

Health co-benefits of climate change mitigation policies

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LONDON
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HYGIENE
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MEDICINE

Health co-benefits of the 'low-carbon' economy

(Haines et al Lancet 2009)

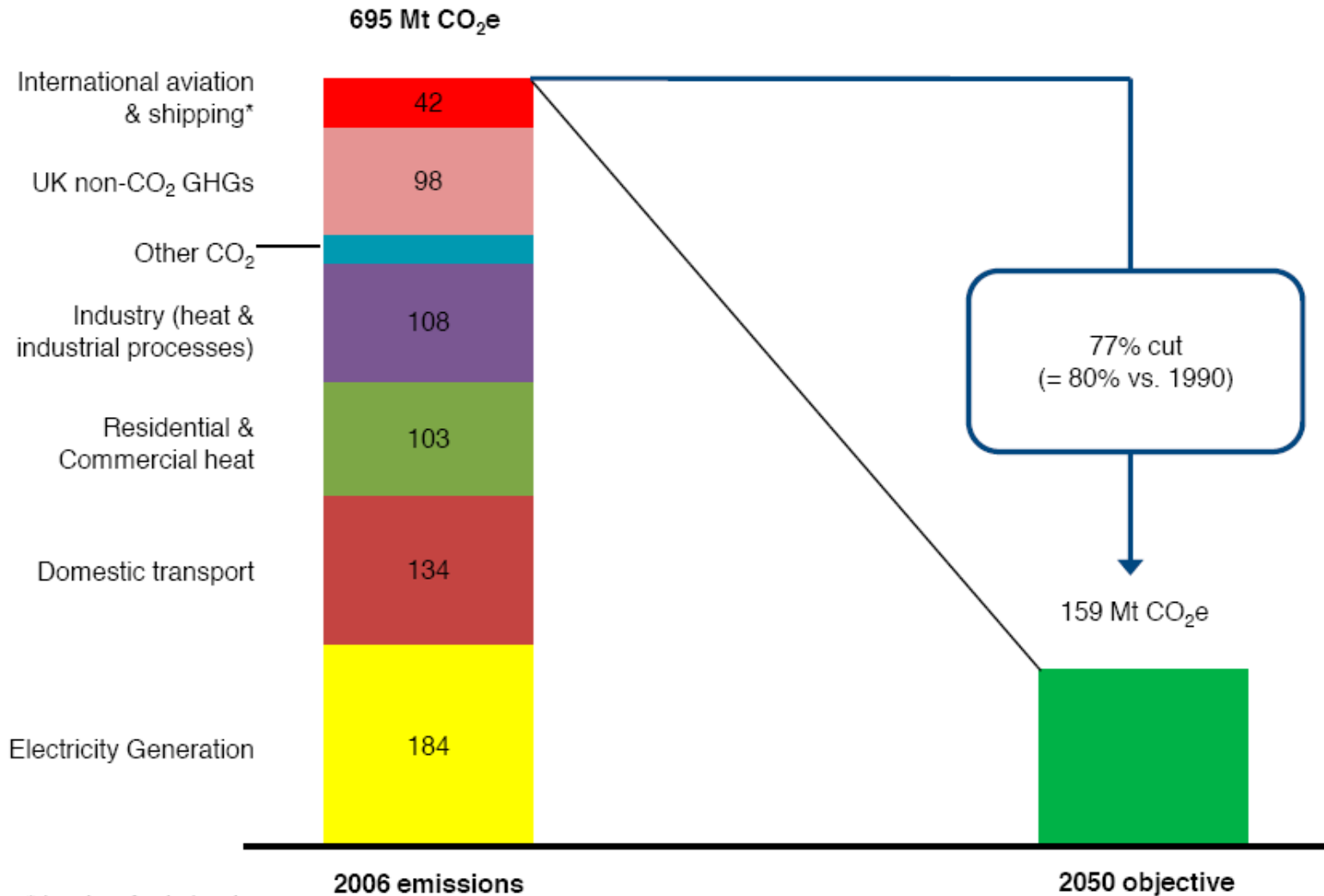
Through policies in several sectors e.g.

