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LHR AFFORDABLE CAPEX ENVELOPE: REPORT (PHASE I)

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CONTENTS

EXECUTIVE SUMMARY

London's commercial aviation market consists of airlines competing across six key airports, with varying roles and capacities. Heathrow, the only hub and the largest of the six, is the only London airport that is movement-constrained at all times of day today. To address this limitation, Heathrow Airport Limited (HAL) has proposed a plan to add a third runway, a new terminal and redevelop the midfield area for an expanded Terminal 2, which together are projected to cost £49 billion, increasing capacity from the mid-2030s.[1] Any potential increase in airport charges to finance this expansion, however, must be assessed to understand the potential impacts on the airlines that serve Heathrow.

While the airline industry is historically profitable, it also produces consistently lower returns over time than other industries. Even top-performing airlines fall at or below industrial averages in cross-industry comparisons. Globally, the operating margin required to sustain an airline is 5-10% based on historical averages, with variations by region; airlines producing margins below this range on particular routes are likely to shift seat capacity and activity elsewhere to generate more favourable economic returns. As such, airlines typically have a more limited ability to attract capital investment or fund their own high capital expenditure (capex) transformations than businesses in other industrial sectors. Dynamics in London mirror the broader industry – although the airlines serving London produced an ~8% margin in 2024 (on routes touching London), this margin falls below higher-performing aviation value chain sectors like airports and travel.[2]

Additionally, the airline industry's revenue is structurally limited because airline revenue historically grows with nominal GDP. Within that definition, individual airlines already broadly maximise revenues today via sophisticated revenue management systems. Therefore, sustained cost increases beyond GDP growth will most likely erode long-term margins for airlines.

In 2045, the operating margin of airlines servicing London with the current two-runway configuration at Heathrow is projected to be similar to 2024 (~8%). Heathrow's ability to handle additional passengers will be exhausted, while other London airports will support airline growth with their future available capacity. By 2045, Heathrow will have excess demand of ~26 million passengers (which will likely be served by other London airports if they expand according to their available plans).

The addition of a third runway, at flat airport charges in real terms, would enable existing carriers' growth and new carrier entrants to use Heathrow. Heathrow would still reach maximum capacity by 2045 (increasing to 756,000 movements) but would see elevated interest from a broader mix of carriers, including additional short-haul traffic. Carriers would be willing to take advantage of the opportunity to increase their seat capacity at Heathrow as long as costs are not detrimental to their ability to maintain sustainable profitability levels.

In practice, however, Heathrow's third runway expansion is likely to result in elevated airport charges for airlines. Airlines could accept an increase of no more than £4.50-£5.50[3,4] in airport charges per passenger – otherwise they would fall below the minimum viable level of profitability at Heathrow (i.e., the margin that ensures operational sustainability and preserves ability to fund future investments). Below this margin, airlines would likely shift capacity to other London airports and connecting traffic could shift to other European hubs.

[1] The £49 billion cost estimate excludes mandated surface access schemes, renewal of Terminal 4, and the proposed £9.5 billion for H8; final cost is uncertain (Heathrow Airport Limited quotes a £40 billion to £63 billion estimate for expansion with a mid-point at £49 billion).
[2] Including hotels and passenger car rental.
[3] All costs used to define the affordable capex envelope and supporting analyses use a currency of 2024 GBP. Exchange rate of 1 GBP = 1.27 USD is used for all calculations, where applicable.
[4] On a 'like-for-like' basis against current per passenger charge (i.e., excludes the impact of business rates which apply across UK airports)

This charge translates to an affordable capex envelope that airlines could absorb for Heathrow's third runway (and associated infrastructure) of up to £30 billion[5]. This level of capex represents the maximum sustainable investment that could be funded by airport charge increases, while enabling airlines to maintain profitability at sustainable margins and maintaining Heathrow's viability for new entrants. This affordable capex evaluation deliberately considers only the impacts to airline economics and behaviours and does not evaluate broader economic impacts of air travel or passenger growth.

[5] For runway programme and associated infrastructure (as defined within Heathrow's current £49 billion masterplan)

1. INTRODUCTION

1.1. OVERVIEW AND OBJECTIVES

London's commercial aviation ecosystem comprises six airports, with various roles and services. While constraints exist at each airport, the overall London ecosystem has capacity to meet current demand today. Of the six, Heathrow is the only airport that is currently movement-constrained at all times of day and days of week, with demand for slots surpassing available supply.

To address this, Heathrow Airport has proposed adding a third runway, estimated to cost £49 billion and increase capacity from today's 480,000 movements to 756,000 movements at completion (Heathrow quotes a £40 billion to £63 billion estimate for expansion, with a mid-point at £49 billion). The £49 billion cost estimate excludes mandated surface access schemes, renewal of Terminal 4, and the proposed £9.5 billion for H8.[6] In a best-case scenario, this expansion would enable operations on a new third runway from the mid-2030s.

In its current form, however, the capital programme will require significantly increased airport charges to fund it. As such, care must be taken to ensure the investment does not result in detrimental economics for Heathrow or its tenant airlines, while protecting Heathrow's status as a major European hub airport. If airport charges increase beyond what airlines and passengers can afford, Heathrow risks a scenario wherein it faces both excess capacity and unfavourable economics – driving airlines to re-distribute flights and seat capacity to other London, UK and European airports. This report assesses these decisions systemically based on historical industry profitability.

Ultimately, this report and its supporting analyses aim to determine the affordable capital expenditure (capex) envelope[7] that London can afford while protecting Heathrow's long-term economic viability – by assessing the impact of increased airport charges on passenger traffic and underlying airline margins. As mentioned above, this report specifically assesses the impacts of third runway capex based on airline economics and behaviours and does not evaluate broader economic impacts of air travel, passenger growth or connectivity.

Oliver Wyman was commissioned by International Airlines Group to prepare this report; however, the contents of the report are the views of Oliver Wyman and Oliver Wyman retains editorial control.

1.2. EVALUATION APPROACH

To evaluate the affordable capex envelope, this report models airline economics to assess the expected impact on passenger traffic and airline margins across various scenarios. These scenarios include:

- **Two-runway baseline profitability – two runways through 2045:** Scenario assumes that Heathrow retains only its existing two-runway capacity through 2045.[8] Other London airports grow capacity in line with expectations and publicly available plans (i.e., Gatwick's second runway comes online, Stansted terminal expansion is completed).[9]
- **Three-runway baseline profitability – three runways without increased airport charges:** Scenario assumes capacity increases to 756,000 movements by 2045 as new third-runway capacity comes

[6] Source: Expanding Heathrow proposal, HAL.
[7] The capex envelope is defined as the maximum range of capital expenditure (in GBP) that can be allocated within a defined timeframe for Heathrow's third runway (and associated infrastructure). All costs used to define the affordable capex envelope and supporting analyses use a currency of 2024 GBP. Exchange rate of 1 GBP = 1.27235506 USD is used for all calculations, where applicable.
[8] Heathrow capacity is expected to increase to 505,000 ATMs without the third runway expansion due to Heathrow's 2R+ programme.
[9] Source: London Gatwick Airport, London Stansted Airport.

online.[10] This scenario assumes that airlines do not bear the cost of the capital programme, and airport charges do not increase beyond inflation by 2045.

- **Affordable Heathrow charge and capex – three runways with baseline affordability cap:** This scenario assumes (a) capacity increases to 756,000 movements by 2045 as new third-runway capacity comes online[3] and (b) that airlines bear the cost of the runway capital programme. To understand the impact of increased airport charges on margin and airport traffic, various levels of incremental airport charges are applied at Heathrow.

Ultimately, the affordable Heathrow charge and capex scenario determines the 'equilibrium point' where airlines at Heathrow could sustain incremental airport charges without detrimentally impacting underlying economics or airport traffic. Additionally, the implications for London traffic and profitability post-expansion are analysed.

[10] Source: Expanding Heathrow proposal, HAL.

