



Am I Bovvered? The implications of passenger attitudes to climate change for carbon management and offsetting

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Outline

- Key findings from OMEGA carbon offset study – passenger survey
- Airport carbon accounting and management
- Airline fuel efficiency actions
- Passenger mandate for action on climate change by air transport organisations





Passenger Survey

- January and February 2008
- 487 passengers at Manchester Airport surveyed
- Questionnaire developed in consultation with stakeholders from government, industry, NGOs and research institutions.
- Aimed to establish attitudes to climate change and offsetting amongst passengers to help in identifying factors that may affect the level of uptake of carbon offset services in the future





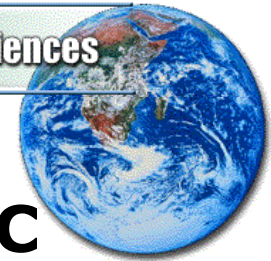
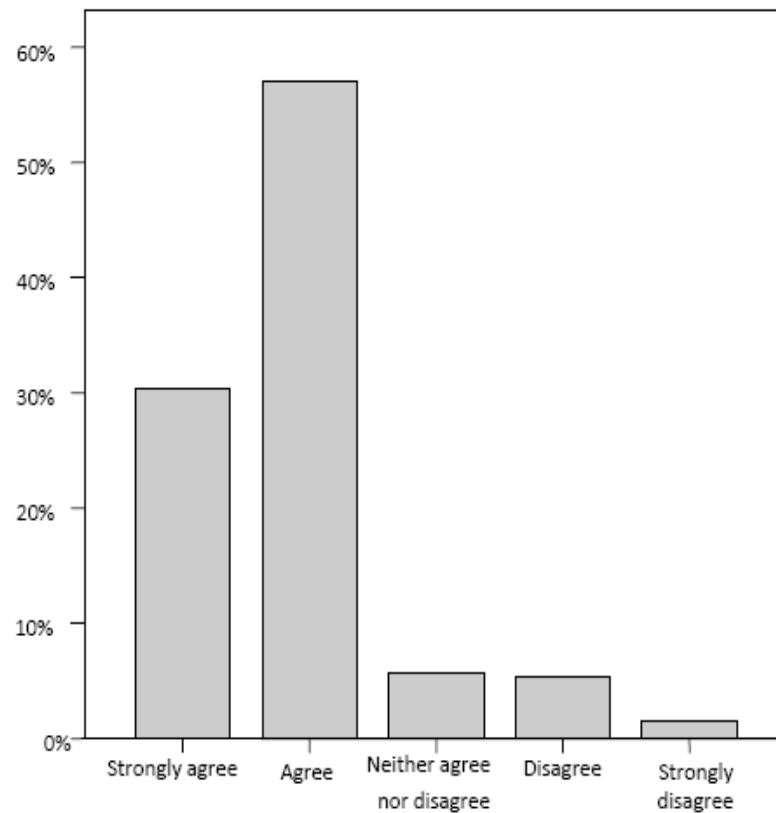
Passenger survey – key findings

- ***Attitudes towards climate change and air transport:*** climate change a genuine threat, air transport influence on the climate – not reflected in behaviour. Government and airlines primarily responsible for aviation emissions.
- ***Awareness and use of offsetting:*** majority aware of offsetting in general, many unaware of flight-specific offset. Passengers confused about, the nature, purpose and methods of offsetting
- ***Willingness to pay:*** few willing to pay the full cost of offsetting; may more willing to fund CC mitigation.

