ENERGY EFFICIENCY

The impacts of energy efficiency policy – co-benefits and rebound effects

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Context for evaluation of co-benefits

- Debate on rebound effect and merit of energy efficiency prominent in media in 2010/2011
- Our hypothesis: some rebound effects are in fact co-benefits of energy efficiency policy
- Narrow definition of benefits of energy efficiency policy (limited to energy savings) leads to reduction in estimates of benefits
- Definition and quantification needed of full range of benefits associated with energy efficiency
- Link between co-benefits/takeback effect and rebound effect can help understand which should be minimised and which maximised in policy design

Project description

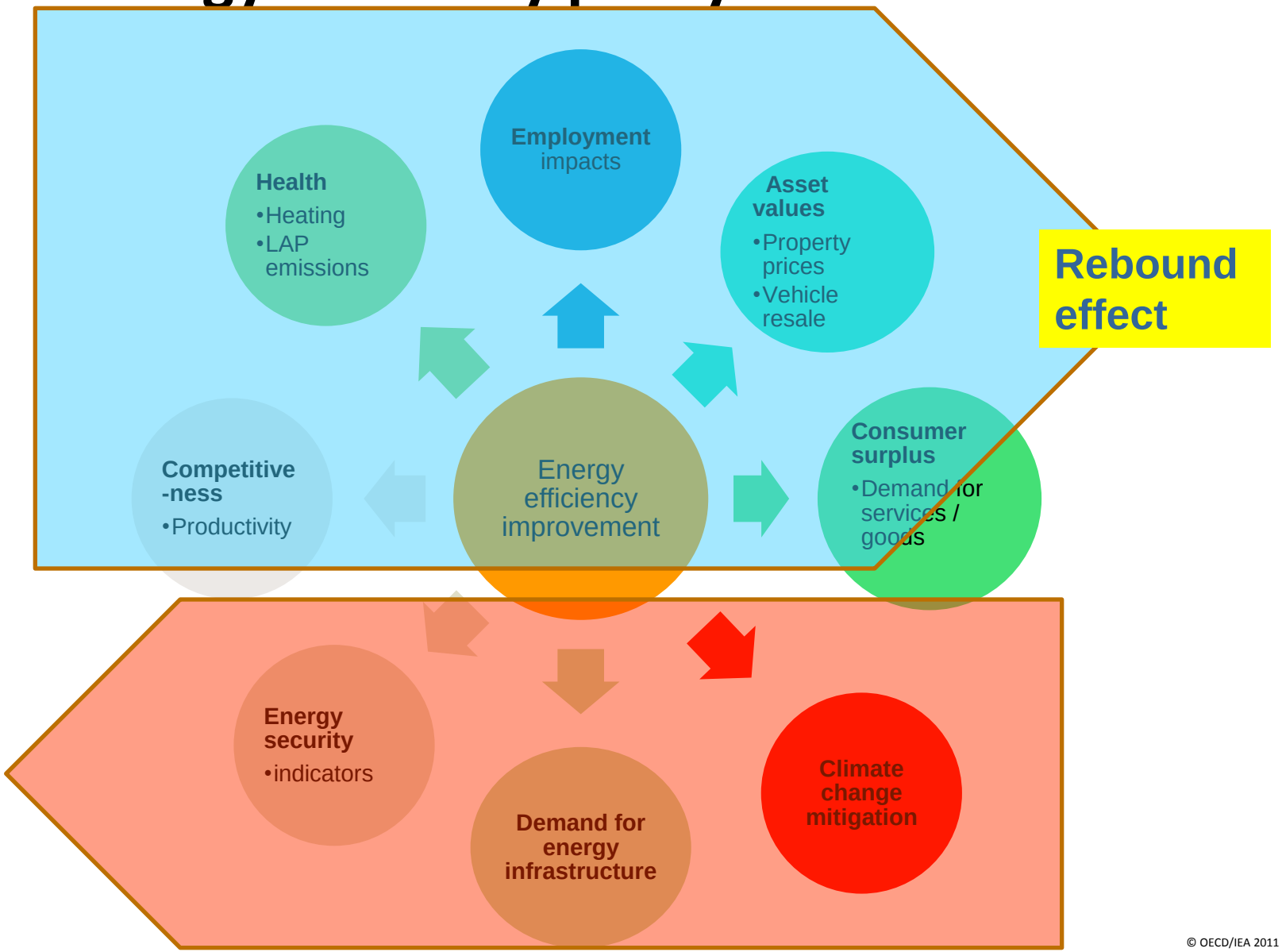
Aims

- To systematically review the relationship between energy efficiency (EE) and the wider economic, environmental and social benefits.
