

# ERP/ RAE/ ETI Heat Workshop

22<sup>nd</sup> January 2009

## Setting the context: policy

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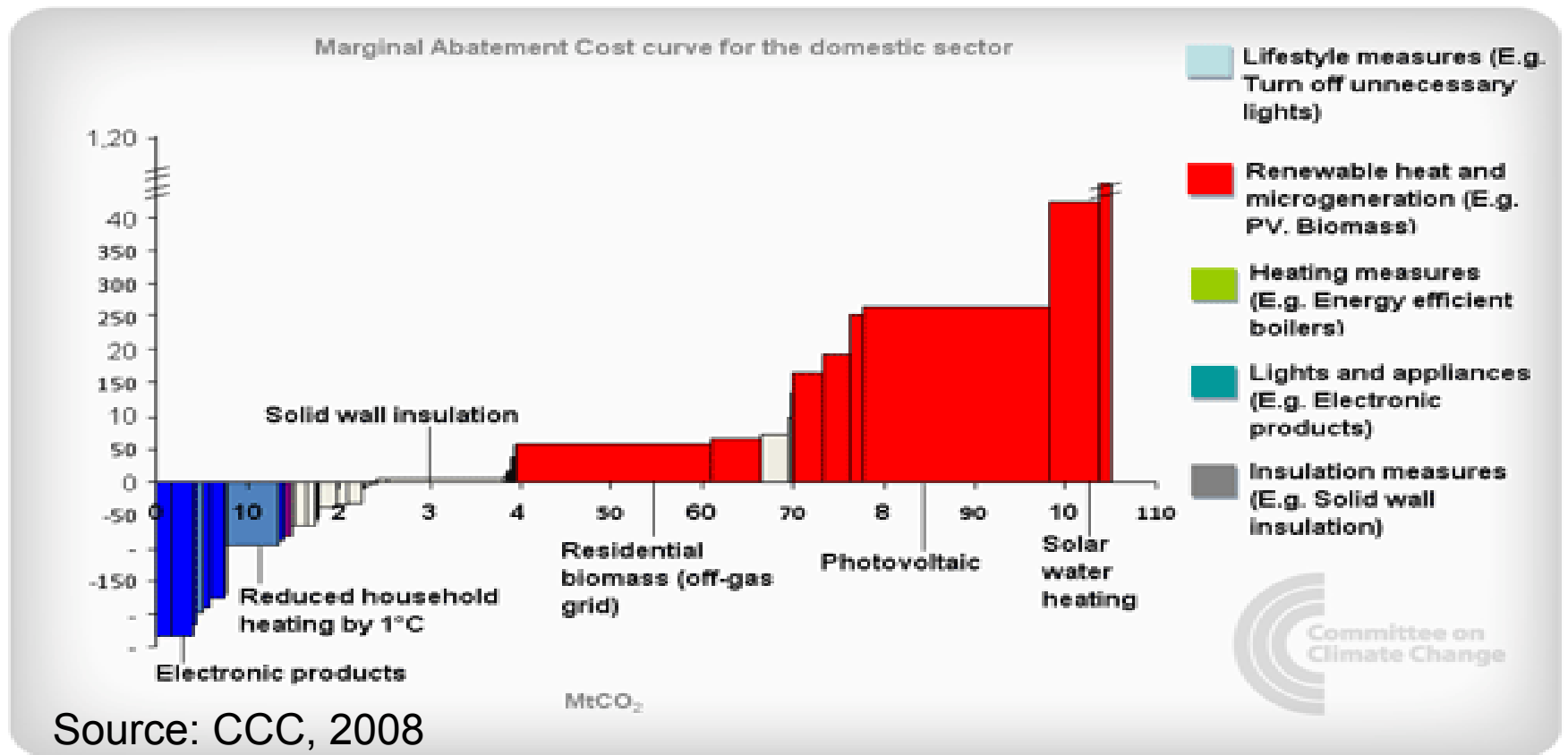
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# Energy policy objectives for heat

- Objectives
  - Energy security
  - Carbon emissions reduction
  - Business competitiveness
  - Affordability
- Implications of high gas dependence
  - Security and carbon goals can only be delivered by using less energy and/or a shift to renewables
  - Competitiveness and affordability goals could, be damaged by a shift to more expensive options

