Consumers and Markets Group

UK Civil Aviation Authority

Economic Regulation of Heathrow Airport: H7 Final Decision Section 1: Regulatory Framework

CAP2524B

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CHAPTER 1

Passenger forecasts

Introduction

1.1 The number of passengers using Heathrow airport is of central importance to the overall economics of the airport, and the passenger forecast we make is a key driver of our calculation of the maximum level of allowed airport charges. It is also an important driver of our forecasts of operating costs (as discussed in chapter 4 (Operating expenditure), commercial revenues (as discussed in chapter 5 (Commercial revenues) and capital expenditure (as discussed in chapter 6 (Assessment of capital expenditure). Together, these matters then feed into our assessment of the affordability of HAL's airport charges and the ability of HAL to finance its activities.

1.2 Specifically, the passenger forecast is used as the "denominator" for translating the revenue requirement that we consider is appropriate for HAL to be able to generate in order to deliver airport operation services during the H7 period into a maximum "yield per passenger" which can be used by HAL to set airport charges. The passenger forecast is also important for other elements of the price control, including the calibration of the Traffic Risk Sharing mechanism we have decided to adopt for the H7 period, discussed further in chapter 2 (Regulatory framework).

1.3 An appropriate passenger forecast helps to ensure that the airport charges HAL sets are no higher than necessary to recover its efficient costs and to provide an appropriate return, and is a fundamental step in allowing us properly to further the interests of consumers, having regard to the matters required by CAA12.

1.4 This chapter describes our approach to forecasting passenger volumes at Heathrow airport over the H7 period including:

- a summary of the Final Proposals and what stakeholders said in response (including their own revised passenger forecasts);
- our assessment of these views and the further information that has become available to us;
- a description of the further work we have done in the light of the new information we have received since the Final Proposals, including our approach to quality assurance; and
- our final decision on the passenger forecast for the H7 period.

The Final Proposals

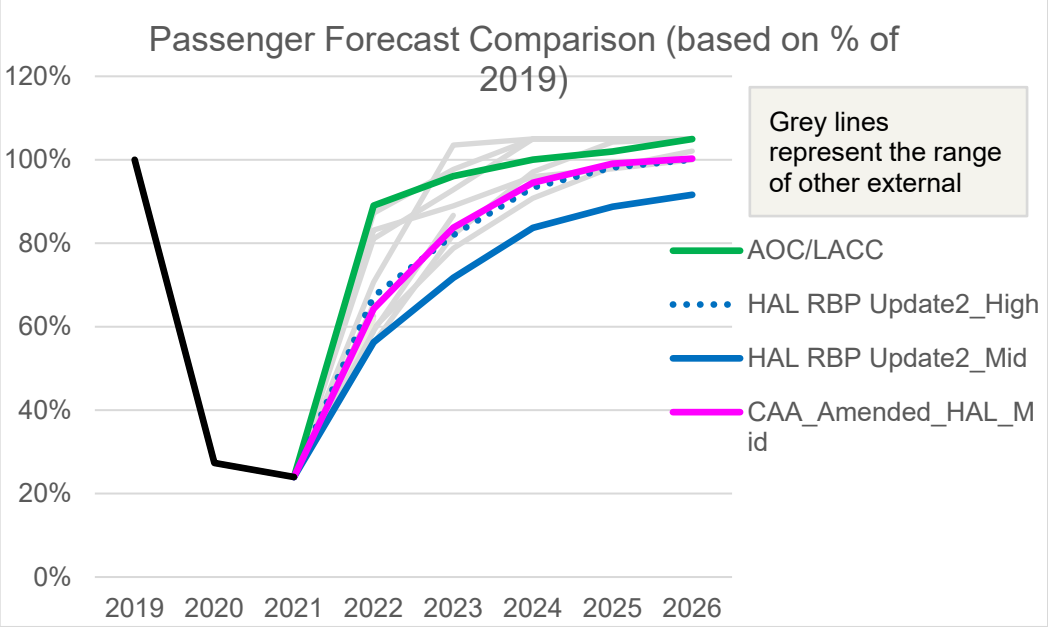
1.5 In the Final Proposals, we said[1] that:

> "*we consider that consumers are best served if we take into account a range of views and evidence before using our judgement to synthesise a passenger forecast for these Final Proposals*."

1.6 Consistent with this, we considered a number of external forecasts, modifying them using our judgement to make them more relevant to Heathrow given the dates the forecasts were produced, the measure being forecast and the geographical coverage of each. We also considered forecasts that had been provided by the AOC/LACC and HAL and used our own assumptions and inputs to run HAL's forecasting model to generate what we called the "CAA-amended HAL Mid case" forecast.

1.7 Figure 1.1 below compares the CAA-amended HAL Mid case forecast with other external base or central case forecasts. It shows that this forecast was, at that time, broadly within the centre of the overall range of datapoints considered, while the AOC/LACC forecast was generally located at the upper end, and the HAL Mid case forecast at the lower end of the range. We considered this to be a reassuring result and an appropriate baseline from which to develop the forecast used for the Final Proposals.

Figure 1.1: Final Proposals: passenger forecast comparisons, H7



Source: CAA

1.8 To calculate a forecast for 2022, given that, at that time, we had the data on actual passenger numbers at Heathrow for only January and February 2022, we

[1] See the Final Proposals, Section 1 (CAP 2365B) at paragraph 1.33.

considered available schedule and airline booking data, as well as the range of external forecasts, to assess an appropriate upper and lower bound for our forecast.

1.9 For our upper bound, we considered that it would be unlikely that the remainder of 2022 would be higher than 80 per cent of 2019 levels.[2] Taking into account the known and expected passenger levels for January to March 2022, this was equivalent to total passengers for the year being 74 per cent of 2019 levels and we concluded that this was, therefore, a likely upper bound for the number of passengers at Heathrow in 2022.

1.10 Forward bookings for 2022 at the time we made the forecast we used for the Final Proposals were 62 per cent of the equivalent point in 2019. We considered that this was evidence of a level of pent-up demand and concluded that a forecast of 62 per cent of 2019 levels was a likely lower bound for the forecast for the whole of 2022.

1.11 We then took the mid-point of these upper and lower bounds (68 per cent of the number of passengers in 2019) as our forecast for 2022.

1.12 For the remainder of H7, beyond 2022, there was less comprehensive information on forward bookings and we placed more reliance on the CAA-amended HAL Mid case, which was a forecast that was created using our own assumptions and inputs to a model developed by HAL (as also amended by the CAA), together with using identifiable longer-term trends and how we expected traffic at Heathrow airport to be affected by them.

1.13 We expected the issues related to industry staffing shortages to have been largely resolved by the start of 2023. However, we expected the buoyant consumer expenditure seen in 2022 to gradually unwind as negative real wage growth and a squeeze on disposable incomes would likely weigh on consumer spending decisions.

1.14 We also expected the effect of the covid-19 pandemic to have largely subsided by the final two years of H7. By then, the overall size of the economy was predicted to be larger than before the covid-19 pandemic, supporting our view that the number of passengers using Heathrow in 2025 could reach and surpass the number of passengers observed in 2019, albeit they would, to an extent, be constrained by the planning restriction on the number of flights using Heathrow airport and practical limits on runway and terminal capacity.