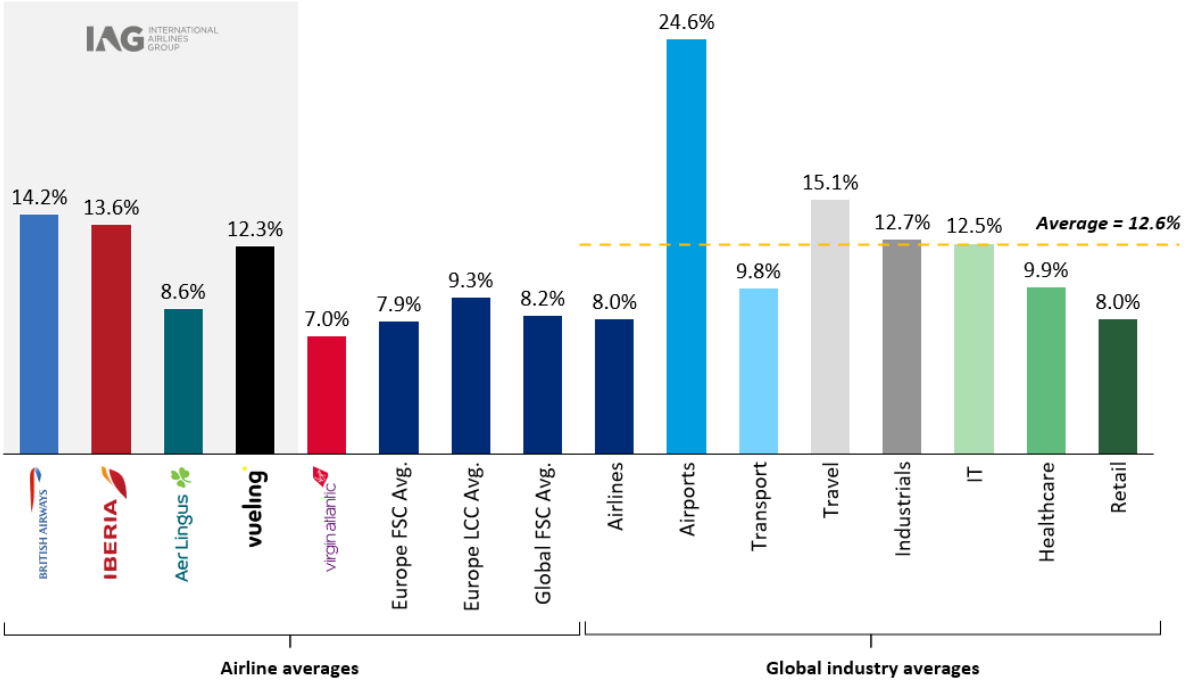
2. AIRLINE ECONOMICS

2.1. INDUSTRY OVERVIEW

AIRLINES PRODUCE LOWER ECONOMIC VALUE THAN OTHER INDUSTRIES

The airline industry is historically a margin laggard compared to other sectors both inside and outside the travel value chain (Figure 1). Margins are often insufficient to return the cost of capital. In 2024, for example, the global airline industry produced an 8.0% operating margin.[11] While the industry was profitable overall, its return on invested capital (ROIC) of 6.7%[12] was lower than its weighted cost of capital (WACC) of 8.8%.[13] Thus, even with a positive operating margin, the industry did not return value to its shareholders.

Figure 1: Airline operating margins vs. other industrial sectors
% margin, FY 2024



Note: Calculated as a weighted average of a subset of the largest companies within each sector globally, based on 2024 total assets. Industrials include industrial conglomerates and construction & engineering. Individual airline margins are based on reported margins in annual reports.
IAG = International Airlines Group; FSC = full-service carriers; LCC = low-cost carriers
Source: S&P Capital IQ, Oliver Wyman analysis.

By contrast, other industrial sectors, including those related to airlines, produced stronger margins, averaging 12.6%. For example, airports produced a 24.6% operating margin, transportation companies[14] produced an average 9.8% operating margin, and the travel sector[15] produced a 15.1% operating margin. Airline performance on the other hand matched that of the lower margin retail industry. These trends hold historically from 2010 to 2024, with airlines producing an average margin of 6.8% compared to 7.4% for transportation and 10.1% for travel over the 15-year period.

[11] Calculated as a weighted average of global airlines with publicly available financial information on 2024 operating margins. Source: S&P Capital IQ.
[12] Industry average ROIC calculated as a weighted average of global airlines' 2024 ROIC based on publicly available financial information. Source: S&P Capital IQ.
[13] Industry average WACC aggregated based on industry benchmarks. Source: Oliver Wyman analysis.
[14] Transportation includes marine transportation of freight, rail and ground transportation.
[15] Travel includes hotels and passenger car rental.

The margin range for the airlines most relevant to the London airport system mirrors the broader industry, with 5-10% margins on average.[16] Some carriers, however, require higher margins to replace existing capacity and fund modest growth.[17] London's largest carrier, British Airways (BA), outperformed the 2024 average with a 14.2% margin. BA's margin is similar to those of other carriers within the same ownership group, International Airlines Group (IAG). Iberia and Vueling, for example, are both IAG-owned airlines with minimal London presence that produced 13.6% and 12.3% margins, respectively.[18] Other carriers operating the largest schedules at Heathrow, including Virgin Atlantic, produced margins that fall within the average range of the airline industry.[19] These relative margins suggest that BA's performance is driven by factors beyond its London presence or any hypothetical unique 'Heathrow windfall.' Regardless of how BA produces its margin, IAG's (and BA's) 2024 margins were still below airport and travel sector margins.

With lower average margins and difficulty generating economic value, airlines struggle to compete for capital investments with non-airline players that can consistently secure higher margins and returns. Airlines also have a more limited ability to fund high capex transformations without further eroding returns. In short, airlines do not have surplus profits to tap for capital expenditure.

AIRLINES SEEK TO IMPROVE ECONOMIC RETURNS BY SHIFTING CAPACITY

An advantage airlines have over many other industries is that their assets are easily movable between destinations.[20] As demand ebbs and flows across destinations, airlines typically shift their capacity to align supply to demand accordingly. Airlines continually seek out the highest margin opportunities (with airlines as rational, profit-seeking actors). Similarly, airlines also favour airports that provide the best mix of customer access and operating cost. When airport costs, for example, become out of balance with what customers are willing to pay, airlines will rationally seek to redistribute their capacity elsewhere (given these decisions are made at the margin, this report and its supporting analyses assess profitability at the carrier-level[21]).

Airlines also typically accept a degree of volatility in the margin produced by individual routes or markets. For example, demand in some routes or markets may fluctuate more significantly over time or may be part of a larger portfolio necessary to attract and retain certain customers. Over the long term, however, routes that fail to provide a minimum level of profitability, when compared to the assets required to serve them, will be minimised or removed from an airline's route network. While these shifts typically do not unlock margins on par with other industries, they are often enough to enable carriers to meet their baseline financial obligations (i.e., covering cost of capital, and ideally, returning value to shareholders).

2.2. LONDON'S AVIATION ECOSYSTEM

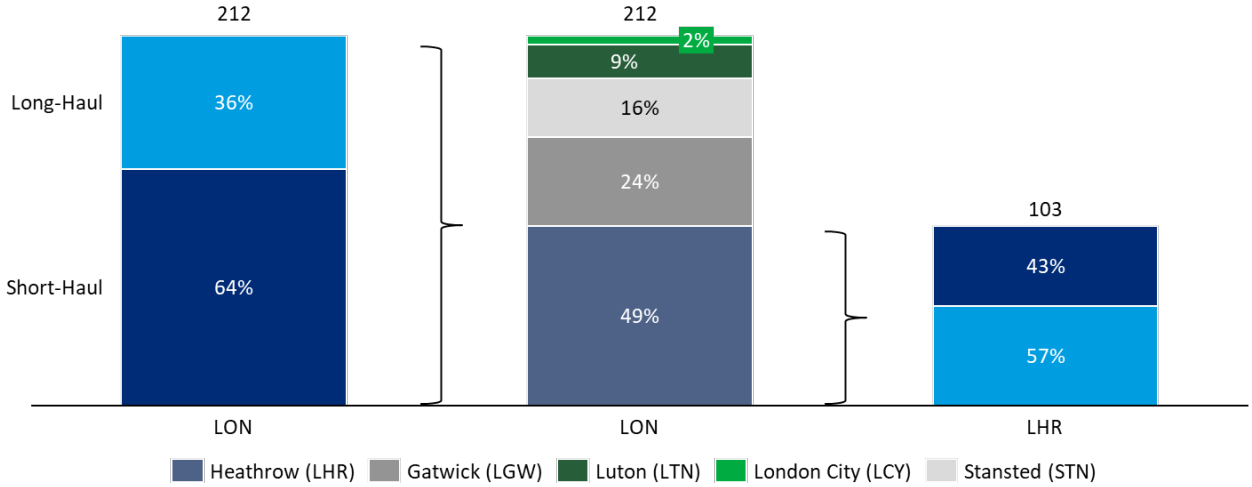
LONDON: ONE COMMERCIAL AVIATION MARKET SERVED BY SIX AIRPORTS

Six airports make up the London air travel ecosystem. As the largest, Heathrow accounts for ~49% of London's capacity, followed by Gatwick (~24%), Stansted (~16%), Luton (~9%), London City (~2%) and Southend (<1%). In aggregate, London's capacity constituted ~210 million seats in 2024.[22]

[16] Based on 25th percentile and 75th percentile of reported operating margins, 2010-2019, 2023-2024. Source: S&P Capital IQ, Oliver Wyman analysis.
[17] Airlines are historically 'value destructive' and do not return margins that imply ROIC > WACC. To replace existing capacity and fund modest growth, margins need to be in the range of 7-12%.
[18] Source: 2024 IAG annual report.
[19] Based on 2024 reported operating margins and Oliver Wyman analysis.
[20] Challenging however for hub carriers over at least a medium-term time horizon.
[21] This report compares a carrier's margin against its peers to determine whether traffic will be reallocated (i.e., European Low-Cost Carriers, European Full-Service Carriers, Non-European State Carriers, Non-European Private Carriers)
[22] Source: Oliver Wyman analysis of 2024 London ecosystem profitability and capacity.

