

# A briefing on building a 3<sup>rd</sup> Runway at Heathrow.

## Part 2. Proposals for a 3<sup>rd</sup> runway (black) and against it (blue)

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### 1. HEATHROW IS FULL

The number of flights allowed at Heathrow was capped to limit environmental damage at 480,000 p.a., as one of the conditions for planning approval for terminal 5 in 2001. Heathrow Airport has said for two decades that it is operating at full capacity and needs a 3<sup>rd</sup> runway to accommodate growing demand and to implement new routes to emerging markets. The Airports Commission (2015)<sup>1</sup> reported that Heathrow had been operating at 98% capacity for a decade. 75 million passengers passed through Heathrow in 2015.

### Heathrow is not full and the need for a 3<sup>rd</sup> runway must be weighed against subsequent government approval to expand London's other airports.

- (i) The number of flights at Heathrow is capped but passenger numbers are nevertheless increasing. 79.2 million passengers passed through in 2023 and 83.9 million in 2024<sup>10</sup>, an increase of ~12% since 2015. This is due to larger aircraft and modernizing and reconfiguring its existing infrastructure to accommodate increased passenger numbers. Continued increases in passenger numbers without a 3<sup>rd</sup> runway may continue by this mechanism.
- (ii) London is already the best served city in the world for aviation with 5 major airports. The SoS for Transport has approved Gatwick's plans for a second runway. This could allow over 100,000 extra flights per year and the addition of new destinations (Google AI overview). Construction could start immediately and the runway be in use by the end of the decade.
- (iii) Stanstead and City Airports have already been given permission to redevelop and operate more flights. The government has recently approved expansion of Luton airport (April 2025). These expansions will not only add passenger capacity (see table 1) but enable the addition of new routes.
- (iv) Gatwick, Stanstead, Luton and London City airports already accommodate approximately 104 million passengers per year. Their expansion will potentially accommodate an additional 60 million passengers p.a. by about 2040 (Table 1). These approved expansions question the need for a 3<sup>rd</sup> runway at Heathrow. Mayor Sadiq Khan, launching the London Growth Plan to turbocharge London's economy, said that Gatwick expansion alone "begs the question over the need for a 3<sup>rd</sup> runway at Heathrow"<sup>11</sup>. He cited concerns over the latter's effects on air quality and noise over a large population in West London, climate change, moving the M25 underground, rerouting the A4 and

M4, and the need to massively increase rail access routes to the airport for the increased passenger numbers.

**Table 1 Passenger numbers at London airports with approved expansion**

Airport	Million passengers per annum	Million passengers per annum
	Current	After extension
Gatwick	45	80
Stanstead	35	43
Luton	18	32
London City	6.5	9
<b>Total</b>	<b>104.5</b>	<b>164</b>

Data source. Google AI Overview for each airport

## 2. ECONOMIC BENEFIT OF A 3<sup>RD</sup> RUNWAY

Heathrow is already the best-connected airport in the world according to aviation analysts OAG Megahub, its 80 airlines connecting passengers and cargo to 234 destinations in over 85 nations. It is currently opening-up new routes, recent examples being to Xi'an, Chongqing and Tianjin in China. As the UK's hub airport, it is already facilitating UK and international business<sup>12</sup>. In 2023 the House of Commons Environmental Audit Committee recorded that before the pandemic the direct contribution of air transport to the UK economy was about £14 billion p.a. and that the UK aviation industry directly employs 230,000 people. Supporters claim that a 3<sup>rd</sup> NW runway at Heathrow would deliver significant additional economic benefits for the UK, but the results of different modelling methods to calculate these differ widely.

Frontier Economics (FE), Heathrow's consultant, employed a "bottom-up" modelling approach, as used routinely by HM Treasury and the DfT's WebTAG for cost-benefit analysis of big transport projects. FE's Executive Summary\* reports the net present value (NPV)\*\* of the 3<sup>rd</sup> runway over the next 60 years as £24.7 billion using this method. £14.4 billion would go to HM Treasury<sup>9</sup>. The major conclusion in the Airports Commission's final report (July 2015)<sup>1</sup> on the economic benefit of a 3<sup>rd</sup> runway, using the same bottom-up modelling approach, was an NPV of £11.8 billion over 60 years (2015 prices). This is equivalent to £18 billion in 2025.

FE note that there are uncertainties in the "bottom-up" method of modelling with respect to airport expansion. Thus, they also employed a second modelling approach, Computer General Equilibrium (CGE), which "attempts to model the whole economy effects of the investment at Heathrow."<sup>9</sup> No methodological details are given in the FE Executive Summary. However, they note that CGE modelling does not take into account negative environmental and social impacts of developments (see section 4). Their CGE analysis yielded an NPV of £184 billion over 60 years, much greater than the £24.7 billion result from bottom-up modelling!

\* A more extensive report has not been published

\*\*NPV is a cost-benefit metric used by Government to assess the economics of infrastructure projects

Frontier Economics report that using CGE analysis annual benefits of a 3<sup>rd</sup> runway would increase rapidly after 2040 and would be about £17.1 billion (0.43% of GDP) in 2050. This is the figure Chancellor Reeves chose to quote when she announced the new Labour government's backing for a third runway<sup>8</sup>

The DfT remodelled the Airports Commission data in 2016 using CGE and reported that the 3<sup>rd</sup> runway would deliver £61 billion of benefits over 60 years<sup>13</sup>. This is equivalent to £75.9 billion in 2025. Thus, the Government's DfT estimate of benefit is less than 50% of the Heathrow consultants estimate using similar CGE modelling.