1.15 On balance, our judgement was that passenger numbers for 2023 to 2024 would be modestly below the number observed in 2019 (largely reflecting economic

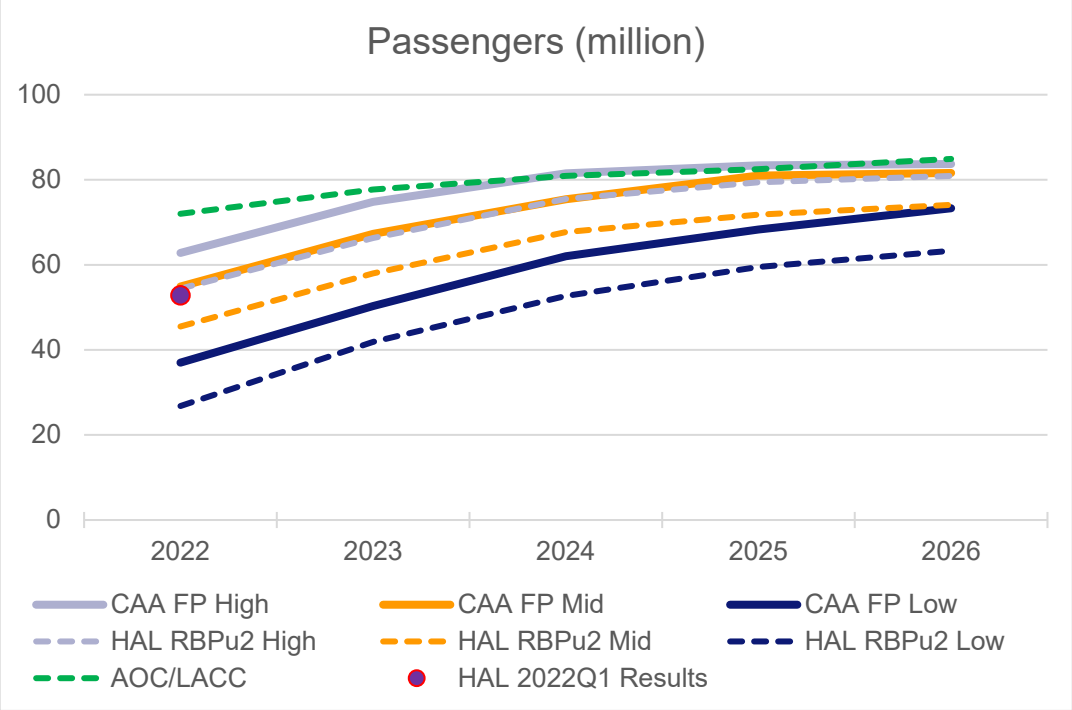
[2] See the Final Proposals, Section 1 (CAP 2365B) at paragraph 1.67 for further details.

pressures), but that for 2025 to 2026 they would show a modest increase over the number observed in 2019.

1.16 We continued to consider that the application of a shock factor to cover temporary and difficult-to-predict non-economic shocks (such as adverse weather, major volcanic eruptions, terrorism events, or wars) to air travel was appropriate.[3]

1.17 This process led to the passenger forecast used in the Final Proposals of 360.2 million for H7. The forecast scenarios we used are summarised in Figure 1.2 and Table 1.1, together with comparisons against HAL's RBP Update2 forecast scenarios and the latest forecast from the AOC/LACC on behalf of airlines.

Figure 1.2: Final Proposals: passenger forecasts compared with HAL & AOC/LACC forecasts, H7



Source: CAA

[3] The shock factor was set to 0.87 per cent, consistent with the updated estimate HAL applied to its RBP Update2 forecasts. See the Final Proposals, Section 1 (CAP 2365D) at chapter 11 (Allowance for asymmetric risk) for an explanation of the shock factor and how this differs from the allowance for asymmetric risk.

Table 1.1: Final Proposals: passenger forecasts compared with HAL & AOC/LACC forecasts, H7

Passengers (million)	2022	2023	2024	2025	2026	H7
AOC/LACC	72.0	77.7	80.9	82.5	84.9	**398.0**
HAL RBPu2 High	54.4	66.3	75.5	79.4	80.9	**356.6**
HAL RBPu2 Mid	45.5	58.0	67.7	71.8	74.1	**317.1**
HAL RBPu2 Low	26.8	41.9	52.7	59.5	63.3	**244.1**
HAL 2022Q1 Results	52.8					
CAA FP High	**62.8**	**74.8**	**81.5**	**83.4**	**83.7**	**386.2**
CAA FP Mid	**54.9**	**67.3**	**75.4**	**81.0**	**81.6**	**360.2**
CAA FP Low	**37.0**	**50.3**	**62.0**	**68.3**	**73.3**	**291.0**

Source: CAA

1.18 The Final Proposals were based on the CAA FP Mid case passenger forecast summarised above. This was intended to be a forecast of the average expected number of passengers and so took into account both the potential for upside and also the potential for downside risk.

1.19 Nonetheless, we said that if strong evidence were to emerge that indicated our CAA FP Mid case was no longer an appropriate forecast, and that retaining this forecast would create significant bias, then we would consider adopting a new passenger forecast on the following basis:

- we would consider new information (including representations we received in response to the Final Proposals) to determine whether we should adopt a revised passenger forecast; and
- only if the information we receive were to suggest strongly that a significantly different passenger forecast would be warranted would we consider changes to the forecast set out in the Final Proposals. In considering the need for any such changes, we would take into account the working of the TRS mechanism set out in chapter 2 (Regulatory framework) of the Final Proposals.

Summary of stakeholders' views

Issues already raised before the Final Proposals

HAL

1.20 In its response to the Final Proposals, HAL repeated its objections to the assumptions and amendments we made to its forecasting models, and provided new information and arguments to justify its claims.

1.21 HAL indicated that the application for development consent under the Planning Act 2009 that it had been developing prior to the pausing of the expansion

project was based on existing runway capacity at Heathrow of 82mppa[4] and a terminal capacity of 85mppa. On this basis, it took the view that our high case forecast was greater than the current capacity of the airport.

Airlines

1.22 For the most part, airlines presented a unified view on the passenger forecasts, as outlined in submissions from the AOC/LACC, Virgin and BA. Alix Partners, commissioned by Virgin, BA and Delta, also proposed a "more robust approach" to using external data than the CAA's forecast method.

1.23 Airlines said that our method had underestimated the pace at which the number of passengers using Heathrow had returned towards the levels observed before the covid-19 pandemic and that we had used data that was outdated. They also criticised our use of HAL's forecasting model, which airlines had not been able to scrutinise. In this light, they encouraged us to rely more on the available external forecasts.

1.24 BA repeated its previous criticism of the use of a shock factor in the forecasts.

Our views

1.25 We have reviewed the new information which HAL has provided objecting to the amendments we made to its model and assumptions to create our CAA-amended HAL forecast. However, we do not consider that these arguments are sufficiently persuasive for us to adopt a different approach to that set out in our decisions on this matter in the Initial Proposals and the Final Proposals.[5] In addition, Figure 1.1 shows that our CAA-amended HAL Mid case forecast is more in line with external forecasts than HAL's Mid case forecast and we consider that this supports the suitability of the set of amendments we have made to HAL's model.

1.26 We are not convinced by HAL's argument that runway capacity provides a "hard" cap on the number of passengers which Heathrow airport can handle, since more passengers can still be accommodated though increases in aircraft size, seating density and/or load factor even if flight numbers cannot be increased. We also note that our Mid case traffic forecast on which the price control for the Final Proposals is based does not exceed HAL's proposed 82mppa passenger capacity.

1.27 The details of the process we used to synthesise the forecasts, the evidence we reviewed, and the regulatory judgement we exercised to develop our forecast

[4] 82mppa are based on the planning cap of 480,000 air transport movements per annum at Heathrow with assumptions made regarding aircraft size and load factor developments.

