

Demand Reduction, Energy Efficiency and Policy Effectiveness: What Works?

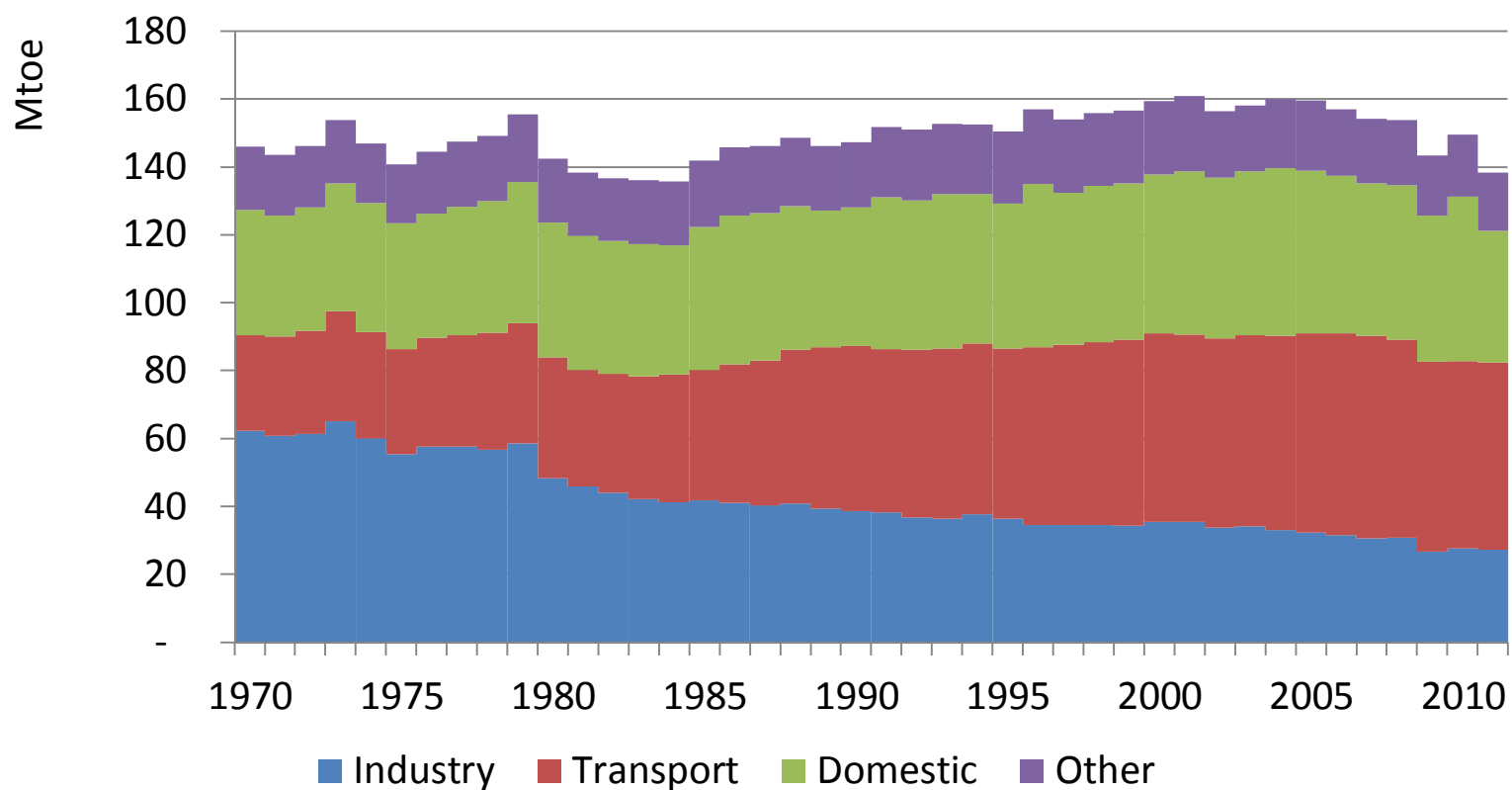
Nick Eyre, Edinburgh 13th