- Housing
- Transport
- Food and agriculture
- Electricity generation

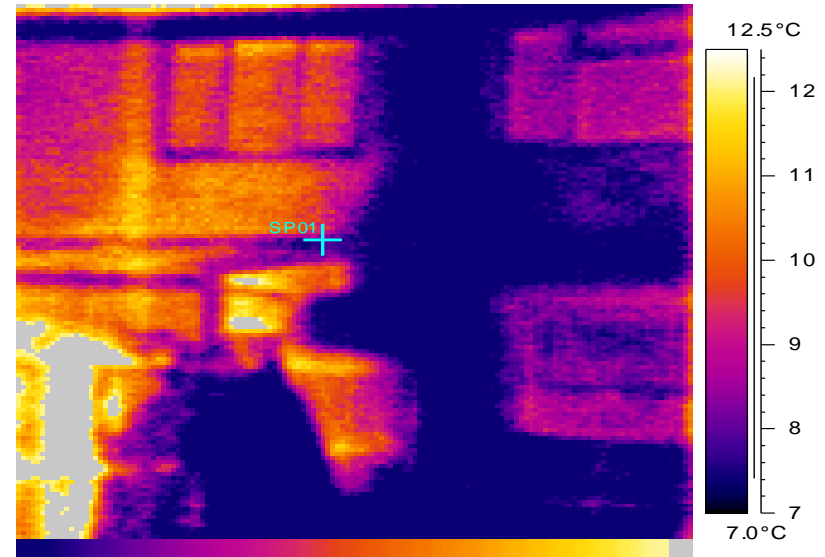


The scale of the challenge

(UK Committee on Climate Change)



Benefits of household energy efficiency in the UK (combined insulation and ventilation control improvements) (Wilkinson et al 2009)



Impacts	Reduced exposures e.g. to fine particles, radon, cold, mould, tobacco smoke
Premature deaths averted	~ 5400/ year
Mt-CO ₂ saved (vs 1990)	55

Health and GHG benefits of Indian improved stove programme -150 m over 10 years

Wilkinson P Smith KR et al 2009

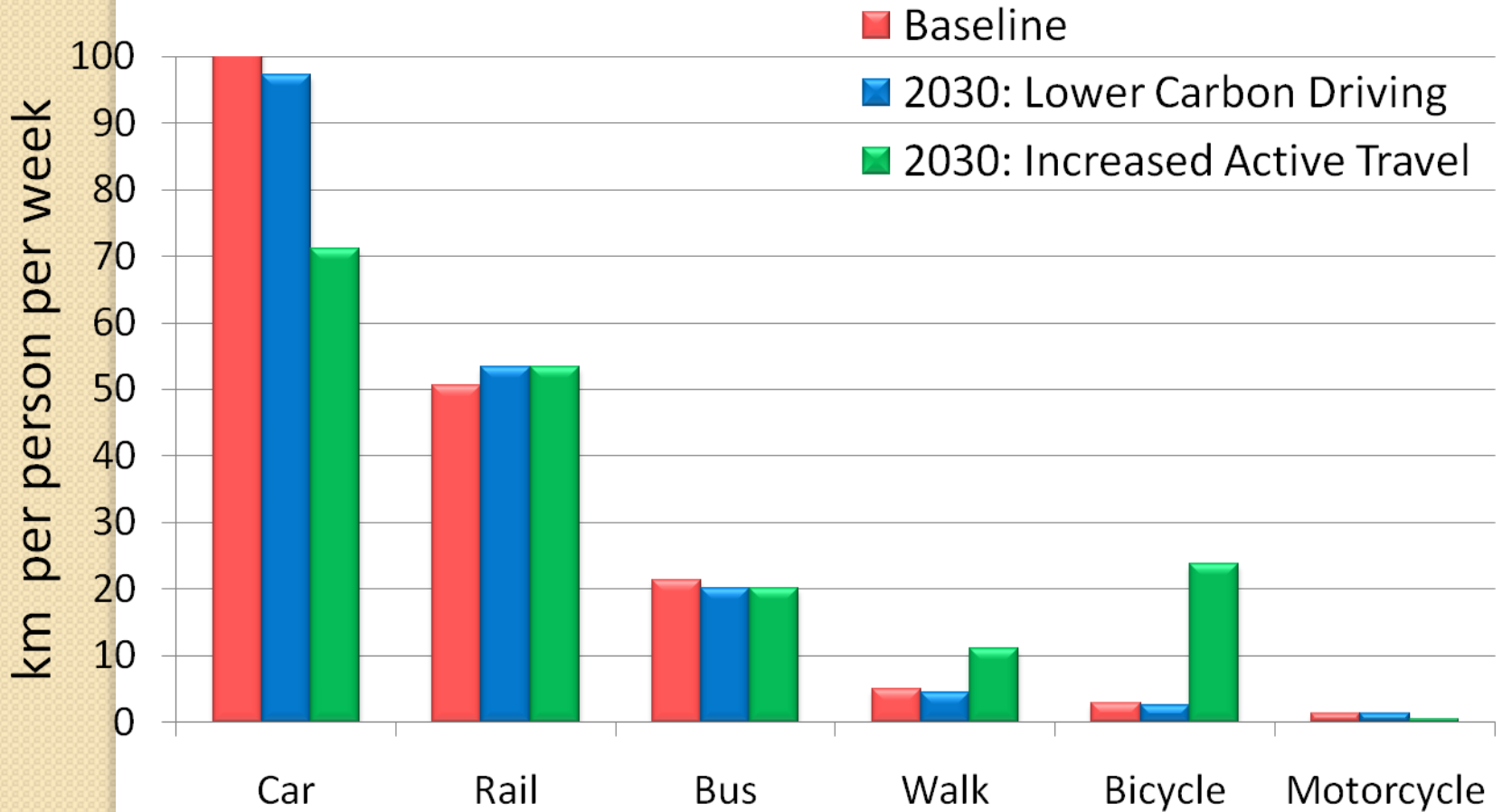
- **2 Million premature deaths averted** (mainly women and children)
- **Reductions** in black carbon, methane, ozone precursors ~ **0.5-1.0 billion tonnes of CO₂ eq over the decade**
Cost <\$50 per household every 5 years