[5] See the Initial Proposals Section 1, (CAP 2265B) at paragraphs 2.23-2.43 and the Final Proposals, Section 1 (CAP 2365B) at paragraphs 1.20-1.24 and 1.42-1.53.

was set out in the Final Proposals.[6] Skylark, the consultants we engaged to quality assure our analysis, considered that our approach would likely result in a realistic traffic outlook for the H7 period. We consider that it was appropriate to use our amended version of HAL's forecast model as well as external forecasts and data and forecasts provided by stakeholders as an appropriate evidence base to produce the Final Proposals.

1.28 We continue to consider that the shock factor is an appropriate tool for producing a risk-weighted forecast for the purpose of a price control. This is because the shock factor takes account of asymmetric non-economic downside risks (such as adverse weather, volcanic eruptions, terrorist events and international conflicts), that lead to acute falls in passenger numbers and which are difficult to predict, but where the occurrence in any four or five year forecasting period is likely enough that applying a factor to take account of such events is appropriate to improve the accuracy of the forecast for that period.

New issues raised directly in response to Final Proposals

1.29 Most stakeholders proposed that we should look again at our traffic forecasts using the latest information before making our final decision.

HAL

1.30 HAL criticised the use of an average of upper and lower bounds for forecasting passenger numbers in 2022, and the qualitative amendments we made to our forecast for the years 2023 to 2026. It also criticised using forward bookings data as a lower bound when the number of bookings can go down as well as up.

1.31 HAL said that comparing its risk-weighted forecast to external forecasts which are not risk-weighted was inappropriate.

1.32 HAL claimed that the process the CAA used to synthesise our forecasts for the Final Proposals was not described fully enough to assure HAL that it was robust.

Airlines

1.33 Airlines said our forecasts should not reflect the effect of HAL's "Local Rule A" capacity cap in 2022, but that we should use the underlying demand that would have been served by the airport had the cap not been imposed.[7]

1.34 A number of airlines provided confidential material demonstrating their bookings and/or fleet plans for winter 2022/23 and summer 2023.

[6] See the Final Proposals, Section 1 (CAP 2365B) at paragraphs 1.32-1.78.

[7] HAL's capacity cap refers to the "Local Rule A" cap on departing passengers set to 100,000 passengers each day that was in place between mid July and the end of October 2022.

1.35 Alix Partners, who had been commissioned by Virgin, BA and Delta, produced a critique of CAA's forecasts repeating many of the points made by airlines and highlighting their opinion that:

- the number of passengers seen in 2022 suggested that the CAA had underforecast that year;
- there was no reason for HAL's model to converge slowly towards 2019 volumes;
- the CAA had made limited use of alternative independent forecasts;
- the CAA's amendments to HAL's model were arbitrary; and
- a better forecast could be obtained by averaging the IATA and ACI published forecasts.

Issues raised in response to the Interim Price Cap Consultation for 2023[8]

1.36 Virgin, jointly with Delta, provided updated forecasts of passenger numbers at Heathrow for 2023 and reiterated the concern, raised in their response to the Final Proposals, that passenger forecast used for the Final Proposals was pessimistic and outdated, and that it should be updated. This sentiment was echoed by the AOC/LACC in its response to the same consultation.

Our views

Updated passenger forecast

1.37 Since we published the Final Proposals, we have observed a stronger than anticipated recovery in passenger volumes. Easter saw delays and cancellations at Heathrow and elsewhere as staffing and capacity shortages caused airports and airlines to struggle to meet returning demand. Between May and October 2022, HAL applied capacity restrictions under Local Rule A to increase operational resilience and reduce queues, delays and cancellations. In both November and December 2022, passenger numbers reached 89 per cent of 2019 levels, the highest percentage of 2019 passenger numbers at Heathrow airport since the start of the covid-19 pandemic. Since then, bookings have remained robust, despite the economic pressures being faced by consumers.

1.38 The economic outlook has worsened since the Final Proposals, with GDP forecasts revised down during the course of 2022 and many of them currently predicting a recession for 2023. We expect this to affect propensity to travel and, while Heathrow airport's characteristics make it more resilient to economic

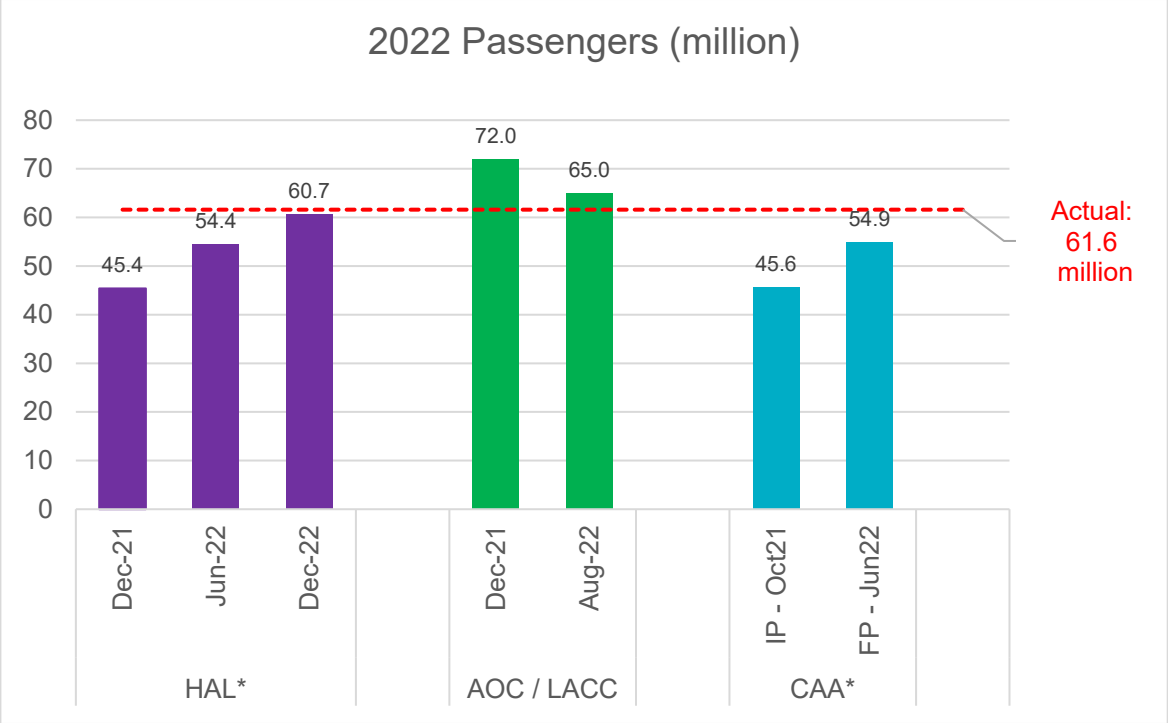
[8] See The Interim Price Cap Consultation (CAP2488): Economic regulation of Heathrow Airport Limited: setting an interim price cap for 2023.

downturns than other airports, it is not completely immune to wider economic impacts.

1.39 The number of passengers that used Heathrow airport during 2022 was 61.6 million, and we can compare the accuracy of the forecasts available to us for the Final Proposals with this outturn.[9] In December 2021, airlines had forecast that Heathrow airport would serve 72 million passengers in 2022 while HAL had forecast 45.5 million, which it updated to 52.8 million in April 2022. The forecast we used for the Final Proposals was 54.9 million.[10] While our forecast proved to be more accurate than those of stakeholders, it still under-forecast passenger numbers for 2022 by 11 per cent.