December 2013



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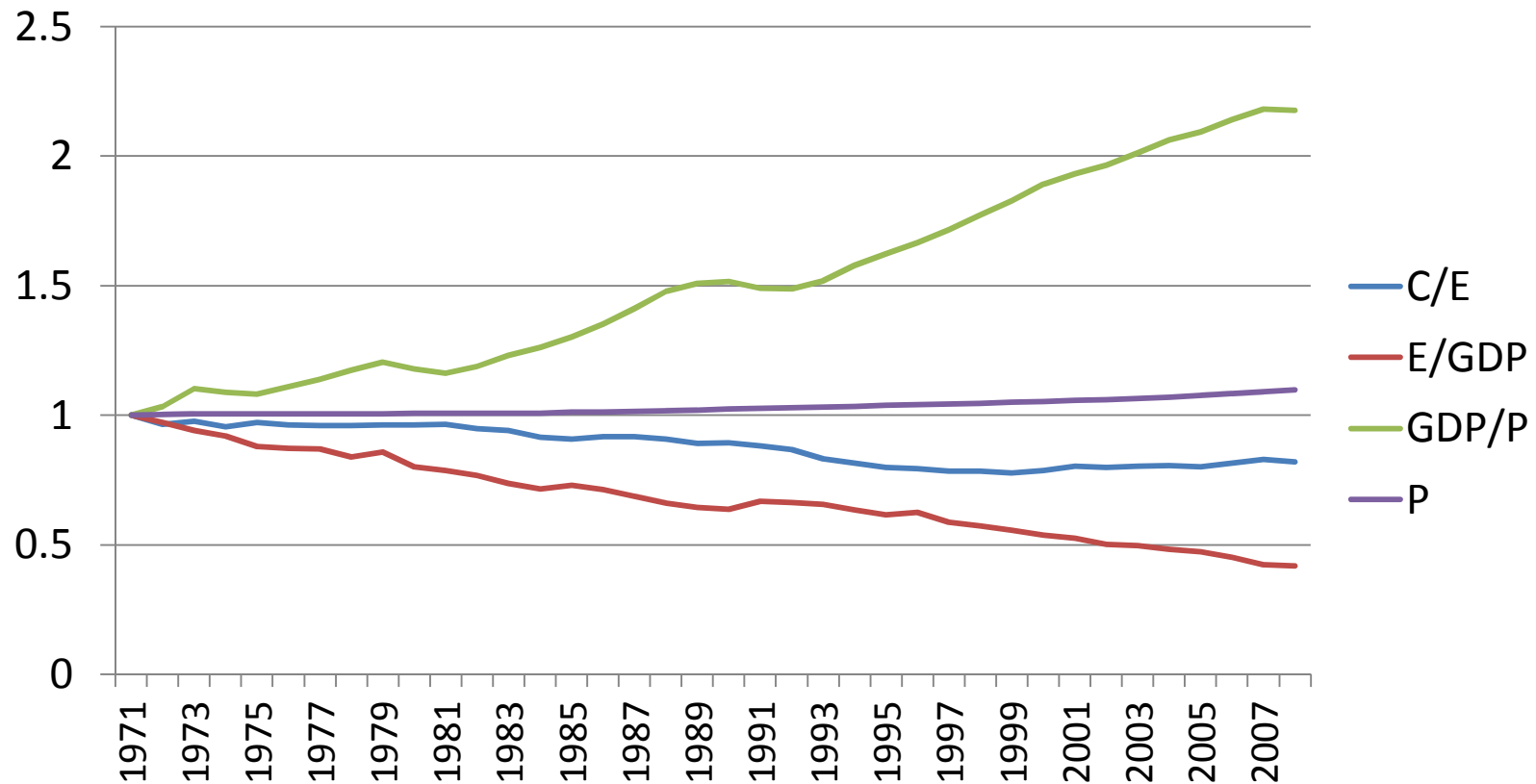
UK energy use trends