- To develop methodologies to estimate co-benefits of EE policy
- provide **estimates** of co-benefits of EE policy and the link to the rebound effect for use in policy evaluation.
- Identify successful long-term strategies for EE policy that maximise energy efficiency benefits.
- NOT to evaluate countries' EE programmes.

Scope

- Measure wider economic outcomes and outputs of EE policies across different sectors.
- Employ IEA country experience with policy evaluation to examine methodologies and estimates of co-benefits of EE policies and identify potential for rebound effects.

Co-benefits (outcomes) and rebound effect of energy efficiency policy



What is the rebound effect?

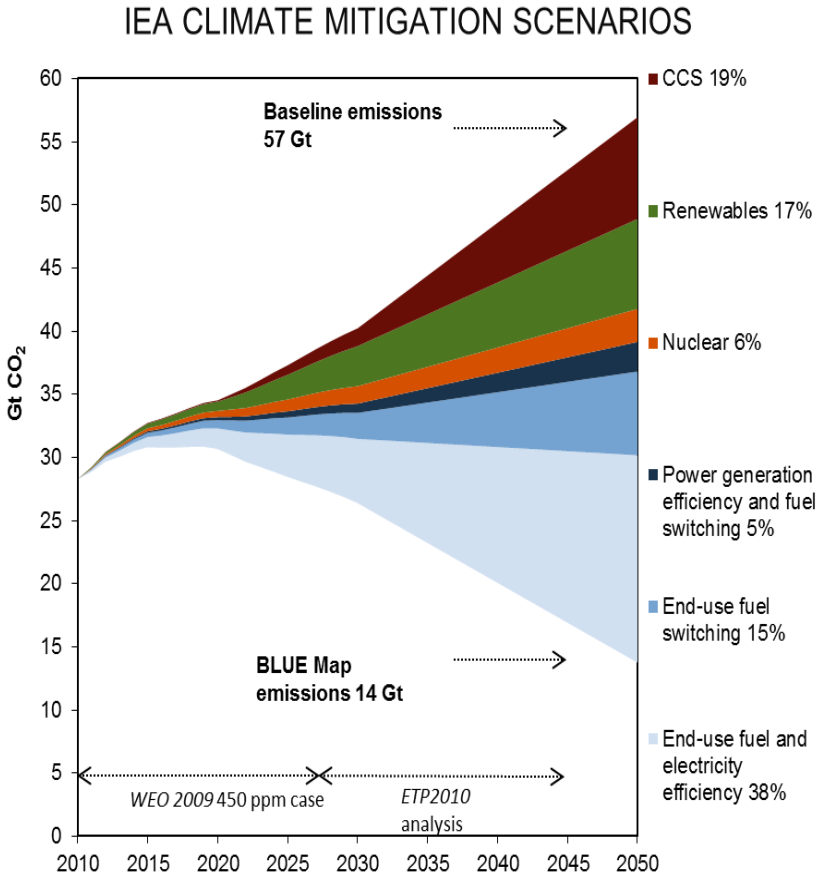
- When consumer behaviour or producer adjustments offsets the intended savings of energy efficiency policies
- Three types of rebound:
  - Direct effect
  - Indirect effect
  - Macroeconomic effect

Efficiency dilemma? ...impossible.