1.40 The evolution of the AOC/LACC's and HAL's respective forecasts for 2022 are shown alongside those by the CAA in the Initial and the Final Proposals in Figure 1.3 below.

Figure 1.3: Evolution of passenger forecasts for 2022, AOC/LACC, HAL, CAA



*includes shock factor

Source: CAA

1.41 The above indicates that the recovery from the covid-19 pandemic has occurred significantly faster than anticipated in the Final Proposals and although the economic outlook has worsened we consider that the Mid case used in the Final

[9] HAL's and CAA's Final Proposals forecasts include a shock factor as described in paragraph 2.16.

[10] With all the forecasts mentioned here, it is likely that the traffic forecast was made some time in advance of the publication date. In the case of the Final Proposals, the forecast was made in early April 2022.

Proposals is no longer an appropriate forecast and that retaining this forecast would create significant bias. We have, therefore, decided to update our passenger forecast for this final decision.

Other issues raised in response to Final Proposals

1.42 We consider that the qualitative amendments to the forecasts we set out in the Final Proposals were justified in order to take account of the latest information available at that time. We accept that forward bookings are not always an appropriate lower bound for forecasts, but consider that they were appropriate at the time of the Final Proposals when bookings were accelerating after travel restrictions were relaxed. We do not accept HAL's argument that it was inappropriate to compare its risk-weighted forecast to external forecasts which are not risk-weighted since we took the risk weighting into account when we compared our forecast to those produced externally.

1.43 In the Final Proposals[11], we explained that, due to:

- the uncertainty in future passenger numbers;
- the wide difference in stakeholder views; and
- HAL not being prepared to share its model in a full and transparent way with stakeholders,

we decided on an updated approach to traffic forecasts that used a much broader range of information than we used for the Initial Proposals. As noted in Paragraph 2.27 above, we consider that this approach was appropriate.

1.44 There are advantages and disadvantages to relying on a Heathrow-specific model or placing more weight on external forecasts, as we discussed in the Final Proposals.[12] External forecasts are more likely to be produced independently and give a range of views on the recovery, but are not Heathrow-specific and we know less about the models used. By contrast, HAL's forecast model takes account of conditions at Heathrow airport and is well understood by the CAA, but we consider it requires a number of changes to be suitable and has not been available for scrutiny by other stakeholders. On balance, we consider that our approach considered those advantages and disadvantages appropriately in formulating the Final Proposals.

1.45 We are not convinced that we should make adjustments for HAL's introduction of Local Rule A. This was introduced in the exceptional circumstances of the recovery from the covid-19 pandemic and in response to legitimate concerns about the ability of the airport and a range of service providers (including airlines)

[11] See the Final Proposals, Section 1 (CAP 2365B) at paragraphs 1.13-1.19.

[12] See the Final Proposals, Section 1 (CAP 2365B) at paragraphs 1.32-1.78.

to cope with a relatively sharp increase in passenger numbers and the difficulties for passengers that might be created if such concerns were to crystallise. To make an adjustment as suggested by airlines would penalise HAL and could create perverse incentives for the future and would not be in the interests of consumers.

1.46 We remain of the view that we are correct to forecast some slowdown of the rate of the recovery in passenger numbers, since it is likely that the initial return of passengers was boosted by an element of pent-up demand. In addition, continuing increases to traffic will become more difficult to achieve as the capacity of Heathrow airport is approached.

1.47 The suggestion by Alix Partners that we should average IATA and ACI forecasts appears somewhat arbitrary and would unduly rely on a relatively narrow set of forecasts and information. In contrast, our preferred approach takes account of recent booking data, macroeconomic developments and a relatively wide range of forecasts, including those from HAL and other established organisations representing key sectors of aviation.

1.48 We also note that a forecast for 2022 using Alix Partners' approach (57.8 million passengers, published in August) did not perform significantly better when compared to actual passenger numbers than our own forecast which was undertaken nearly four months earlier.

Further analysis of passenger forecasts carried out by the CAA

Context

1.49 After reviewing all of the points that have been put to us on the approach we adopted in preparing the Final Proposals, we remain confident that the approach we adopted in the Final Proposals was appropriate given the information available at the time. We used an approach that synthesised and adapted forecasts prepared by independent third parties and we applied our own expert judgement to derive the overall forecast. This approach allowed us to take account of both the Heathrow-specific and risk-weighted aspects of HAL's model (with our amendments to its inputs and assumptions), while also enabling us to take appropriate account of independent external forecasts (with our adjustments to make them more Heathrow-specific). It also allowed us to adapt the resulting forecast to take account of the latest data on bookings, passengers and the outlook for the economy and other relevant factors, such as the supply of labour and the likely speed of recovery from the covid-19 pandemic.

1.50 Nonetheless, it is now appropriate to adapt our method as we no longer need to forecast passenger numbers at Heathrow in 2022 since the actual number of passengers that used the airport during that period is now available. We consider that the use of actual data for 2022 is preferable to the use of a forecast. In

developing our forecast for this Final Decision, we have also taken account of the latest external forecasts and economic outlook.

1.51 In December 2022, HAL updated its forecast model assumptions and produced a new traffic forecast. However, this was relatively late in the process and HAL has not provided us with a copy of its latest model spreadsheets.

1.52 Therefore, we have decided to base our final decision on the forecast we used for the Final Proposals, after modifying it to reflect the actual demand and forward bookings observed up to December 2022, and the change in economic outlook since we published the Final Proposals. Once again, we have validated the forecast by comparing it against the latest independent forecasts, and applied a shock factor (for the years 2023-26 whose outturn is not already known) to produce the passenger forecasts for this final decision. The steps we took to achieve this are set out below.

Step 1: Updating for actual passenger numbers and forward bookings

1.53 Our first step was to take account of actual passenger data for 2022 and forward bookings to amend the forecast from the Final Proposals. We did this before considering the effect of the change in economic outlook in step 2.

1.54 As noted above, we know that 61.6 million passengers used Heathrow airport in 2022 and that, in November and December 2022, passenger numbers were at 89 per cent of the level observed in the same months in 2019.

1.55 Although downside risks still exist, we would expect an average forecast for Heathrow airport to continue to increase in 2023 (as was the case for the forecast we used for the Final Proposals and all of HAL's RBP forecasts). Therefore, our minimum forecast for 2023 is 90 per cent of the 2019 actual passenger numbers. Forward bookings for 2023 (as reported in December 2022) are at 94 per cent of the equivalent period in 2019. However, the majority of bookings for the year are yet to be made and, considering downside risks, the booking evidence is weaker than it was when we made the forecast we used for the Final Proposals. As a result, we do not consider booking levels to be an appropriate lower bound for the passenger forecast for 2023.

1.56 We also note there remain non-economic risks to the continued recovery in passenger numbers, including staffing challenges for airlines, airports and groundhandlers. Bearing these factors in mind, we consider that the risk-weighted outcome would be likely to be lower than the current level of bookings. In this light, our judgement is that an appropriate forecast of the number of passengers using Heathrow airport in 2023 is 92 per cent of 2019 levels, being the midpoint between 90 per cent and 94 per cent.

1.57 Using this approach gives us passenger totals for 2022 and 2023 of 61.6 million (actual) and 74.4 million (forecast) respectively. We consider that this represents

passenger numbers recovering to an equivalent level between nine and eleven months more quickly than in the forecast we used for the Final Proposals. Since actual passenger numbers and bookings data do not inform our forecasts for 2024-26, we have extrapolated this trend for the remainder of H7 as shown in Table 1.2 below.

