Multiple sources of emissions

Airport Operations

Airport building services – "regulated energy consumption" (heating, lighting, AC)

Airport activities within buildings – energy consumed by appliances

Ground operations – tugs and other vehicles

Within City target

Aircraft

Landing Take-off Cycle (LTO)

- Landing (from 1000ft to ground)
- Taxiing (movements on the ground)
- Take-off (from ground to 1000ft)

Cruise (above 1000 ft)

Other

Other organisations active at the airport including

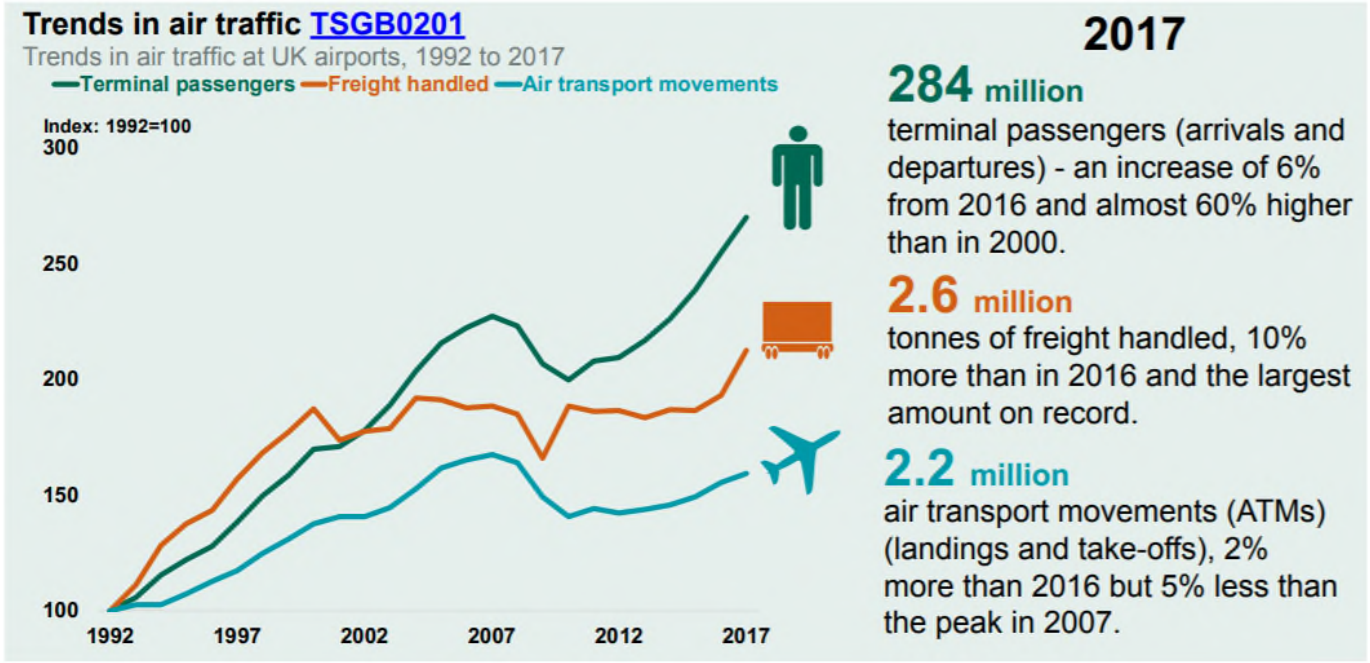
- Businesses within airport buildings
- Air traffic control