In the interest of brevity, we have focussed here on the original report on economic benefit of the 3<sup>rd</sup> NW runway from the AC<sup>1</sup> and on the latest from FE<sup>9</sup>. Both have been used by the governments of the day to support expansion at Heathrow. There are other reports.

### **The economic benefits of a 3<sup>rd</sup> runway are contested, even by the government's own Department for Transport economists**

- (i) The Airport Commission's proposal of an NVP of £11.8 for a third runway was subsequently revised down to £3.3 billion in a TfL update in 2017<sup>14</sup>. The New Economics Foundation (NEF), an independent think tank, commented that "using the Governments own formula for assessing the value for money of transport schemes, Heathrow expansion along the proposed lines (i.e. 3<sup>rd</sup> runway) would be rated as either poor or low value"<sup>15</sup>.
- (ii) The DfT presented a "Revised Draft Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England" (NPS) to Parliament in 2017<sup>16</sup>. A Richmond Heathrow Campaign analysis of this concluded that "The Revised Draft NPS fails to recognise its own estimates of poor economic value when justifying the North-West Runway and overstates the economic value in the first place. The Revised draft NPS estimates of the North-West Runway economic value range between -£2.2bn and +£3.3bn. This very poor value is diminished still further to result in an economic loss of between £20bn and £25bn after taking account of overestimates for the value of suppressed demand, International-to-International transfers, and wider economic benefits, and underestimates of surface access, environmental costs, and the accelerated value of unrealistically fast growth"<sup>17</sup>.
- (iii) AirportWatch, an umbrella movement bringing together a number of environmental organisations opposed to unsustainable aviation growth, draw attention to the fact that the AC's prediction of an economic benefit of £11.8 billion over 60 years was based on a carbon trading scenario. With a carbon-capped scenario (much more likely given the need to meet climate change targets, see below) this would translate into just £1.4 billion benefit over 60 years<sup>18</sup>. This is negligible in macroeconomic terms.

- (iv) In a press release following Chancellor Reeves' statement in January 2025, Dr Alex Chapman, senior economist at NEF, wrote "Rachel Reeves' commitment to Heathrow expansion relies on flawed economics. By the government's own metrics, airport expansion won't deliver serious economic growth. Business air travel peaked two decades ago and a new runway won't change that".

"The primary impact will be to encourage UK households to spend their cash overseas, depriving high streets and domestic destinations of spending. The UK's domestic tourism industry is already suffering. Growth in incoming tourists has been outnumbered 3:1 by Brits leaving for trips abroad. More outbound flights will deprive British regions of vital spending and is an 'anti-levelling up' move"<sup>19</sup>.

### 3. THE THIRD RUNWAY AND UK CLIMATE CHANGE OBJECTIVES

#### Background

##### The Climate Change Act and Carbon Budgets

The Climate Change Act 2008 set a legally binding target to reduce UK carbon emissions by at least 80% by 2050 from 1990 levels and established an independent Climate Change Committee (CCC) to advise the government on how this could be done through a system of carbon budgeting.<sup>20</sup> The original target was strengthened in 2019 to "Net Zero", i.e. 100% reduction.

The CCC published its **6<sup>th</sup> carbon budget** in 2020<sup>21</sup>. It required a 78% reduction in total UK carbon emissions by 2035 (cp 1990) to achieve Net Zero by 2050. It included international aviation emissions for the first time and reported they were 88% above their 1990 level due to increased passenger demand and flying! They accounted for 7% of the total UK emissions. 96 % of these aviation emissions were due to international departing flights (36.4MtCO<sub>2</sub>e)<sup>22</sup>.

[Technical notes (i) CO<sub>2</sub>e is the amount of GHG emissions expressed in terms of the equivalent amount of CO<sub>2</sub> that would have the same global warming effect. MtCO<sub>2</sub>e, million tonnes of carbon dioxide equivalent. (ii) *By convention, only departing international flight emissions are included; emission data for arriving international flights are accounted for in departures from their country of origin*].

The 6<sup>th</sup> carbon budget stated that decarbonising aviation had been slow over the past decade and recommended "there should be no net expansion of UK airport capacity unless the sector is on track to sufficiently outperform its net emissions trajectory and can accommodate the additional demand". UK government statistics show that UK aviation decarbonisation has not improved since 2019. In fact, international flight GHG emissions "increased by 9% (3MtCO<sub>2</sub>e) between 2023 and 2024 and were 0.1% higher than in 2019, the most recent pre-pandemic year"<sup>23</sup>.

The CCC delivered its **7<sup>th</sup> carbon budget** proposals to the UK government in February 2025, laying out a "Balanced Pathway" for reducing GHG emissions in the industrial, agricultural, transport and domestic sectors during 2038- 2042, to achieve Net Zero emissions by 2050<sup>24</sup>.