Each airport has a different mix of flying. Heathrow, for example, has a higher proportion of long-haul[23] routes, constituting 57% of its total capacity, compared to a London ecosystem average of 36% (Figure 2).[24] Flying mix is influenced in part by the cost structure of each airport; at Heathrow, airport charges per passenger are approximately twice the average airport charge per passenger of the other London airports.[25]

Figure 2: 2024 London capacity by airport and route type
Number of seats (millions), by route type and airport



Note: Long-haul routes are defined as routes to/from non-European destinations.
Source: Oliver Wyman analysis.

Long-haul routes can accommodate Heathrow's higher cost structure and still produce profitable margins – typically 2-3% higher than the overall system.[26] These higher margins, in part, stem from higher passenger revenues (given both higher passenger fares in the premium cabin and a higher proportion of premium cabin seats) that in effect fund Heathrow's higher airport charges. Premium cabin passengers are more time and service sensitive and less price sensitive, and they may prefer Heathrow given its geographic proximity to central London.

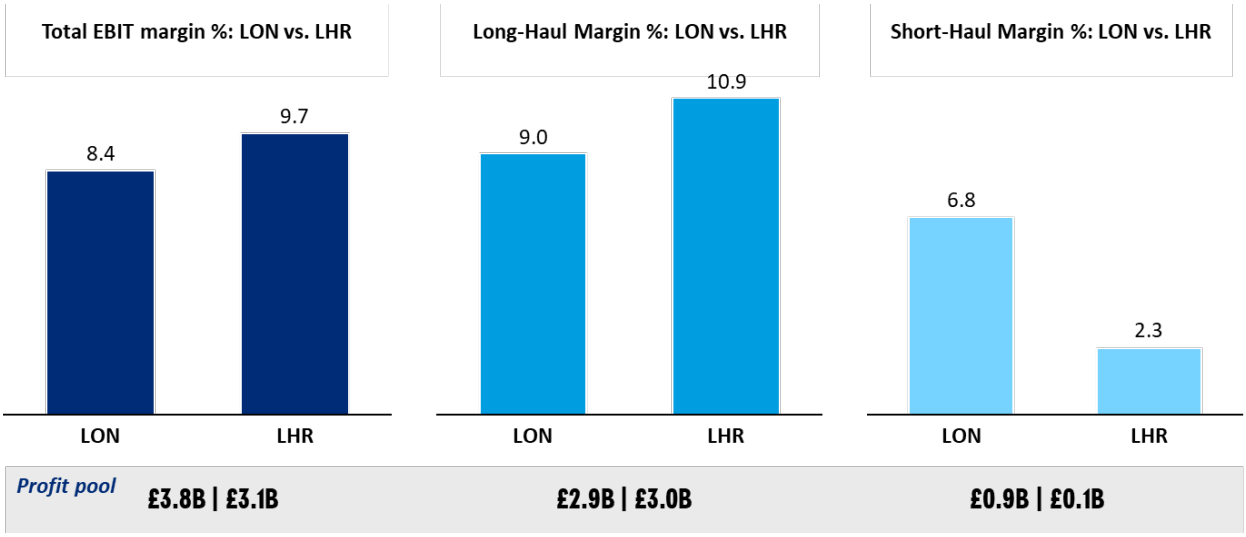
In contrast, short-haul carriers operate smaller premium cabins and cannot recoup as much of Heathrow's operating costs – resulting in smaller margins (although still profitable). Economy cabin passengers are especially price sensitive. The higher airport charges at Heathrow thus make up a larger proportion of short-haul revenue, putting pressure on slim operating margins. Because short-haul carriers, and especially low-cost carriers, find Heathrow less affordable than other London airports, Heathrow's short-haul capacity has fallen.[27] Over the past decade, these carriers have shifted capacity to other London airports in search of better returns (in 2014, for example, short-haul capacity constituted 46% of Heathrow's total seats, declining to 43% in 2024).[28]

[23] Long-haul routes are defined as routes to/from non-European destinations.
[24] Source: Oliver Wyman analysis of 2024 London ecosystem profitability and capacity.
[25] Based on reported passenger volumes and airline revenue, the average charge for Heathrow is 2.1 times higher than the weighted average of other London airports. Average airport charges by airport are Gatwick (LGW) £13.9, Luton (LTN) £9.4, Stansted (STN) £6.1 and London City (LCY) £25.2, calculated based on reported passenger volumes and airline revenue. All airport charge values reflect annual reports for the year ending 31 December 2024 except STN, which uses an annual report for the year ending 31 March 2025. Airport charges are assumed to be the same for short-haul and long-haul for non-Heathrow London airports. For Heathrow, the short-haul airport charge is £20.6 and the long-haul airport charge is £31.9, based on analyses of the split between long- and short-haul and of Heathrow charge proportions across length-of-haul. Source: Airport annual reports, Oliver Wyman analysis.
[26] Source: Oliver Wyman analysis of US DOT T100 data.
[27] This analysis does not consider onward revenue for routes. Short-haul routes are often used to feed long-haul routes. In the context of capacity shifts, onward traffic is unlikely to retain airlines that are considering capacity shifts, as these routes can be routed through other airports or backfilled on the same flight; major network carriers can redeploy aircraft to other gateways with minimal connectivity impact.
[28] Percentage of departing and arriving seats to/from Heathrow. Short haul defined as inter-Europe and inter-UK routes. Source: OAG/PlaneStats.com, Oliver Wyman analysis of 2024 London ecosystem profitability and capacity.

AIRLINES' MARGINS AT HEATHROW ARE IN LINE WITH INDUSTRY AVERAGES

In 2024, airlines at Heathrow produced a 9.7% margin on Heathrow routes, compared to 8.4% across the broader London ecosystem (Figure 3). While airlines' aggregate Heathrow long-haul margin is higher than airlines' overall system margins, it is in line with global averages. Indeed, airlines' Heathrow long-haul margin (10.9%) is in line with the broader global trend that long-haul routes produce 2-3% higher margins than overall airline system margins.

Figure 3: 2024 London margins and profit pools by route type
% by route type, Heathrow compared to London ecosystem

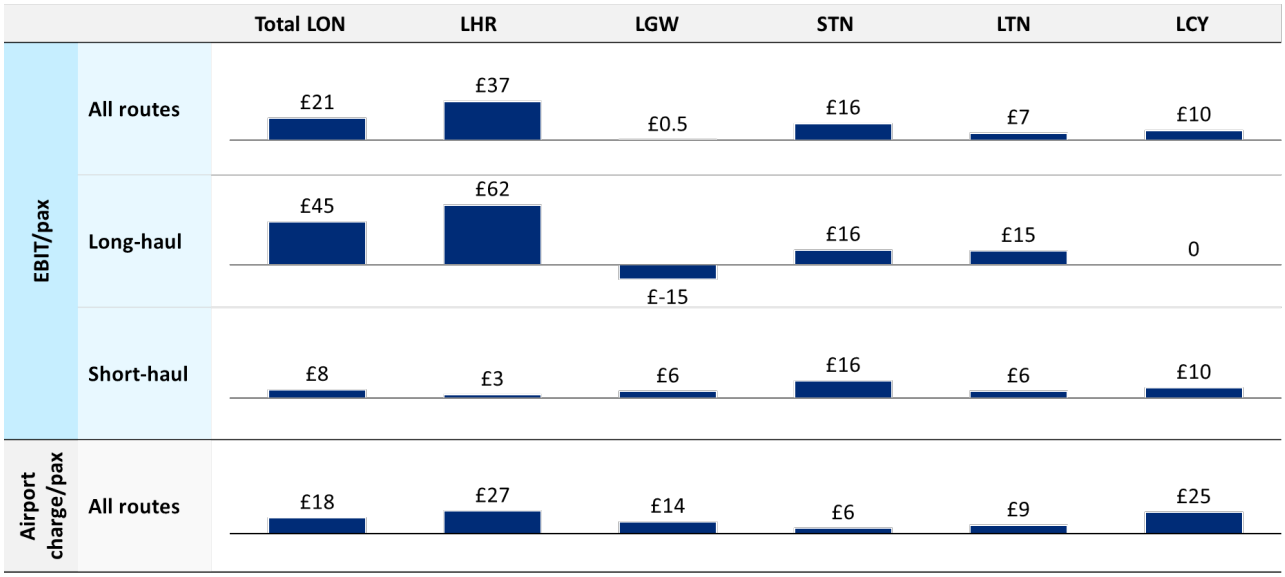


Note: Long-haul routes are defined as routes to/from non-European destinations.
Source: Oliver Wyman analysis.

