

# Fuel Poverty Carbon Footprint

eceee Summer Study 2009; La Colle Sur Loup

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# Purpose of project

- Issues of UK concern
  - Climate change, fuel poverty
    - 10% or more of income spent on heating, hot water and lighting
  - Local authorities (LAs) needed to commit to National Indicators 186 (carbon emissions) OR 187 (fuel poverty)
    - Little research about direct and indirect rebound effects
      - use of any cost savings from measures
      - whether they increased their carbon footprint
- **Purpose**
  - **inform debate on whether fuel poverty programmes conflict with carbon emissions reduction programmes**
- Objectives
  - collect data to establish the carbon footprint using the Government's Act On CO<sub>2</sub> calculator
  - compare these with national and local averages
  - determine whether their footprints were any different from the average

# Methodology

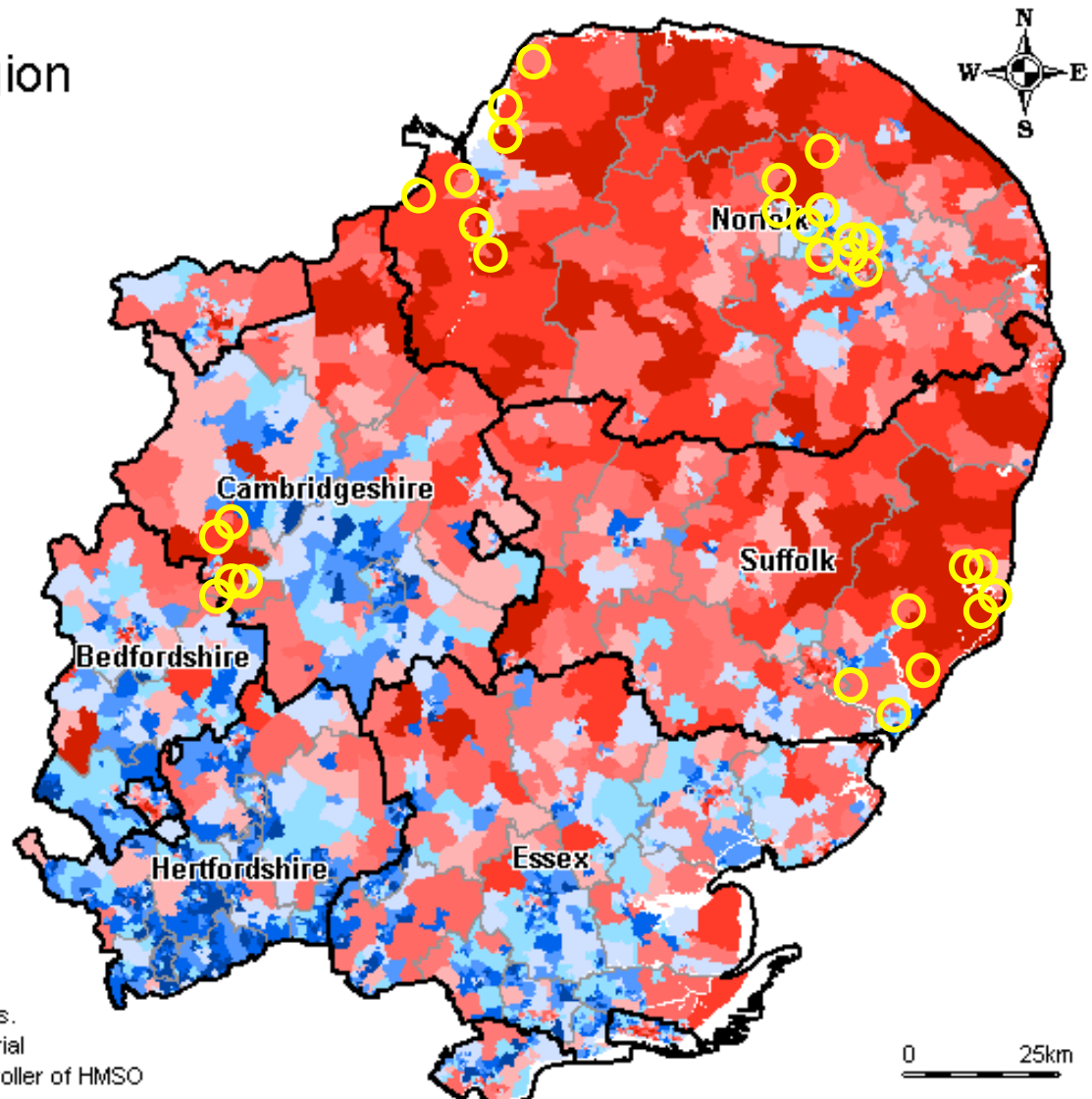
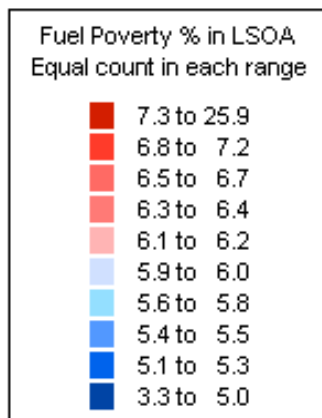
- Invitation to LAs in East of England:
  - Five took part
- Participants invited by LAs;
  - letters sent to people who had received measures under LA schemes
- 156 letters sent out: 42 positives; 31 surveyed
- Five case studies carried out including carbon emissions from other sources

