

Sustainable air travel, behaviour change and social media  
AETN workshop, University of Lincoln, 18<sup>th</sup> May 2011

# Why it is important to address behaviour change in air travel

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## Contents:

- Background to my research & approach
- Environmental issues & air travel
- Research examining air travel behaviour
- Current issues & challenges

## Airport Energy Technology Network (AETN)

Network linked to funded project that aim to reduce environmental impact of airports through 6 projects (started in 2009):

- Energy & indoor environmental control of airport buildings
- Integrating & automating airport operations
- Environmental investment toolkit
- Surface access: behavioural change
- Changing wind-flow over the airfield (use of baffles)
- Energy recovery from landing aircraft

## Research approach

Research aims to “better understand transport-related behaviour in order to reduce carbon emissions”

Incorporates a people-based approach using a range of travel behaviour methodologies (choice modelling, segmentation & social network analysis)

Research cover a range of surface & air transport applications

## Research portfolio

Research prior to Loughborough University  
included encouragement of walking & cycling  
and Edinburgh congestion charging

Air travel research has included 'Propensity to  
Fly', INDICATOR and aviation tax analysis

Current portfolio includes three current major  
EPSRC projects:

1. 'ABC': Airport surface access
2. 'FUTURENET': Transport network resilience
3. 'DRT for DRT': Demand Responsive Transport

## Climate change & transport

### IPCC 4<sup>th</sup> Assessment Report (2007)

- “Very likely” human activities causing global warming
- Probable temperature rise by end of Century will be 1.8°C-4°C

Both the proportion and the amount of emissions from transport are increasing

Fears over air transport relate to recent & forecast growth

## UK policy response

Climate Change Bill (DEFRA, 2008a):

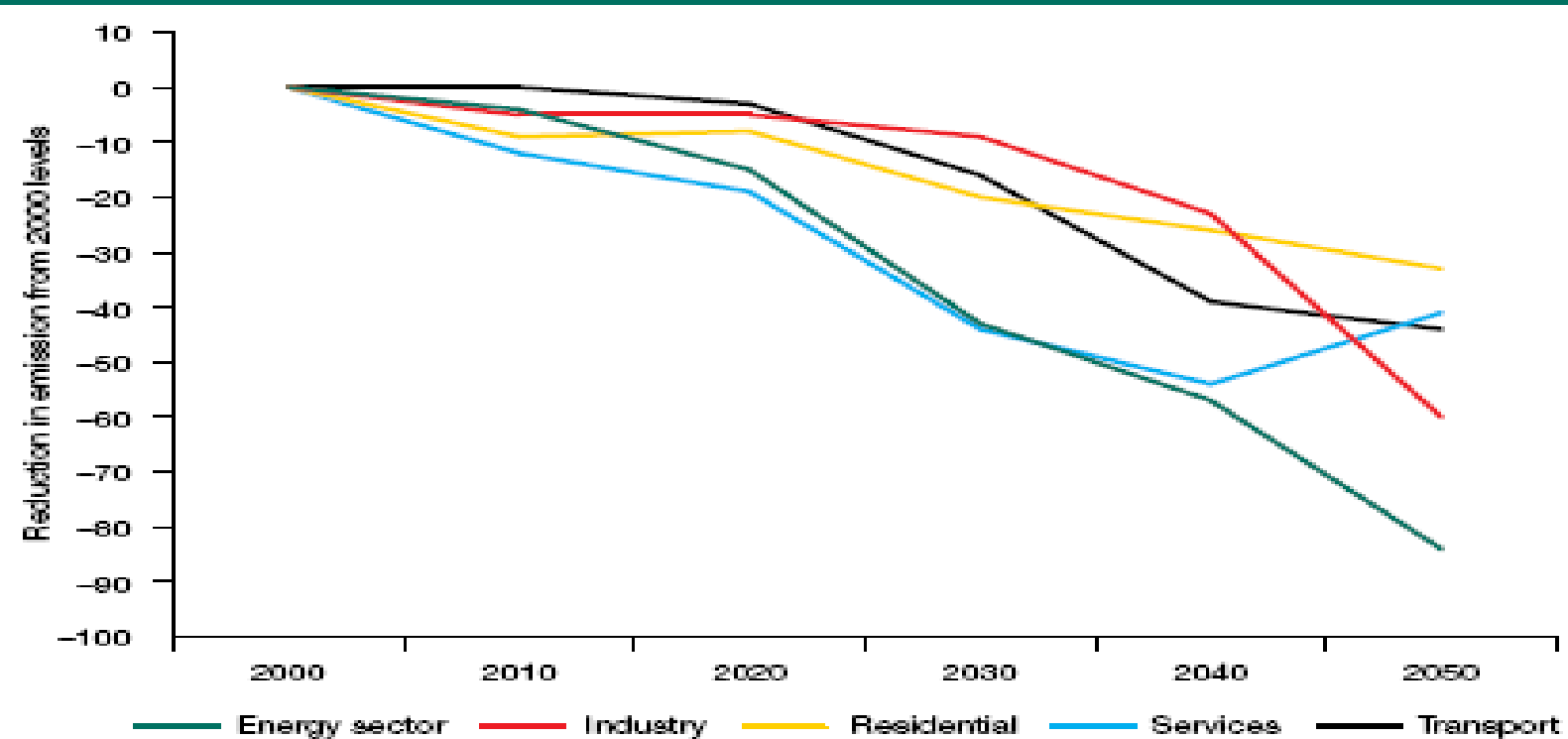
- requires a UK reduction of 80% in CO<sub>2</sub> emissions by 2050 based on 1990 levels
- interim target of at least 34% by 2020