Aviation is currently the 6<sup>th</sup> highest emitting sector in the UK economy, accounting for 35.4 MtCO<sub>2</sub>e in 2023, or 8% of all emissions. In its “balanced pathway” to Net Zero, the 7<sup>th</sup> Budget calls for aviation emissions to fall by 17% by 2040. However, it will be the UK’s highest emitting sector in 2040(27% of total) because of faster reductions in other sectors. The 7<sup>th</sup> Budget proposes a mixture of (i) management of demand growth (54%), (ii) increased use of sustainable aviation fuels (SAFs, 33%), (iii) efficiency improvements, and roll out of hybrid-electric and electric battery planes (17%) to achieve the overall 17% reduction. (iv) Any remaining aviation emissions should be offset by engineered removal of GHG. The 7<sup>th</sup> Budget predicts that SAFs (which produce up to 80% less CO<sub>2</sub> than kerosene) will still only contribute 6% of fuel demand in 2030,17% in 2040 and 38% by 2050. It makes clear that the aviation industry and private investment should pay for these technological developments.

The 7<sup>th</sup> Carbon Budget recommends that flying should be kept “close to today”s levels until technology develops at the required scale to decarbonise aviation in line with Net Zero”.

### **Policy supporting aviation reaching Net Zero by 2050**

- (i) The last Conservative government launched its Jet Zero Strategy in 2022<sup>25</sup>. It focusses on the rapid development of technology which enables the UK aviation industry to decarbonise. A key proposal aimed to have 5 plants under construction in 2025 to deliver UK SAF at scale. Several are under construction at the time of writing (Google AI) and 8 more have been announced. The government established the Advanced Fuel Fund (AFF) in 2022 to which technology companies make bids for grants to set up R&D projects on producing low carbon fuels<sup>26</sup>. Against the focus on decarbonisation, the Jet Zero Strategy also forecasts a 70% increase in UK passenger numbers from 2021-2050, representing an additional 200 million passengers.
- (ii) To date, the new Labour government has not signalled any intention to deviate from the Jet Zero Strategy<sup>27</sup>. “There are two main parts in its policy to create an SAF market (a) an SAF Mandate<sup>28</sup>, in place since January 2025, which focuses on guaranteeing a demand for SAF. SAF should provide 10% of aviation fuel for flights departing the UK by 2030; (b) a revenue certainty mechanism which focuses on SAF production and supply”<sup>27</sup>. The latter, like the AFF, is intended to stimulate private industry to invest in SAF.
- (iii) Heathrow acknowledges that Climate Change is the biggest threat of our age, that aviation must be decarbonised, and that when it seeks a DCO for a 3rd runway it will have to comply with the requirements of the ANPS in relation to carbon emissions (see Introduction above). It produced its own carbon Neutral Growth Roadmap to attain this <sup>29</sup> and in December 2024 an update on its sustainability policies<sup>30</sup>.

The airport aims to cut carbon emissions from flights by up to 15% by 2030 compared to peak levels in 2019<sup>30</sup>. It plans to do this by incentivising

airlines to use SAF when refuelling by halving the price gap between kerosene and SAF, by airspace modernisation so that aircraft use the most efficient approach and take off routes to minimise fuel consumption, and to encourage greater use of electric tugs for ground movements of aircraft rather than using their engines. They are also planning future infrastructure to support hydrogen-powered aviation.

Heathrow aims to cut carbon emissions on the ground by at least 45% by 2030 compared to 2019<sup>30</sup>. Passengers and staff will be encouraged to use sustainable transport to reach the airport. For those still accessing it by car, car-sharing will be encouraged and infrastructure to support electric cars will be improved. They will partner with suppliers having similar emission policies. They aim for all vehicles used on airport to be zero emission or biofuel by 2030. They will invest in infrastructure and buildings to become zero emission using electric heat pumps and solar-electricity generation.

Heathrow acknowledge that transition to Net Zero in the aviation sector will be a difficult long-term project. To achieve that goal when Net Zero cannot be reached in a required time scale, or by technological changes that reduce or avoid emissions, their strategy includes carbon off-setting<sup>29,31</sup>. Google AI Overview calculates that to reach net-zero by 2050 Heathrow will need to offset roughly Mt18.8 tons of CO<sub>2</sub>e, an amount equivalent to its estimated 2023 GHG emissions.

[Technical note: Carbon off setting could pay for aviation emissions by funding other projects to avoid emissions they would otherwise create (e.g. preventing deforestation); reducing emissions by replacing a carbon emitting activity with one that does not (e.g. restoring peatlands; directly removing carbon from the atmosphere through nature-based projects (e.g. planting trees) or technologically engineered removal<sup>31</sup>]

Heathrow supports carbon trading in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)<sup>29</sup>. CORSIA, is a global market established by the International Civil Aviation Organisation (ICAO) to “reduce” emissions from international aviation and came into effect in 2021. It will be mandatory in 2026. Aircraft operators offset GAG emissions above 85% of 2019 levels by purchasing carbon credits. The credits are then used to finance projects which reduce or remove atmospheric GHG. Heathrow’s Net Zero plan 2022 records that “Sustainable Aviation” calculates that, in addition to cuts in-sector, net emissions from UK flying fall by a further 27% by 2050 as a result of CORSIA and similar schemes”<sup>31</sup>.