Source: Burns & Potts, RMI

Why it matters

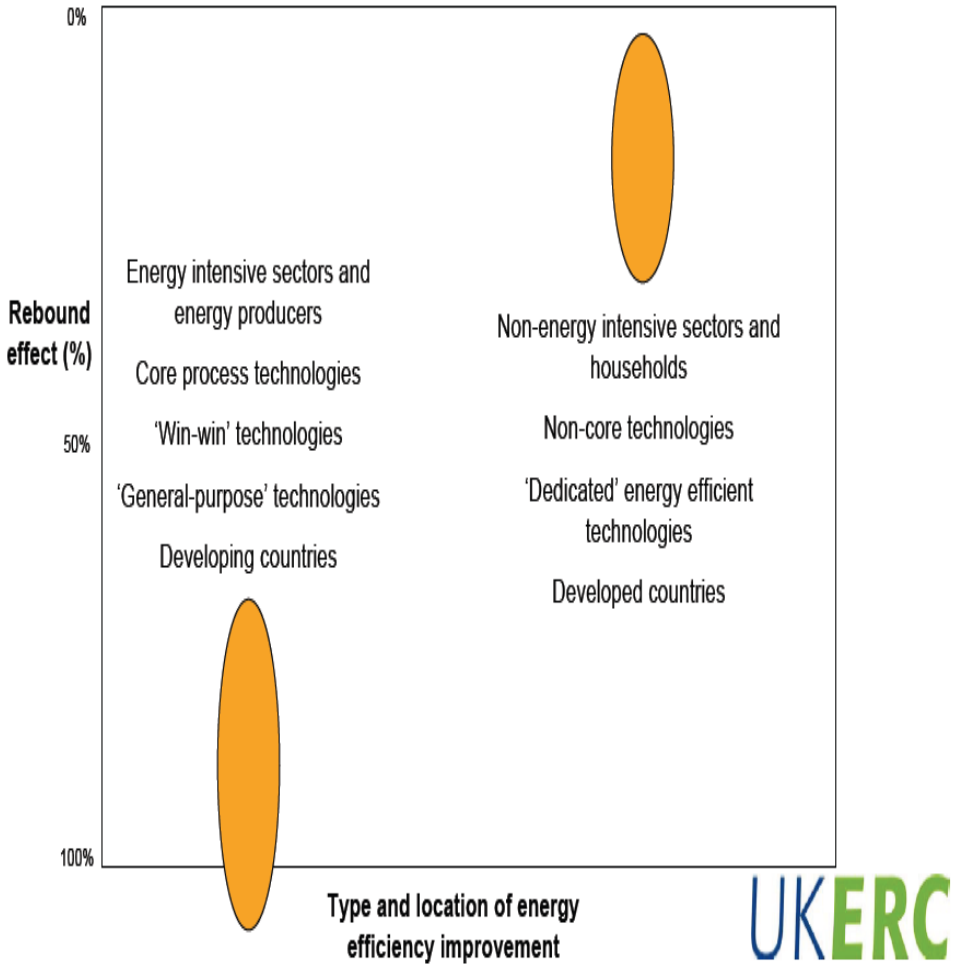
- Adjusting for rebound may reduce the assumed contributions of energy efficiency to climate change mitigation
- Targets and goals (e.g., 20-20 may be harder to meet
- Abatement curves may need to be adjusted, and the order of mitigation may change



SOURCE: Thomas Kerr, IEA. Based on World Energy Outlook 2009 and Energy Technologies Perspectives 2010 reports.

Energy efficiency policy implications

- Select the targets of energy efficiency policy carefully
- Invest more in evaluation and indicators research
- Consider behavioural campaigns focused on mitigating direct rebound
- Consider the mix of pricing & more-expensive market mechanisms



Source: Steve Sorrell

IEA work plan

- Report on desktop analysis
  - Overview of status quo of quantification of EE co-benefits with annex listing country experiences
  - Description of methodologies
  - Range of estimates for use in policy evaluation
  - Findings on rebound effect
- Workshop on EE co-benefits and rebound effect: health, fuel poverty, employment, consumer surplus, energy savings, industrial productivity
- Information paper on workshop results
- In-depth study with data collection (pending funding)

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