

Stansted Airport - Estimation of Carbon Dioxide Emissions 2020

Carbon Dioxide ('CO₂') is the main contributor to anthropogenic climate change and aviation CO₂ emissions are one of the fastest growing causes of climate change. As other sectors of the economy decarbonise – in the UK and globally – the aviation sector continues to increase its carbon emissions and thereby its impact upon the climate.

Although improved technology is gradually improving the efficiency of aircraft engines (by about 1.0% per annum according to the Department for Transport) the growth in the number of flights far outweighs any annual efficiency gain.

Our basis for estimating Stansted Airport's CO₂ emissions is the statistical information for 2016 provided on behalf of Stansted Airport Ltd ('STAL') in connection with its February 2018 Planning Application for expansion to 43 million passengers per annum ('mppa') – see table below:

Summary data	Unit	2016 Baseline	SSE estimates for 2020	2020 with RF*
Passengers	mppa	24.3	30.0	
Air Transport Movements	number	180,619	208,000	
Carbon				
Flights	Mt CO ₂	1.560	1.776	3.374
Landside activities	Mt CO ₂	0.003	0.003	0.003
Airside activities	Mt CO ₂	0.007	0.008	0.008
Surface Access	Mt CO ₂	0.170	0.200	0.200
Total	Mt CO₂	1.740	1.987	3.585

Radiative Forcing ('RF')

The UN Intergovernmental Panel on Climate Change ('IPCC'), in its special report "Aviation and the Global Atmosphere" (1999), recommended that aircraft CO₂ emissions should be multiplied by a factor of between 2.0 and 4.0 – with a recommended mid-point of 2.7 – to reflect the greater climate impact of CO₂ emissions at high altitude as well as the impact of non-CO₂ emissions from aircraft engines.

More recent research indicates that the appropriate adjustment for RF is more likely to be in the range 1.9 to 2.0. Accordingly we have based our calculations above on an RFI of 1.9 – i.e. the lower end of the range. Note also that the RF multiplier is only applied to aircraft emissions and not to emissions from surface access travel or airport buildings.

Summary

Our estimate – on the most conservative basis possible – is that for the year 2019 Stansted Airport will be responsible for the equivalent of just under 10,000 tonnes of CO₂ emissions per day. That is about the same amount of CO₂ produced annually by about 1.5 million average family cars.

Stop Stansted Expansion
Updated January 2020