**Many climate scientists, environmental groups and some MPs do not agree that the aviation industry can be decarbonised to Net Zero by 2050 and that airport expansion and increased passenger numbers will make it impossible to reach the goal of bringing climate change under control.**

- (i) The costs of adopting SAF and other technologies to reduce GAG emissions are very expensive. For example, the European aviation

industry recently published “a road map to reach net zero by 2050 with SAFs and aircraft efficiency playing a major role. The sector will need €2.4tn to decarbonise by 2050, but investment is flagging<sup>32</sup>”.

The price of SAF is currently 2-7 higher than kerosene, mainly due to production costs and limited supply<sup>33</sup>. Although prices are expected to fall as production increases, they are likely to remain twice as much as kerosene until mid-century. LEK Consulting estimates that to achieve global use of 65% SAF in jet fuel by 2050 would cost \$3.5-5.5 trillion more than kerosene alone<sup>34</sup>. These costs will have to be met by airlines and their passengers. Although the UK 7<sup>th</sup> carbon Budget proposes only 38% use by 2050 and Heathrow has signalled partially reduced charges for refuelling planes, these costs will still be a huge financial burden for airlines. Offsetting this by increasing ticket costs would, potentially, reduce passenger demand for flying.

The Financial Times recently identified another problem impeding Increased SAF uptake<sup>35</sup>. Whilst airlines complain about its expense and availability, energy companies are reluctant to invest in more production in an uncertain future until there are long-term orders. Shell, for example, have paused construction of an SAF plant in Rotterdam.

- (iv) Aircraft may try to avoid using costly SAF by “tankering”. Currently airlines sometimes “tank” with kerosene by loading more fuel at a departure airport than is needed for a flight. The additional fuel may reduce, or avoid, refuelling at an arrival airport where fuel is more expensive, allowing that plane to fly to its next destination at lower cost (Google AI Overview). It might be possible to “tank” to avoid, or reduce, the use of the more expensive SAF in the future. For example, the USA, unlike the EU and UK does not currently impose a mandate requiring a specific percentage use of SAF in jet fuel blend, so it might be feasible for a plane to “tank” kerosene in New York, fly to Heathrow and have sufficient fuel left on board to fly on to a further destination. That plane would of course have much higher GHG emissions than one using a kerosene/SAF fuel blend.
- (v) SAFs can be made from a variety of resources (feedstocks) including used cooking oil, old rubber tyres, poplar wood chips, and oils from crops such as rapeseed (energy crops). The latter are the most sustainable resource. Electricity is also needed for electrolysis to produce hydrogen for chemical modification of the “feedstocks” to manufacture SAFs. The Royal Society warned in a report on resource requirements in 2023 “that meeting existing UK aviation demand from energy crops would require around half of UK agricultural land, while producing sufficient green hydrogen fuel would require 2.4-3.4 times the UK’s 2020 renewable (wind and solar) electricity generation”<sup>36</sup>. Of course, like kerosene, SAFs will be manufactured and sold in an international market, but the Royal Society data give a very tangible idea of the massive resources needed to generate enough SAF to support UK aviation even at today’s level. The report concludes that adopting this new technology “will create demands and pressures for land,

renewable energy or other products which may have knock on environmental or economic effects”. Governments should take this into account before approving airport expansion and increases in flying.

- (vi) Engineered removal of carbon from the atmosphere, i.e. Direct Air Carbon Capture and Storage (DACCS). The 7<sup>th</sup> Carbon budget proposed that aviation GHG remaining in the atmosphere after other measures to decarbonise flying should be captured and removed by engineering technologies – DACCS<sup>24</sup> (see above). Heathrow acknowledged in its Net Zero Plan that engineered removal is beneficial because of the long-term sequestration of GAG which follows, but that it is currently costly<sup>31</sup>. It costs around £500/tonne CO<sub>2</sub><sup>37</sup>. CO<sub>2</sub> in the air is much more dilute than in flue gas from a power station or a cement plant and thus much more expensive to remove. As of April 2024 Direct Air Capture removes a negligible amount of CO<sub>2</sub> from the atmosphere, with 27 plants commissioned worldwide capturing only 0.01Mt CO2/year<sup>38</sup> (and Google AI Overview). In the 7<sup>th</sup> Carbon Budget the CCC expects removals to scale up from 2040 to reach 22.7MT by 2050 for the UK aviation sector to reach Net Zero by then<sup>24,37</sup> (i.e. 2700 times the present World capacity of DACCS!). Although 130 DAC facilities are now in various stages of development<sup>38</sup> and even if the cost of DACCS falls over the next 25 years, this appears to be a distant aspiration rather than an achievable goal. With only 18% of passengers at Heathrow travelling for business purposes<sup>39</sup> (the remainder being holidaymakers or visiting family etc.) it is questionable whether the airport should use up large amounts of DACCS credits if they are limited<sup>37</sup>. Essential industries like cement manufacture which are essential for the UK economy and have no other way of decarbonising on a “Balanced Pathway” to Net Zero may need DACCS priority.
- (vii) Nature-based carbon removal. Heathrow comments in its Net Zero Plan<sup>31</sup> on nature-based removal of atmospheric CO<sub>2</sub> by planting trees. It has already co-funded restoration of a peat land near Manchester and invested in woodland creation in Wales and Scotland. It has proposed offsetting 7% of its infrastructure emissions through tree-planting in Indonesia and Mexico<sup>40</sup>. Many other large companies have a similar policy. However, if tree planting is on former grazing or crop-growing areas it has the highly undesirable effect of reducing agricultural production. It may also adversely affect natural habitats in the countryside. As a guide to the amount of tree-planting required to cancel out the extra emissions from the expansion of Heathrow, Gatwick and Luton airports, Carbon Brief has calculated that “a forest twice the size of London would need to be planted. This equates to all the trees planted in the UK since 2000<sup>41</sup>.” It seems unlikely that tree-planting will contribute significantly in Heathrow’s plans to reach net zero.
- (viii) Carbon Offsetting, CORSIA. This scheme, which Heathrow supports, has been discussed above. Critics such as the “No Third Runway Coalition” oppose its use on grounds of (i) there is no assurance that CORSIA will be implemented at all, (ii) most offset schemes do not achieve genuine net