Staff commuting

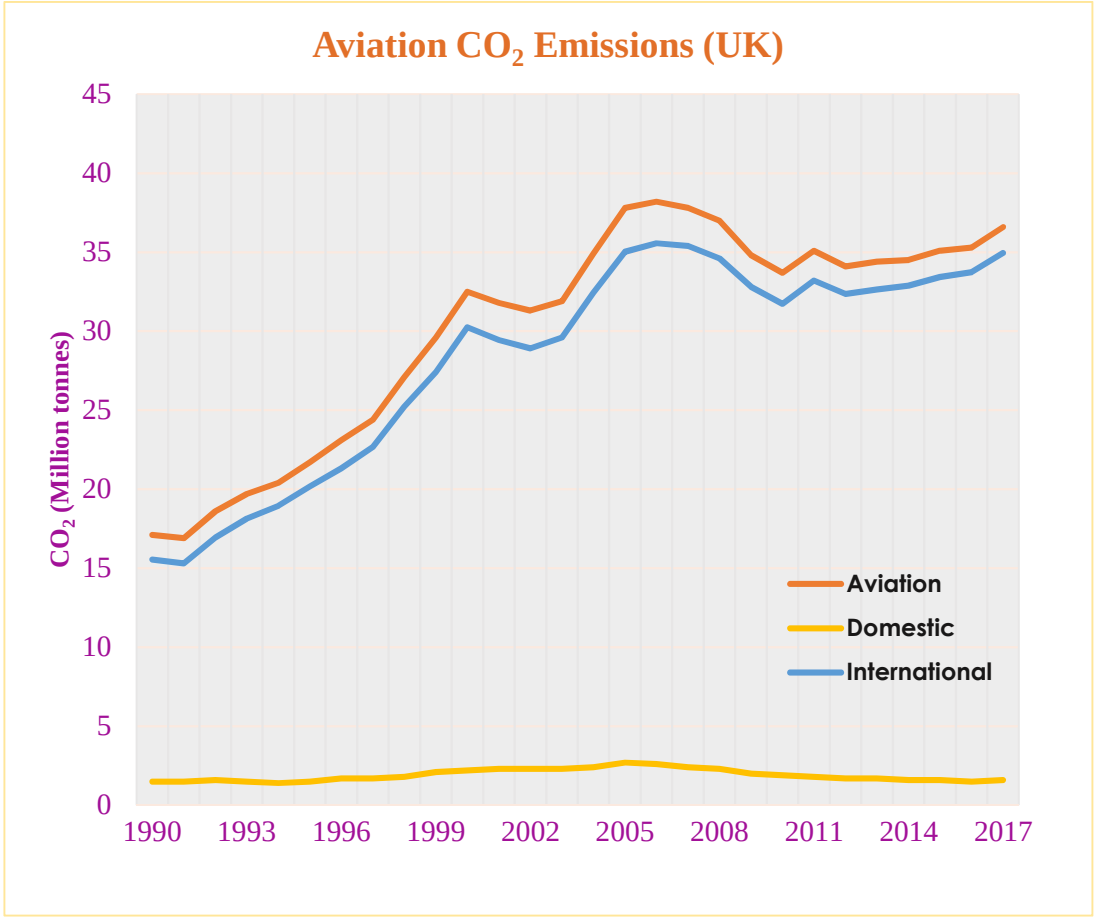
Passenger journeys to the airport

Largely within GMCA targets

Air Traffic Trends - UK and Manchester

