



AIRPORT ENVIRONMENTAL MANAGEMENT

04-08 October 2015

Abu Dhabi, UAE

**Module 14: Delivering Carbon
Reductions: A Case Study**

Greenhouse gas emissions strategy

- To highlight the key considerations in developing a greenhouse gas and carbon emissions strategy
- To outline the process of creating a carbon reduction plan and programme
- To discuss a specific case study of carbon reduction at Manchester Airport, UK

Greenhouse gas emissions strategy

- Typical airport GHGs
 - Hydrofluorocarbons (HFCs) in air conditioning systems & fire protection systems and hydrochlorofluorocarbons (HCFCs) used in air conditioning
 - Sulphur hexafluoride (SF₆) used in high voltage switchgear
 - Carbon dioxide (CO₂) from fossil fuel combustion.
- Establish vision and plans/programmes e.g.
 - Emissions reduction (typically scope 1 & 2)
 - All relevant GHGs or CO₂ only
 - Lobbying, networking and knowledge sharing, external profile
 - Scope 3 engagement
 - Adaptation
 - Reporting (including inventory)

Emissions reduction target setting

- CO₂ target as a minimum
- Reporting metric, typically tonnes CO₂ or CO₂e
- Which airport sources e.g. emissions from 'energy use' (heating/cooling, power generation etc.), owned vehicles, other
- Absolute or relative? Context of airport growth?
- Consider national targets, industry commitments etc, plus SMART
- Attainable – appraise options to reduce emissions first
- Agree indicators and routinely (monthly?) collate data – litres fuel, kWh electricity
- Carbon neutrality?
- Most standards, including ACI ACA, treat 'green tariffs' as grid average

ACI carbon management plan

- ACI Airport Carbon Accreditation provides framework/ checklist

I Governance

1. Policy
2. Responsibility
3. Communications

II Verification

4. Verification

III Carbon management

5. Monitoring
6. Targets
7. Implementation plans
8. Investments
9. Training
10. Self assessment & Auditing

Section I: GOVERNANCE

1. Policy: Does your airport have a low carbon/low energy policy? Y / N (please delete as appropriate)

Please provide a copy of your carbon policy, this may be part of a wider environmental policy and should evidence clear objectives and an action plan. Please clarify who has signed it off and if it is available on any internal or external websites.

Please provide details

Verifier comments (optional – where supporting documentation is not available in English, please confirm that this has been reviewed and can demonstrate that the minimum scheme requirements have been fulfilled)

2. Responsibility: Which Board Committee or other executive body has overall responsibility for climate change matters? Who has day-to-day responsibility for carbon/energy management?

How often is the carbon/energy performance of the airport reviewed by senior management? What is the day-to-day management structure? Example evidence may include relevant organisational charts; minutes from relevant board meetings; no of people with responsibility for carbon/energy management (% of time).