# What are the costs of change?



At current costs, demand reduction is mostly cheap, renewables mostly expensive

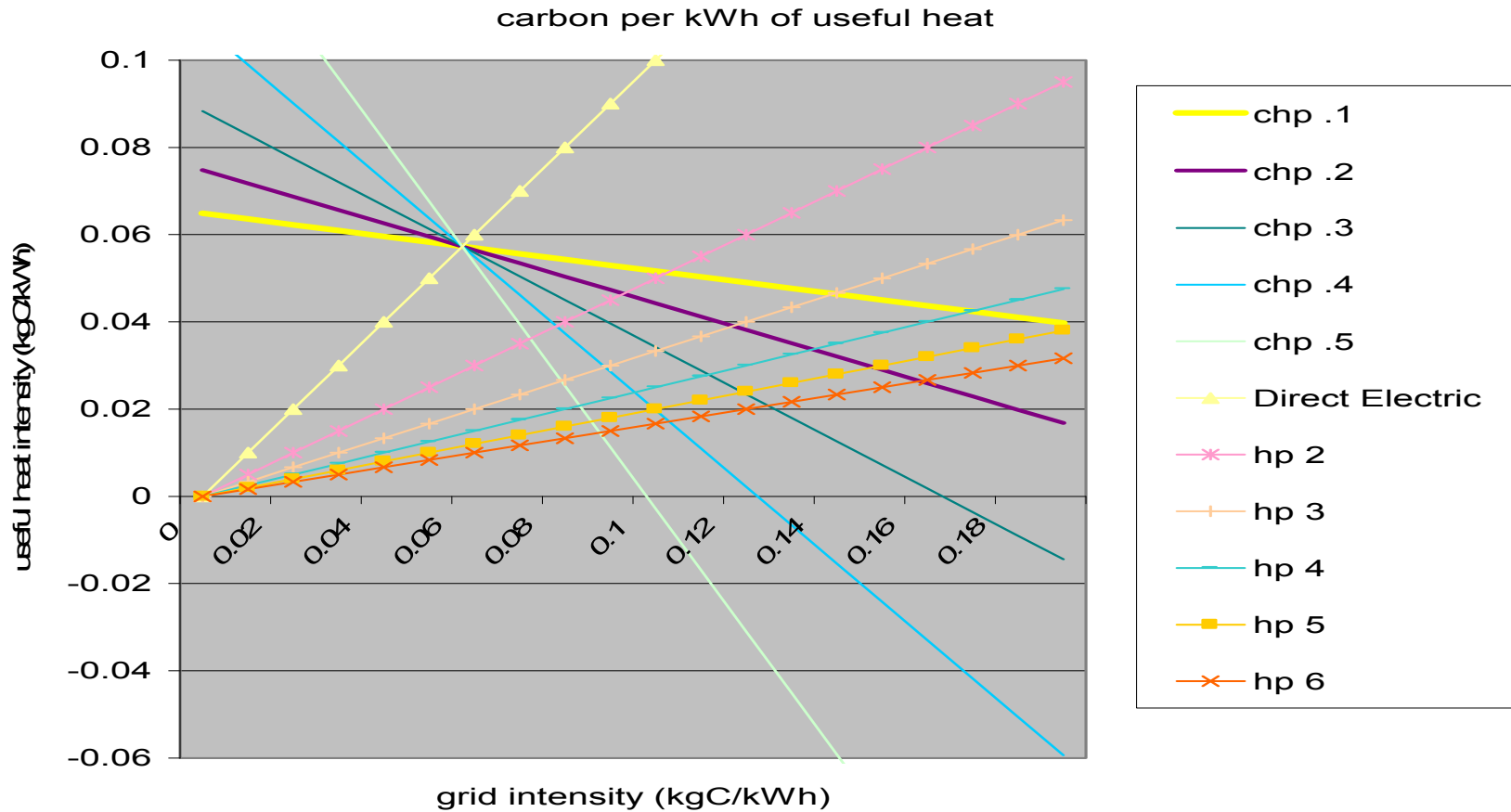
# What's different about heat?

- Scale
  - Most of UK final energy use
- Location
  - Heat is expensive and difficult to transport
  - Local conversion of fuel→heat generally preferred

# Scale options for low carbon heat

- Large scale
  - Decarbonised electricity plus electric heating (or hydrogen network)
- Medium scale
  - District heating system
- Micro scale
  - Point of use technologies – lower demand, efficiency and micro-heat

# Low carbon heating systems and the grid



Short and medium term conclusion: Heat pumps and CHP can both play a useful role in reducing carbon emissions, direct electric heating cannot

# Should policy encourage District Heating?

- Only low carbon if fuelled by biomass or if CHP (most existing systems aren't!)
- Traditionally a neglected option in the UK compared to much of northern Europe
- Some clear opportunities
  - High heat load industries and buildings
  - Mixed use development
  - Industrial waste heat availability
  - Off gas grid (using biomass)
  - New low carbon developments?
- Not a general panacea

# What does this mean for the overall policy framework

- Grid electricity and district heating are (large) niche opportunities in the short term
- Focus on heat at the point of use through
  - Pricing - incentives for efficient use and low carbon
  - Innovation – develop and deploy technologies using renewables and high efficiency
  - Reduce the need for heat – change the behaviour, buildings and processes that use heat
- Heat strategy **must** cover supply and demand