Total UK Energy Use 1970-2011



Drivers of UK carbon emissions

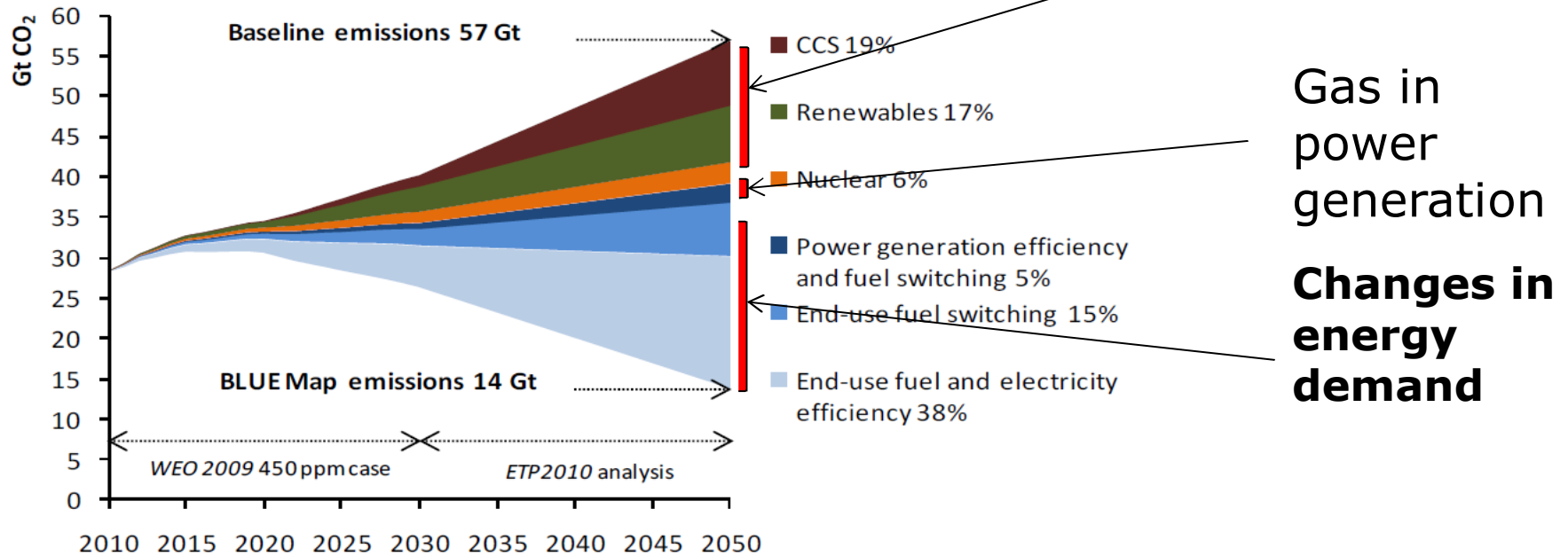
Kaya identity values 1971–2008



Based on IEA data

...and efficiency is likely to make a key contribution to future decarbonisation

Key technologies for reducing global CO₂ emissions under the BLUE Map scenario