UK ability to achieve this has been questioned

Stern Review (Stern et al, 2006), commissioned by the UK Government, calls for aviation industry & air passengers to cover external costs of air travel (cost of climate change).

# Department for Transport (2007): future emissions?

Figure 2.2: UK MARKAL – Macro model – emissions reduction pathways by sector achieving a 60% reduction in total UK emissions by 2050



Source: Meeting the Energy Challenge: A White Paper on Energy (Cm 7124), May 2007  
Note: Energy Sector includes electricity generation and upstream oil and gas production

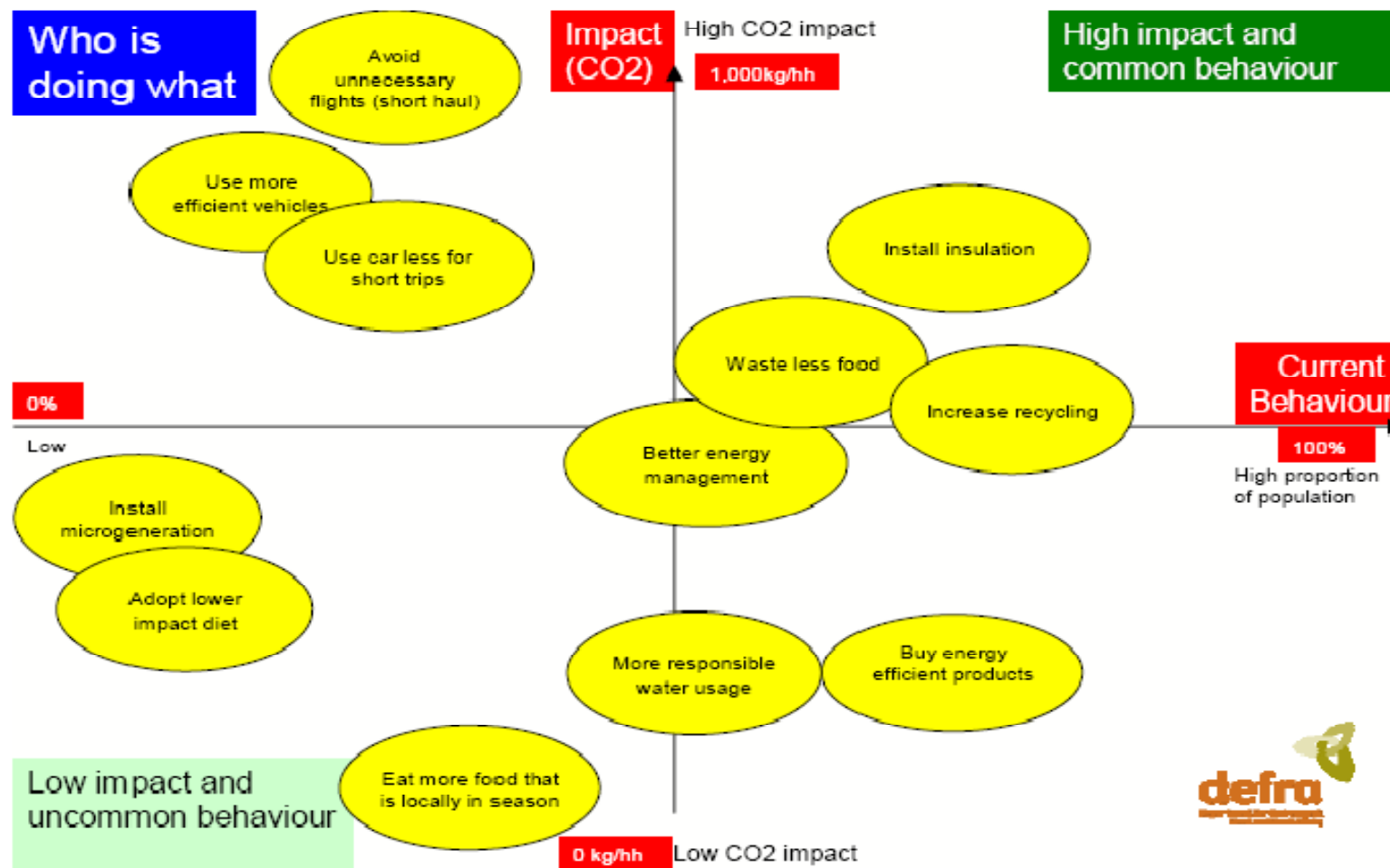
## Economic / environmental tension

- Aviation “not environmentally sustainable, but economically & socially” (Upham, 2003)
- Air transport challenges: aviation growth, climate change, air quality, aircraft noise & sustainable development. Concludes that it is a political issue: recommending managed growth that benefits all, rather than affluent minority (Daley, 2010)

## Mitigations: aviation (Chapman, 2007)

- Encouragement modal shift away from air travel (including air freight) e.g. to inter-city rail travel
- Aviation tax
- Optimise existing air capacity (e.g. increase price of slots at airports)
- EU Emission Trading Scheme
- Technological improvements (e.g. aircraft design, alternative fuels)
- Air traffic management (e.g. finding optimal flight routings & altitudes)

# DEFRA (2008b) Impacts & current behaviour



## ‘Propensity to Fly’: East Midlands region



Source: [www.picturesofengland.com](http://www.picturesofengland.com)

# 'Propensity to Fly' findings: public reluctance

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The Guardian | Monday 5 October 2009

## National

# Public reluctant to cut flying despite carbon cost, says study

**Adam Vaughan**

The extent of the public's refusal to fly less often has been revealed by research that suggests attempts to slash greenhouse gas emissions from aviation will struggle to get off the ground.

Fewer than one in five people are trying to reduce the number of flights they take for environmental reasons, warns the study from Loughborough University. The findings come after the aviation industry vowed to halve emissions by 2050 and the government's climate advisers called for a deal at UN climate talks in Copenhagen to cap emissions from flying.