Please provide details

Link to ISO 14001

I Governance

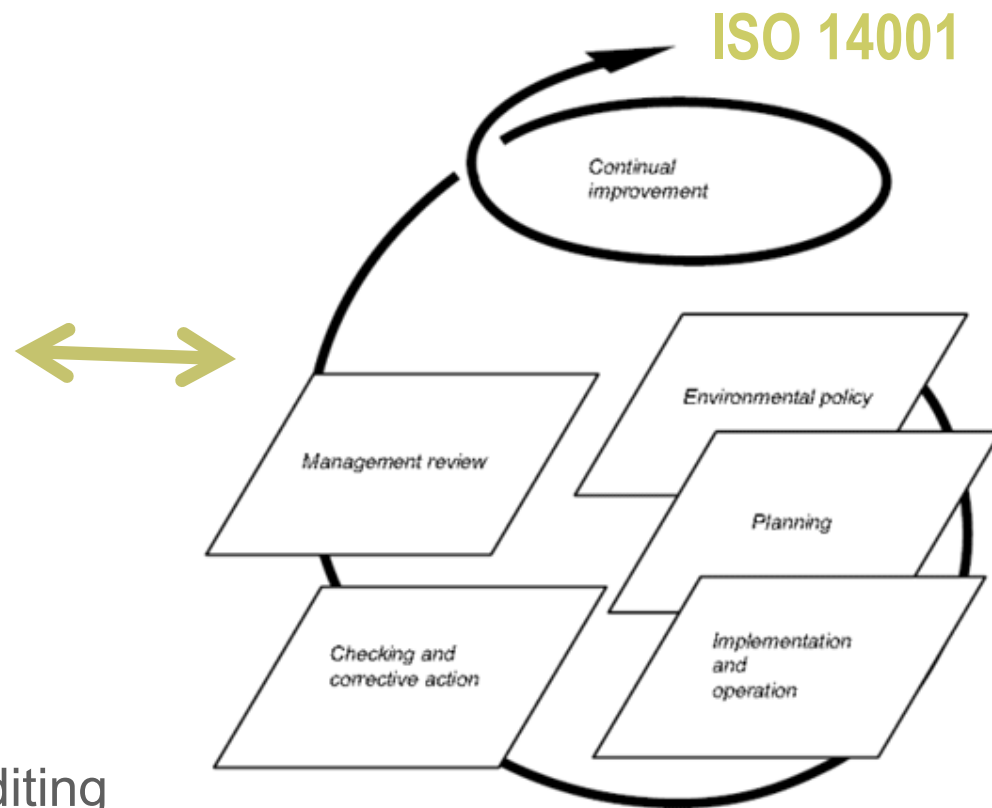
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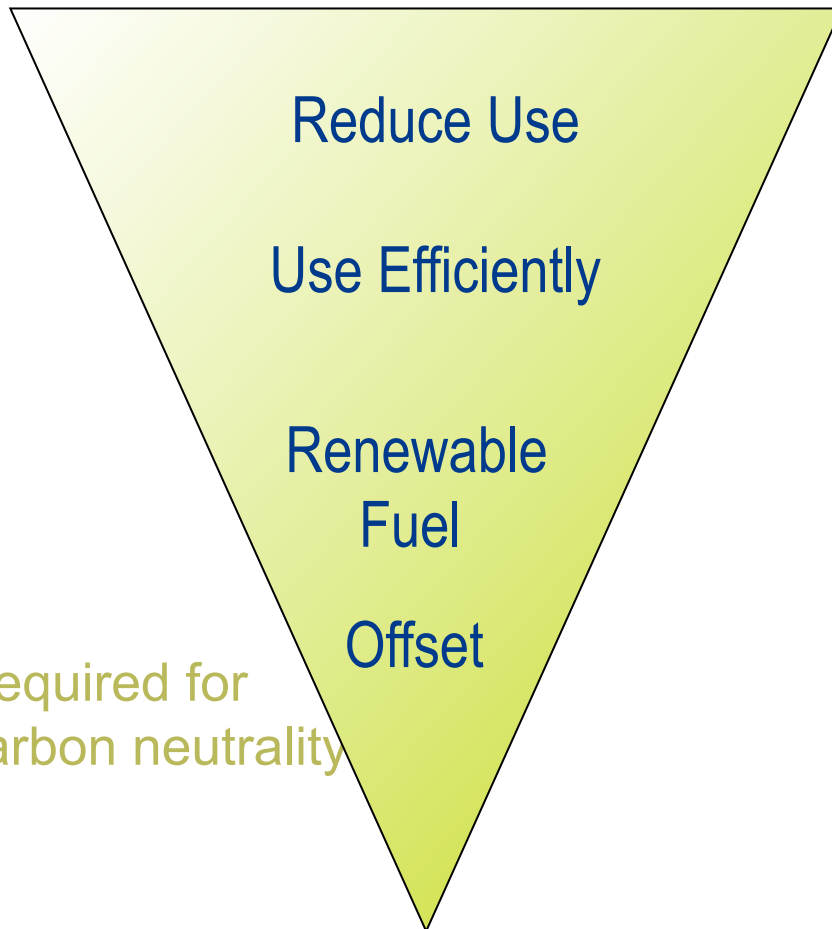
4. Verification