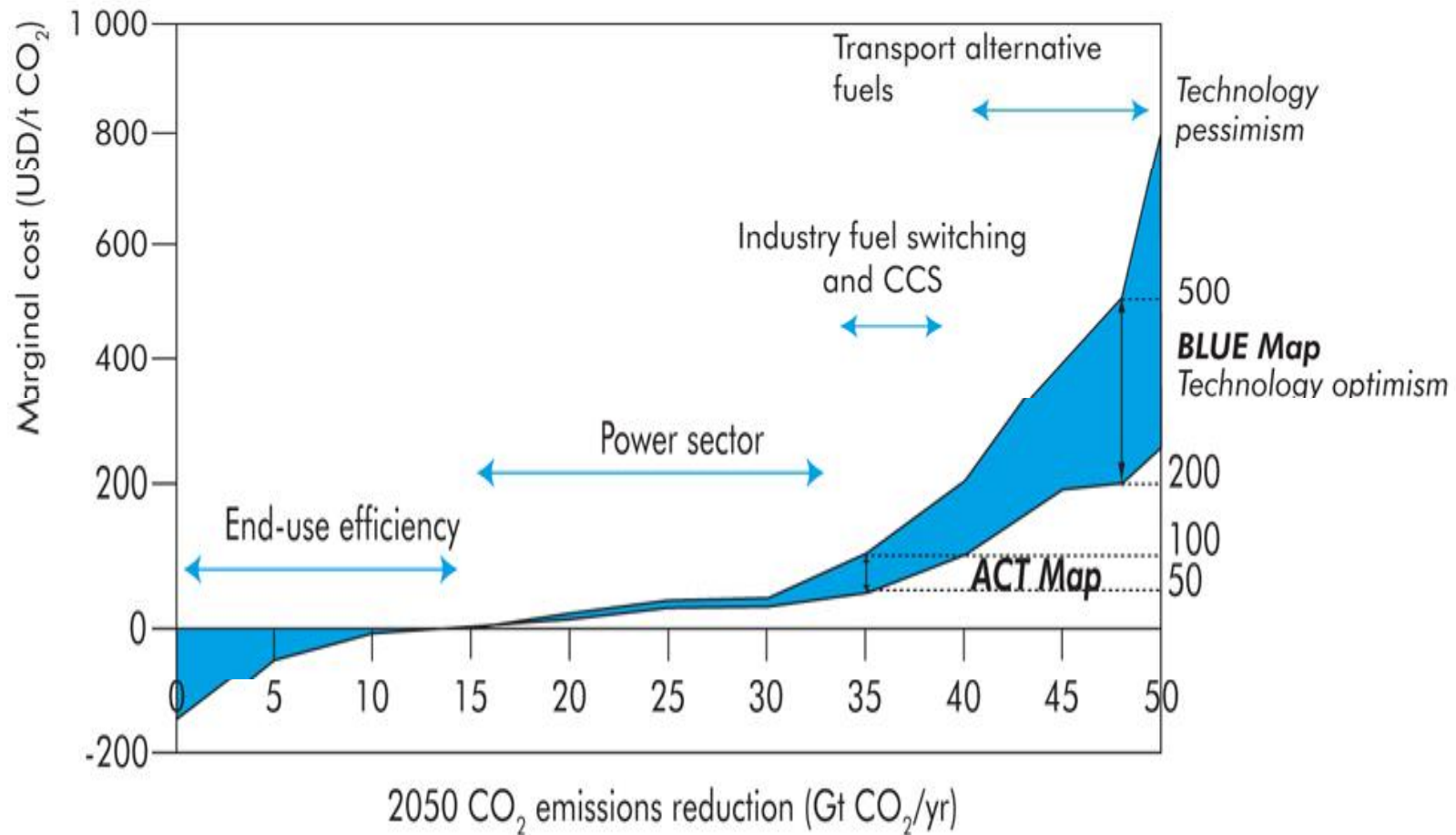


A wide range of technologies will be necessary to reduce energy-related CO₂ emissions substantially.

IEA ETP, 2010

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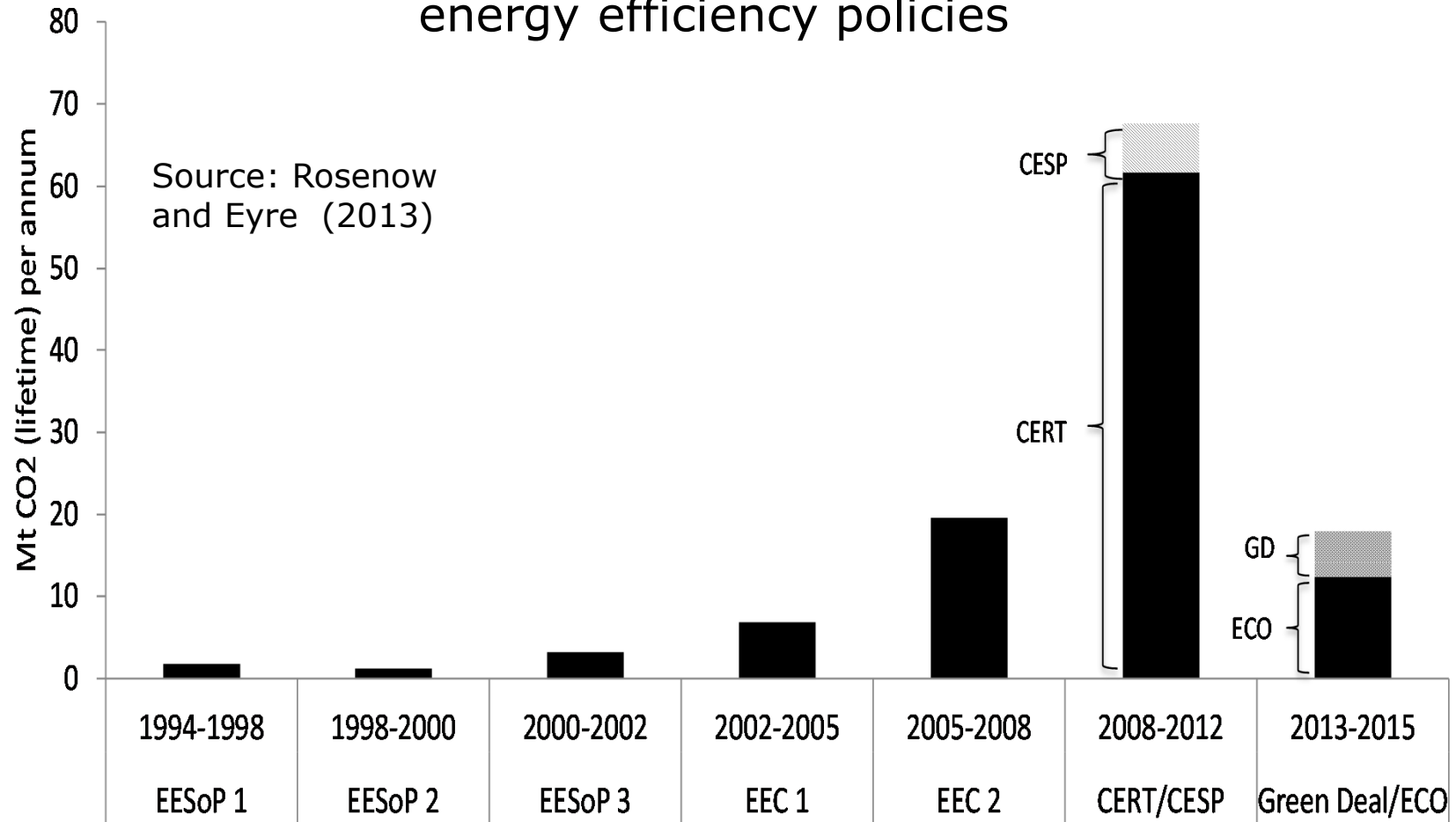
Energy efficiency as a 'cost reducer' in carbon abatement