The Propensity to Fly study also reveals the vast majority of the British public would rather cut energy use at home than go without flying for a year. While 88% of participants said they were willing or very willing to "reduce how much energy I use in my home throughout the year" only 26% said the same when asked if they would "not fly in the next 12 months".

Research from Exeter University last year said "green living" idealists who recycle and save energy at home are some of the worst offenders.

Dr Tim Ryley, who led the Loughborough research, said: "While some people are willing to fly less and others are willing to pay more to fly to offset emissions,

they remain the minority. It is cost and not environmental consequences that deter people from flying more often."

Asked what increase in air fares would deter them from flying short-haul, nearly four in five (79%) said a £50 rise would make them fly less often. With just a £10 increase in short-haul fares to destinations such as Paris and Rome, only 21% would probably take fewer flights.

Air passenger duty, the government's tax on air fares, is changing to take account of distance later this year, with the duty on short-haul flights rising from £10 to £11 in November and £12 in 2010. The increase in long-haul trips will be higher, with economy class to the US rising from £40 to

£60 in 2010 and flights of more than 6,000 miles - such as London to Sydney - jumping from £55 to £85 next year.

Joss Garman, a former Plane Stupid activist and now a campaigner for Greenpeace, said the results reflected a lack of alternatives to flying: "Ultimately it isn't surprising people want to cling on

to their flights when they're denied the choice of affordable, low-carbon alternatives." Although the recession has dented air travel numbers, which peaked at 239 million passengers through UK airports in 2007 but dropped to 234.2m in 2008, Ryley said growth was expected to return as the economy recovered.

Last month the government's committee on climate change warned that if growth in flights was left unchecked, emissions from global aviation could account for 15% to 20% of all CO<sub>2</sub> produced in 2050. While total greenhouse gas emissions from the EU fell by 3% between 1990 and 2002, emissions from international aviation increased by nearly 70%.