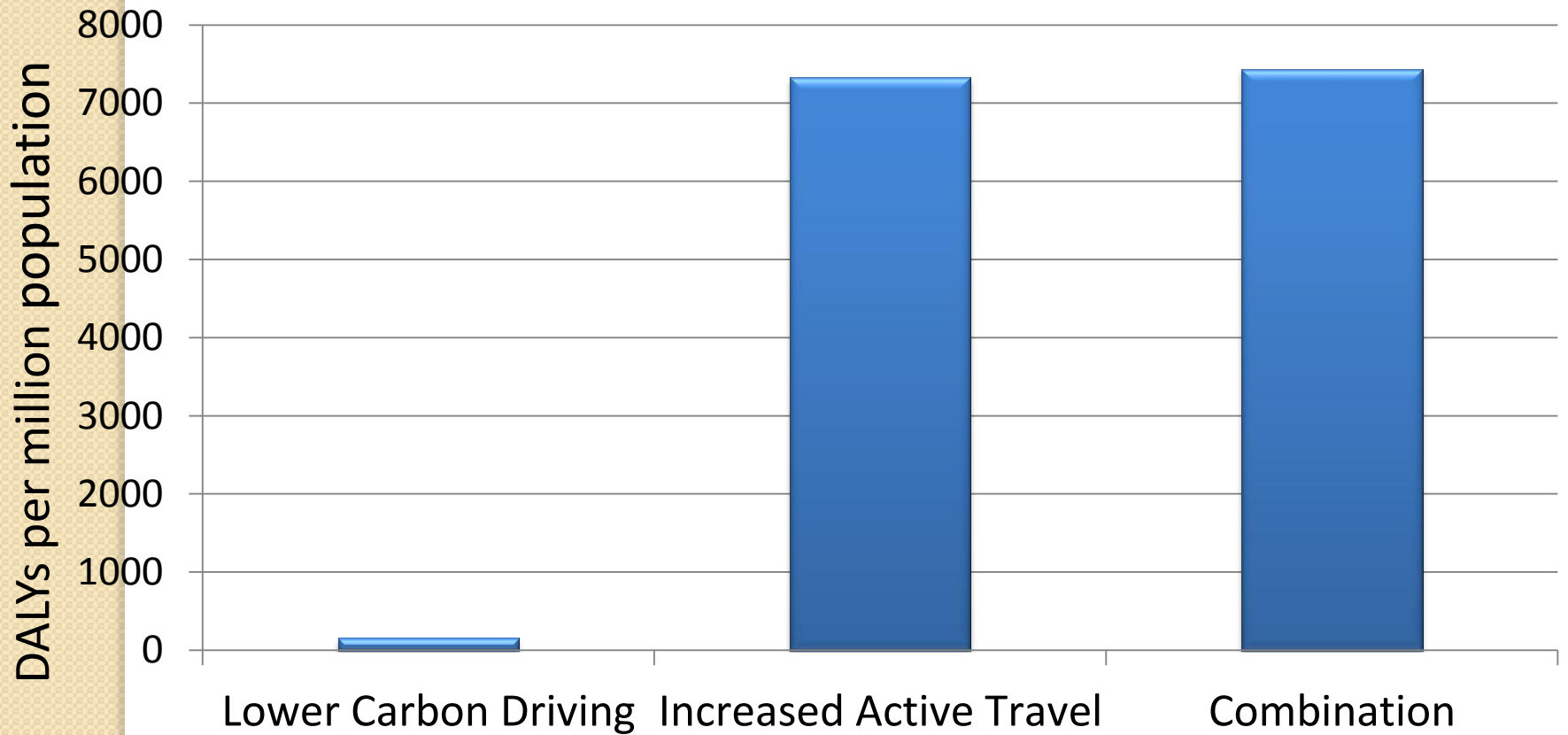
Urban Transport Pathways modelled: Increased active travel and low carbon driving in London and Delhi (Woodcock et al 2009)



London travel patterns



Health benefits in London: alternative scenarios



Estimated health effects of increased active travel in London

--reductions in diabetes, large bowel cancer and depression not shown
(from Woodcock et al 2009)