London as a whole generated £3.8 billion EBIT for airlines in 2024 (£21 per passenger) while Heathrow generated £3.1 billion (£37 per passenger) in 2024 (Figure 4). Heathrow's higher airline profitability per passenger is driven by its higher proportion of long-haul flights, which produced £62 per passenger in airline EBIT.[29] Heathrow's short-haul profitability (£3 per passenger), however, significantly underperformed that of other London airports. As such, while Heathrow is the most profitable airport in London, the implied EBIT margin of its profit pool (9.7%) is in line with historical airline profits and below that of comparable industries, suggesting limited excess profit today.

[29] EBIT = Earnings before interest and taxes

Figure 4: 2024 EBIT per passenger and airport charge per passenger (GBP), by airport



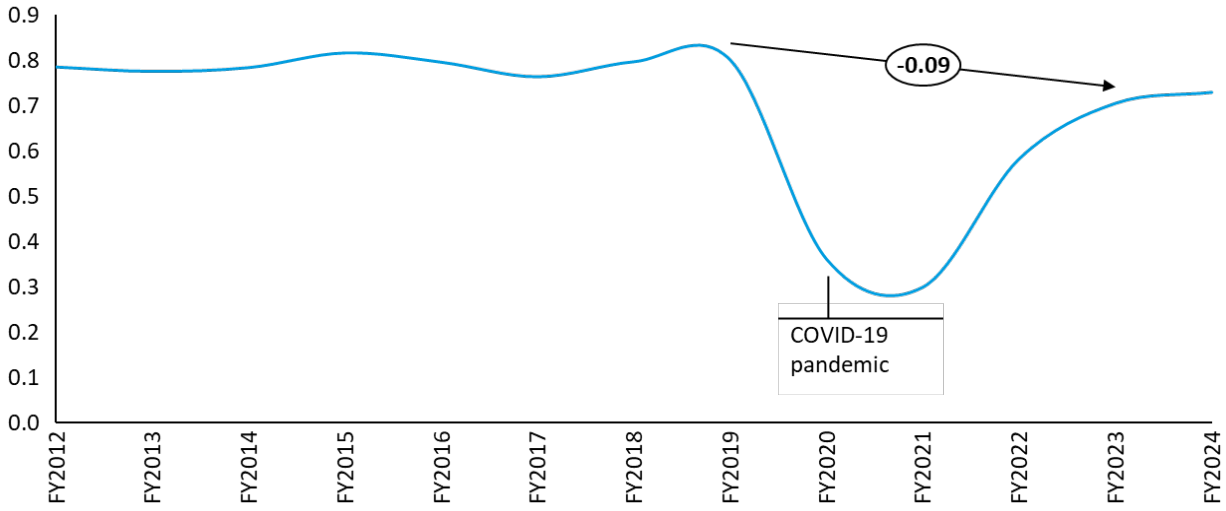
Note: Gatwick's negative long-haul margin is driven by Norse Atlantic Airlines; omitting Norse, Gatwick produces a 1.7% EBIT margin for long-haul routes, translating to £5 per passenger in EBIT. Long-haul margins have a wide range at Gatwick, from -230% to 60%. EBIT and revenue exclude airport charges.
Source: Oliver Wyman analysis.

2.3. REVENUE AND CAPACITY GROWTH

AIRLINE REVENUE GROWS WITH GDP

In mature economies, airline revenue historically grows in line with nominal GDP, and this is true in Europe.[30] In years of 'normal' performance from 2010 to 2019, European airline revenue represented a consistent portion of European GDP. During the COVID-19 pandemic, revenue shrank dramatically faster than GDP, as is typical during 'Black Swan' events.[31] Also typical is revenue recovering to a smaller portion of GDP after such an event, as has been the case for post-COVID Europe (Figure 5). Often, this effect persists over time.

Figure 5: European airline industry aggregate revenue as a proportion of total European GDP
%, 2012-2024

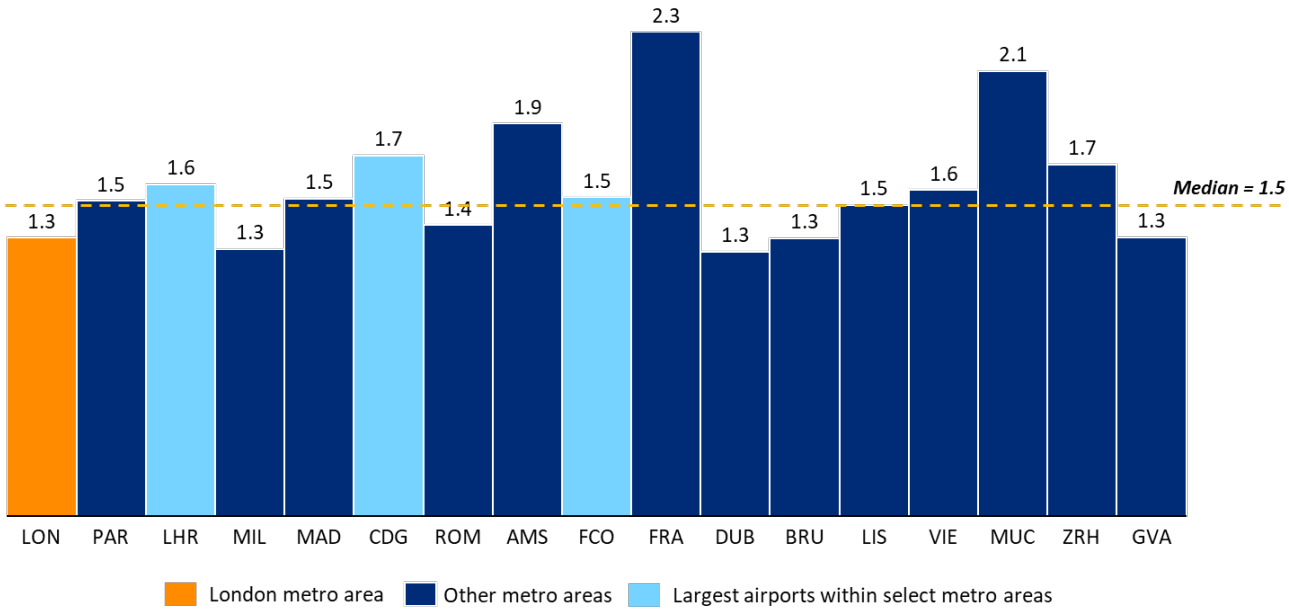


Source: Oxford Economics, S&P Capital IQ, Oliver Wyman analysis.

[30] Near-term projections for UK GDP are similar to European GDP.
[31] 'Black Swan' events are unexpected, unpredictable events that have significant impacts on the global economy.

The volume of airline capacity on offer in London, and specifically at Heathrow, is in line with other hubs when compared to traffic.[32] In 2024, London overall had 1.3 available seats per point-to-point passenger,[33] compared to a median of 1.5 seats across other hubs (Figure 6). Heathrow had 1.6 available seats per passenger (+0.1 from median) in line with the European average and similar to CDG (a similarly sized hub), suggesting that Heathrow's ability to serve passenger demand with available capacity is on par with other European hubs of similar size.

Figure 6: Available seats per passenger by metro area, select European hubs, 2024
Scheduled departing seats per departing point-to-point passenger, sorted by largest to smallest metro areas



Note: Non-exhaustive list of European hubs; Europe has other connecting hubs.
Source: DDS 2024 Ticketing data, OAG/PlaneStats.com, Oliver Wyman analysis

Given that London compares favourably to benchmarks in its ability to serve passenger demand, its capacity is expected to grow rationally over the long term in line with GDP to maintain the current natural market size (absent major policy or behavioural changes). Over the long term, airlines may expand capacity when profitability allows, with the hope that demand materialises to match. The overall revenue pool is constrained by GDP growth, however, and excess airline seat capacity would be expected to result in lower profitability. Over the long run, this excess capacity would be removed by rational carriers, as airlines strive to earn margins that cover their financial obligations.

AIRLINE REVENUE IS ALREADY BROADLY MAXIMISED

All airlines aim to maximise the amount of revenue they produce using sophisticated revenue management systems. These tools optimise ticket price and ancillary spend to maximise revenue (and margin) holistically. In a well-operating market, airline economics dictate that if there is an opportunity to increase revenue by raising prices, airline commercial teams do so.