reductions, (iii) as emissions worldwide are reduced in accordance with the Paris agreement, there will be a rapidly shrinking source of emissions available to be offset against aviation<sup>42</sup>. The CCC's 7<sup>th</sup> Carbon Budget<sup>24</sup> advises strongly against using CORSIA saying, "The current goals and design of the scheme are not sufficiently ambitious and robust to consider their use towards UK Carbon budgets". The CCC set out principles for robust international credit purchase in 2019<sup>43</sup> to ensure that such credits "lead to genuinely additional and permanent emissions reduction, avoiding weaker domestic ambition in selling countries and aligning with wider sustainability goals"<sup>24</sup>. Despite the time elapsed since then, the UK government has only recently (December 2024-February 2025) consulted on the UK's approach to interaction between CORSIA and the UK Emission Trading scheme<sup>44</sup>, a necessary step for full implementation of CORSIA in our country. CORSIA is, in any case, currently only designed to run until 2035. Aside from these considerations, The Aviation Environment Federation (AEF) has emphasised that CORSIA (and carbon trading generally) does not actually limit aviation emissions. For example, consider a passenger on a return long-haul flight which emits one tonne of CO<sub>2</sub> /passenger. If the passenger, or the airline, pays a factory elsewhere not to emit one tonne of CO<sub>2</sub> by, say, installing LED lighting, the result is still one tonne of CO<sub>2</sub> released from the passenger's flight rather than two tonnes (from the flight and the factory)<sup>45</sup>.

- (ix) Recommendations of the CCC's 6<sup>th</sup> and 7<sup>th</sup> Carbon Budget. The massive uncertainties in limiting aviation emissions by technological, natural or carbon trading mechanisms to reach Net Zero by 2050 led the 6<sup>th</sup> Budget<sup>21</sup> to recommend "there should be no net expansion of UK airport capacity unless the sector is on track to sufficiently outperform its net emissions trajectory and can accommodate the additional demand". This recommendation was repeated in the CCC's progress reports to parliament in 2023<sup>46</sup> and 2024<sup>47</sup>. The government responded in 2024 stating that "it did not agree to such a capacity management framework" and saying it "recognises a role for airport expansion where it provides economic growth and is compatible with our legally binding net zero target and strict environmental standards<sup>48</sup>". The 7<sup>th</sup> budget<sup>24</sup> followed with a less prescriptive recommendation regarding aviation, namely that "flying should be kept close to today's levels until technology develops at the required scale to decarbonise aviation in line with Net Zero". This aligns with the 7<sup>th</sup> Budget proposal that management of passenger demand should play the major role (54%) in reducing aviation GAG emissions for it to achieve Net Zero.
- (x) Management of Passenger Demand Growth. If future ticket prices reflect the cost of using increasing amounts of costly SAFs and DACCS (if the latter ever becomes significant), that may result in reduced demand depending on how costly these technologies prove to be. A more certain route to reducing passenger demand would be a frequent flyer tax. This could be done selectively so as not to apply to passengers flying on business, or to passengers travelling once a year for holiday or family visits abroad. Only 15% of the UK population account for 70% of the flights

by taking multiple flights <sup>49</sup>, so a frequent flyer tax would selectively target these passengers. The tax could be progressive so that the more flights taken annually, the higher the tax. Passengers could also be taxed on the air miles flown, or carbon emission. Carbon neutral planes (battery-operated) which may come into service for short haul flights during 2030-2050 would be exempt from such taxes. Flying is currently a low tax sector compared with other transport sectors, with no fuel tax or VAT. With the uncertainties of technological solutions for aviation achieving the Net Zero target, passenger demand for flying cannot be allowed to expand without regulation. Even if technologies prove to be successful, ever increasing passenger numbers are likely to out-pace technical success. This is recognised by parliament's Environment Audit Committee (EAC) which has called on the government to rigorously monitor the industry's progress on technological measures to meet the Net Zero target, the main Government plan for doing so in the Jet Zero Strategy. The EAC is asking for the first review of the Jet Zero Strategy to be brought forward from 2027 to 2025 to determine whether the sector remains on track<sup>50</sup>. The government has said it will keep this under review and does not rule out measures designed to reduce the demand for flights.