Table 1.2: Final Decision passenger forecast, H7 – interim stage 1

Passengers (million)	2022	2023	2024	2025	2026	H7
CAA FP Mid (shocked)	54.9	67.3	75.4	81.0	81.6	360.2
CAA FP Mid (unshocked)	55.4	67.9	76.0	81.7	82.3	363.4
Updated actuals and bookings	61.6	74.4	80.6	82.2	82.9	381.7

Source: CAA

Step 2: Updating for economic forecasts

1.58 Our second step was to consider what impact the latest forecasts for the economic outlook should have on the passenger forecasts. HAL's forecast model and the majority of the external forecasts all use economic forecasts provided by Oxford Economics. For the Final Proposals, to take account of the latest economic outlook, we compared the (then) latest Oxford Economics UK GDP forecast with that used in the (then) latest version of HAL's model.

1.59 For the passenger forecast we used for the Final Proposals, we used an economic forecast of UK GDP from Oxford Economics from March 2022. For this Final Decision, the most recent equivalent forecast by Oxford Economics was produced in December 2022. Since the Final Proposals, as well as the change in the forecast for 2022, historical UK GDP has also been revised. Given we know the actual number of passengers using Heathrow airport in 2022, we have amended our forecast on the basis of the difference in UK GDP growth between the March 2022 and December 2022 Oxford Economics forecasts for 2023 to 2026.

1.60 The updated UK GDP forecast produced by Oxford Economics in December 2022 assumes an L-shaped recovery where the impact on the economy remains structural and does not rebound quickly to previous forecast levels. As with the Final Proposals, we have taken the experience of the 2008 recession to indicate how changes to UK GDP affect passenger demand at Heathrow, and have applied this to all forecast years of H7 (2023 to 2026). This is shown in Table 1.3 below.

Table 1.3: Final Decision passenger forecast, H7 – interim stage 2

Passengers (m)	2022	2023	2024	2025	2026	H7
CAA FP Mid (shocked)	54.9	67.3	75.4	81.0	81.6	360.2
CAA FP Mid (unshocked)	55.4	67.9	76.0	81.7	82.3	363.4
Updated for actuals and bookings	61.6	74.4	80.6	82.2	82.9	381.7
Updated for economic forecasts	61.6	73.6	79.6	81.4	82.0	378.2

Source: CAA

Step 3: Validating with external forecasts

1.61 For step 3, we continued to monitor external traffic forecasts which are relevant for H7, many of which have been updated since the Final Proposals, as indicated in Table 1.4. However, some, such as the ACI UK forecast, are only updated infrequently and, so, in exercising our judgement, we have decided that this forecast is not current enough to be used for this Final Decision.

Table 1.4: Table of external forecasts used to inform the Final Proposals and this Final Decision

Product	Key Output	H7 years available	Coverage	Date of Forecast	
				Used for **Final Proposals**	Used for **Final Decision**
ACI European Economic Forecasts	Pax (% 2019)	2022 – 2026	Europe	Oct-21	Dec-22
ACI World Airport Traffic Forecasts	Pax	2022 – 2026	UK	Mar-22	Not used
Airbus Global Market Forecast	RPKs	2022 – 2026	Global	Nov-21	Jul-22
Bain Air Travel Forecast	RPKs (% 2019)	2022 - 2024*	Global	Jan-22	Oct-22
Eurocontrol STATFOR	Flights	2022 – 2026	UK	Oct-21	Oct-22
ICAO Economic Impact Analysis (C-19)	Pax	2022 only	Europe	Mar-22	Oct-22
Tourism Economics / IATA	Pax	2022 - 2026	UK	Mar-22	Dec-22

* 2022-2023 for the Final Proposals

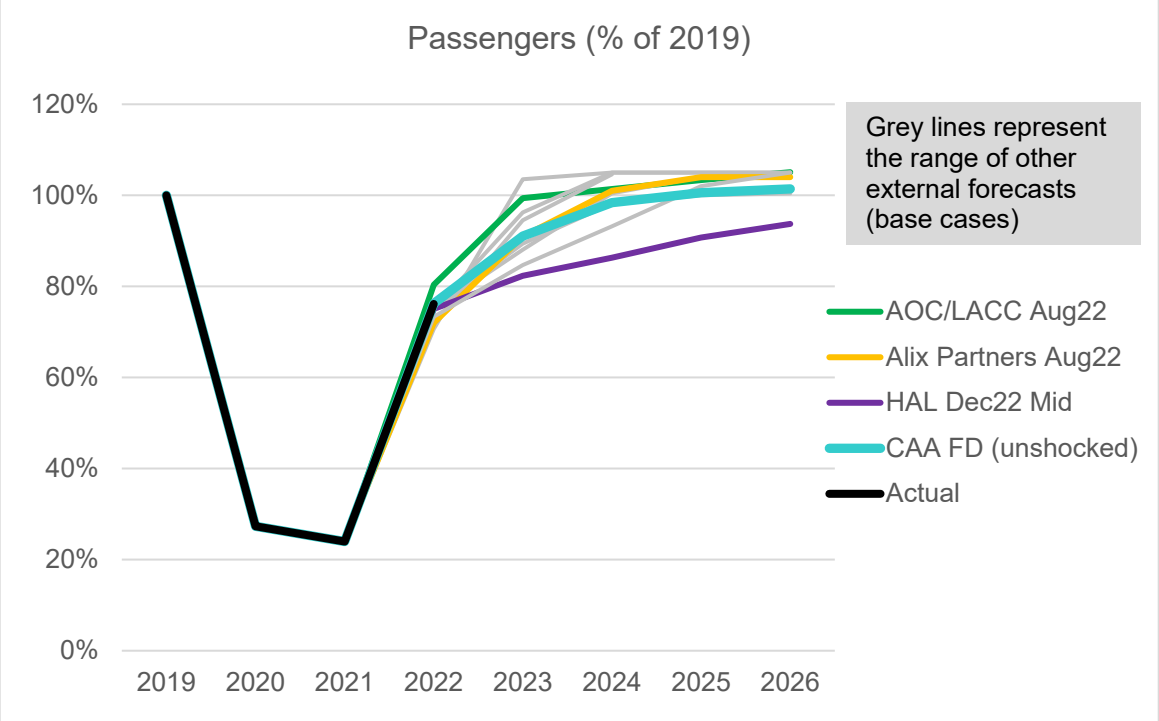
Source: CAA

1.62 In the Final Proposals, we considered the external forecasts in terms of the proportion of traffic observed in 2019 and amended them to make them more

relevant to forecasts for passenger numbers at Heathrow airport. We took account of the difference between the actual values for 2020 and 2021, and the capacity of Heathrow airport once recovery to 2019 levels had been achieved. For this Final Decision, we have the actual number of passengers that used Heathrow airport in 2022, so we have updated our amendments to take this into account.

1.63 Figure 1.4 shows the range of latest external forecasts compared to the passenger forecast from step 2 (as given in Table 1.3 above). Figure 1.4 also shows the forecast update provided by HAL in December 2022, and the forecasts provided by Alix Partners and AOC/LACC as part of the responses to Final Proposals.

Figure 1.4: Comparison of the Final Decision (unshocked) forecast and external forecasts



Source: CAA

1.64 From this, we can see that our updated forecast is within the range of the external forecasts, starting at the upper end and ending near the lower end. So, we are reassured that our forecast conforms to broad levels set out in these external forecasts. Our forecast uses the known passenger total for 2022, but all of the external forecasts were produced before the end of that year, so did not benefit from all of this data. In the later forecast years, when the external forecasts predict growth beyond 2019 levels, our amendments provide for a terminal capacity cap of 85 million passengers.[13] We would expect growth to

[13] Taken from a technical note by HAL shared with the CAA.

slow as the runway capacity begins to limit the ability to increase passengers up to the capacity as easily as would be the case if such constraints did not exist. Furthermore, our forecast is designed to be risk-weighted and, so, it is to be expected that it will tend towards the lower end of the external forecasts, especially towards the end of the H7 period. By comparison, the AOCC/LACC forecast lies towards the upper end of the range, while HAL's updated Mid case in December 2022 is notably below the range of external forecasts.