As such, attempts to pass costs through to consumers in competitive markets often fail in the short term (such as by generating lower overall revenues for airlines) and require downward airline capacity adjustments to be sustainable over the long term (i.e., accounting for loss of traffic or foregone growth as demand falls in response to higher prices). Furthermore, efforts to pass incremental airport charge increases to passengers at Heathrow are likely to drive volume to other London airports – especially

[32] Metro areas include all airports in/around city. For example, PAR includes CDG, ORY and BVA.
[33] Point-to-point passengers only; metrics are scheduled seat capacity and origin-destination passenger volumes. Source: DDS 2024 Ticketing data, OAG/PlaneStats.com, Oliver Wyman analysis.

given that other London airports' pass-through charges are expected to remain broadly unchanged. Because Heathrow competes with other European hubs like Amsterdam Schiphol, Paris Charles de Gaulle, Madrid-Barajas and Frankfurt[34] (especially for connecting traffic), fare increases on connecting routes would likely encourage passengers to select alternative routes through other European hubs.

3. AFFORDABLE CAPEX ENVELOPE

3.1. TWO-RUNWAY BASELINE PROFITABILITY – TWO RUNWAYS THROUGH 2045

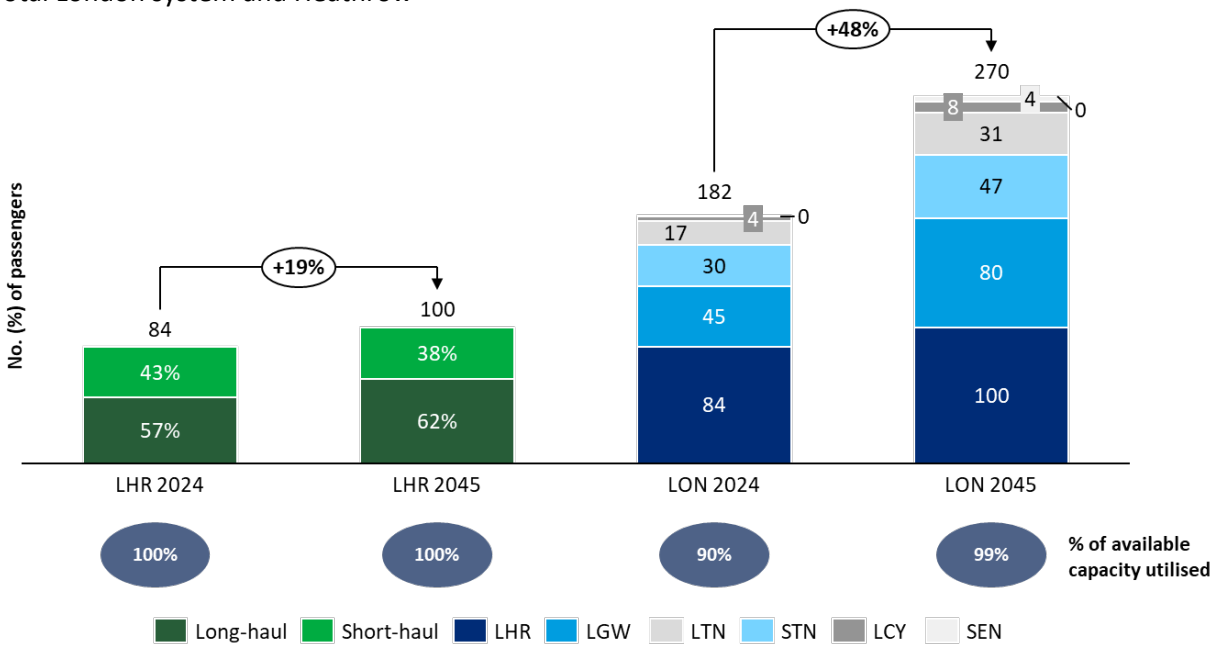
All else equal, Heathrow will continue to be movement constrained in 2045, while other London airports will be able to support additional growth. Without a third runway, Heathrow will continue to be at movement capacity through 2045 (two-runway capacity rising from 485,000 to 505,000 movements), while airlines will grow passenger capacity within two-runway infrastructure constraints by up-gauging where possible within terminal throughput constraints.[35] Excess demand is thus expected to reach ~26 million passengers by 2045. This is demand that would choose to be served by Heathrow but, out of necessity, would have to move to other London airports (which are expanding). Additionally, in this scenario, less profitable short-haul capacity continues to move out of Heathrow, while long-haul passenger mix grows from 57% in 2024 to 62% in 2045.

Other London airports will be able to support demand growth through 2045 with available passenger capacity. By 2045, the London system will be operating nearly at passenger capacity (99%) – with a small amount of available capacity remaining at Luton, London City and Southend, as Heathrow reaches movement capacity and Gatwick and Stansted reach maximum passenger capacity (Figure 7)[36].

Under current assumptions, in the London system with two runways at Heathrow, 2045 airline profitability on London routes is expected to remain broadly similar to 2024 levels, with an operating margin of ~8%[37] (corresponding to a £4.7 billion EBIT pool, or ~£17 per passenger). Airline tenants' profitability at the airport is expected to remain broadly flat– at ~10% in 2045 – driven by a continued mix shift (more long-haul capacity replacing short-haul) and growing demand.

[34] List of European hubs is not exhaustive.
[35] Airlines are expected to increase passenger capacity within airport infrastructure/movement constraints by up-gauging. For example, airlines may replace short-haul routes with long-haul routes (on existing slots) or use larger aircraft to serve additional capacity on existing routes. See appendix section A.3 for additional details.
[36] Assuming airport capacity management tools remain broadly similar in 2045
[37] Based on assumptions in A.2. Cost Growth; assumes no material changes to airline operating model

Figure 7: London airport traffic and capacity: 2024 and 2045 with two runways (2R)
Total London system and Heathrow

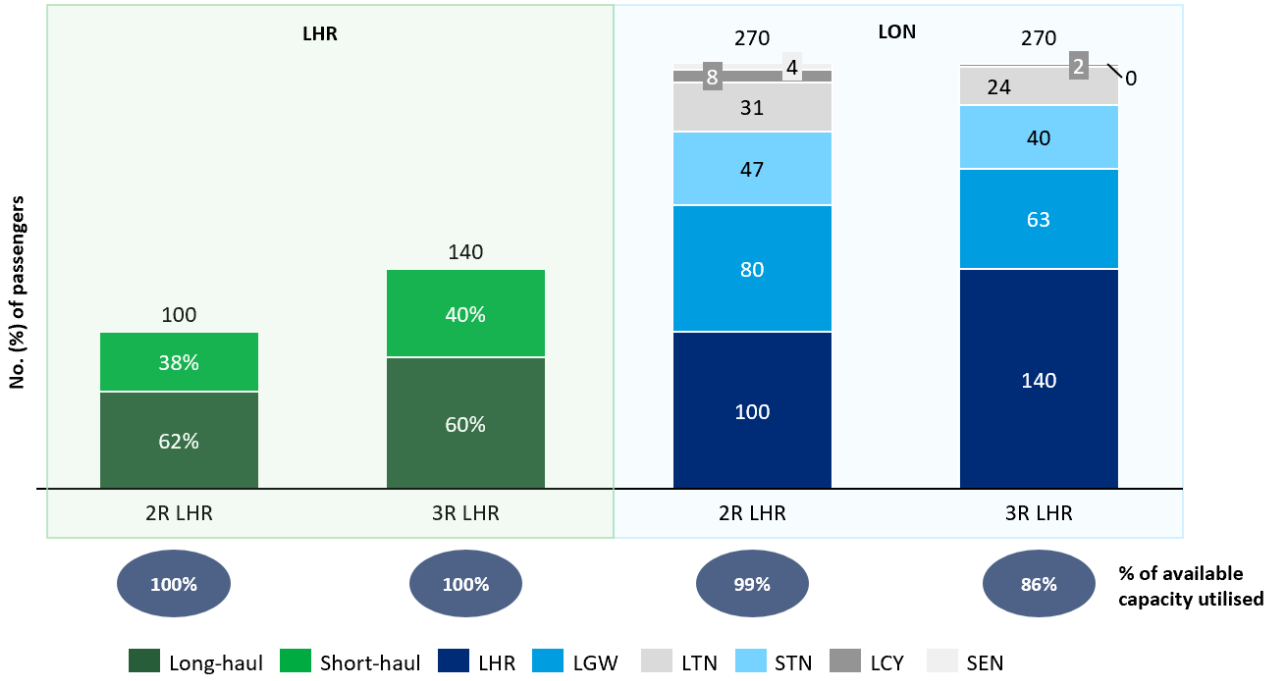


Source: Oliver Wyman analysis.