#### **4 THE THIRD RUNWAY AND ITS IMPACT ON LOCAL COMMUNITIES, ROAD NETWORKS, RAIL TRANSPORT, AIR QUALITY AND NOISE POLLUTION**

Supporters of building the 3<sup>rd</sup> Runway say that it would create over 100,000 jobs, both directly in construction, in operating the airport and in supporting industries like aviation, retail, and hospitality. More flights and increased passenger numbers could lead to thriving local businesses, particularly those catering to airport travellers (Google AI overview)

**Local communities point to massive disadvantages which include about 750 demolitions of their owned or rented properties by compulsory purchase orders (CPO), air and noise pollution, and huge disruption of local infrastructure by rerouting the M25 and large-scale railway construction.**

- (i) Compulsory purchase of properties. Longford village is situated entirely within the 3<sup>rd</sup> runway compulsory purchase area and the villages of Harmondsworth and Sipson villages extend over its border. Over 750 properties in these villages are included in the compulsory purchase scheme. It offers 25% above market value plus legal fees and stamp duty for homes subject to CPO. The entire village of Longford, including its seven listed buildings, would be lost. Harmondsworth and Sipson would be cut in half by CPOs<sup>51</sup>. These and other local communities have been affected by "planning blight" for years during which successive governments have failed to either give or deny permission for the 3<sup>rd</sup> runway, so the market value of their property is likely to be lower than it would have been otherwise, and this will affect their valuation for CPO. About 3750 homeowners in areas adjacent to the 3<sup>rd</sup> runway (but not in

the CPO area) in Poyle, Colnbrook, Brands Hill, Harmondsworth, Sipson, Harlington and Cranford Cross will be given the choice of either staying in their homes or selling up at 25% above the market price once the runway has been built. The market price is likely to be very low at that point. People who stay will have their homes insulated against noise<sup>51</sup>. Houses in Horton, Langley and Iver, near the 3<sup>rd</sup> runway but outside the compensation area, will receive no compensation despite still being affected by noise, air pollution and the knock-on effect on house prices<sup>52</sup>. If the runway goes ahead it seems inevitable that communities will be destroyed and many residents forced to leave their homes for an unwanted and uncertain future.

- (ii) Building a NW 3<sup>rd</sup> runway will disrupt infrastructure in the area as well as destroying many homes. The plan for the NW 3<sup>rd</sup> runway includes rerouting a nearby section of the M25 in a tunnel under the runway. The M25 is the busiest road in the UK, carrying 250,000 cars a day. It currently experiences very slow traffic in many sections, the area around Heathrow being the worst<sup>53</sup>. The costs for the tunnel, estimated at between £476 million and £1.1 billion<sup>54</sup>, will be paid for by Heathrow's owners (the Saudi Arabian, Chinese, and Qatari Sovereign Wealth Funds, Australian Retirement Trust and the French investment company Aidian)<sup>55</sup>. Heathrow has indicated that it will charge the airlines more to help cover the cost of expansion (Google AI Overview). Airlines are questioning this funding model. The cost to business, commuters and other users of the M25 due to years of traffic disruption and delays whilst the rerouting is built has not been calculated but is likely to be great!
- (iii) Other infrastructure changes will also be needed for building a NW 3<sup>rd</sup> runway including demolition of the Lakeside "energy from waste" plant and the diversion of two river channels into a culvert under the runway. "This will impede the passage of fish, bats, otters and other species using the corridor to the detriment of the wider ecology of the Colne catchment and the Colne Valley Regional Park. This is exacerbated by the proposed infilling of a number of lakes which form valuable complementary habitat to the riverine habitat"<sup>56</sup>.

The Financial Times reported recently that Heathrow is considering a shorter NW 3<sup>rd</sup> runway to cut costs by avoiding rerouting the M25. This would likely compromise its ability to host very large airliners at a time when the size of planes is increasing in the interests of efficiency.

- (iv) Surface access implications of a third runway: road traffic. TfL analysed the likely effect of expanding Heathrow with a 3<sup>rd</sup> runway in 2018<sup>57</sup>. They reported that Heathrow then had 140,000 daily highway and 90,000 public transport trips (39% of the total). An expanded Heathrow would result in 170,000 additional staff and passenger highway trips and an additional 18,000 freight trips. Heathrow are promoting travel to the airport by public transport and have committed to reaching almost 60% by 2040<sup>58</sup> to achieve no increase in road traffic to the airport over current levels. The TfL analysis says that to achieve no increase in highway trips would

require a modal shift in public transport share to 65-70%. They expect this to result in up to 200,000 additional trips to the airport by public transport, or an increase of 210% over today. These would be mostly made by rail links serving the airport.

The 2018 TfL technical note recalls that ANPS highway/public transport predictions for a 3-runway Heathrow are for 90,000 extra highway trips/day and 100,000 extra public transport trips/day. They are clearly much lower than the 2018 TfL predictions. Even so, TfL comments that these would result in “significant crowding” on the Elizabeth, Piccadilly and Winsor lines and that, during the morning peak, there would be a 3-5% increase in non-airport user highway journey times across West London, as far in as Westminster<sup>57</sup>. TfL conclude that new public infrastructure alone would be insufficient to secure no increase in highway trips and that to achieve this the airport would have to introduce “a significant road user charge or local congestion charging scheme.”