	Change in disease burden	Change in premature deaths
Ischaemic heart disease	10-19%	1443-2207
Cerebrovascular disease	10-18%	866-1271
Dementia	7-8%	195-250
Breast cancer	12-13%	203-211
Road traffic crashes	19-39%	47-86

Estimated health effects of increased active travel in Delhi- reductions other health outcomes not shown (from Woodcock et al 2009)

	Change in disease burden	Change in premature deaths
Ischaemic heart disease	7-20 %	1680-4710
Cerebrovascular disease	7-19 %	840-2280
Road traffic crashes	27-69 %	1170-2990
Diabetes	6-17 %	180-460
Depression	5-8 %	NA

Figure 1: Potential annual NHS expenditure averted by year and health outcome from Increased Active Travel scenario

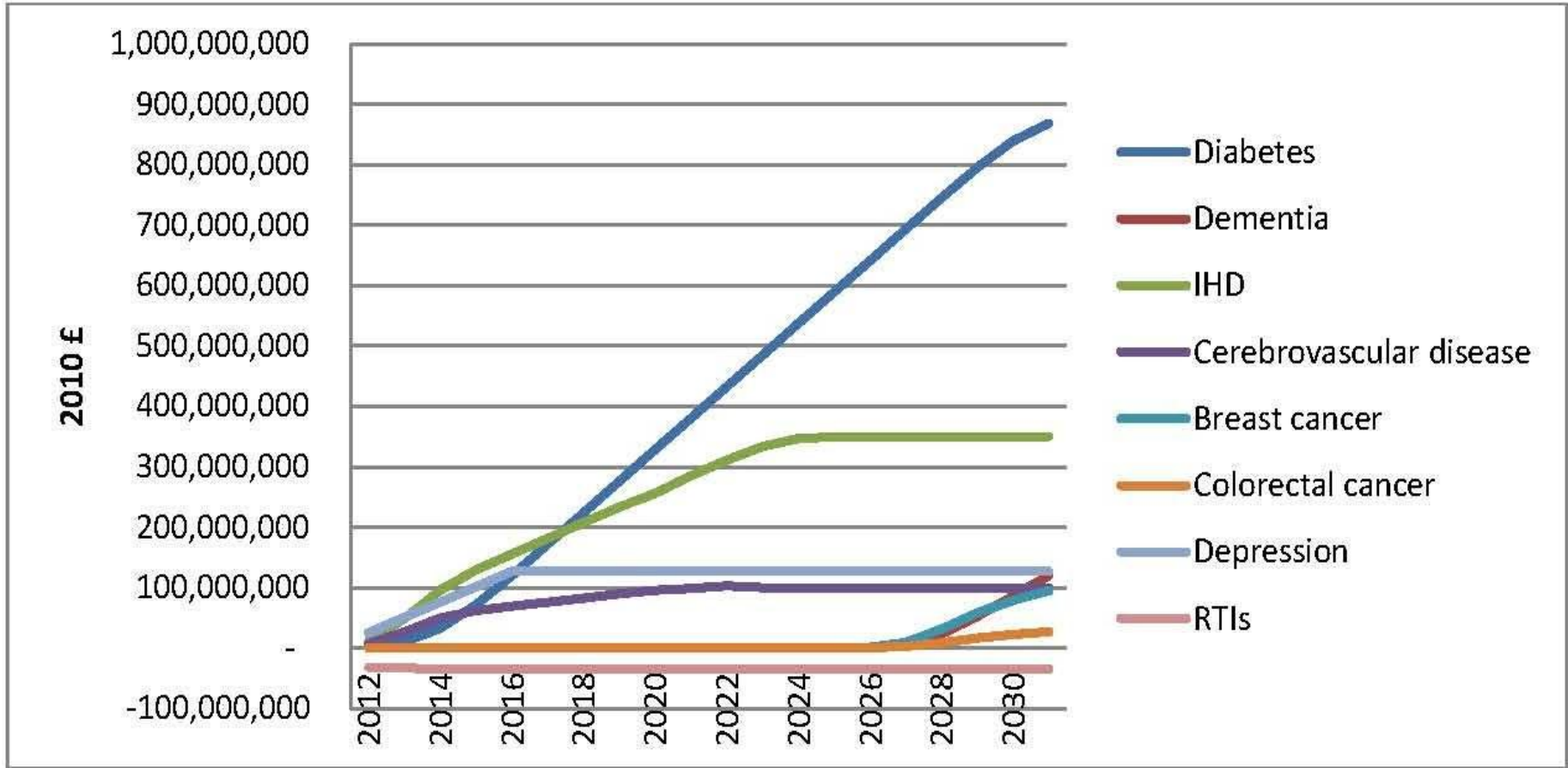
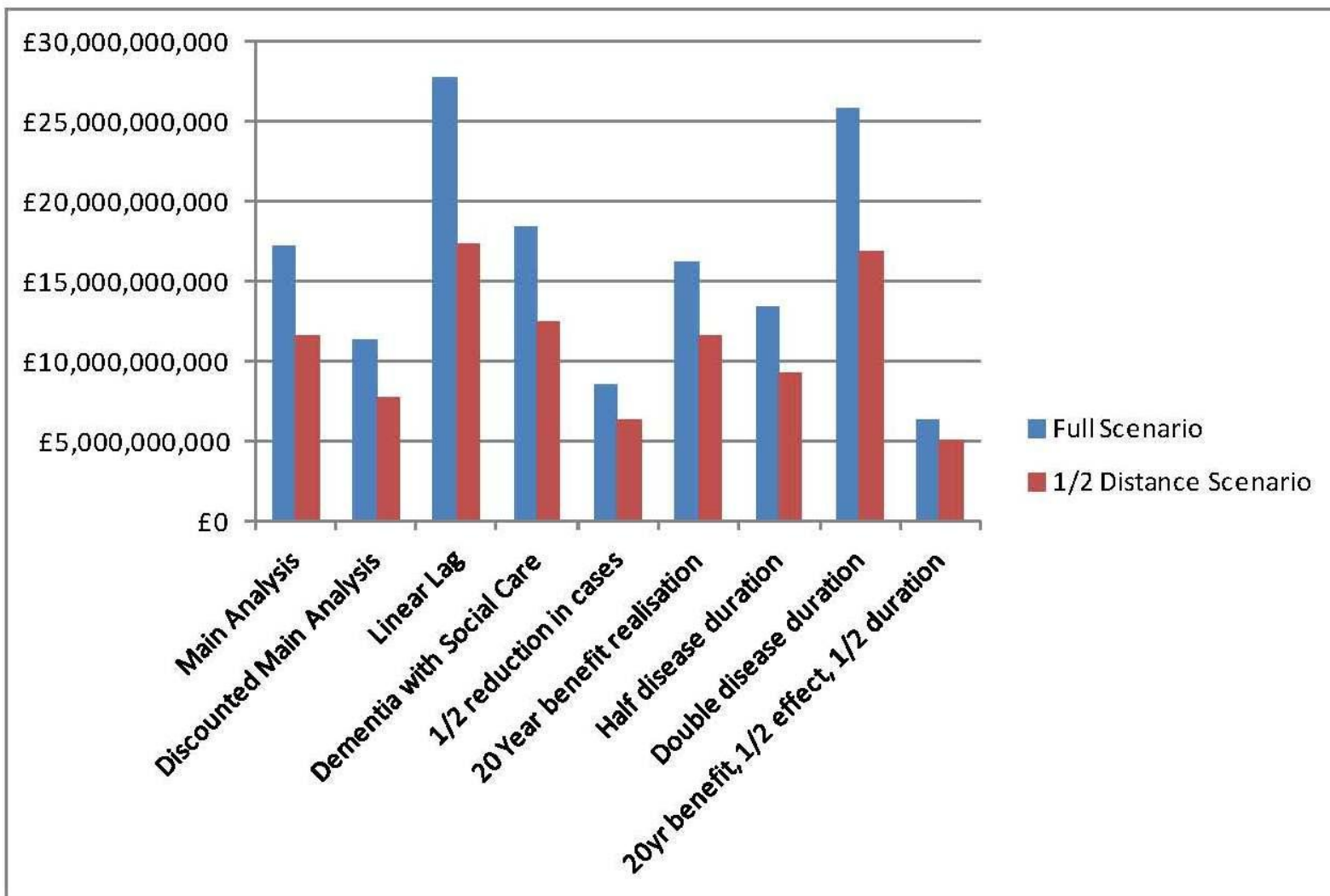
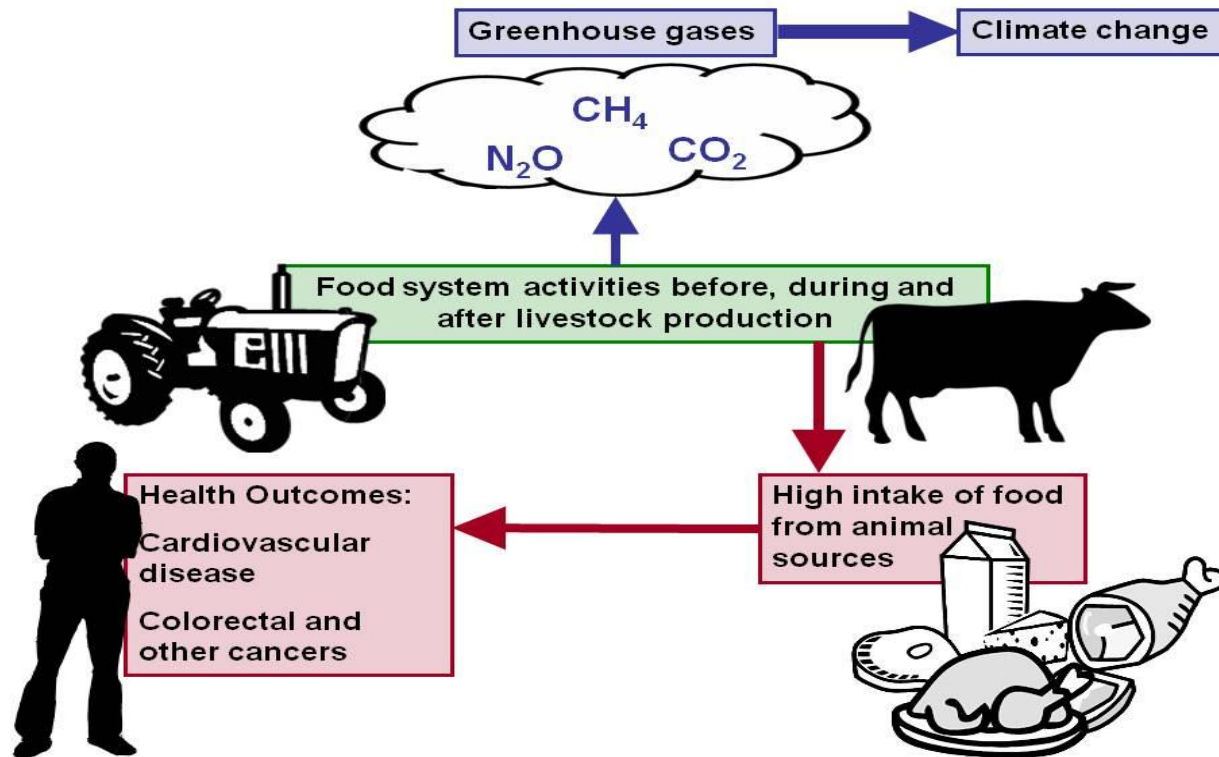