3.2. THREE-RUNWAY BASELINE PROFITABILITY – THREE RUNWAYS WITHOUT INCREASED AIRPORT CHARGES

Increased capacity at the current cost structure would enable additional volume to enter Heathrow. Heathrow's third runway at the current cost structure (no additional airport charges) would unlock significant growth. In this scenario, Heathrow would reach a new annual capacity of 756,000 movements. Given the relative economics of operating at Heathrow vs. other London airports, additional short-haul capacity would be expected to move to Heathrow from other London airports, as would long-haul capacity from other London airports. This capacity was previously unable to expand at Heathrow, given slot and movement limitations. As such, Heathrow's passenger mix could shift from 38% short-haul in a two-runway 2045 scenario to 40% short-haul in a three-runway 2045 scenario (Figure 8).

Figure 8: London airport traffic and capacity: 2045 with two runways (2R) and 2045 with three runways (3R) at current cost structure
Total London system and Heathrow



Source: Oliver Wyman analysis.

With a third runway, Heathrow's share of total London passenger volume would grow from 37% in the two-runway baseline to 52%. In this scenario, the London airport ecosystem could face excess slot and passenger throughput capacity – even if Heathrow is full – with London demand at ~270 million passengers and airport capacity at ~314 million passengers (LHR: 100% full; LGW: 79% full, others: 71% full).[38]

At Heathrow, the extra capacity of a third runway would generate £4.9 billion in airline EBIT (£35 per passenger) with an average airline operating margin of ~10% (vs. 9.7% in 2024). The incremental traffic added to Heathrow, however, would be less profitable than the two-runway baseline, given the influx of short-haul traffic from other London airports. For the London system, this scenario yields an average airline margin of ~8% (or £5.2 billion in airline EBIT).

3.3. AFFORDABLE HEATHROW CHARGE AND CAPEX – THREE RUNWAYS WITH BASELINE AFFORDABILITY CAP

AIRLINES COULD ABSORB £4.50-£5.50 PER PASSENGER IN INCREMENTAL AIRPORT CHARGES

Given that revenue is already broadly maximised and constrained by GDP growth, and that the London airport ecosystem functions as an interconnected aviation market (see Section 2.2), airlines would find it difficult to pass on additional costs to passengers – meaning that incremental increases in airport charges would reduce the profitability of airlines operating at Heathrow under standard industry behaviours. To sustain an acceptable level of profitability, airlines operating at Heathrow could potentially afford £4.50-£5.50 per passenger[39] in incremental airport charges to support Heathrow's

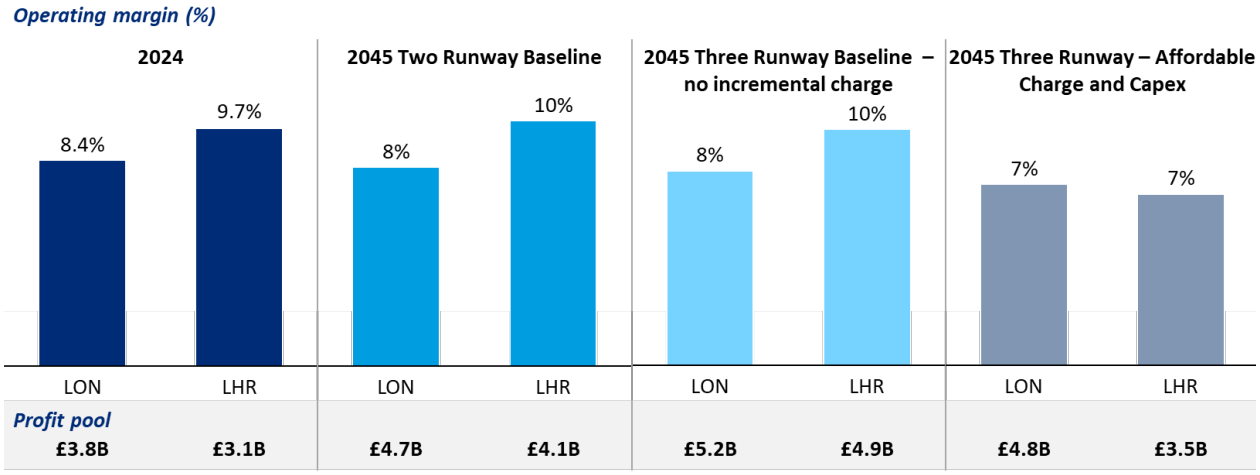
[38] Based on projected passenger volumes in 2045.
[39] Excluding business rates.

expansion (translating to an affordable capex envelope of up to £30 billion[40]). This level of incremental airport charges would result in 2-3 points of margin degradation before airlines would need to make material shifts in capacity.

At 2-3 points of margin erosion, overall airline profitability at Heathrow would drop to ~7% (equivalent to a profit pool of £3.5 billion) (Figure 9). At this margin, (a) airlines' operations at Heathrow return a margin within historical ranges of airline profitability and (b) remaining traffic would not face significantly higher charges if airlines operating below historical profitability ranges were to exit. As previously discussed, the historical range of airline profitability is 5-10% (though airlines operating to/from Heathrow will need to add significant capacity to support capacity growth).[41]

This level of profitability assumes the airline industry as a whole remains value destructive, with many carriers operating with a WACC that is above ROIC.[42] In the long run, we assume the proportion of carriers operating with a WACC less than ROIC remains constant – therefore, 5-6%[43] will continue to be the minimum 'acceptable' level of profitability for the industry. Given Heathrow's long-haul and short-haul traffic mix, however, we would expect its tenant airlines' minimum sustainable margin to be in the range of 6-7%[44] to account for the higher average system margins required by long-haul traffic (see Section 2.1). If the profitability of airline operations at Heathrow drops below this threshold, we expect that capacity redistribution to other London or European airports would occur – placing a higher cost burden on remaining traffic (i.e., increasing the cost per passenger and driving more airline traffic elsewhere).

Figure 9: Profitability of airlines operating at London airports
Total London system and Heathrow; 2024, 2045 2R, 2045 3R at current cost structure and affordable incremental airport charge



Source: Oliver Wyman analysis

HEATHROW WOULD ACCELERATE PASSENGER GROWTH BUT CREATE EXCESS CAPACITY

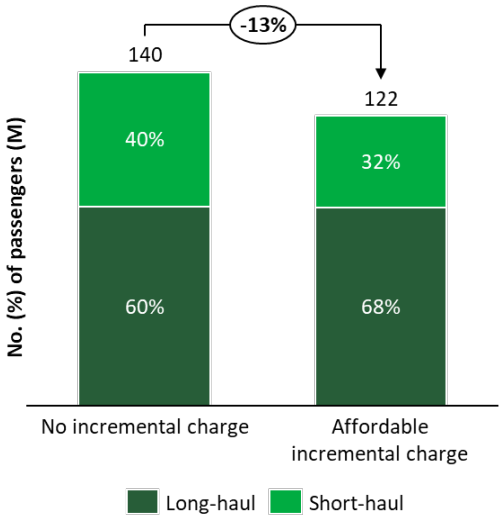
With a £4.50-£5.50 increase in airport charges (that is, to the level airlines could afford without margin erosion below the minimum viable threshold), Heathrow would reach ~122 million passengers in 2045,

[40] For runway programme and associated infrastructure (as defined within Heathrow's current £49 billion masterplan)
[41] Based on 25th percentile and 75th percentile of reported operating margins, 2010-2019, 2023-2024. Source: S&P Capital IQ, Oliver Wyman analysis. Varies by carrier archetype.
[42] Historically, airlines struggle to produce ROIC that is greater than WACC. According to the International Air Transport Association (IATA), global airlines (in aggregate) have produced a ROIC that is less than or equal to WACC since 2008; Source: IATA, S&P Capital IQ, Oliver Wyman analysis.
[43] 25th percentile of reported operating margins, 2010-2019, 2023-2024
[44] 25th percentile of reported operating margins, 2010-2019, 2023-2024; adjusted for Heathrow's long-haul vs. short-haul split.

corresponding to ~630,000 movements (or ~82% of total capacity). While Heathrow would not reach its maximum movement capacity, overall passenger traffic would increase by ~22 million vs. 2024 baseline.

However, carriers with existing capacity at Heathrow that are unable to absorb increased airport charges could shift capacity to other (also expanding) London airports. In this scenario, the scarcity of Heathrow's slots diminishes, such that airlines put less weight on the long-term economic attractiveness of a slot at Heathrow in decision-making about route network planning and asset deployment. As a result, short-haul traffic in particular would shift to other more economically positive London airports. Given this group returns a ~2% margin today (on Heathrow routes) and does not see a meaningful revenue benefit at Heathrow, incremental airport charges would drive this traffic to other airports.[45] Long-haul carriers, however, would be slower to shift away from Heathrow, given the airport's attractive economics (i.e., favourable "wealth" catchment vs. other LON airports combined with depth and breadth of the network built over time, creating favourable premium yields[46]). In aggregate, ~25 million passengers in capacity would shift to other London airports, while ~19 million passengers would enter Heathrow as new capacity enables carriers that previously did not operate at Heathrow to enter the airport, driving overall Heathrow capacity to ~122 million passengers by 2045 (Figure 10).

