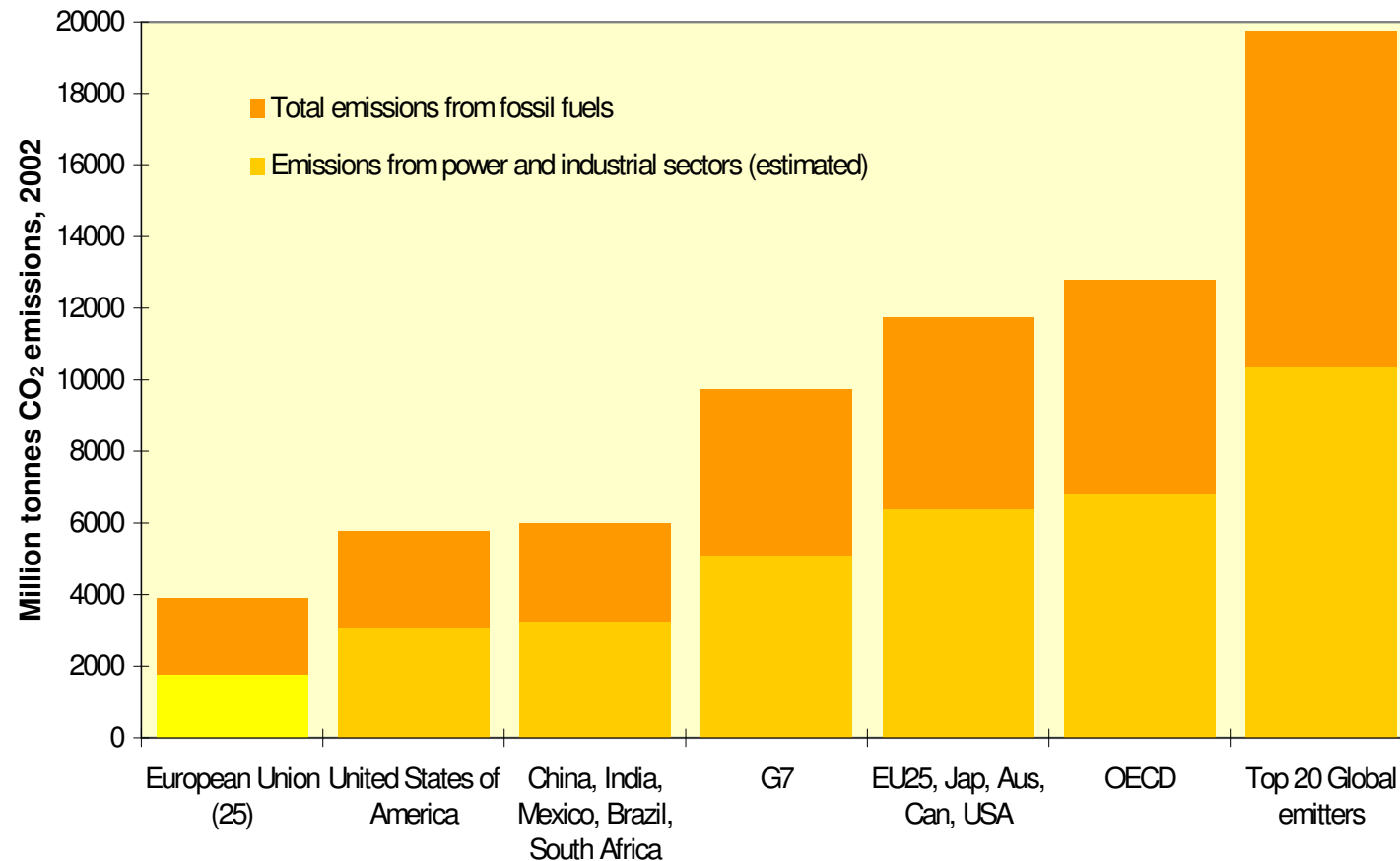
Taxes vs trading - economics

- Cost curve likely to be flatter over the long-term than in short-term
- Benefit curve may steepen sharply if climate change reaches critical level
- Trading likely to be more efficient over the longer-term
- In short-term, taxes may have a bigger role to play in establishing a price signal

Emissions trading - potential benefits

- Total emissions are capped on a declining path
- Market determines price and seeks out most efficient source of reductions
- Tightening cap and rising future prices send signal to invest in low-carbon technologies
- Carrots as well as sticks – incentives for investment
- Money flows with environmental benefits

Potential size of carbon markets



Extending EU ETS to power and industrial sectors in Top 20 countries would create a market of US\$90-350 bn

Emissions trading – key conditions

- Comprehensive geographically
- Wide sectoral coverage
- Long-term framework of caps/targets to drive investment
- Robust monitoring and reporting
- Strong institutions to underpin credibility and protect against political interference

Emissions trading in practice

- EU ETS is best established scheme
- Targets and framework relatively short-term
- Sector coverage limited – transport, agriculture and domestic energy use excluded
- Prices have been volatile
- Emissions reductions have been modest
- Political pressures and influences on allocation process

Emissions trading: problem areas

- Establishing comprehensive coverage:
 - Across countries
 - Across sectors
- Generating long-term price signals to drive investment and R&D
- Robust institutions and regulation to underpin development of markets
- Consistent accounting, monitoring and reporting of emissions

General theory of the second-best

Lipsey & Lancaster (1956):

- If all the conditions for Pareto Optimality cannot be met then it is not necessarily second best to satisfy a subset of these conditions;
- In general, to attain the second-best optimum it is necessary to violate all the conditions of Pareto Optimality

Importance of technology

- Emissions need to be stabilised by c.2020 and reduced significantly thereafter
- This will not be possible without a significant investment in existing and new low-carbon technologies
- Carbon price signals from emissions trading likely to be weak and uncertain over the next decade
- Conclusion: We should not rely just on emissions trading to create the price signals to drive investment in technology

Policy implications

- Continue to develop emissions trading and make it as comprehensive and robust as possible
- But this will take time
- In particular, it will probably not deliver the technologies needed to stabilise emissions before 2020 and secure major reductions after that
- Other mechanisms will be needed to influence technology development, investment and behaviour, eg:
 - Using taxation to change carbon prices
 - Government support for low-carbon R&D
 - Tax incentives for investment and R&D spend
 - Regulatory mechanisms