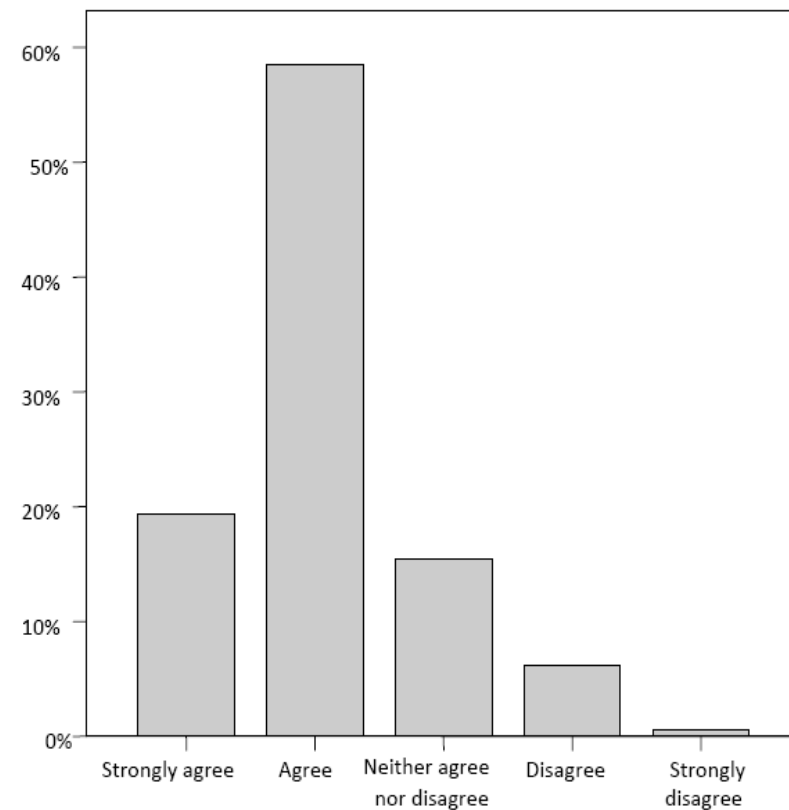




CC genuine threat

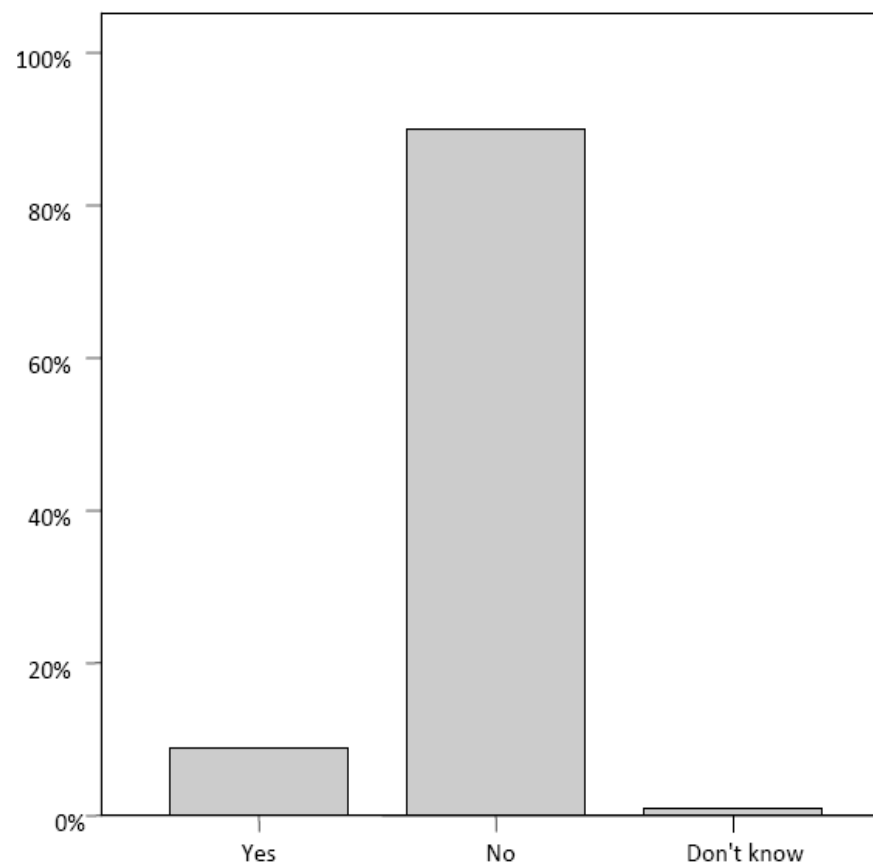


Air travel influence on C





View on CC influences flying choices?