# The Stern Review and heat policy

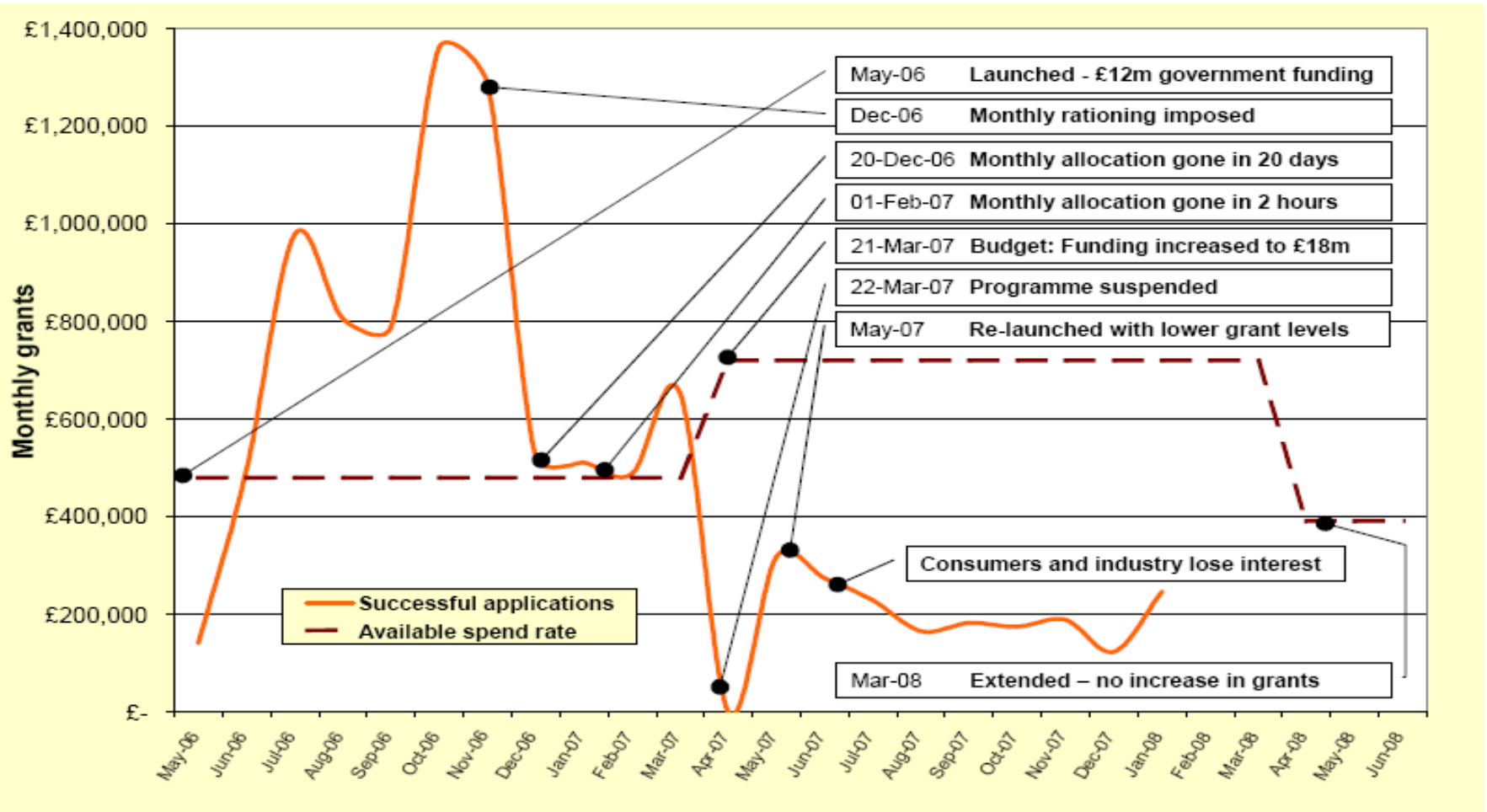
- Stern's conclusions on policy instruments for carbon abatement were:
  - Key role of carbon pricing
  - Encouraging innovation
  - Changing behaviour
- Does current policy do this for heat?

# Carbon prices for heat

<b>Sector</b>	<b>Carbon price</b>
Energy intensive industry – EUETS	~£12/tCO <sub>2</sub>
Other large organisations – CRC	£12/tCO <sub>2</sub>
All business and public sector – CCL	~£8/tCO <sub>2</sub>
Household suppliers – CERT	~£16/tCO <sub>2</sub>

Cf. gas market price of £100 - £200/tCO<sub>2</sub> depending on sector

# Innovation support through the Low Carbon Building Programme 2006-2008



# Changing the demand for heat - behaviour and buildings

- Building regulations
  - Very effective for boilers and glazing
  - New build performance poorly enforced
- Building labelling
  - Early stages of implementation
- Tax incentives
  - Very limited
- Energy Supplier programmes
  - Effective for low cost measures
  - Restricted to households
- Information and advice programmes
  - Well established EST and CT programmes
  - Commitment to better metering and billing
  - Very limited technical support

# Conclusions for policy

- Top short term priority is to use less heat
  - Educate, incentivise and regulate
- Incentivise more efficient equipment
  - Deploy 2<sup>nd</sup> law technologies
- Begin to use more renewable fuel
  - Incentivise and develop the supply chains for solar and biomass