GHG Inventories at Airports

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Outline of Presentation

• Defining Airport vs Aviation Emissions
• Ownership vs Influence
• GHG Protocol
• Scope 1, 2 and 3 Emissions at Airport
• Mitigation and Certification
Airport vs Aviation Emissions

• Aviation Emissions
  – Aircraft engine and APU emissions on ground and in-flight (equivalent to fuel loaded onto aircraft)
  – Kyoto Protocol excluded International Aviation

• Airport and Airport-Related Emissions
  – Terminals, aircraft and site maintenance, airside vehicles, GSE
  – Landside (off site) Ground Access Vehicles, trains
  – Aircraft - LTO, taxiing, queuing, APU, run-ups
Ownership of Sources and Emissions

• Various stakeholders own different sources (varies by airport)
  – Airport Operator and its staff
  – Tenants – Airlines, Ground Handlers, Caterers, Concessions, Freight companies, Contractors
  – Other parties – General public, bus/train operators
World Resources Institute GHG Protocol

- **Scope 1 Emissions**
  - from sources owned or controlled by airport operator

- **Scope 2 Emissions**
  - from the off-site generation of electricity purchased by the airport operator

- **Scope 3 Emissions**
  - from airport-related activities from sources not owned or controlled by the airport operator
ACI Manual on GHG Emissions Management

• Subdivision of Scope 3 emissions

**Scope 3A** – Scope 3 emissions which an airport operator *can influence*, even though it does not control the sources.

**Scope 3B** – Scope 3 emissions which an airport operator *cannot influence* to any reasonable extent.
Airport Inventories

• Scope 1 Emissions
  – Power plant
  – Fleet vehicles
  – Airport maintenance
  – Airport-owned ground support equipment (GSE)
  – Fire practice
Airport Inventories

• Scope 2 Emissions
  – Emissions at off-site power stations from the generation of electricity (or heat) purchased by the airport operator
Airport Inventories

• Scope 3A Emissions
  – Aircraft engines during LTO (Landing/Take-off)
  – Aircraft engines during taxiing and queuing
  – Aircraft auxiliary power units (APU)
  – Tenant/Airline GSE and Airside vehicles
  – Airport company corporate travel
  – Construction
Airport Inventories

• Scope 3B Emissions
  – Aircraft during cruise on flights to or from airport
  – Ground Access Vehicles (GAV) off airport site
  – Aircraft maintenance
  – Rail traffic
  – Off-site waste disposal
Mitigation of Scope 1 and 2 Emissions

- Modernize power/heating plants
- Generate electricity from renewable sources (solar, wind, hydroelectric, biomass)
- Energy efficient buildings and lighting
- Fleet vehicle modernisation and use of alternative fuels/hybrid/electric
- Driver education and no-idling policy
- Solid waste management
Mitigation of Non-Aircraft Scope 3 Emissions

– Enhance public transport including bus and rail
– Hotel and car rental shuttle bus consolidation
– Alternative fuel or hybrid vehicle preferential taxi queuing and general parking
– Infrastructure for petrol alternatives
– Bicycle paths, stands and showers for staff
Mitigation of Aircraft Emissions

– Provide (and enforce) fixed electrical ground power (FEGP) and pre-conditioned air (PCA)
– Provide efficient taxiway and airport layout
– Departure management
Airport Carbon Accreditation

Voluntary ACI scheme for airports to gain certification of achievements in GHG emissions management

Four levels of achievement
1: Inventory (Scopes 1, 2 and some 3)
2: Reduction of emissions (Scopes 1 and 2)
3: Optimisation – involving stakeholders (Scope 3)
3+: Carbon Neutrality (Scopes 1, 2 and some 3)
Reference Material

- [www.airportcarbonaccreditation.aero](http://www.airportcarbonaccreditation.aero)
- Airport Cooperative Research Programme (ACRP) Guidebook on GHG Emissions Inventories (2009)
- ICAO Document 9889
Thanks

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