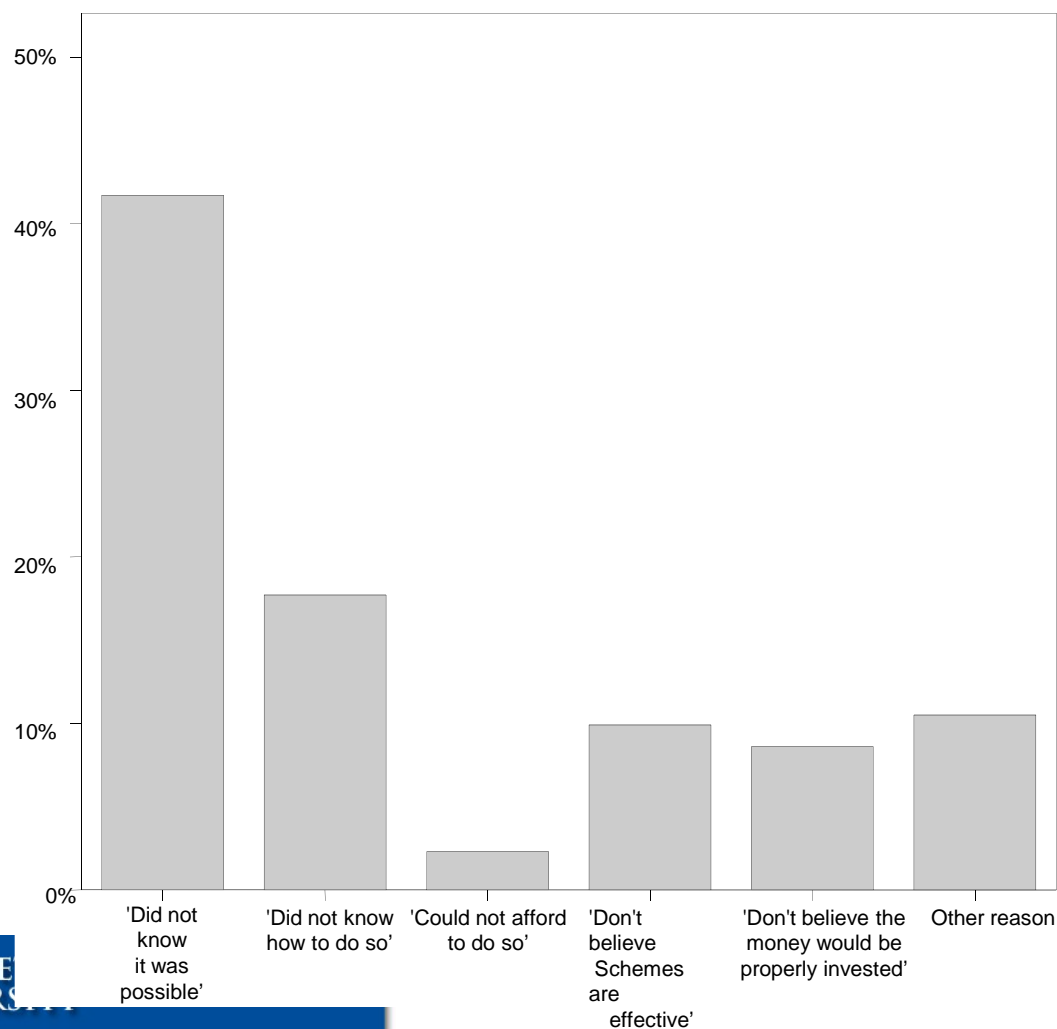
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Reasons for not offsetting their flight