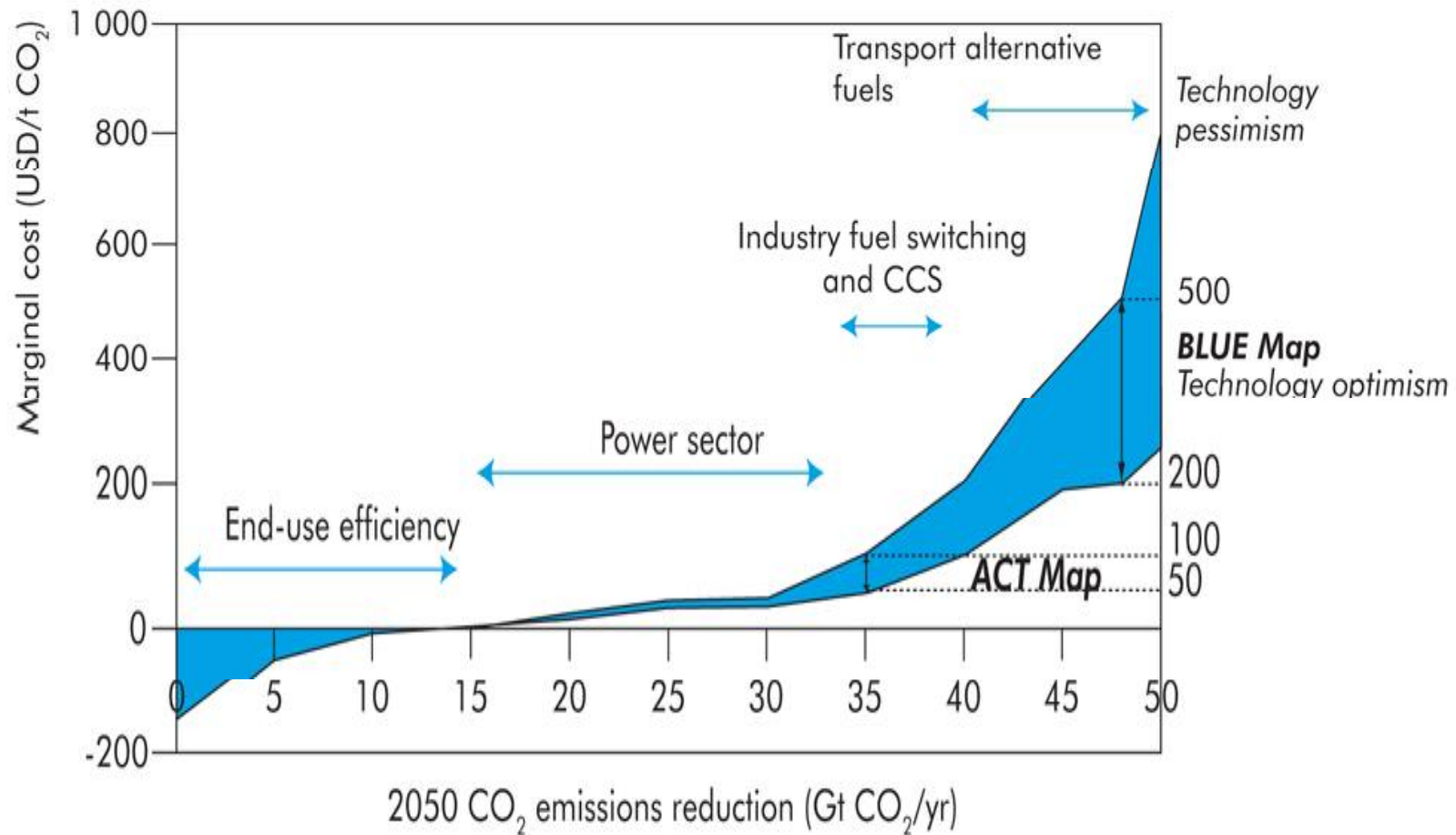
Taken from IEA, 2010

...but in buildings energy efficiency we are reducing the level of ambition

Carbon savings from the principal buildings energy efficiency policies



Energy efficiency as a 'cost reducer' in carbon abatement



Taken from IEA, 2010

Barriers to energy efficiency

Deficient information	Incorrect or insufficient knowledge at the point of decision-making biases decisions against efficiency
Access to capital	Constraints on borrowing, including higher interest rates than justified by the risk of the project
Split incentives	Investors cannot always appropriate the benefits of energy efficiency investments (e.g. landlords)
Risk	Perceived technical and financial uncertainties, including trust in delivery agents.
Bounded rationality	Energy consumers do not make the choice identified as optimal by economic analysis

