

# An overview of rebound research and policy focus in the EU

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## What triggers the rebound effect?

- Distinguish between price of a physical unit of energy and price of the 'energy service' that it delivers
- Increase efficiency – less energy required to deliver the service, thereby lowering its implicit price
- Direct rebound – price falls, demand rises

## Beyond direct rebound

- Direct rebound – depends on how responsive demand is to change in price (price elasticity of demand)
- May be limited for energy?
- Not the main concern of policymakers in Europe

## Macro-level energy use

- UK House of Lords (2005)
- Does rebound offer an explanation as to why increased energy efficiency hasn't led to reduced energy consumption at the macro level?
- Indirect and economy-wide rebound
- UKERC study on rebound in general; DEFRA study on macroeconomic rebound effect; ESRC 1<sup>st</sup> Grant

## EU 20-20-20 targets

- 20% reduction in energy consumption through increased energy efficiency by 2020
- Right now – not on track
- Consensus across policy and research communities - rebound part of the problem

## EU response to rebound

- Should efficiency targets be adjusted to allow for rebound?
- Should actions be taken to offset price effect driving rebound?
- Issues:
  - Rebound trigger also an economic growth trigger
  - General problem of getting prices ‘right’

## EU response to rebound

- Need to better understand rebound and its different manifestations
- Direct, indirect and economy-wide rebound
- Will rebound differ depending on
  - The type of efficiency improvement?
  - The activity where energy efficiency improvement takes place?
  - The economy where energy efficiency takes place?

## EC DG Environment Study

- ‘Addressing the Rebound Effect in Policy’
- Reviewing ‘state of the art’
- Understanding direct, indirect and economy-wide
- Analysing ways to prevent, reduce or counteract rebound (and their effectiveness)
- Aim of developing guidelines with clear recommendations for member states in considering and addressing rebound
- Workshop in Feb 2011; interim report available, final forthcoming



## Direct and indirect rebound

- Direct rebound – response of user whose efficiency has improved to change in price of energy services
- Substitution effect
- Income effect – price effect frees up disposable income
- Spend on other goods and services
- Embodied energy
- May assess using input-output multiplier analysis
- Indirect effects on energy use may not all be positive
  - Energy itself has embodied energy

## Economy-wide rebound

- Changes in demand cause prices to change
- Changes in prices cause further changes in demand, output levels and incomes
- Need to examine supply-side response
- Again, may not all impact positively on energy use and rebound
- Key: indirect and economy-wide rebound effects depend on structure of economy, supply chain behaviour and may have cross-border impacts

## EU research activity

- Number of research teams investigating different aspects of rebound (see paper for examples)
- But a complex problem requiring detailed datasets
- Key recommendation of 'Addressing rebound' study: while researchers work on understanding key determinants of and processes involved in rebound in different cases, policy community should work on adjusting/developing data provision

- Thank you for listening
  - Questions?