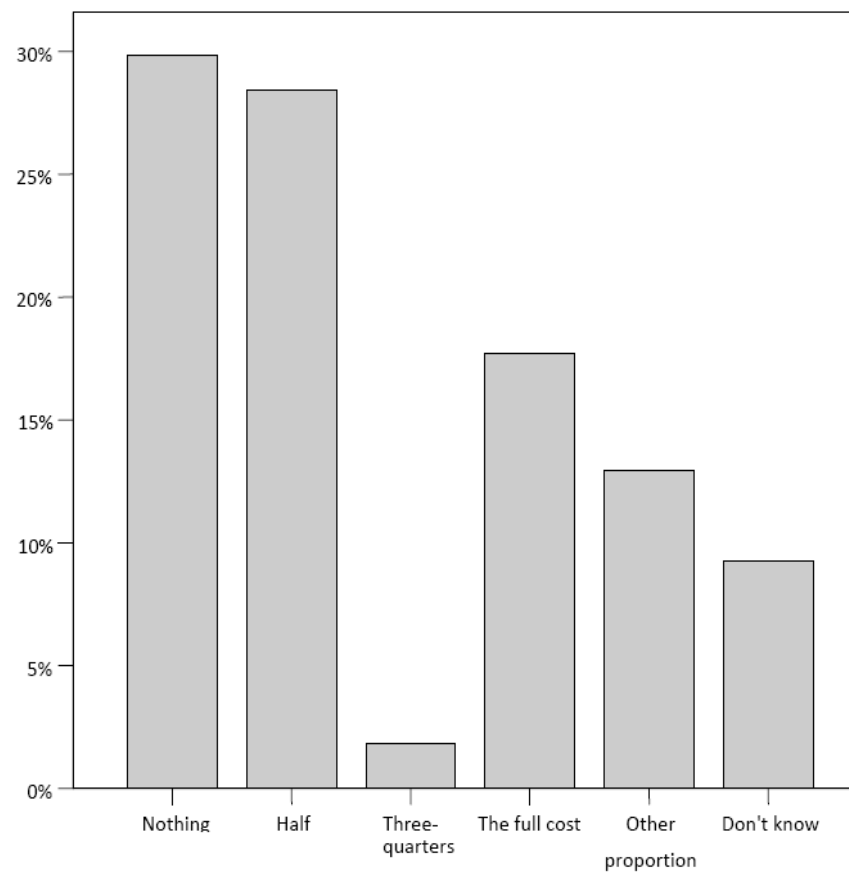
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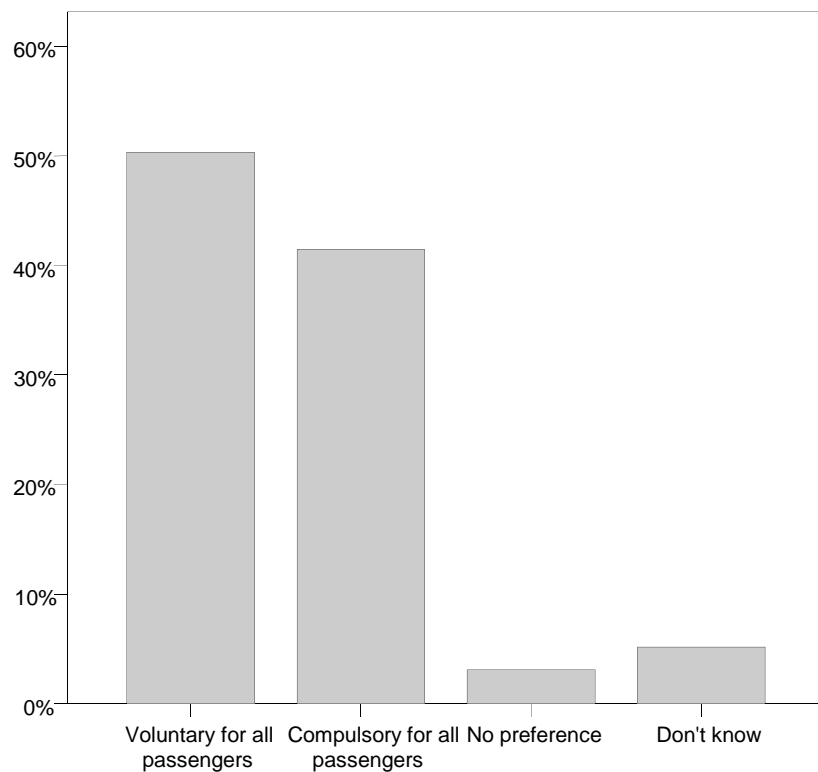