- (v) Surface access implications of a third runway: rail traffic. Currently about 40-45% of passengers travel to and from Heathrow by public transport. Heathrow aspires to a modal increase in this percentage by 2050 when passenger numbers are projected to increase from the present 84 million p.a. to 135 million p.a. to prevent any increase in road traffic<sup>58</sup>. This will require greatly expanded rail services. The NPS mentions that both Western Rail access and Southern Rail access will support expansion, but does not specify funding and formal consent processes have not started<sup>59</sup>, so delivery is uncertain. Schemes like the Heathrow Southern Railway (HSR) are expected to be privately financed with no net cost to the taxpayer. HSRL, the company behind the project would be responsible for the costs with train operating companies then paying HSRL for access to the railway (Google AI overview). Western Rail access was originally quoted as costing £500-£600 million but TfL have estimated it at £1.6 billion and Southern Rail access direct to the South West Main Line at £5.1 billion<sup>59</sup>. With such uncertainties the level of expansion of rail services required is currently far from assured.
- (vi) Air quality. The main air pollutants at Heathrow are nitrogen oxides and particulate matter [PM10, PM2.5, ultrafine particles] and come from aircraft emissions, airport ground traffic [exhaust emissions, brake and tyre wear] traffic on the surrounding roads and from airport buildings [heating, cooling etc]. They are monitored by an airside unit [Heathrow LH2] and by 11 Local Borough units distributed on roadsides around the airport. During the past two decades the air pollutant levels at and around Heathrow have frequently exceeded the legal limits laid down in the EU Air Pollution Directive 2010<sup>60</sup>. These limits are currently enshrined in UK law. The air quality around the airport has recently improved as a result of measures taken at Heathrow<sup>61</sup>, a marked decrease in older diesel-fuelled vehicles on the roads, improvements in modern diesel engines and the airport and adjacent area being included in the London Ultra Low Emission Zone from 2023. A survey of the mean pollutant concentrations ( $\mu\text{g}/\text{m}^3$ ) for January – March 2025 at the 11 local authority monitors and LH2 shows that legal

limits were only exceeded at the Hillingdon Hayes site for nitrogen dioxide, at the Hounslow Hatton Cross site for PM10's and at the Spelthorne HR Oaks Rd and Hounslow Hatton Cross sites for PM2.5s<sup>62</sup>.

The improvement is commendable but a massive leap in further reduction of pollutant concentration is now required because the levels of air pollutants now accepted as not being harmful to human health are much lower than those set by the EU in 2010. International research in the following decade showed that much lower levels of air pollutants damaged human health than levels stated in the EU Directive. Thus, The World Health Organisation recommended a new set of guidelines for lower pollutant concentrations which governments and organisations should aim to achieve to protect their populations from adverse health effects<sup>63</sup>. The government has not yet embodied these recommendations in UK law, even though air pollution impacts on health in the country cost in the region of £20billion p.a. and are associated with 28,000-36,000 premature deaths p.a.<sup>64</sup>. However, the local authorities neighbouring Heathrow - Hillingdon<sup>65</sup>, Hounslow<sup>66</sup>, Richmond<sup>67</sup>, and the Greater London Assembly<sup>68</sup>, are all aiming to achieve these standards during the next decade. Even if Heathrow achieves its aim of no increase in road traffic over current levels to the 3-runway airport (see 4(iv) above), with 260,000 more flights p.a. than currently (a 54% increase), it is highly questionable whether it could achieve WHO recommendations on pollutant levels in its locality. It is noteworthy that Richmond Council has 67 nitrogen dioxide monitors distributed around the borough. The only one which just complies with the WHO recommendation for a health-safe level of NO<sub>2</sub> (10µg/m<sup>3</sup>) is located at Holly Lodge in the middle of Richmond Park<sup>69</sup>. The airside LH2 monitor at the 2-runway Heathrow currently records 36µg/m<sup>3</sup> and roadside monitors at Hillingdon Hayes and Heathrow Bath Road show 42 and 40 µg/m<sup>3</sup> respectively<sup>62</sup>. Is it reasonable to believe that a 3<sup>rd</sup> runway Heathrow could comply with WHO recommended safe levels?

- (v) Aircraft Noise. A 3<sup>rd</sup> runway will result in 260,000 more flights p.a. than currently, which equates to approximately 700 additional flights per day. It seems inevitable that the area around Heathrow will experience increased aircraft noise despite advances in the design of engines and air frames which may enable new planes to fly less noisily than in the past. Aircraft noise causes annoyance and sleep disturbance and, importantly, is also associated with cognitive disturbance in children and cardiovascular disease<sup>70</sup>. Aircraft noise is already a big issue for residents under flight paths in West London<sup>71</sup> and could become worse for many in the future. Not only will they be exposed to many more flights with a 3<sup>rd</sup> runway, but flight path revisions are also planned which will see the traditional arrival flight paths using radio beacons replaced by performance-based navigation (PBN), a form of GPS, and changes in air space use. One analysis reports that "1.6m people living under sections of the proposed flight paths closest to the airport are almost certain to be overflowed and to experience noise levels at or above 65 decibels. They could be overflowed by up to 47 flights an hour as flight paths become more concentrated closer to the runway, experiencing near constant noise disturbance"<sup>72</sup>. For

comparison, local authorities usually impose restrictions from construction site noise in residential areas during daytime hours, typically limiting it to 55-65 dB (Google AI overview).