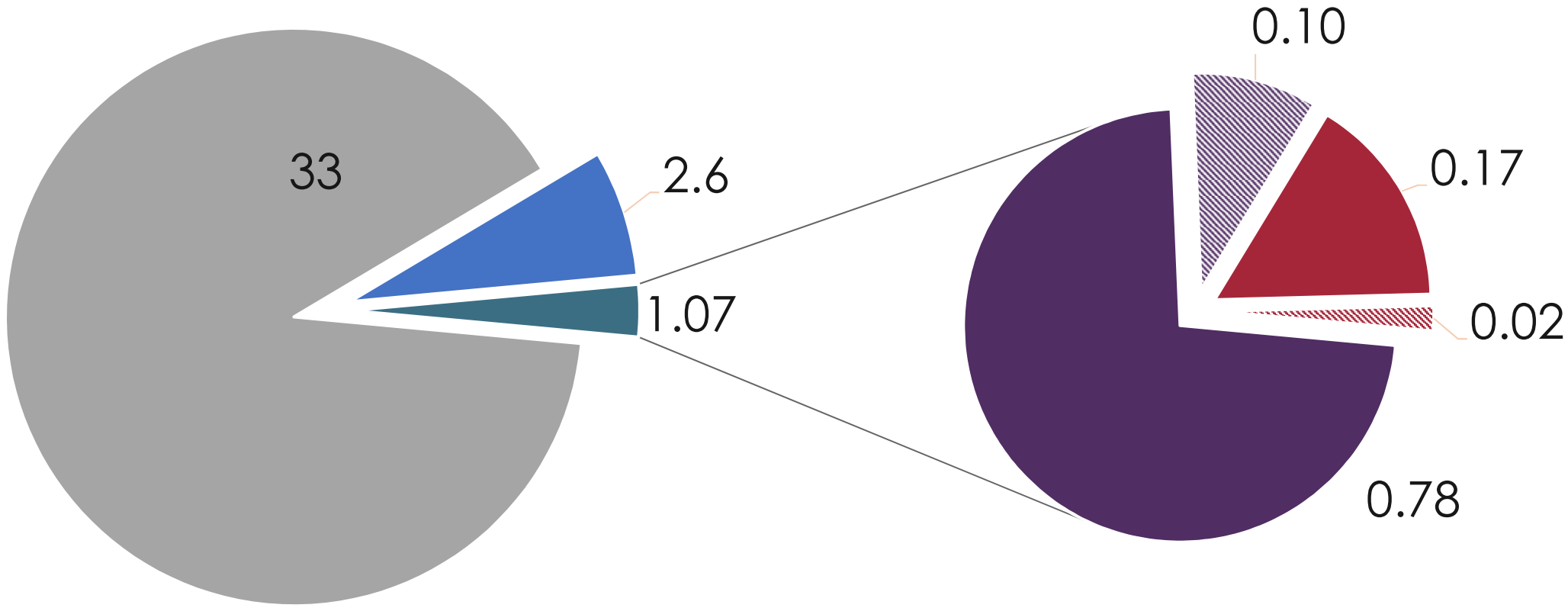


10% of UK CO_2 in 2017 and growing



Manchester Airport is increasing absolute numbers (+2% in 2018) *and* share of passengers (10% of UK)