Willingness to pay

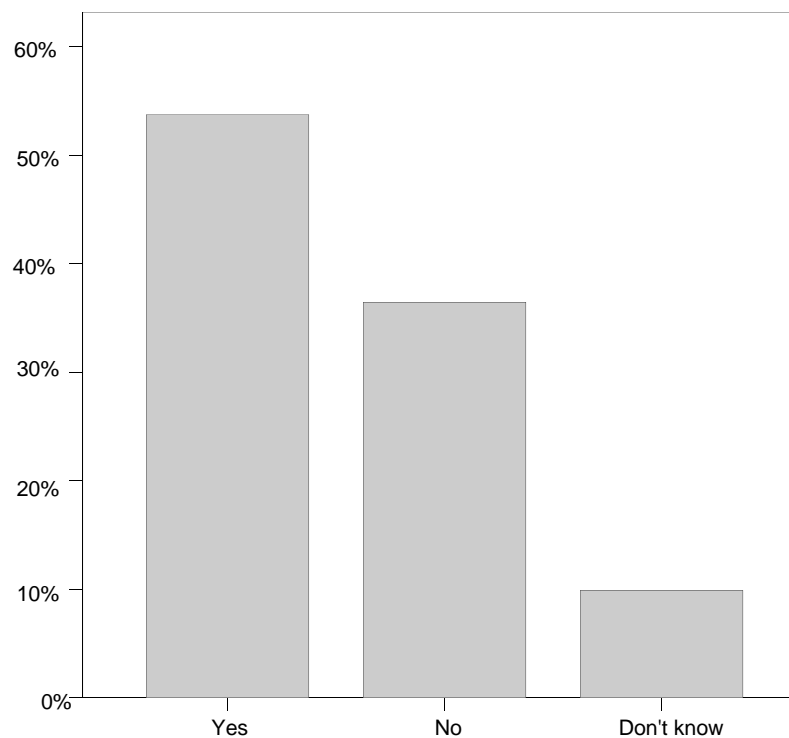




Voluntary for passengers?

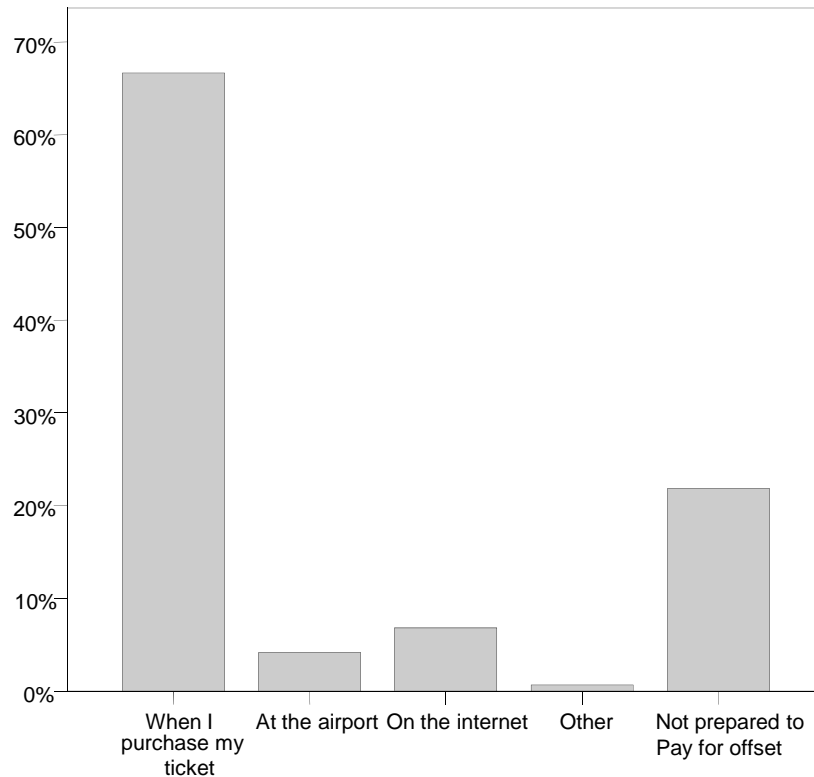


Airlines legally required to include offset in ticket price?