# Location



# Survey coverage

## Fuel Poverty in the East of England Region



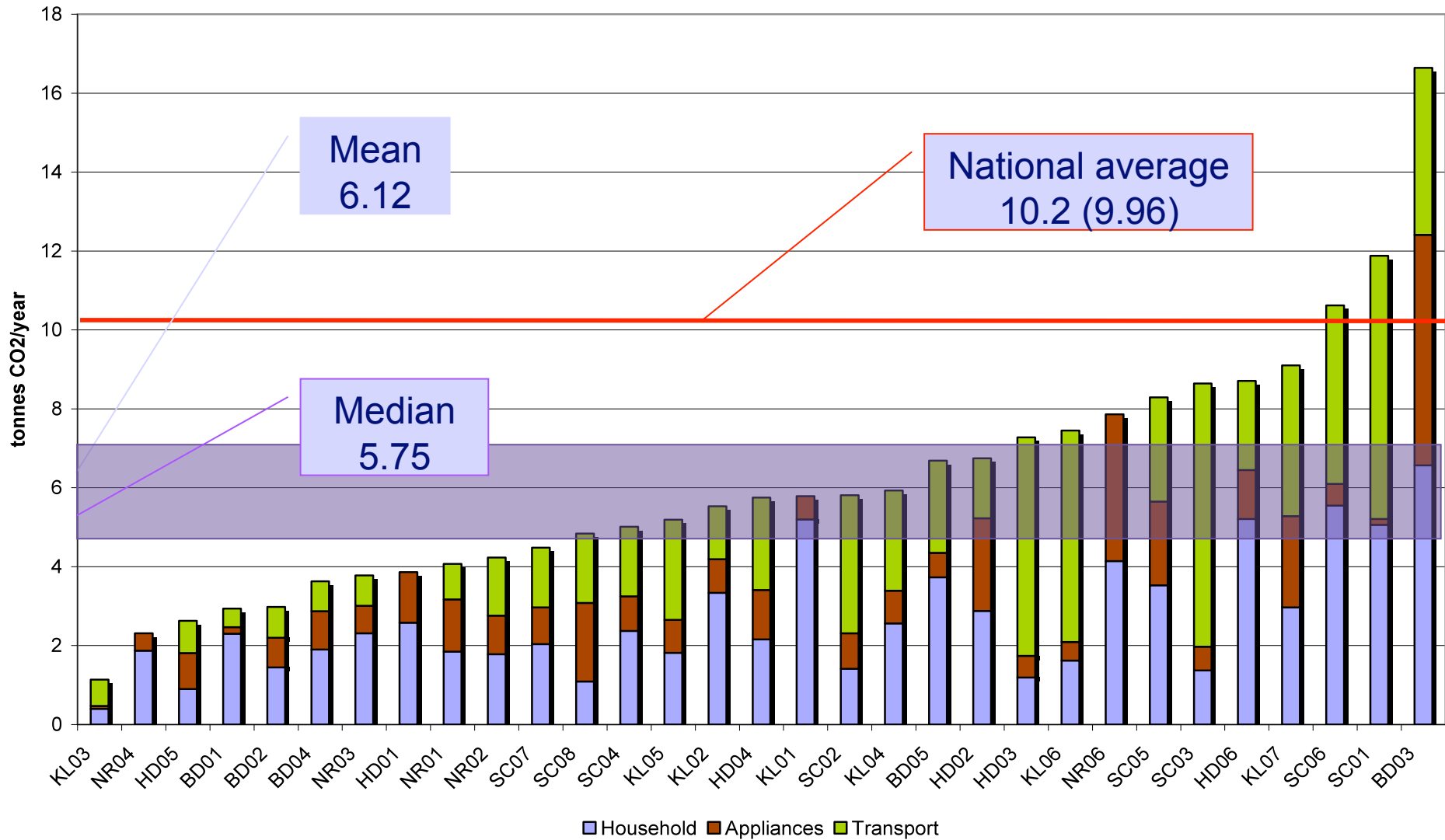
Data modelled by the University of Bristol and CSE from 2001 Census and 2003 English House Condition Survey