1.65 We, therefore, consider that our passenger forecast for this Final Decision is validated by comparisons with the independent, external forecasts and we have no need to make further amendments to reflect them. Our forecast process up to this point is shown in Table 1.5 below.

Table 1.5: Final Decision passenger forecast, H7 – interim stage 3

Passengers (million)	2022	2023	2024	2025	2026	H7
CAA FP Mid (shocked)	**54.9**	**67.3**	**75.4**	**81.0**	**81.6**	**360.2**
CAA FP Mid (unshocked)	55.4	67.9	76.0	81.7	82.3	363.4
Updated for actuals and bookings	61.6	74.4	80.6	82.2	82.9	381.7
Updated for economic forecasts	61.6	73.6	79.6	81.4	82.0	378.2
Validated against external forecasts	61.6	73.6	79.6	81.4	82.0	378.2

Source: CAA

Step 4: Updating for traffic shocks

1.66 Finally, we have applied a shock factor to the years where the number of passengers is a forecast (2023 to 2026) as we consider this improves forecast accuracy for the period as a whole by taking account of asymmetric non-economic downside risks (due to events such as adverse weather, volcanic eruptions, terrorism or strike action). The size of the shock factor remains unchanged from that used for the Final Proposals at 0.87 per cent, a value which HAL also used for its forecast in its December 2022 Investor Report.

1.67 Our full forecast process can then be summarised in Table 1.6 below.

Table 1.6: Final Decision passenger forecast, H7 – final stage

Passengers (million)	2022	2023	2024	2025	2026	H7
CAA FP Mid (shocked)	54.9	67.3	75.4	81.0	81.6	360.2
CAA FP Mid (unshocked)	55.4	67.9	76.0	81.7	82.3	363.4
Updated for actuals and bookings	61.6	74.4	80.6	82.2	82.9	381.7
Updated for economic forecasts	61.6	73.6	79.6	81.4	82.0	378.2
Validated against external forecasts	61.6	73.6	79.6	81.4	82.0	378.2
CAA FD Mid (shocked)	61.6	73.0	78.9	80.7	81.3	375.5

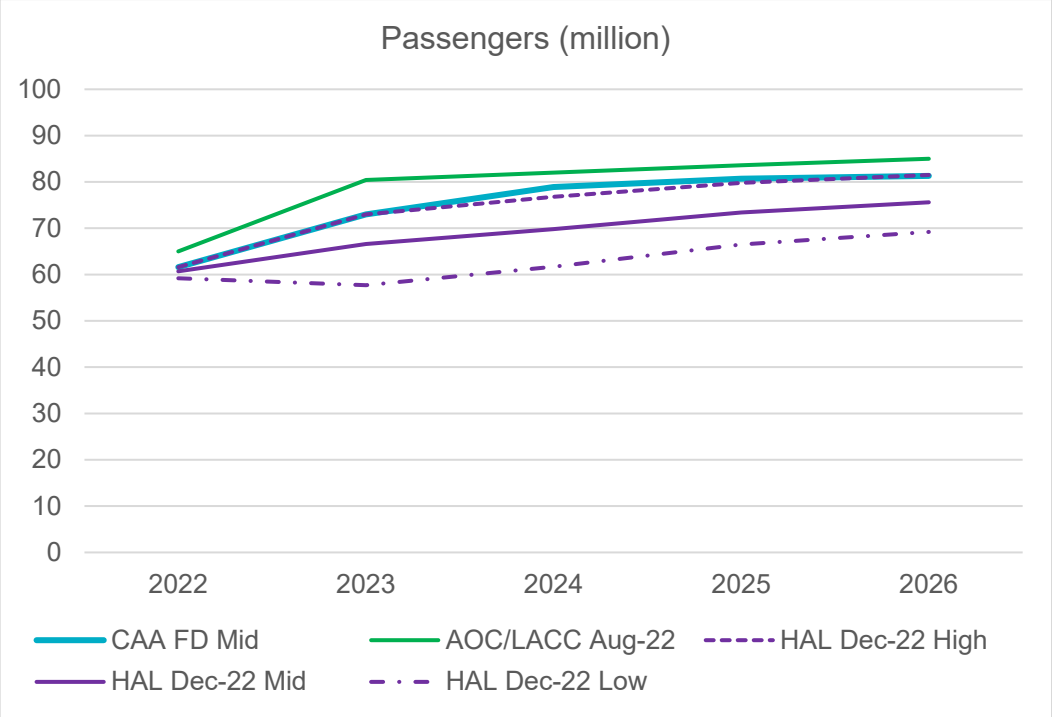
Source: CAA

Our Final Decision

1.68 Applying these adjustments means that our assessment is that it is appropriate for us to adopt a passenger forecast for this final decision of 375.5 million for the H7 period. This is 4.2 per cent higher than our forecast for the Final Proposals of 360.2 million, and 8.5 per cent higher than HAL's Mid forecast of 346.1 million submitted in December 2022. By contrast, our forecast is 5.2 per cent below the forecast submitted by AOC/LACC in August 2022 of 396.0 million passengers. Our final decision forecast is shown below in Figure 1.5 and Table 1.7, together with comparisons against HAL's forecast submitted in December 2022 and the forecast submitted by AOC/LACC in August 2022.

1.69 We consider that adopting a forecast at this level supports our decision on the price control overall by ensuring that the revenue requirements that we determine are appropriate for the H7 period are translated into a yield per passenger that is both reasonable and no higher than necessary in the interests of consumers. This approach is consistent both with our primary duty to protect consumers and our secondary duty to have regard to HAL's financeability.

Figure 1.5: Final Decision passenger forecast for H7 compared with forecasts submitted by HAL and AOC/LACC



Source: CAA

Table 1.7: Final Decision on the passenger forecast for H7 compared with forecasts submitted by HAL and AOC/LACC

Passengers (million)	2022	2023	2024	2025	2026	H7
AOC/LACC Aug-22	65.0	80.4	82.0	83.6	85.0	396.0
HAL Dec-22 High	61.6	73.0	76.8	79.8	81.5	372.7
HAL Dec-22 Mid	60.7	66.6	69.8	73.4	75.6	346.1
HAL Dec-22 Low	59.2	57.7	61.7	66.5	69.2	314.3
CAA FD Mid	61.6	73.0	78.9	80.7	81.3	375.5

Source: CAA

Quality assurance

1.70 As with the Final Proposals, we procured Skylark to provide independent quality assurance of our approach in producing an updated Heathrow passenger forecast for this final decision. As with the approach taken for the Final Proposals, the aim of this assurance was to assess the reasonableness of our method and provide a view on the completeness of the resulting analysis.

1.71 In its review, Skylark considered the CAA's approach of modifying the forecast we used for the Final Proposals to produce the forecast we have decided to adopt for this final decision, in the light of more recent actual passenger data for Heathrow airport, the evolution of the economic environment and industry-specific factors. It concluded that the CAA's approach to producing an updated

passenger forecast for this Final Decision was both reasonable and appropriate. In its technical note, which is published alongside this final decision, Skylark did not raise any material points.