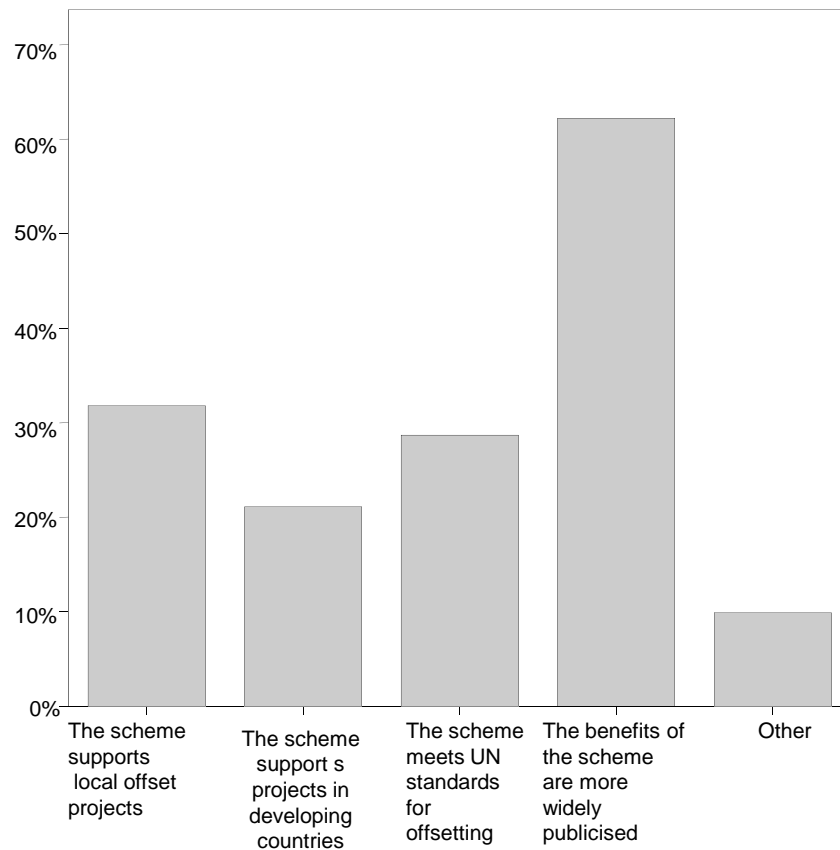




When to pay?



Increased willingness to pay...





Survey Implications

- For carbon offset
 - Apparent willingness to pay far exceeds current voluntary carbon offset uptake
 - If aim is to collect as much money as possible to fund compensatory actions then simple fixed contributions to a climate change mitigation fund offer some potential (don't get hung up on 'perfect' offset)
- For carbon management
 - No mandate for airports/airlines to push the boundaries when seeking carbon savings (i.e. service quality must not be compromised)





Airport Carbon Reductions

- Minimise the footprint – ACI CAS does not require aircraft emissions to be included in airport footprint – but guidance inconsistent
- Focus on Scope 1 and 2 emissions (GHG Protocol)
- Only most advanced actors are seeking to *influence* parts of the wider *airport system*
- Leadership and corporate citizenship are key arguments for wider engagement
- Where investment and returns affect different parties, new ways of working with airport partners are required to further carbon reduction
– ***no passenger mandate for this!***





ACI Guidance Manual (2009)

Term	Definition
Airport Operator	An organization with responsibility for owning and/or operating an airport or system of airports. Airport operators can be units of government (city, county, state, national) or a business or private or semi-private company. Depending on the organizational and ownership structure, the terms Airport Company or Airport Authority may be more appropriate. In this document only the term Airport Operator is used.
Aviation Emissions	<p>Aviation emissions include only the emissions from aircraft (both from domestic and international operations) including all phases of flight and APU use.</p> <p>The Kyoto Protocol excludes emissions from "International Aviation," while ground-based airport emissions are included in national inventories.</p>
Airport Emissions	All emissions from activities associated with the operation and use of an airport, including ground support equipment, power generation and ground transport. Such activities can occur inside and outside the airport perimeter fence and may be the responsibility of the airport operator or other stakeholders. Emissions from aircraft should be included in an airport inventory, although depending on the reason for the inventory, an airport operator may choose to include either the LTO cycle or the whole of departing flight emissions.