Figure 10: Heathrow capacity and flying mix: 2045 3R, no incremental charge and affordable incremental charge



Source: Oliver Wyman analysis.

INDUSTRY TRAFFIC WILL GROW MORE SLOWLY THAN HEATHROW CAPACITY

The level of affordability for airlines is underpinned by GDP growth. Over a long-term horizon (e.g., the time scales contemplated for Heathrow's third runway), airline industry seat capacity growth, and therefore revenue, will broadly align with GDP. In the system modelled here, if the industry attempts to outgrow revenue, margins will come under pressure and ultimately excess seat capacity will be rationalised over time.

This means that rational airline industry organic growth could not be expected to fill all the proposed new airport capacity at Heathrow by 2045. Traffic growth would trail Heathrow's airport capacity

[45] This analysis does not consider onward revenue for routes. Short-haul routes are often used to feed long-haul routes. In the context of capacity shifts, onward traffic is unlikely to retain airlines that are considering capacity shifts, as these routes can be routed through other airports or backfilled on the same flight; major network carriers can redeploy aircraft to other gateways with minimal connectivity impact.
[46] Short-haul premium does not outweigh additional operating charges at Heathrow.

growth, leaving a surplus of ~10% (of total three-runway airport capacity) in 2045.[47] If the industry sought to fill new Heathrow capacity immediately, traffic could commensurately grow faster, but with downward pressure on fares. Resulting airline margins at Heathrow would decline below the minimum viable range (i.e., 5-10%), in turn pushing airline seat capacity out of the market over time.

CHARGES ABOVE £4.50-£5.50 PER PASSENGER RISK FINANCIAL HARM TO AIRLINES

If airport charges were to increase above £4.50-£5.50 per passenger to support a third runway, airlines serving London would see a meaningful increase in risk. In this scenario, a significant portion of the airline industry's profitability at Heathrow could be jeopardised, as such charges would bring many carriers below a minimum viable operating margin. These carriers would shift capacity to other London airports in search of better economic returns, or outside of London if projected economic returns were higher in other markets. The latter holds true especially for connecting traffic that could be adequately served through other hubs. Additionally, airline seat capacity would shift into Heathrow at reduced rates, as airlines would see better economic returns at other London airports.

Once airline operations begin to shift away from Heathrow, airport charges would need to be further increased for the remaining carriers and passengers to sustain the same level of total cost. In an extreme scenario, these incremental charges would put more pressure on passengers and carriers, exacerbating shifts away from Heathrow, leaving a far smaller set of carriers to shoulder the capex burden.

3.4. AFFORDABLE CAPEX ENVELOPE

The affordable capex envelope of up to £30 billion indicates the maximum capex airlines could contribute to the runway programme (and associated infrastructure for Heathrow's current £49 billion masterplan), given currently proposed capex phasing through 2045 and based on the dynamics discussed in Section 3.3. This level of capex represents the maximum sustainable investment that could be funded by airport charge increases, while enabling airlines to maintain sustainable profitability margins and maintaining Heathrow's viability for new entrants. In short, this level of capex represents the upper bound that airlines could absorb under today's proposed phasing.

This capex envelope and associated airport charges are contingent on the phasing of capital expenditure. Depending on capex phasing, the amount of capex that could be recouped by tenant airlines from the same level of incremental airport charge (£4.50-£5.50 per passenger) could vary.

A larger total capex profile or a front-loaded capital expenditure programme would require incremental support from parties other than Heathrow's tenant airlines.

[47] Traffic growth based on Airbus Passenger Traffic Forecast, while capacity growth is broadly aligned with GDP growth. Growth rates expressed in real terms. Figure assumes no airline capacity re-distribution between London airports See appendix section A.3 for additional details.

4. CONCLUSIONS

In the two-runway baseline, Heathrow would continue to operate at its maximum movement constraint and with some headroom to passenger throughput limits. The ability to accommodate new entrants would remain limited, and incumbent growth would only occur with the use of larger aircraft. Unaccommodated demand, out of necessity, would move to other London airports (whose capacity is also projected to grow).

The three-runway scenario would remove current movement constraints, opening Heathrow to a broader mix of carriers (including short-haul). The incentive for these (and incumbent) carriers to enter or grow at Heathrow would be relative to any new charging scheme. With revenue already maximised, airlines would expect incremental airport charges to translate into margin erosion. London passengers may begin shifting to other airports (with airline capacity following) and connecting traffic (via Heathrow) would begin shifting to competing (less expensive) hubs.

Holistically, the industry's tolerance for margin erosion ends at £4.50-£5.50 per passenger in incremental airport charges. Industry margin at this point would reach the 5-10% threshold for capacity redeployment. Higher charges to support airport expansion would push margins below this threshold, resulting in some airlines choosing to stop growing and/or shift capacity out of Heathrow. Should this happen, the cost burden on airlines remaining at Heathrow would grow, placing further downward pressure on their margins (encouraging even more capacity to leave).

Incremental airport charges of £4.50-£5.50 per passenger would translate into an affordable capex envelope of up to £30 billion[48], indicating the maximum capex airlines could contribute to the runway programme, subject to capex phasing through 2045. Front loaded capital expenditure or capital expenditure beyond £30 billion would need to be funded by alternative sources.

[48]For runway programme and associated infrastructure (as defined within Heathrow's current £49 billion masterplan)

APPENDIX A: ASSUMPTIONS

This report deliberately focuses on the impacts to airline economics and behaviours and does not evaluate broader economic impacts of air travel or passenger growth. Additionally, this report assumes that, between now and 2045, underlying airline economics remain consistent – excluding foreseeable shifts (e.g., SAF mandates, cost escalations, etc.).

A.1. REVENUE GROWTH

Revenue is expected to grow 1:1 with European GDP through 2045. From 2010 to 2019, European airline revenue constituted 0.77% of European GDP on average.[49] In representative years from 2003 to 2019, airline revenue grew by an average year-over-year rate of 5.7%, while GDP grew by 6.0% (in nominal terms). However, after 'Black Swan' events, airline revenue as a portion of GDP has historically plateaued. Post-pandemic, European airline revenue returned to 0.71% of European GDP, growing to a 0.73% share in 2024 – both smaller than pre-pandemic. With revenue as a portion of GDP flattening post-pandemic, revenue can be assumed to maintain an average of 0.73% share of European GDP in future years. Maintaining this proportion, airline revenue would grow by the same rate as GDP through 2045.

Price growth is expected to be 0% per year in real terms. As such, projections focus on volume growth rather than price increases.

A.2. COST GROWTH

Airline costs (Figure 11) are volatile due to reliance on variable fuel costs and the high proportion of fixed expenses required. Without the opportunity for revenue growth beyond GDP, an increase in costs that outpaces GDP growth would erode airline margins.

Fuel costs are expected to grow with crude oil CPI, including fuel burn efficiencies through 2045; fuel burn efficiencies are calculated based on in-service fleet and fuel burn assumptions by aircraft type through 2045.[50] Jet fuel also is expected to include an increasing proportion of Sustainable Aviation Fuel (SAF) through 2045.[51] Although SAF is currently two to five times more expensive than conventional jet fuel, costs are expected to reduce through 2045 to 2.5x jet fuel costs based on conservative assumptions.[52]

Crew costs are expected to grow at the same rate as the United Kingdom Labour Consumer Price Index (CPI),[53] assuming no material changes to crew structure (such as due to cabin regulations) through 2045.

According to the Oliver Wyman Vector MRO forecast, materials are expected to comprise 60% of total maintenance cost on average through 2045, while labour will comprise the remaining 40%. Maintenance costs are projected to grow according to United Kingdom Wage CPI and A&D materials CPI using this allocation through 2045.[54]

In scenarios without incremental airport charges, airport charges are expected to stay constant (in real terms) through 2045. Additionally, airport charges at Heathrow are expected to maintain current

[49] Based on analysis of GDP and aggregated airline revenues; Source: Oxford Economics, S&P Capital IQ.
[50] Source: Oliver Wyman Vector Fleet Forecast.
[51] SAF proportion capped at 20% based on conservative assumption. Source: IATA, Oliver Wyman analysis.
[52] 2024 SAF cost of 5x conventional jet fuel cost used as a conservative assumption. Source: IATA, International Council on Clean Transportation (ICCT), Oliver Wyman analysis.
[53] Source: Oxford Economics.
[54] Source: Oxford Economics, UK Office for National Statistics (ONS).

proration between long-haul and short-haul routes.[55] All other costs are expected to grow with core CPI.