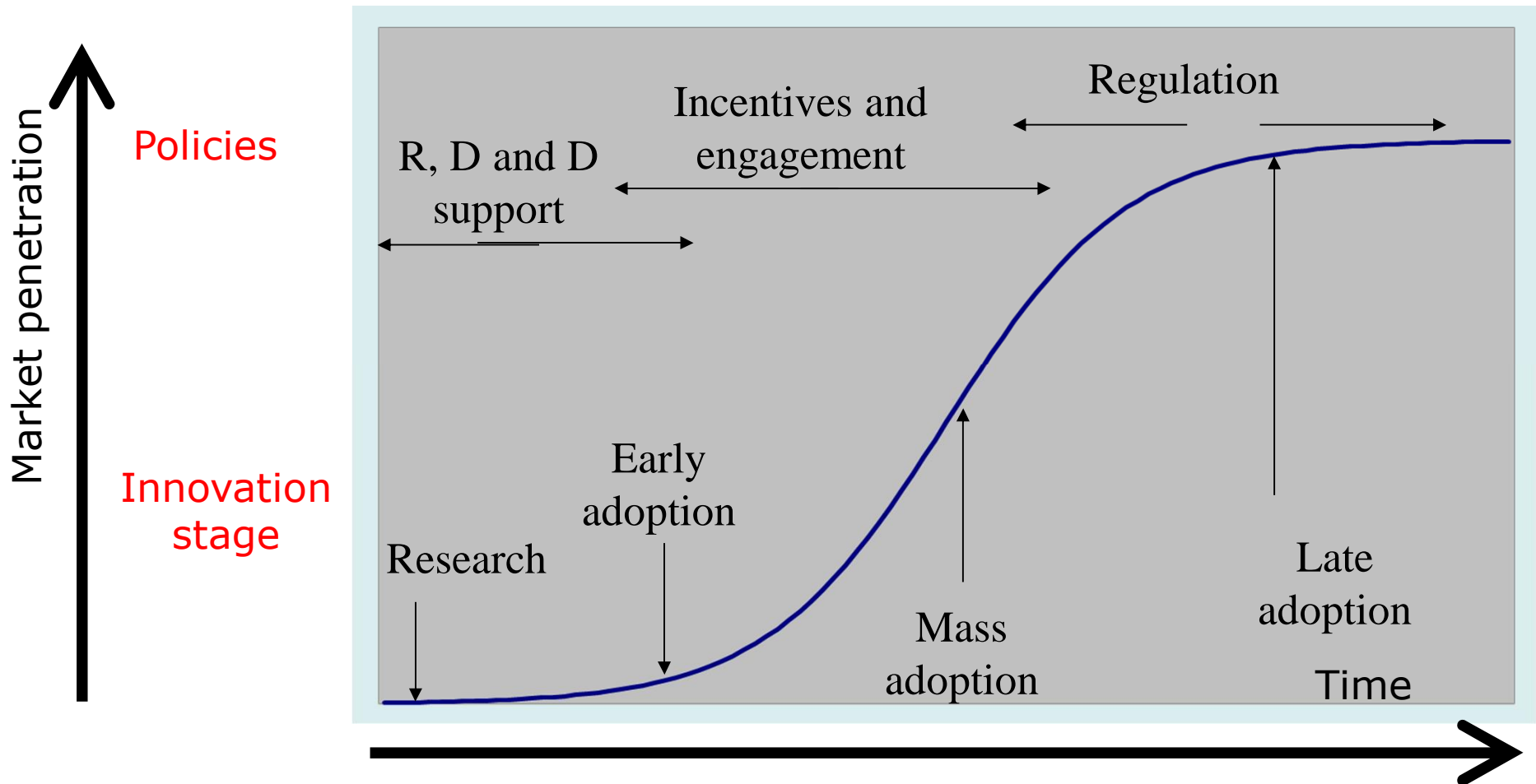
Based on Sorrell et al, 2004

Energy efficiency is economically and environmentally beneficial, but it still needs strong policy intervention

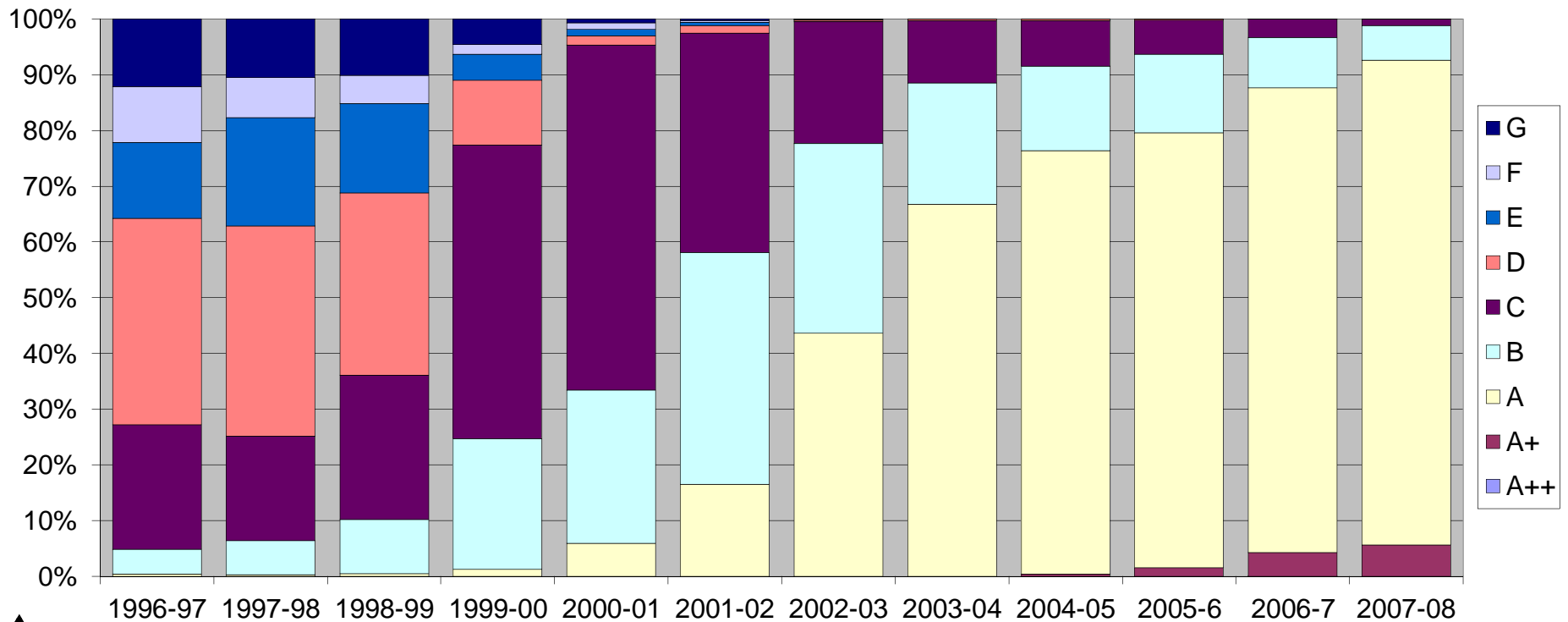
Two key hypotheses for energy efficiency policy

- It is a socio-technical innovation problem – so a package of different policy instruments is needed
- It is a multi-level governance problem – so policy action is needed at different levels of government