Figure 3: Sensitivity Analyses showing NHS expenditure averted over 20 years for various parameters

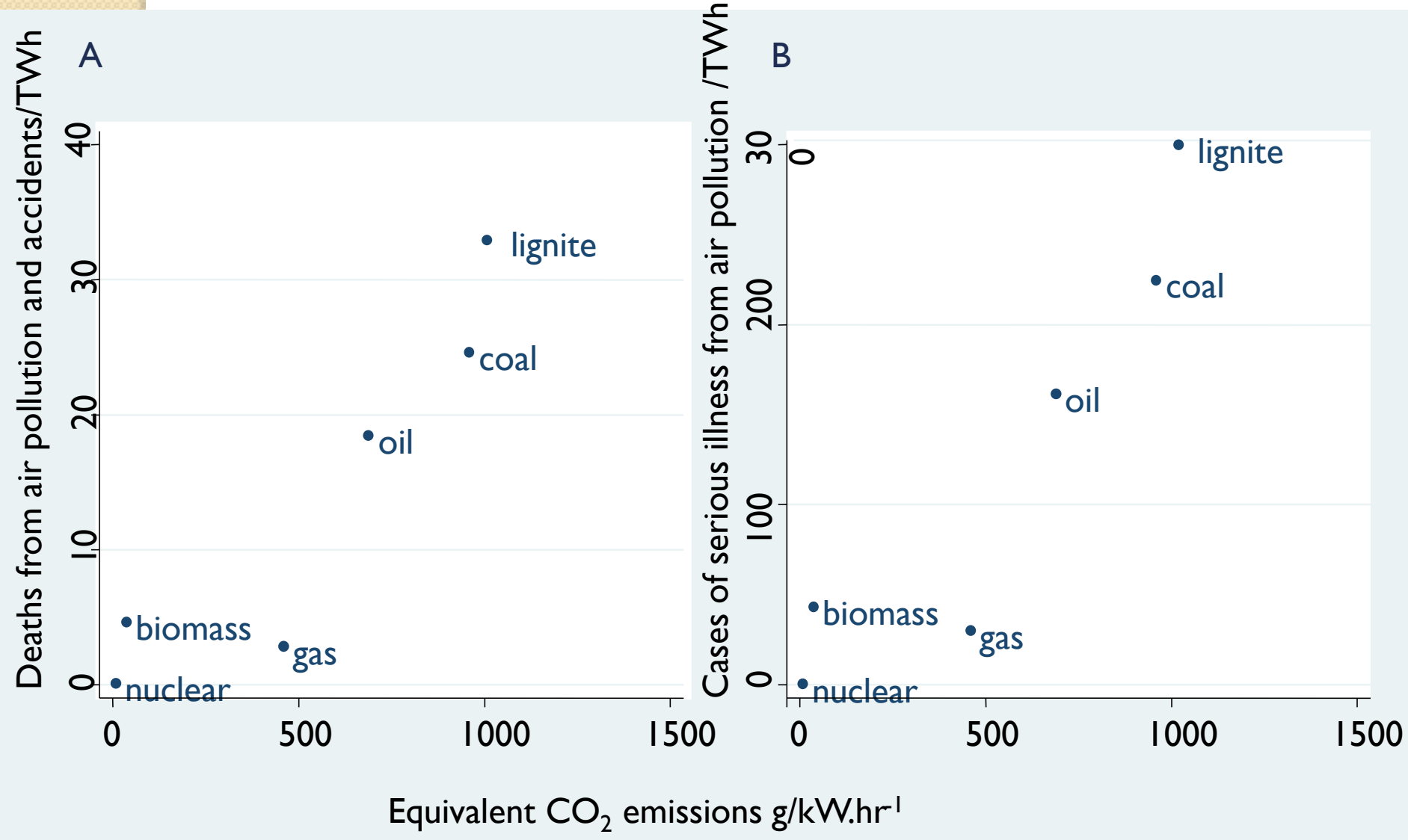


Food and Agriculture Sector



- ~80% of total emissions in sector from livestock production