III Carbon management

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Carbon reduction programme



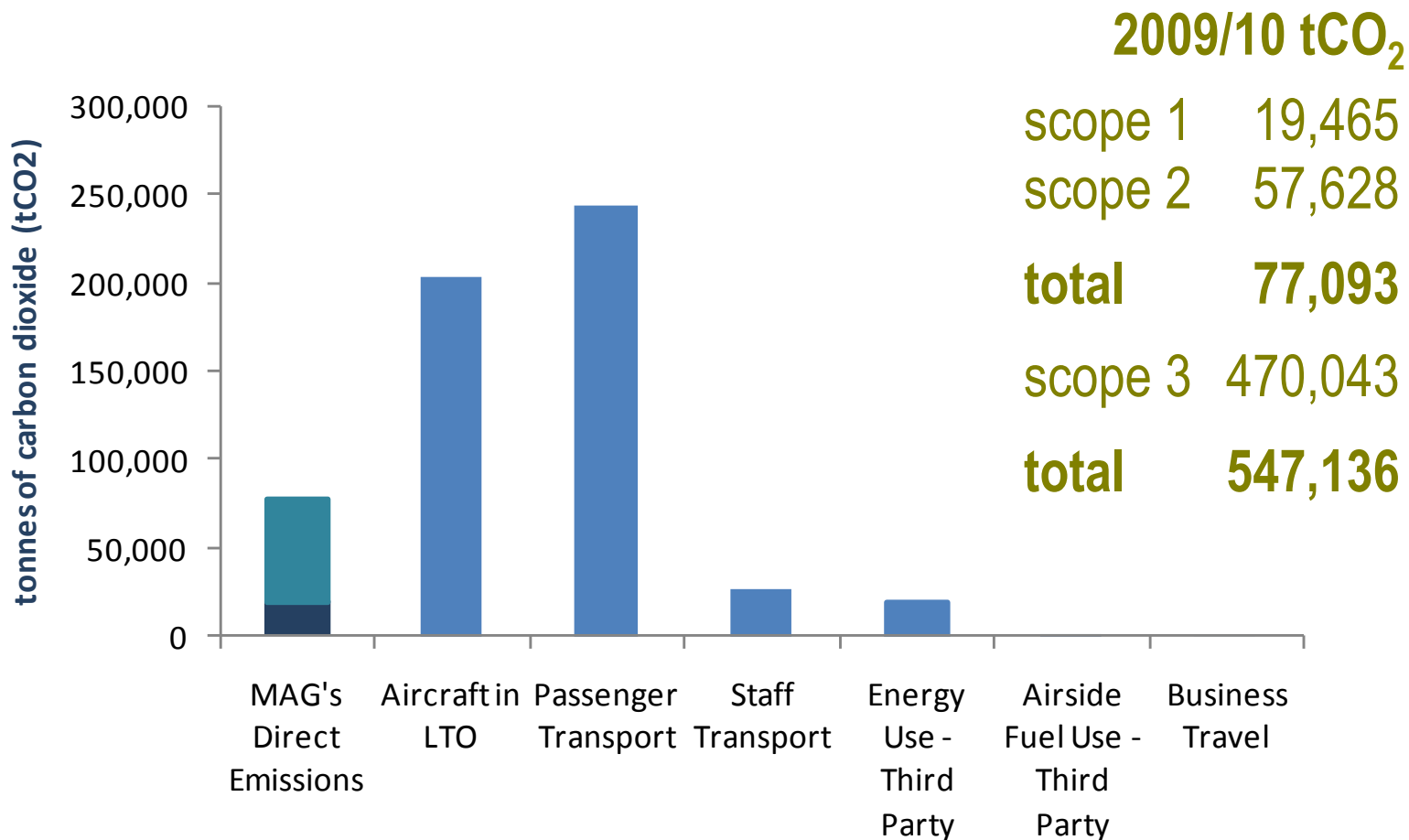
Required for
carbon neutrality

- Programme costed through research and trials – robust business case
- Establish financial rules e.g. simple payback period, ROI, IRR, NPV thresholds, cost/tonne CO₂ saved
- ‘Housekeeping’ vs capital investment
- Renewables typically longer paybacks
- Individual projects vs programme
- Low capital cost projects first?
Hypothecate savings?
- Assess using financial criteria and contribution to target

Potential carbon reduction projects

- Heating/cooling such as chillers, boilers, AHUs
 - High efficiency motors, high efficiency filters, control systems, alternative technologies such as biomass, solar thermal tubes, ground or air source heat pumps
- Lighting in buildings, airfield, car parks
 - Control systems, low energy luminaires e.g. LED
- Mechanical such as baggage systems, escalators
 - Control systems, high efficiency motors
- IT systems
 - Office switch off, control systems, thin clients
- Vehicles
 - Journey management, biodiesel, electric or hybrid cars, vans, buses etc.

Case study: Manchester Airport, UK



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2005

Target setting

25 % reduction in energy use between 2005 and 2015

Scope 1 & 2, Absolute

Reported annually as tonnes CO₂, monthly kWh indicators

2006-2008

Phase 1 – low capital cost

‘Housekeeping’ e.g. BMS settings, switch off, boiler controls

Procedures, standards, training, communication

Including contractors

8% reduction achieved

2009

Preparation of business case

Research & trial, influencing, senior management sign-off

2010-2015

Phase 2

£multi-million capital investment programme over 3 years

12 projects, averaging just under 3 year payback

On track to exceed target on completion in 2015

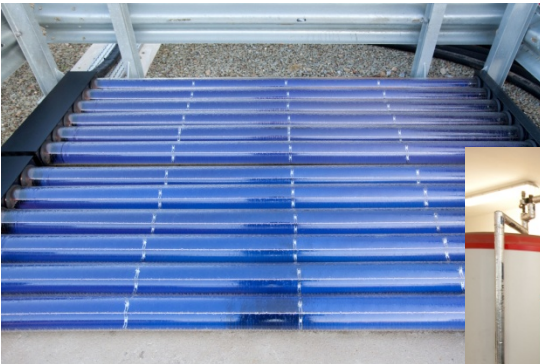
Case Study: Manchester Airport, UK



1. AHU & chiller modifications



2. Low energy lighting, mostly LED



3. Renewable energy generation



4. Service partner engagement



Any questions?