

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

Trends in air traffic [TSGB0201](#)

Trends in air traffic at UK airports, 1992 to 2017

— Terminal passengers — Freight handled — Air transport movements

Index: 1992=100
300

250

200

150

100

1992 1997 2002 2007 2012 2017



2017

284 million

terminal passengers (arrivals and departures) - an increase of 6% from 2016 and almost 60% higher than in 2000.

2.6 million

tonnes of freight handled, 10% more than in 2016 and the largest amount on record.

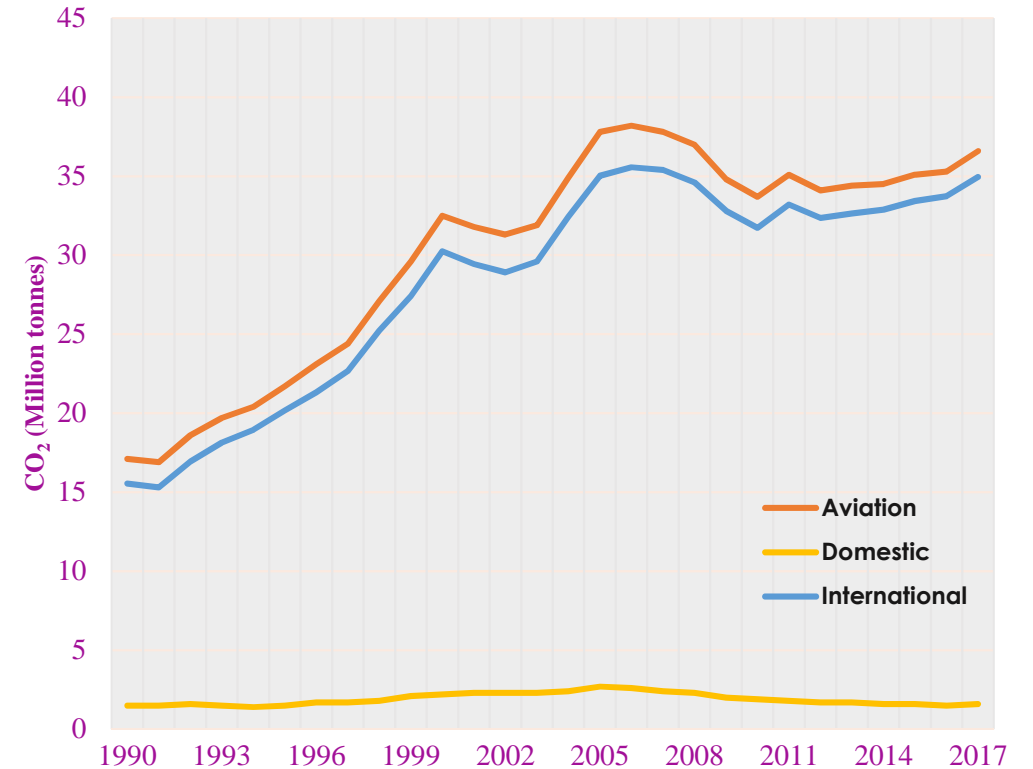
2.2 million

air transport movements (ATMs) (landings and take-offs), 2% more than 2016 but 5% less than the peak in 2007.

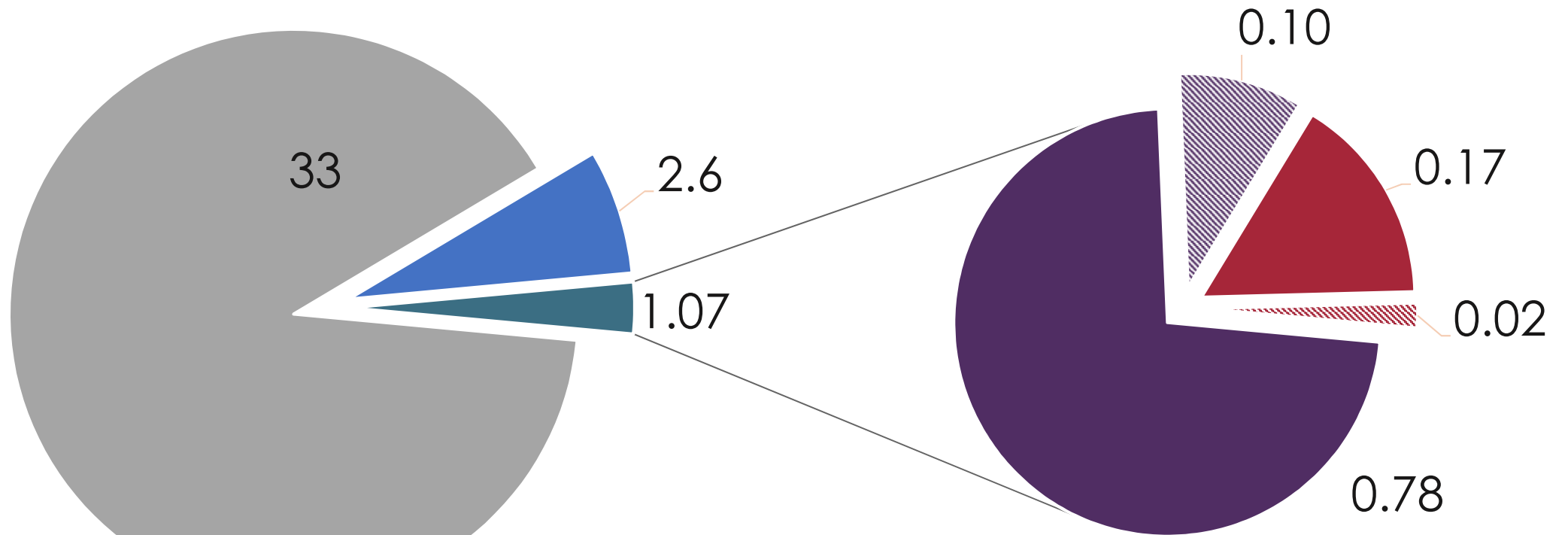
Manchester Airport is increasing absolute numbers (+2% in 2018) and share of passengers (10% of UK)