- Reducing animal source saturated fat by 30 % in the UK could reduce heart disease deaths by ~ 15% (~ 18,000 premature deaths) and a similar % in São Paulo, Brazil (Friel, Dangour et al Lancet 2009)

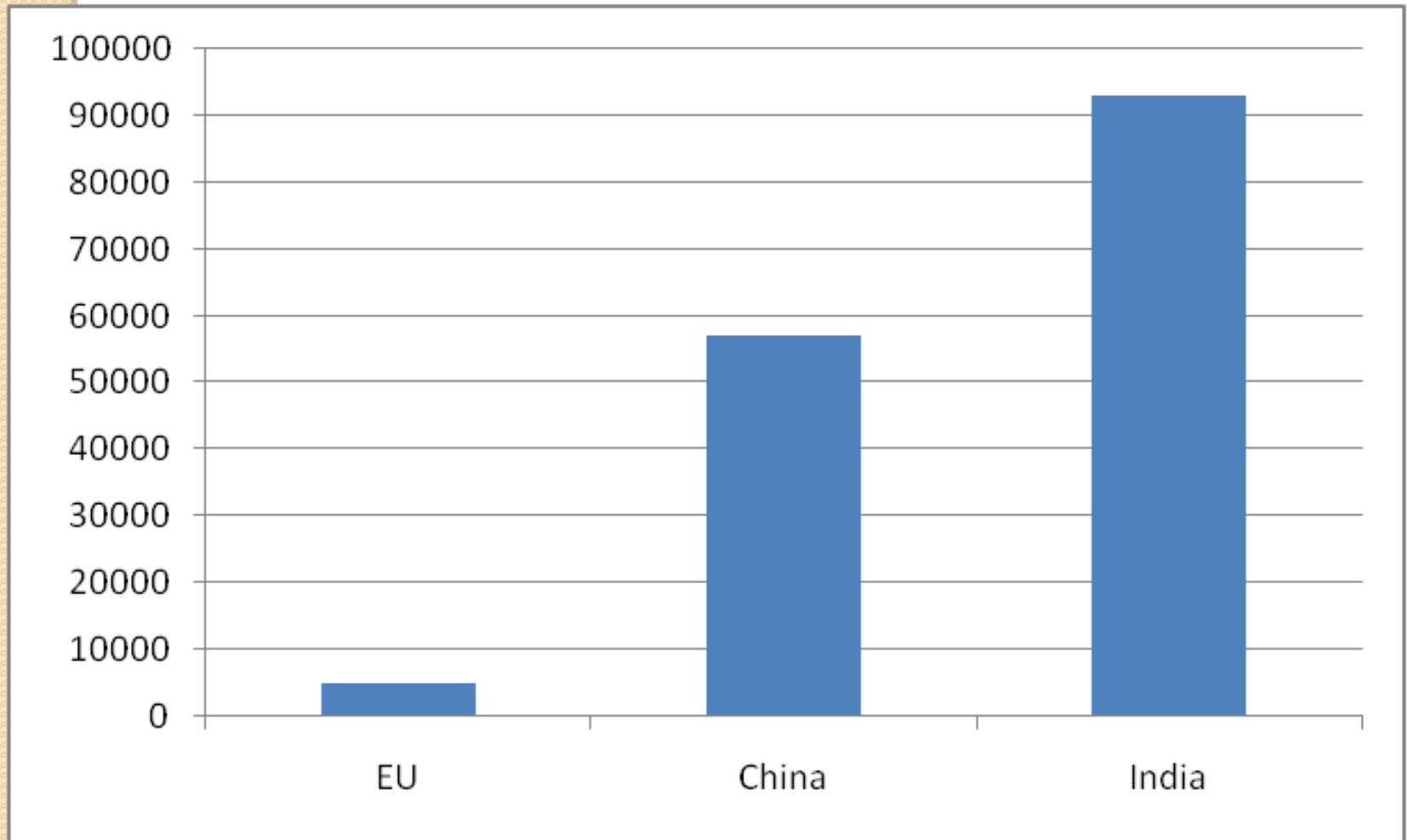
Electricity generation- Air pollution impacts vs CO₂ emissions