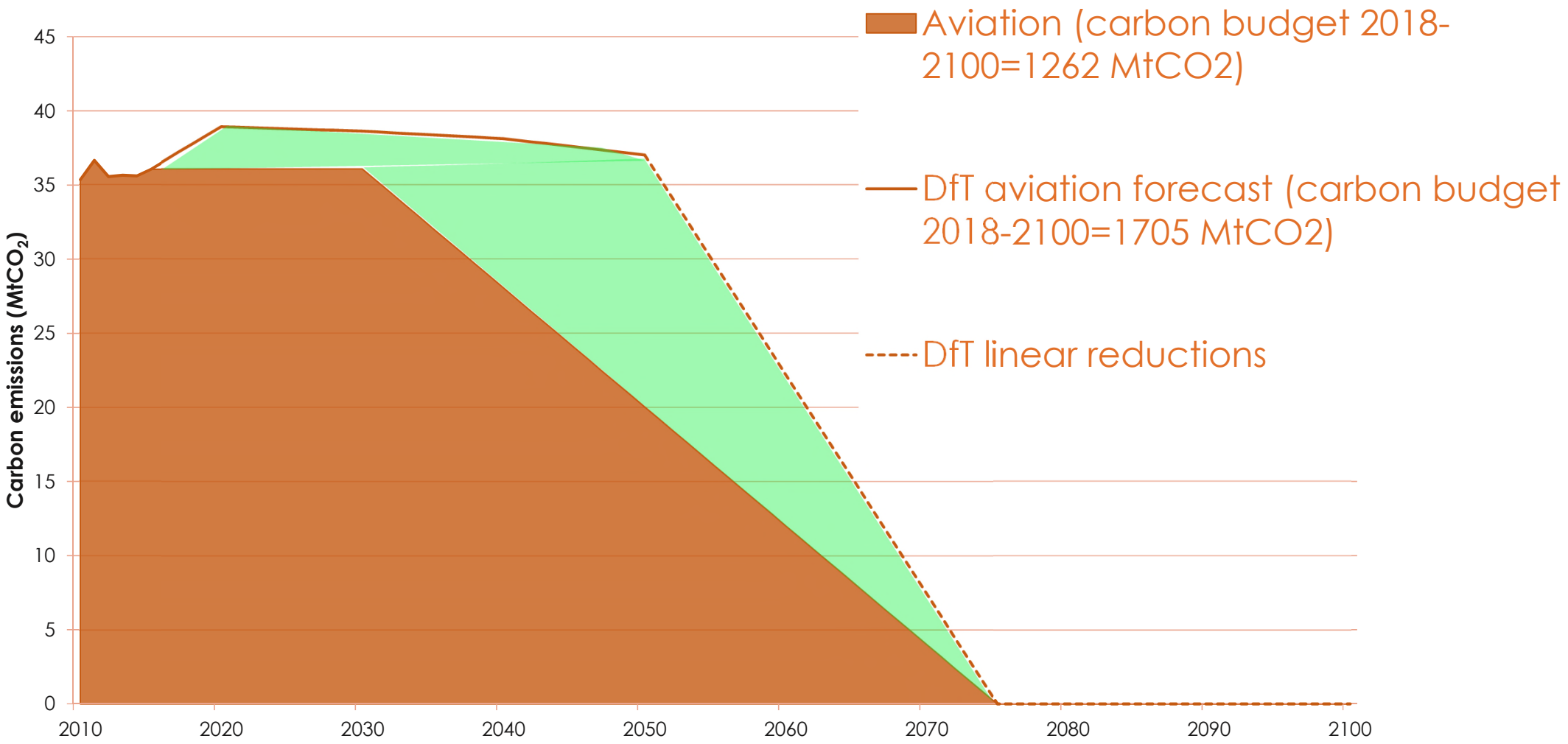
Top down allocation by passengers (CAA data)



Main other MAN users: Rest of NW, Yorkshire & Humber, West Midlands, East Midlands

Main other airports used by MC/GM: Liverpool, Heathrow, Stansted and Gatwick

National Aviation Pathway in Carbon Budgets



Headlines

Share of national aviation pathway (1262 $MtCO_2$, 2018 to 2100)

- ~7 $MtCO_2$ Manchester City residents (grandfathered)
- ~10 $MtCO_2$ Straight population share

Flying in comparison to other activities

- 15 $MtCO_2$ all other sectors
- 0.2 $MtCO_2$ annual emissions (~35-50 years equivalent)
- Budgets cannot be combined at local scale (yet)

Assumptions

1. All MC/GM residents journeys are average for the UK

   Do we travel to different destinations?

2. Residents flying from other airports figure is an underestimate, not all airports are sampled

   - Included (~80%): Birmingham, East Midlands, Gatwick, Heathrow, Luton, Manchester, Stansted, London City, Liverpool, Leeds Bradford & Newcastle

   - Excluded (~20%): **Edinburgh**, **Glasgow**, Bristol, Belfast (International + City), Aberdeen, **Doncaster Sheffield (~9%)**

Discussion points

Aircraft emissions can't be overlooked

1. Need to fit within national pathway
2. Accounting for residents' travel at city level is possible
3. Business reporting could be included but beware of double counting.
4. Could Manchester Airport become a pioneer organisation?
5. MCC should work with national government on Paris compliant aviation strategy as technological change is insufficient