The CAA's final decision and implementation

1.72 Bearing in mind the results of Skylark's quality assurance review we confirm that we have decided to base our price control on the "CAA FD Mid" presented in Table 1.7 above with a total of 375.5 million passengers over the H7 period.

1.73 This forecast has been used in the calibration of the TRS mechanism in chapter 2 (Regulatory Framework) and in calculating the price cap as set out in chapter 13 (Calculating the price cap and finceability).

CHAPTER 2

Regulatory framework

Introduction

2.1 In the Initial Proposals and the Final Proposals we confirmed that we intended to set a five-year price control for the H7 period, calculated on the basis of the continued use of:

- a "single till" covering both regulated and other revenues;
- a RAB and allowed return/cost of capital; and
- assumptions about passenger numbers, operating and capital costs and commercial revenues (the key price control "building blocks").

2.2 This approach is designed to further the interests of consumers since, without the price control and associated incentive arrangements, there would be a risk of higher prices, lower value for money in the services HAL provides and inefficiency on the part of HAL.

2.3 We have applied similar price controls to HAL in previous regulatory periods, and comparable arrangements have also been used in other regulated industries. This framework is also well understood by investors, and the continued use of this approach should be in consumers' interests by (among other things) helping to minimise the cost of capital while maintaining a consistent and transparent approach to carrying out our regulatory activities.

2.4 In view of the significant uncertainty still affecting the H7 period, we have proposed some changes to our previous approach to setting price controls for HAL, most notably the introduction of a new traffic risk sharing ("TRS") mechanism. This is intended to further the interests of consumers by facilitating the implementation of a five-year price control for the H7 price control period, bringing with it the benefits noted above. It should also further consumers' interests by helping to preserve a stable and consistent regulatory regime, supporting HAL's financeability, and preventing undue upward pressure on HAL's cost of capital and airport charges.

2.5 This chapter summarises our approach to the TRS as well as providing guidance on the exceptional circumstances in which we would consider reopening HAL's price control. To this end, we:

- summarise what we said in the Final Proposals on these matters;
- set out the key points made by respondents;

- explain our response to these points; and
- set out our final decisions.

Our final proposals

Traffic risk sharing

2.6 The Final Proposals explained that a TRS mechanism would provide the most appropriate way of addressing the impact of heightened traffic risk while preserving the strong efficiency incentives that a five year price control period provides in relation to both opex and commercial revenues. The specific mechanism we proposed featured:

- a central band covering variations from our passenger forecast of up to 10 per cent. Within this band, 50 per cent of traffic-related airport charges risk would be shared with users. After taking account of the expected impact of traffic changes on opex and commercial revenues, we estimated that this would protect HAL from around 43 to 45 per cent of the overall impact on its EBITDA of traffic variations within this band;
- an outer band covering variations from our passenger forecast of more than 10 per cent. Within this band, 105 per cent of traffic-related airport charges risk would be shared with users. This is intended to provide HAL with a relatively high degree of protection from the impact of extreme events, while also preserving some incentive for it to take actions to facilitate traffic growth. We estimated that it would protect HAL from around 91 to 94 per cent of the overall impact on its EBITDA of traffic variations within this band; and
- subsequent adjustments to HAL's charges to implement TRS would be spread over 10 years (from year t+2 to year t+11), and would be applied through an additional term in HAL's price control formula (for adjustments during the H7 period) and an adjustment to HAL's RAB (for adjustments in subsequent periods). The adjustments would be uplifted in line with the real WACC and general price inflation (as measured by the Retail Prices Index, for consistency with the real WACC). For the adjustments implemented through HAL's RAB, we said that we expect to profile the associated adjustments to regulatory depreciation so that the overall impact on HAL's allowed revenues will be roughly the same in each of the remaining years.

2.7 Spreading the adjustment to charges over a period of 10 years is intended to reduce the risk of airport charges increasing very significantly at a time when airlines might be already facing lower than expected demand. The reason for not starting the adjustment to allowed charges until year t+2 is a practical one, reflecting the timing of when traffic out-turns are known and when HAL consults users and sets its charges for the forthcoming year.

Other aspects of the regulatory framework

2.8 We continued to reject HAL's proposal for a formal reopener condition in the Licence. Instead, we put forward proposed guidance on our future approach to responding to any request to reopen HAL's price control. This guidance was not intended to set out in detail how we would deal with a future reopening request but explained that we would do so in the light of our statutory duties and the prevailing circumstances, and that there is only likely to be a strong case for reopening a price control in exceptional circumstances. It did not commit to adjusting the price control if HAL faces a risk over and above a particular threshold. Nonetheless, the guidance pointed out that the introduction of a TRS mechanism should reduce the likelihood that exceptional circumstances that might justify reopening a price control would arise solely as a result of traffic being higher or lower than forecast.

Summary of stakeholders' views

Traffic risk sharing

2.9 HAL stated that its analysis showed that our proposed sharing rate in the outer band would only protect it from 86 per cent of (incremental) EBITDA risk, rather than the 91 to 94 per cent stated in the Final Proposals and, therefore, the sharing rate should be 115 per cent rather than 105 per cent. It also stated that the proposed 10 year recovery period would not have sufficient impact on its performance against credit metrics, and proposed that adjustments for traffic variations within the central band should be made in a single year (rather than spread over 10 years).

2.10 In addition, HAL repeated its previous argument that the entire TRS mechanism should be set out in the Licence, and said that to make a symmetrical TRS mechanism workable we must set a "P50" mid-case passenger forecast.[14]

2.11 The AOC/LACC continued to say that the introduction of TRS should have a larger downward impact on HAL's cost of capital, and BA continued to oppose the existence of an outer band with stronger risk sharing. The AOC/LACC also stated that the impact of our proposed TRS mechanism was not symmetrical, and that our proposed sharing rate of 105 per cent in the outer band would leave HAL with no incentives for cost efficiencies and promoting traffic growth. Drawing on a report commissioned from Alix Partners, airlines suggested that we should adopt 60 per cent risk sharing for higher than expected traffic volumes and 40 per cent risk sharing for lower than expected traffic volumes. VAA and Delta said

[14] A P50 forecast is one where the expected probabilities of either a higher or a lower out-turn are both 50 per cent.

that higher than expected revenues should be returned to airlines over five rather than 10 years, if feasible starting earlier than two years after the event.

Other aspects of the regulatory framework

2.12 HAL repeated its previous arguments:

- for a reopener condition in the Licence, adding that our draft guidance on responding to any future request to reopen HAL's price control does not give details of events that could trigger a reopening, how any application should be structured, or our process and timescales for considering any request; and
- for a trigger mechanism for the inclusion of expansion costs.

2.13 BA agreed with our rejection of a reopener condition in the Licence.

Our views on stakeholders' comments

Traffic risk sharing

2.14 As stated in the Final Proposals, the high risk sharing factor proposed for the outer band of the TRS mechanism is intended to provide a relatively high, but not complete, degree of protection to HAL from the impact of extreme events. Our proposal to adopt a sharing factor of 105 per cent was informed by detailed estimates of the impact of traffic changes on opex and commercial revenues which, in turn, were derived by comparing CEPA and Taylor Airey's projections of opex and commercial revenues for three different traffic forecasts.[15] HAL did not comment on this analysis and, instead, its argument for a higher sharing factor appears to be based on a comparison with changes to opex and commercial revenue projections over time for a single traffic forecast. These projections will inevitably reflect many other factors that affect opex and commercial revenues during H7 and, therefore, we continue to rely on our more detailed analysis (which looks specifically at the impact of traffic changes) to inform our selection of parameters for the TRS mechanism.