10% of UK CO₂ in 2017 and growing

Aviation CO₂ Emissions (UK)



Top down allocation by passengers (CAA data)



■ Other UK airports and residents

■ GM (exc MC) residents from MAN

■ MC residents from MAN

■ Passengers at MAN from other regions

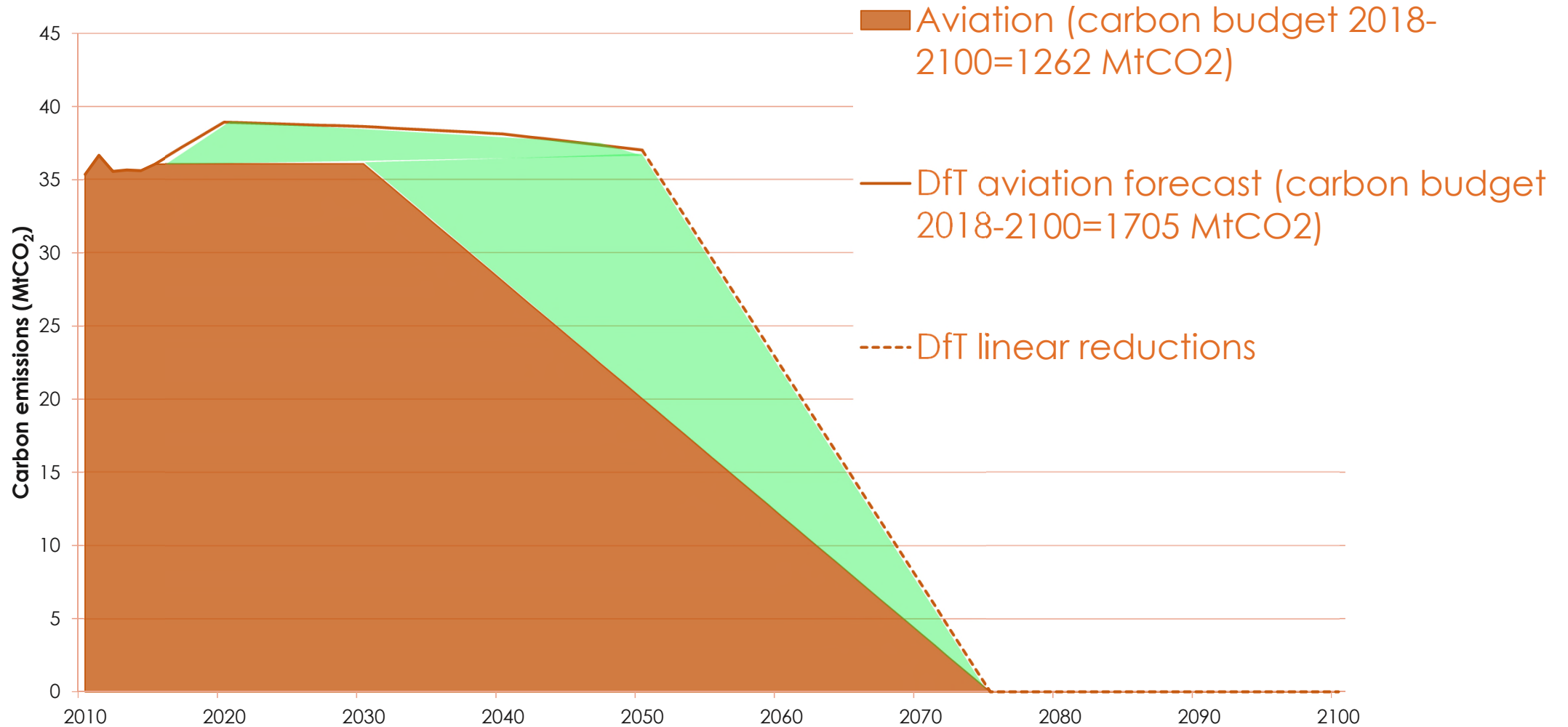
■ GM (exc MC) residents from other UK airports

■ MC residents from other UK airports

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 MtCO₂, 2018 to 2100)

~7 MtCO₂ Manchester City residents (grandfathered)

~10 MtCO₂ Straight population share

Flying in comparison to other activities

15 MtCO₂ all other sectors

0.2 MtCO₂ 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