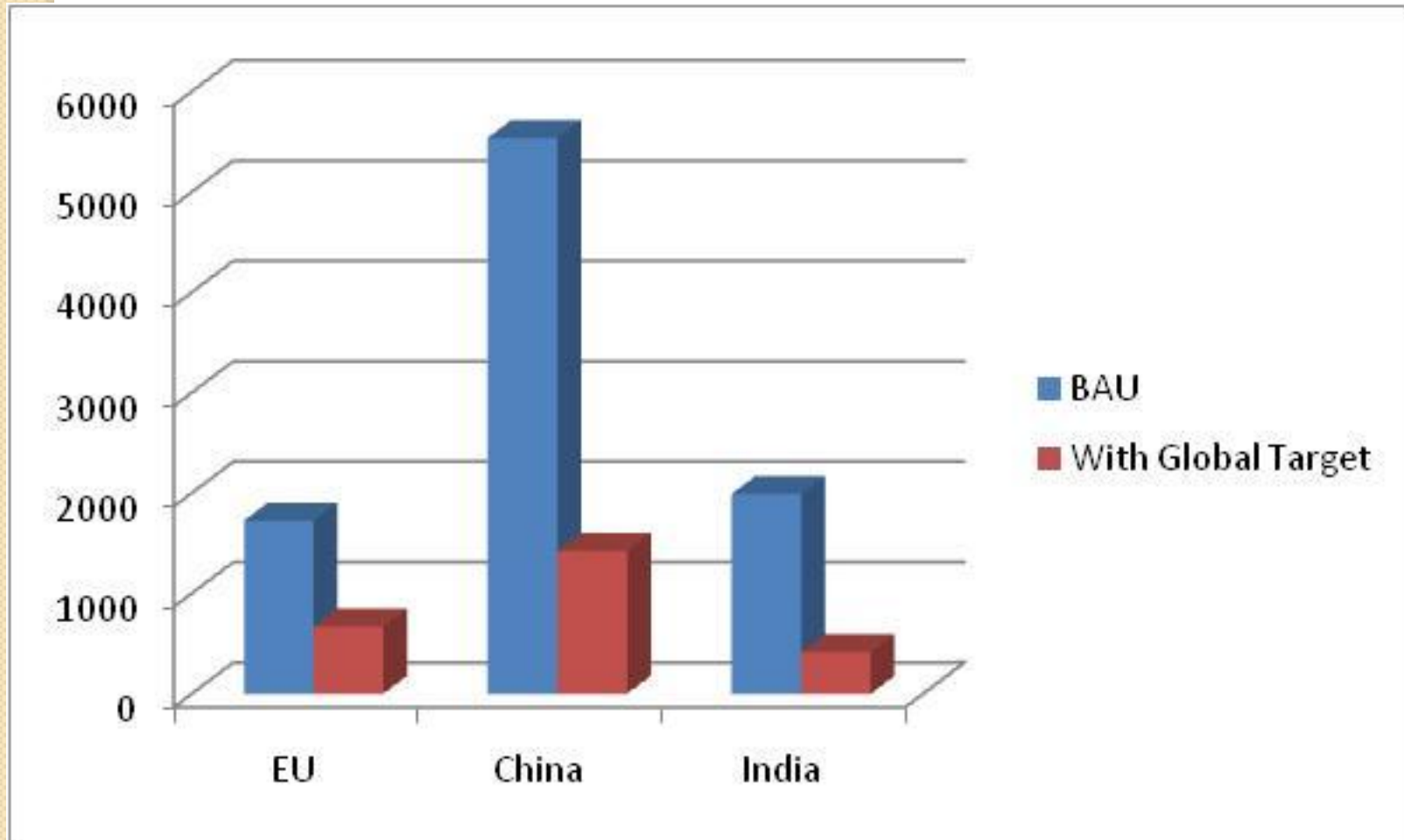
Source: Markandya A, Wilkinson P. Lancet 2007

Premature Deaths Avoided in 2030 from reduced particulate air pollution due to lower carbon electricity generation

(Markandya et al 2009 Lancet)



Reductions in emissions of CO2 from electricity in 2030 (full trade approach) in millions of tonnes



Conclusions

Policies that address both public health and climate change are more attractive than focusing on either in isolation.

The health gains associated with climate change mitigation policies are additional to benefits from reducing climate change

These health co-benefits can help avert health service costs and offset the costs of low carbon policies

Low carbon policies can improve health in the near term as well as reducing the risks of dangerous climate change.

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Involving 55 researchers from UK, USA, India, Canada, Australia, Spain, France, New Zealand, WHO Geneva

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