## **5 WOULD THE THIRD RUNWAY BENEFIT OR DISADVANTAGE AREAS OF THE UK OUTSIDE LONDON and SE ENGLAND?**

Supporters of a third runway, including the present government, say that it would boost the UK GDP, delivering countrywide benefit but as discussed above, quantifying the economic benefit of the runway depends on which computer modelling methods are used and on whether they take account of its negative effects on the environment and community. Frontier Economics (FE), the Heathrow consultant whose report<sup>19</sup> was cited by Chancellor Reeves in her support for the third runway used CGE analysis and high-level estimates of environmental, noise and air quality impacts to quantify the economic impact of the third runway by UK region. Greater London and the South East, the richest areas of the country benefit most - 26% and 15% respectively of the overall economic impact, whilst poor areas such as NE England (2%), Wales (3%), Northern Ireland (2%) and Scotland (6%) benefit least.

Currently Heathrow offers flights to only seven domestic destinations. It notes that “business places high value on connectivity provided by global hub airports and that UK companies trade 20 times as much with emerging market countries that have a direct daily flight to Heathrow than with those that do not”. Heathrow promises that an expanded airport would create the hub capacity needed to provide air connections to more UK regional airports (including Exeter, Newquay, Jersey, Inverness and Humberside), enabling passengers from those areas to connect with onward long-haul destinations and helping UK business to succeed on the international stage. It proposes that these new domestic connections would also drive inbound tourism to the regions and enable UK residents to reach new leisure destinations<sup>73</sup>. Heathrow is already the UK’s major air-freight airport carrying 66% of all international air-freight. Heathrow says that increased connection with UK’s regional airports would facilitate export business from those regions to the international market place<sup>73</sup>.

**Opponents of the third runway say that it “would harm other UK regions by concentrating economic activity and potentially shifting jobs and investment towards London and the South East, exacerbating existing regional inequalities” (Google AI Overview). The increase in flights and carbon emissions would impact on the UK’s overall carbon budget and might necessitate more stringent cuts in other sectors to compensate, impacting on other industries and regions. New Economics Foundation (NEF), a politically independent think tank examined these issues<sup>74</sup>, analysing the data from Department for Transport’s Aviation Forecasts<sup>75</sup> and new data from three Freedom of Information Requests (FOI). It concludes as follows:-**

- (i) Passenger numbers departing from Heathrow and other UK airports. NEF report that the DfT’s aviation sector model can simulate the number of flights and passenger numbers up to 2050 with and without (i.e. baseline)

a third runway. The results suggest a third NW runway would have three impacts: [a] passenger departures at Heathrow rise by 43 million in 2050, [b] international passengers using Heathrow as a hub on their way to another country increase by 16 million in 2050, [c] “A large number of passenger departures from non-Heathrow airports which flew in the baseline scenario no longer happen. The DfT’s model estimates that expansion will reduce annual passenger movements through non-London airports by 17 million in 2050”.

- (ii) Job redistribution with a third runway at Heathrow. An FOI request by NEF to DfT gave access to data on jobs which would be relocated from one region to another as a result of Heathrow expansion. It shows low and high estimates with London gaining between 7661-20,901 jobs relocated from other UK regions by 2051. Additionally, SE England gains between 1305-6244 relocation jobs. In contrast UK regions outside the London and SE lose between 8966 – 27,145 jobs by 2051 through relocation. The biggest losers are the West Midlands, the South West and the North West, with job losses concentrated in the local authorities in the vicinity of airports that are likely to lose passengers as a result of Heathrow expansion<sup>74</sup>. The worst hit region is NW England which could lose 5 million passengers and 15,000 jobs.
- (iii) Shifts in employment due to relocation are associated with relocation of GDP from the regions to London and SE England. NEF used data and modelling supplied by DfT and data from another FOI to calculate the shifts in GDP. This was expressed as “Net Present Value ((2019–2084/85) of GDP displaced” for each region with low and high estimates reported. London would gain between £11.4bn – £38.3bn and the South East between £1,0b and £10.5bn. In contrast the sum of the losses from the regions outside London and the SE was calculated at between £10.2bn- £42,7.bn. In summary, up to £43bn in GDP would relocate from the regions to London and the South East if the 3<sup>rd</sup> runway is built. Losses in the regions are concentrated heavily in the West Midlands and the North West.
- (iv) A third runway at Heathrow would increase carbon emissions massively with knock-on effects for the carbon budget of other sectors of the economy and the UK regions. This is summarised in a press release for the NEF Report<sup>76</sup>. “Expansion at Heathrow would effectively transfer £3.3bn worth of emissions out of other regions and nations of the UK and into London between 2030 and 2050. The UK has a limited ‘budget’ of carbon emissions to stay within its targets. Expanding Heathrow would mean that London and the South-East use a greater share of the carbon budget, penalising other sectors of the economy in poorer parts of the UK”.