So that's clear then....

- But, referring to the GHG Protocol scopes of reporting the Manual makes the following observation:

- **Scope 3A** are the Scope 3 emissions which an airport operator can influence, even though it does not control the sources.
- **Scope 3B** are the Scope 3 emissions which an airport operator cannot influence to any reasonable extent.





ACI Examples of Scope 3 Emissions

Scope 3: Other Airport-Related Activities and Sources

Scope 3A: Scope 3 Sources an Airport Operator Can Influence

Aircraft main engines	Aircraft main engines during taxiing and queuing
APU	Aircraft Auxiliary Power Units (APU)
Landside Road traffic/Ground Access Vehicles (GAV)	All landside vehicles not owned by airport operator, operating on airport property.
Airside vehicle traffic	All vehicles operated by third parties (tenants, airlines, etc) on airport airside premises
Corporate Travel	Flights taken on airport company business
Ground Support Equipment (GSE)	Tenant or contractor owned GSE for the handling and servicing of aircraft on the ground, if airport could provide alternative fuels or otherwise influence operation.
Construction	All construction activities, usually conducted by contractors.

Scope 3B: Scope 3 Sources an Airport Operator Cannot Influence

Aircraft main engines	Aircraft main engines in the LTO cycle, excluding taxiing Aircraft emissions during cruise on flights to or from airport
Ground Support Equipment (GSE)	Tenant or contractor owned GSE for the handling and servicing of aircraft on the ground.
Landside Road traffic/Ground Access Vehicles (GAV)	All landside vehicles related to the airport, operating off-site and not owned by airport operator, including private cars, hotel and car rental shuttles, buses, goods delivery trucks, freight trucks.
Electricity and other external energy	Emissions from generation of electricity, heating and cooling purchased by tenants including airlines
Aircraft and engine maintenance	Airline or other tenant activities and infrastructure for aircraft maintenance: washing, cleaning, painting, engine run-ups
Rail traffic	Rail traffic and other ground transport related to the airport
Waste disposed of off-site	Off-site waste incineration or treatment from airport sources.





Airlines

- Carbon (fuel) reductions opportunities:
 - Fleet renewal – airframe and engine efficiency improvements
 - Operational improvements:
 - Air traffic management and associated technologies
 - Down weighting
 - New business models??





Airline Carbon Reductions

Airline / Source	Carbon Reduction Initiative	Carbon / Economic Savings
Air Canada, Jazz (BBC, 2008a)	<ul style="list-style-type: none"> Removing life vests from all its planes. Regulations allow use of flotation devices within 50 miles of shore. Passengers will use seat cushions instead. 	Reduce aircraft weight by 23kg (50 pounds).
Air France – KLM Group (2008)	<ul style="list-style-type: none"> Reduced the weight of trolleys from 29 kg to 23 kg, of galley containers from 3.6 to 2.7 kg, drawers from 0.8 to 0.5 kg, glass trays from 1.0 to 0.5 kg Reduced the amount of paper carried on board with the switch to digital technical documentation. Purchased 3,800 lightweight baggage containers resulting in a 22 kg reduction per container, from 87 to 65 kg. 	Reducing the load by 1 tonne on a long-haul flight saves 300 to 400 kg of fuel.
American Airlines (AMR Corporation, 2007)	<ul style="list-style-type: none"> Cleaning the turbines that power the fleet so they run more efficiently. For three years, a program has been in place to test efficiencies gained from running high pressure water through engines every six months. 	The program has saved 4.7 million gallons of fuel across the fleet over three years.
British Airways (2008)	<ul style="list-style-type: none"> Fitted new, lightweight seats on some of their short haul planes. 	The Boeing 747 was made 200 kg lighter.
Brussels Airlines (BBC, 2008b)	<ul style="list-style-type: none"> Slowing speeds by about 10km/h. 	Would cut annual fleet fuel bill by £800,000. The initiative would add 1 or 2 minutes to flight times.
China Southern Airlines (Watts, 2006)	<ul style="list-style-type: none"> Encouraging passengers to use the toilet before they board flights as a way of saving energy – a single flush at 30,000 feet uses a litre of fuel. 	Reducing the human waste in an average aircraft's tank would save £3 million per year.
International Civil Aviation Organisation (ICAO) (Viscotchi, 2006)	<ul style="list-style-type: none"> Keep operating items to minimum (no extra water, paperless cockpit, consumables for 1 flight only). Usage of light carpet (up to 125 lbs). Usage of Chromate free paint (up to 150lbs). 	No information available.
Japan Airlines (undated)	<ul style="list-style-type: none"> Flying eco-friendly unpainted cargo aircraft since 1992. 	Aircraft is 150kg lighter when exterior is not painted.