Figure 11: Core cost components and associated growth factors (in real terms)

Cost types	Growth factor	Assumption (in real terms)	Scaling factor
Fuel cost	Escalated at projected CPI of crude oil, accounting for fleet efficiency improvements and use of sustainable aviation fuel	-0.3%/year	Passengers
Crew costs	Escalated at CPI of labour, assuming no material changes to crew structure (e.g., cabin regulations)	1.5%/year	Departures
Maintenance costs	Escalated at blended rate of CPI of labour and CPI of material costs	1.2%/year	Departures
Airport charges	Escalated at current trajectory through 2045 in baseline scenario	0.0%/year	Passengers
Other costs	Escalated at core CPI	0.0%/year	Passengers

Source: Oliver Wyman Vector Fleet Forecast, Oxford Economics, ONS, IATA, ICCT, Oliver Wyman analysis.

A.3. PASSENGER & CAPACITY GROWTH

Passenger demand through 2045 is assumed to grow by the CAGR defined in the Airbus Global Market Forecast 2025-2044, by region serviced from London, according to capacity operating on each regional flow (Figure 12).

Figure 12: Passenger growth rate projections
% CAGR, by region

Regional flow	Forecasted passenger growth 2024-2044 CAGR
Intra – Europe (excluding Domestic)	1.3%
Europe – Indian Subcontinent	3.9%
Europe – Middle East	3.6%
Europe – North Africa	1.1%
Europe – People's Republic of China	5.7%
Europe – Pacific	3.6%
Europe – South Africa	4.9%
Europe – South America	3.7%
Europe – USA	2.2%
Weighted average	**1.9%**

Source: Airbus Passenger Traffic Forecast, Oliver Wyman analysis.

[55] Based on 2024 reported passenger volumes and airline revenue, 2024 average airport charges by airport were LGW £13.9, LTN £9.4, STN £6.1 and LCY £25.2. Airport charges assumed to be the same for short-haul and long-haul for non-Heathrow London airports. For Heathrow, the short-haul airport charge is £20.6, and the long-haul airport charge is £31.9, based on analyses of the split between long- and short-haul and of Heathrow charge proportions across length-of-haul. Source: 2024 airport annual reports, Oliver Wyman analysis.

Gatwick, Stansted, Luton, and London City airports are currently passenger-capacity constrained, while Heathrow is constrained by air transport movements. Passenger capacity limits are expected to hold through 2045, except for planned capacity expansion projects, including Gatwick's second runway and terminal expansion programme, Stansted's new terminal and taxiway projects, Luton's terminal expansion programme, and City's initiatives to reduce operational approach constraints. The baseline 2045 forecast assumes these capacity projects are completed as planned.

Heathrow's current annual movement capacity limit of 480,000 ATMs is expected to increase to 505,000 ATMs by 2045 in the baseline two-runway scenario, with the completion of Heathrow's 2R+ infrastructure expansion. In scenarios involving third runway expansion, Heathrow's annual capacity is expected to be 756,000 ATMs.

Based on current and forecasted fleet compositions through 2045, few regions provide strong evidence to justify a significant shift in seat gauge.[56] As such, the average aircraft size by 2045 is unlikely to be outside the range of 190-205 seats in London (today's average).[57] Note, however, that Heathrow would see increased gauge in the constrained two-runway baseline scenario, as mix shifts to long-haul and existing capacity leverage larger aircraft to fill demand, given limited movements.

For widebody aircraft, gauge is assumed to remain constant through 2045 (for all regions) given current order books.[58] Similarly, narrowbody aircraft orderbooks in most regions do not show significant size growth through 2045. While some regions are expected to see increases in gauge, Europe already has higher-than-average narrowbody gauge and its orderbook does not imply a significant shift in seats between now and 2045.[59] As such, narrowbody gauge is expected to remain broadly flat through 2045.

A.4. AIRLINE WILLINGNESS TO SHIFT CAPACITY

Airlines have historically struggled to produce returns in excess of their baseline cost of capital; this dynamic is expected to hold through 2045. Airlines with existing slots at Heathrow are expected to have varying appetites to shift their operations to other airports if faced with downward pressure on unit revenue and margins. While Heathrow's brand and 'halo' could encourage airlines to maintain capacity at Heathrow, margin erosion below a minimum viable threshold is likely to result in airlines shifting capacity away from Heathrow.

Given that airlines must cover baseline financial obligations, profit-seeking carriers with existing slots at Heathrow are expected to shift capacity to another London airport (with available capacity) if their operating margins at Heathrow fall below a minimum viable threshold (assuming airlines are rationale, profit-seeking actors). Given that the historical profitability of airlines across the industry is in the range of 5-10%, we expect the industry to continue achieving margins in this range.[60] This margin accounts for the reality that the airline industry is historically value destructive (see Section 2.1) and some airlines will not have the luxury of producing margins that imply ROIC (return on invested capital) is greater than or equal to WACC (weighted average cost of capital). As such, airlines will be willing to shift capacity to another London airport if they can obtain a return closer to the sustainable average (assuming available airport capacity). These decisions are made 'at the margin' by carriers – as such, the model and this report assess an airline's profitability compared to its peers[61] when making capacity reallocation decisions within London. At Heathrow, this translates to a minimum aggregate airline

[56] Source: Oliver Wyman Vector Fleet Forecast.
[57] Ibid.
[58] Source: AWIN, Oliver Wyman analysis.
[59] High capacity narrowbodies are typically the A321 series, with the potential for 200+ seats. These aircraft can be used at lower capacity and longer ranges, and in practice, are likely to enter the niche formerly filled by B757 and small B767 variants. Other narrowbody orders will likely be delivered and operated with premium classes, operating at lower than maximum seat capacity to generate higher margins.
[60] Based on 25th percentile and 75th percentile of reported operating margins, 2010-2019, 2023-2024. Varies by carrier archetype. Source: S&P Capital IQ, Oliver Wyman analysis.
[61] Peer groups include European Low-Cost Carriers, European Full-Service Carriers, Non-European Carriers (private), and Non-European Carriers (state-backed)

margin of 6-7%[62], given the airport's larger proportion of more premium heavy long-haul traffic.[63] Margins below this imply that the proportion of airlines producing returns below WACC has increased outside of the historical average, and that airlines cannot sustainably meet financial obligations and generate incremental returns.

For capacity shifts to other London airports, this report assumes that Heathrow's cost structure and revenue opportunities (hub status, relatively faster transport links to central London, passenger catchment area, and presence of more premium heavy long-haul carriers) relative to other London airports drives differences in individual airlines' profitability at each airport. For carriers to shift capacity to another London airport, the cost advantage (due to lower airport charges) must outweigh the revenue opportunities that can be achieved at Heathrow. Within this framework, carriers are expected to continue serving at least one London ecosystem airport if capacity is available, rather than shifting capacity away from the London ecosystem entirely.

This report considers London to be one commercial aviation market consisting of six airports – Heathrow, Gatwick, Stansted, Luton, London City, and Southend – given consumers view London as one market and will shift between airlines depending on their travel needs. As such, rationale, profit-seeking airlines will shift capacity within London to maximise their margins (i.e., they have movable assets) where they can. For example, over the last twenty years (from 2005 to 2025), short-haul departure volume in London has remained flat (declining 1% in 2025 vs. 2005) but short-haul departure volume at Heathrow declined 13%. Today, short-haul margins are lower at Heathrow vs. other airports given its high operating costs relative to other London airports – causing airlines to redistribute traffic to other airports.

A.5. CHARGE TO CAPEX CONVERSION

Passenger charges at Heathrow are determined under the CAA's RAB-based regulatory framework. In each year of the control period, the maximum allowable aeronautical revenue is calculated as the sum of the allowed return on the Regulatory Asset Base (RAB) (i.e. RAB × WACC), regulatory depreciation of the RAB, and efficient operating expenditure (opex), net of forecast commercial (non-aeronautical) revenues.

This allowed revenue is then recovered on a per-passenger basis by dividing by forecast passenger volumes, thereby establishing the implied per-passenger charge ((RAB*WACC + RAB Depreciation + Opex - Commercial Revenues) / Passengers).

The Oliver Wyman affordability study estimates the incremental level of airport charges that airlines could sustainably absorb at Heathrow, together with the corresponding traffic implications. Using this affordability threshold as a constraint on the maximum permissible charge and applying the associated passenger forecasts within CEPA's RAB-based charge model (Annex B), we back-solved for the level of additional capital expenditure that could be incorporated into the RAB in each year. In effect, this approach identifies the incremental capex envelope consistent with (i) the assumed WACC and depreciation profile, (ii) projected traffic volumes, and (iii) the affordability ceiling on per-passenger charge.

[62] 25th percentile of reported operating margins, 2010-2019, 2023-2024; adjusted for Heathrow's long-haul vs. short-haul split.
[63] See Section 2.2 – long-haul margins are usually 2-3% higher than system averages.

APPENDIX B: ABOUT OLIVER WYMAN

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