Market transformation: Innovation stages and polices



An example: UK fridge/freezer sales



↑ Incentives for B

↑ Minimum standard C

↑ Incentives for A only

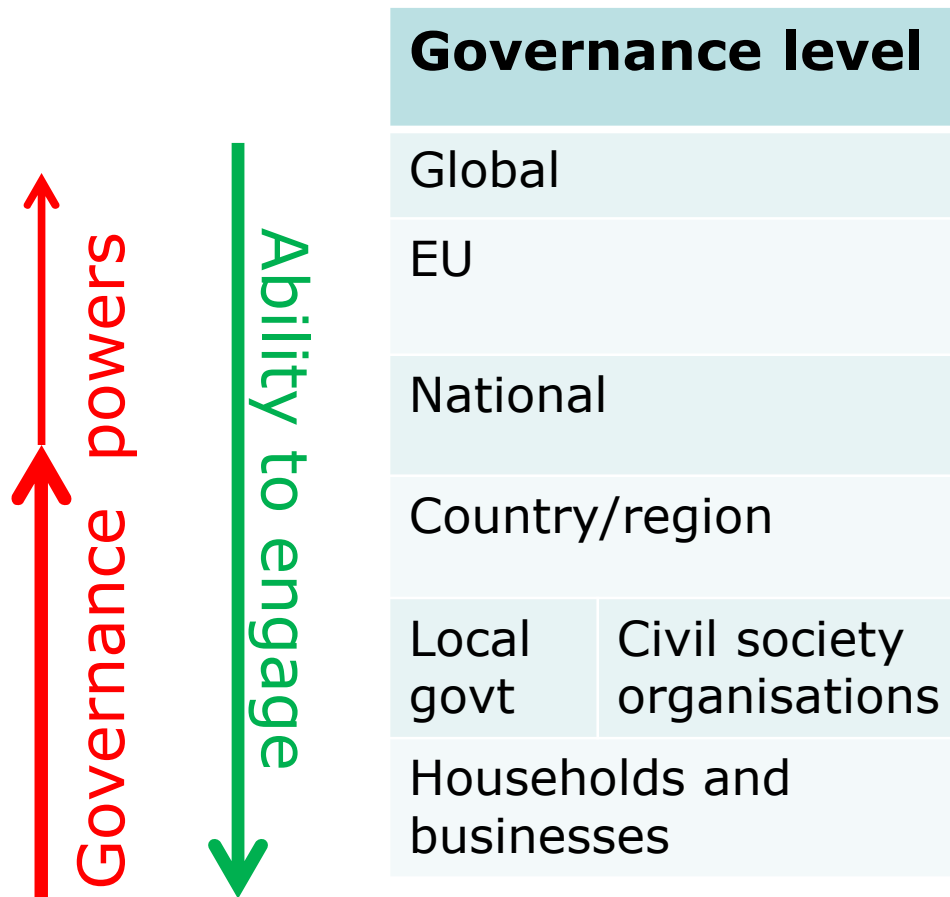
Source: EST, 2008

40 years of energy efficiency policy: What have we learnt?

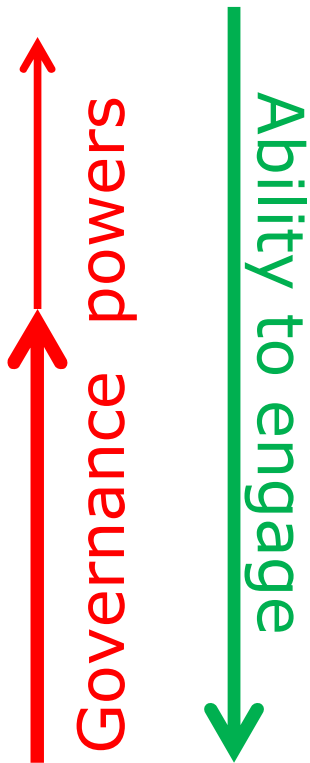
- Energy prices make a difference
 - but pricing policies are constrained by concerns about competitiveness and equity
- Regulation works well
 - but only for ‘mass products’, and where well-signalled and enforced
- Investment incentives can be very effective
 - but they cost money – Government’s or consumers’
- People matter
 - but do not trust, or even expect, Government or energy companies to engage them very effectively

Based on Mallaburn and Eyre, 2013

Energy efficiency as a multi-level governance problem



Energy efficiency as a multi-level governance problem



Governance level		Governance levers
Global		UNFCCC
EU		Carbon markets; product standards; RE/EE targets
National		Energy policy; fiscal; spending; energy market regulation
Country/region		Housing and fuel poverty policy; building regulations; transport policy; business support
Local govt	Civil society organisations	Housing/ transport services; energy advice; community projects and engagement
Households and businesses		Personal action

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