Source: 2001 Census, Output Area Boundaries.  
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# Household types

- 10 one-person households, 13 couples
- 22 pensioner (10 over 75)
- 8 families (1 under 3, 4 under 11, 8 over)
- Vulnerability:
  - Housebound/disabled/long-term ill-health (10)
    - Stroke, arthritis, sight, mobility,
    - Down's syndrome
  - Infants/young children (3)
  - Single parents (5 – 3 now with partners)
  - Pensions & benefits
- 11 in lowest income range (<£181/wk) ; 7 in second

# Carbon footprints of the group



# Est. footprints before / after measures

- Household part of footprint measured
  - Heating, hot water, lighting
- Average before measures (based on stated bills and measures installed) 4.39 tCO<sub>2</sub>/yr
- Average after measures 2.68 tCO<sub>2</sub>/yr
- Av. reduction 1.71 tCO<sub>2</sub>/yr
- Compares well with national programme (Warm Front) measured average 1.2 tCO<sub>2</sub>/yr
- Gives average 22% reduction on *total* carbon footprint



# What did they do with their savings

- Average saving for 12 'actual' bills:
  - £200 per year on all fuels before and now
  - £430 per year based on what cost would have been now
- Most were able to afford food and other bills more easily (£4 a week)
- No evidence of 'high carbon' spending such as more air travel or plasma TVs

# Carbon reduction vs. fuel poverty

- Carbon saved by these 31 households 47.9 tCO<sub>2</sub>/yr
  - Equal to or better than Government assumptions for current supplier obligation programmes
- Suggests value of programmes for 'fuel poor' the same or better than to 'fuel rich'
  - or Government assumptions on comfort taking too high
- No change to what they do with their lifestyles – apart from feel more comfortable

# Case studies

- Five candidates selected (duty/interest)
- Four vulnerable households, other 'young' pensioners
- Average Act On CO<sub>2</sub> footprint 8.9 tCO<sub>2</sub>/yr
- Calculated FP (% income) either actual based on usage/bills or modelled

# Case study – Ms B

- Footprint 11.8 tCO<sub>2</sub>/yr
- FP before 10.0, after 6.7 %income
- Family, traditional timber house, special needs son + infant
- Huge difference to warmth
- Children's health improved
- Not been so worried about bills, less stress about new shoes
- All sleeping better
- Temps barely reaching guidelines



# Case study – Mrs C

- Footprint 10.6 tCO<sub>2</sub>/yr
- FP a(m) before 6.8 (13.0), after 8.5 (7.7) %income
- Elderly, disabled lady and her full-time carer
- Huge difference to warmth
- No risk of chill at night
- Maintain coal fire for comfort
- Always worried about bills
- Temps barely reaching guidelines



# Research Conclusions

- No evidence that people who receive measures under a fuel poverty programme are likely to spend on high-carbon emissions products and services.
  - rebound effect, if any, does not lead to an increase in carbon footprint.
- Whether this is the case for all types of households requires further study.
  - robust study using kWh measurements before and after recommended
- Further exploration of the value of programmes for 'hard to treat' homes – off the gas network and/or with walls that cannot be cavity wall insulated – needed
  - carbon savings and social benefits for vulnerable people in HTT homes suggest greater carbon savings than hitherto calculated

# Carbon footprinting?

- Project used Act On CO<sub>2</sub> version 1/08
- Need for standard approach aligned with Government carbon counting
  - Bottom-up vs top-down
  - Air travel?
  - Public transport?
  - Water, waste & food?
- Should the unit be person, household or adults in household... or...
- Could we have a carbon allowance excluding heating?

# Conclusions

- Vulnerable people are least able to address impacts of policy on lifestyles
- Carbon reduction efforts must not further marginalise people
- Can we agree on a standard approach to carbon footprinting?
- Concern for targeting fuel poverty
  - Need to focus on poor quality homes not whether people on state benefits
- Do we understand 'comfort' well enough to prescribe 'energy efficient heating' measures?
- Should we separate heating from behaviour-based programmes?



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