



Department  
of Energy &  
Climate Change

# Incorporating health benefits into ex-ante project appraisal

Sam Jenkins | Fuel Poverty Programme | 20/04/2015



# Outline

**Policy Context**

**Methodology for estimating health impacts of energy efficiency**

**Modelling Results**

**Issues and Next Steps**

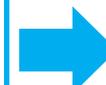


# Policy context

UK Government  
decisions  
underpinned by  
cost-benefit analysis  
/ project appraisal

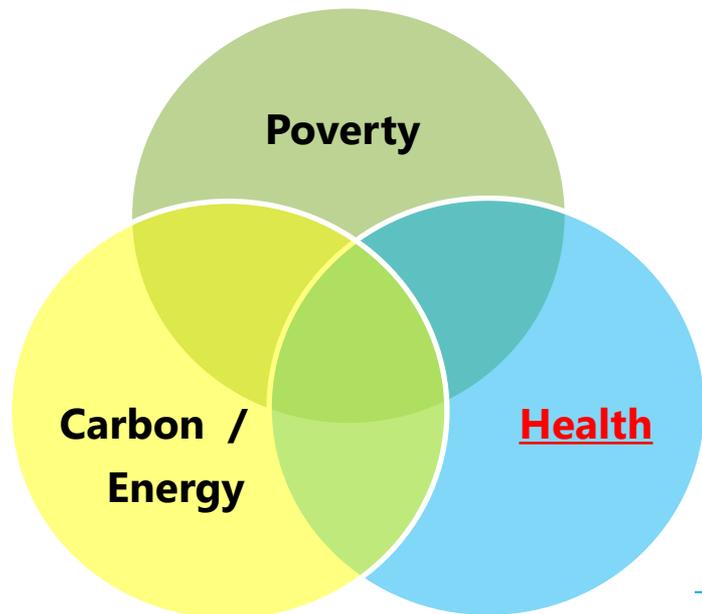


- Typical quantified benefits:
- Value of energy saved
  - Value of GHG reductions
  - Value of better air quality
  - Value of improved comfort



Gaps remain,  
undervaluing energy  
efficiency compared  
to other carbon  
reduction policies

## Fuel Poverty:



- The health effects of living in cold homes = part of what makes fuel poverty a distinct problem from income poverty
- Quantifying and monetising the health effects of targeting particular socioeconomic groups can help steer interventions towards those who benefit the most from EE measures.

# Methodology (1)

## Health Impacts of Domestic Energy Efficiency Model (HIDEEM)

Joint project between DECC and University College London + London School of Hygiene and Tropical Medicine

Indoor Temperature + Ventilation Relationships with:

Risks of mortality / morbidity from:

- Cardiovascular events
- Cerebrovascular events
- Myocardial infarction
- Cardiopulmonary events
- Lung cancer
- Respiratory illnesses (e.g. Asthma)
- Common Mental Disorders

Energy efficiency interventions:

- Loft insulation
- Cavity Wall Insulation
- Solid Wall Insulation
- First Time Central Heating
- High efficiency boiler upgrade

And now looking to include direct energy cost subsidies



# Methodology (2)

Simulate the effect  
of installing energy  
efficiency measure  
on thermal  
properties and air  
flow in specific  
dwellings

Change in internal  
temperature

Change in  
concentration of air  
particulates

Change in relative risk  
of developing  
illness/disease for  
individuals in the home

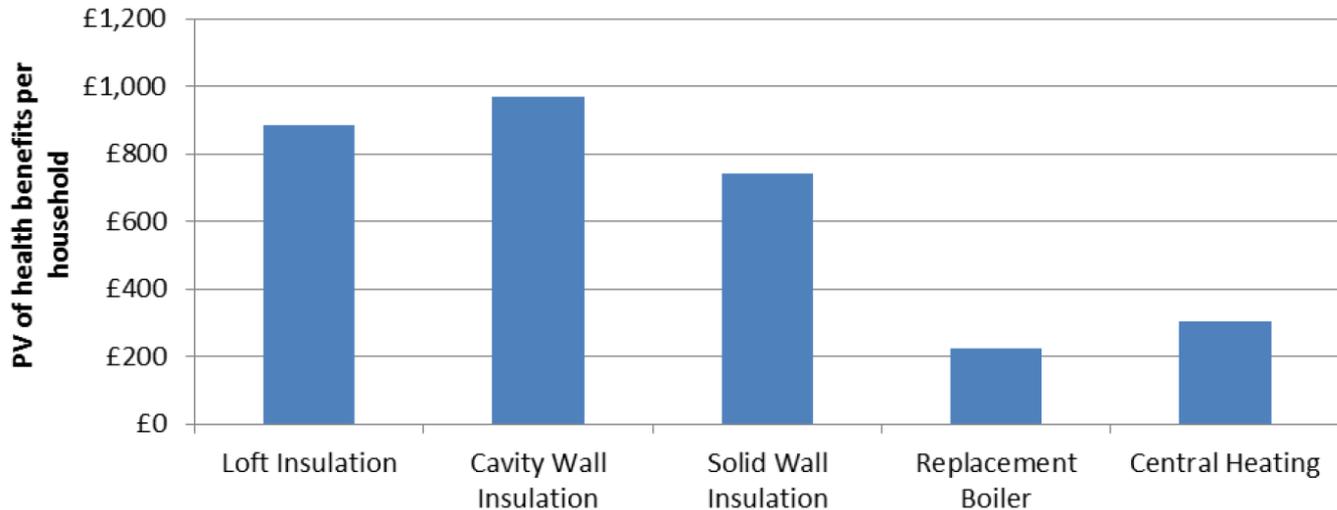
Quality  
Adjusted  
Life Years

Health  
resource  
costs

Monetised health impact  
(£)



# Results (QALY impacts only)



Some health measures have the potential to pay for themselves in social terms – e.g. loft insulation costs £300 - £400, improves health by £800

## Energy Company Obligation

- Net Present Value excluding health: £896m
- Monetised Health Benefits: £225m

## Private Rented Sector (domestic)

- Net Present Value excluding health: £32m
- Monetised Health Benefits: £102m

Some issues of overlap to resolve, but potential to make a big difference



# Issues and next steps

## **Overlaps between benefits – can't yet add health impacts into NPV analysis**

- Currently include “comfort taking” as a monetised benefit
- Unclear whether / how much of comfort taking is consciously motivated by health considerations
- Looking to resolve this in current phase of the project

## **Not yet clear what the net impacts of health service provision will be**

- Able to estimate with relative confidence how use of health services will decline from improved health as a result of energy efficiency
- Unclear whether any extension of life will mean an increase in health service use for other health issues

## **Next steps**

- Developing solutions to the overlaps and net health provision cost issues
- Evaluating front line health impacts to validate ex-ante modelling
- Look to expand the number of diseases covered by the model
- Systematically roll out use of health analysis in appraisal of domestic energy efficiency policies



# Summary

- The evidence base for health impacts from energy efficiency in the UK is strong
- It has been possible to express health benefits in a way that works within existing Government decision-making frameworks (cost-benefit analysis)
- The potential difference that health benefits can make to project appraisal is substantial
- This work is already influencing policy decisions, even though there are issues to resolve to fully factor health impacts into full project appraisal
- We are approaching the point where we can systematically roll out the use of this tool in strategic analysis and impact assessments.



Thank you

[samuel.jenkins@decc.gsi.gov.uk](mailto:samuel.jenkins@decc.gsi.gov.uk)