Airline Carbon Reductions²

Japan Airlines (2007)	<ul style="list-style-type: none"> Lightweight porcelain tableware, 20% lighter, in First and Business classes. Streamlining the spoons and forks: weight reduction of 2 grams per unit. The amount of water in the water tank in the cargo compartment has been adjusted. Use of Twintex instead of aluminium alloy in the side panels of the containers = weight reductions of 26 kg per unit. <p>The amount of fuel onboard is measured in 100-pound units rather than 1000 (450kg), more precise measures of fuel required, weight savings of approximately 400 kg.</p>	<p>JAL have achieved weight savings of up to 400kg on 747-400s and 300kg on 777s.</p> <p>By reducing the weight of each aircraft by 1 kg it is possible to cut CO2 emissions throughout the entire JAL Group by approximately 76 tons per year.</p>
Jet Blue Airways (2008)	<ul style="list-style-type: none"> Eliminated disposable headsets and is encouraging customers to bring their own. They are also saving paper by not offering an in-flight magazine. 	No information available.
Jetstar - Qantas Group (Qantas, 2008)	<ul style="list-style-type: none"> Offers a new fare that provides customers with the option to travel with only carry-on baggage for a cheaper price, reducing the operating weight of aircraft and thus reducing fuel requirements. 	No information available.
Thomson Fly (Thomson, undated)	<ul style="list-style-type: none"> High density seat configurations, improved by the installation of new 'thin' leather seats and high occupancy combine to provide a lower emission rate per passenger than a comparable scheduled flight. Cabin crew use small handheld display units to replace volumes of manuals and paperwork. Pilot's laptops give them access to route and weather update and the latest safety and technical information. 	Thomsonfly is 50% more fuel efficient than 30 years ago.
Virgin Atlantic (Guardian, 2008)	<ul style="list-style-type: none"> Replaced glossy magazines with increased in-flight entertainment systems Considering cutting back on the newspapers, trimming meal trays and duvets, and taking empty champagne bottles off before flights depart. 	This will save \$43,000 per plane each year.





Future for Airline Business Practices?

- Increased load factors?
 - Reduced frequency
 - Hubbing v. point to point.
 - Temporal rather than spatial aggregation
- Minimise weight?
 - baggage allowance
 - in-flight catering
 - in-flight entertainment
 - in-flight sales
 - duty free on arrival
- Modified services?
 - duty free on arrival
 - gate side catering
 - gate side lavatories





Conclusion: Passenger support for carbon mitigation

Carbon offset

- Passenger attitudes and behaviours diverge
- Appears to be an *expressed* willingness to pay for climate change compensation; but offering needs to be simpler and benefits clear
- Improvements to the voluntary offset market since 2008 but uptake remains very low.

Carbon management:

- Little passenger support of moving beyond compliance
- Voluntary schemes arguably encourage engagement at the expense of impact
- Quality of passenger sacrosanct
- Financial or wider corporate image motivation for more radical inventions – not driven by passenger expectations/demand





Questions?

Thank You!

Links to OMEGA reports:

Offset - <http://www.omega.mmu.ac.uk/using-carbon-off-setting-to-tackle-climate-change.htm>

Airline carbon reduction measures -

<http://www.omega.mmu.ac.uk/people-issues.htm>

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