**26%** Proportion of people who said they would not fly in the next 12 months to help cut their carbon emissions

## ‘Propensity to fly’: links to holiday preferences

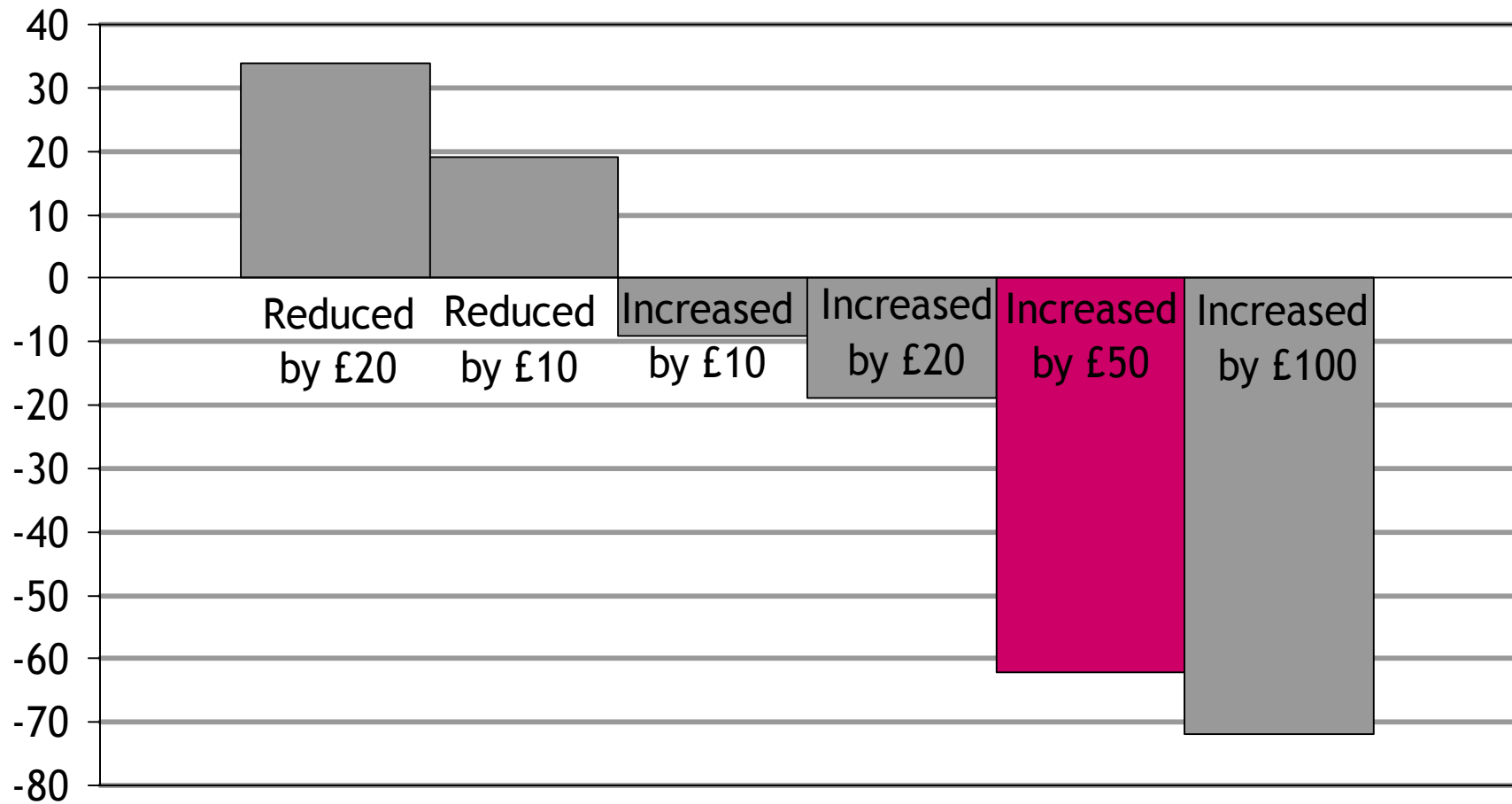
- ‘Frequent flyer’ segments:
  - Tend to book holidays over the internet
  - Prioritise convenient flight time over cost (less mobile low earners - opposite)
  - Tend to holiday abroad rather than in the UK
  - Least satisfied by destinations from nearest regional airport
- ‘Retired annual holiday makers’ & ‘retiring frequent flyer’ segments:
  - Don’t mind returning to locations they have visited before
  - Have been discouraged from flying due to recent changes in airport security

## ‘Propensity to fly’: links to air travel attitudes

- Small segments with attitudes:
  - Trying to fly less for environmental reasons (8%)
  - Discouraged from flying by security changes (9%)
- Majority agreement in economic benefits of air travel, also environmental disbenefits of climate change
- ‘Frequent flyer’ and ‘Retired / retiring’ segments support economic links - reject increased ticket price because of negative environmental impacts
- ‘Family orientated, female holiday makers’ most likely to agree ‘air travel makes a significant contribution to climate change’

## Price sensitivity for short haul flights

Response to change in total air fare  
(%age travel more / travel less)



## ‘Propensity to fly’: Discussion

- Key role of life stage
  - Employment: internet, frequent-flyers
  - Retirement: travel agents, package holidays, return to previous holiday destinations, use local airport
  - With children & female: most sensitive to effect of aviation on environment
- Only small number flying less for environmental reasons - ignore air travel component of environmental lifestyle
- Want to test: despite ‘credit crunch’ & rising air fares, people will want to keep their annual holiday

## The 'ABC' project

EPSRC-funded “The ‘ABC’ project. Airports and behavioural change: towards environmental surface access travel” (2009-2012)<sup>1</sup>

The focus is the year 2020, a mid-term timescale for airports to be carbon neutral

Features of the project:

1. Survey 2,000 users - this includes current data collection at Manchester Airport on passenger surface access attitudes & behaviours
2. Technology evaluation of: tele-presence, off-airport luggage drop, car sharing software

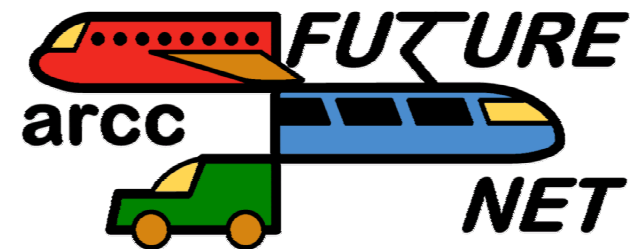
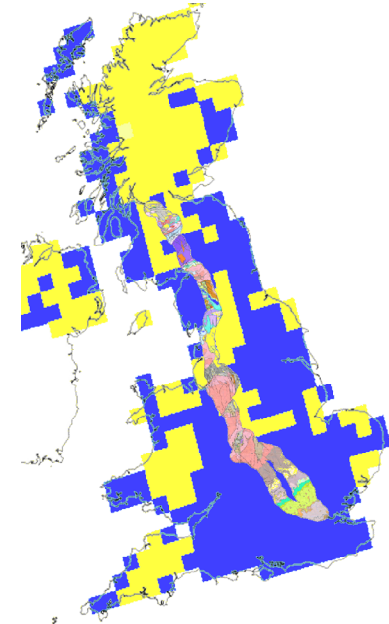


# ‘FUTURENET’: Future resilient transport networks

ESPRC-funded ‘FUTURENET’ project  
(2008-2013)<sup>1</sup>

Examines the impact of predicted climate change on the 2050 UK transport network, and investigates how to make the systems resilient

- Focus on London-Glasgow corridor
- Includes travel behaviour survey with social network analysis



## References

- Chapman, L. (2007) Transport and climate change: a review. *Journal of Transport Geography*, 15, pp. 354-367.
- Daley, B. (2010) *Air transport and the environment*. Ashgate, Farnham, Surrey.
- Department for Environment, Food and Rural Affairs. (2008a) *Climate Change Bill*. HMSO, London.
- Department for Environment, Food and Rural Affairs. (2008b) *A Framework for Environmental Behaviours: A Report*, HMSO, London.
- Department for Transport. (2007) *Towards a sustainable transport system. Supporting economic growth in a low carbon world*. October 2007. Department for Transport, London.

## References

- IPCC International Panel on Climate Change (2007). Climate Change 2007, IPCC 4<sup>th</sup> Assessment Report.
- Ryley, T.J. and Davison, L.J. (2008) UK air travel preferences: Evidence from an East Midlands household survey. *Journal of Air Transport Management*, 14(1), pp.43-46.
- Stern, N. *and 22 co-authors* (2006) *Stern Review on the Economics of Climate Change*, HM Treasury, 30 October 2006
- Upham, P. (2003) *Towards sustainable aviation*. Edited book. Earthscan Publications Ltd, London

# Thank you

Any questions?