2.15 While we recognise some of airlines' concerns about high sharing factors and the risk of low or negative incentives in the outer band, we take comfort from the detailed analysis by CEPA and Taylor Airey that informed our calibration of this sharing factor. We also note that, even in the event that opex or commercial revenues responded very unexpectedly, any negative incentives would likely be

[15] See chapters 4 (Operating expenditure) and chapter 5 (Commercial revenues) for further details of CEPA and Taylor Airey's assessments. As noted in paragraph 3.6, after taking account of the expected impact on commercial revenues and opex we estimated that a sharing factor of 105 per cent applied to revenues from airport charges would protect HAL from around 91 to 94 per cent of the overall impact on its EBITDA of traffic variations in the outer band.

relatively weak and may not be apparent until after the event. In addition, HAL is likely to have longer-term strategic incentives to restore traffic volumes, rather than seeking out very small short-term gains by constraining the recovery in traffic. For these reasons, we do not consider that airlines' concerns justify reducing the protection from the impact of extreme events that our proposed TRS mechanism provides for HAL, and the disadvantages for consumers (such as a higher cost of capital and a higher revenue allowance for pandemic-magnitude events) that would result from reducing the degree of protection.

2.16 The proposal to spread adjustments to charges over a period of 10 years is intended to reduce the risk of airport charges increasing very significantly at a time when airlines are already facing lower than expected demand. We are not persuaded by either HAL's or VAA and Delta's proposals to change this approach: each suggestion would lead to significant additional complexity and, in addition, we note that:

- HAL's suggestion that adjustments for variations within the central band should be made in a single year would have only a modest impact on its cashflows following an extreme event. The TRS mechanism is intended to reduce the impact of traffic variations on the value of HAL's business, rather than address short-term liquidity problems; and
- VAA and Delta's suggestion that higher than expected revenues should be returned to airlines over a shorter period of five years could cause problems if (as happened recently) a few years of higher than expected traffic volumes were followed by a significant reduction in traffic.

2.17 Both HAL and airlines made comments about symmetry, but the TRS mechanism is not intended to have a symmetric impact on HAL's risk exposure. Rather, it is intended to reduce HAL's exposure to a risk that is already inherently asymmetric. In order to allow for the appropriate calibration of the TRS mechanism, it is important to use the same traffic forecasts that are used to set the price control. Our approach to traffic forecasting is discussed in more detail in chapter 2 (Passenger forecasts).

2.18 The impact of TRS on HAL's cost of capital is discussed in chapter 9 (Weighted average cost of capital).

Other aspects of the regulatory framework

2.19 We remain of the view that it would not be appropriate to include a reopener condition in the Licence. As we have stated in previous consultations, following the introduction of a TRS mechanism, the circumstances that might justify reopening a price control in future could be complex in nature and difficult to enshrine in a licence condition. For similar reasons, we do not consider it would be sensible to commit in advance to a specific timescale or process to follow as

these could well vary depending on the exact circumstances. Rather, we consider that it is appropriate to be guided by our duties in section 1 CAA12 in our approach to substantive and procedural matters.

The CAA's final decision

Traffic risk sharing

2.20 For the reasons set out above, we have decided to implement the TRS mechanism as set out in the Final Proposals. In summary, the mechanism will work in the manner set out below.

- For each calendar year, the difference between out-turn allowed revenues and forecast allowed revenues will be calculated by multiplying the maximum allowable airport charge (excluding the correction factor and other adjustment factors) for that year by the difference between out-turn passenger numbers and our forecast of passenger numbers.
- The amount of risk to be shared for that year will be calculated as:
  - 50 per cent of any difference up to 10 per cent of forecast allowed revenues; and
  - 105 per cent of any difference above 10 per cent of forecast allowed revenues.
- The risk shared for each year ("t") will be recovered over a period of 10 years from year t+2 to year t+11. For those years that fall within the H7 period, the adjustment will be implemented through an additional term in the price control formula in the Licence. For the remaining years, there will be an adjustment to HAL's RAB which will lead to higher or lower charges in future control periods.
- The adjustment to allowed revenues from airport charges for each year within the H7 period will be calculated as one-tenth of the total relevant TRS adjustment(s), uplifted for the real WACC and general price inflation (as measured by the Retail Prices Index, for consistency with the real WACC) for each year since the original divergence between out-turn and forecast traffic levels.

- The adjustment to the opening RAB for the H8 price control will be calculated as the sum of the remaining TRS adjustments (that is, those that have not already been reflected in higher or lower charges during H7) uplifted using the real WACC and general price inflation for the period between the original divergence between out-turn and forecast traffic levels and the start of the H8 price control. HAL will be able to update its RAB during the H7 period to reflect these adjustments, but the only impact on charges during H7 will be through the additional term in the price control formula described above.
- The adjustments to the opening RAB for the H8 price control period will then be depreciated over a period of between eight and ten years. Any adjustment to reflect out-turn traffic in 2023, for example, will be depreciated over eight years (as there will have already been two years of adjustments to charges during the H7 price control period). In addition, any adjustments to reflect out-turn traffic in 2025 and 2026 will be depreciated over ten years (as there will not have been any corresponding adjustments to charges during the H7 period). We expect to profile the associated adjustments to regulatory depreciation so that the overall impact on HAL's allowed revenues (which reflects both depreciation and the allowed rate of return) will be roughly the same in each of the seven to ten years over which the adjustment is recovered.

2.21 The purpose of the risk sharing factor in the outer band is to provide HAL with a relatively high degree of protection from the impact of extreme events, while also preserving some incentive for it to take actions to facilitate traffic growth. As described in the Final Proposals,[16] after taking account of traffic-related changes in opex and commercial revenues, we estimate that the risk sharing factors listed above will protect HAL from:

- around 43 to 45 per cent of the expected impact on its EBITDA of traffic changes in the central band; and
- between 91 and 94 per cent of the expected impact on its EBITDA of traffic changes in the outer band.

2.22 The rationale for different aspects of this mechanism is described more fully in the Final Proposals.

Conclusion

2.23 We consider the introduction of the TRS mechanism described above will be in consumers' interests as:

[16] See paragraphs 2.41 to 2.44 of the Final Proposals.

- it will reduce the risk of significant gains or losses for HAL that could arise from changes in passenger numbers over which it has only limited control. This will allow us to continue to set a five-year price control, which will provide greater certainty for stakeholders and stronger efficiency incentives for HAL, and in the longer term should lead to lower charges and better service quality for consumers. The continued use of a five-year price control, notwithstanding the heightened uncertainty affecting the H7 period, will also help to preserve a stable and consistent regulatory regime with a greater ability for HAL and airlines to plan their respective businesses; and
- by clarifying the risks that HAL is expected to bear during H7 and by reducing HAL's exposure to the current uncertain environment, it should help avoid unnecessary upward pressure on HAL's cost of capital. This will lead to lower charges for consumers than they otherwise would be, and will support HAL's financeability.

Other aspects of the regulatory framework

2.24 We confirm our decision not to include a reopener condition in the Licence but to issue guidance on our approach to responding to any future request to reopen HAL's price control. This guidance, which is unchanged from that which we published as part of the Final Proposals, is set out in Appendix G (Policy guidance on reopening a price control). It is not intended to set out in detail how we would deal with a future reopening request, but explains that we would do so in the light of our statutory duties and the prevailing circumstances, and that there is only likely to be a strong case for reopening a price control in exceptional circumstances. It does not commit to adjusting the price control if HAL faces a risk over and above a particular threshold. Nonetheless, the guidance points out that the introduction of a TRS mechanism should reduce the likelihood that exceptional circumstances that might justify reopening a price control would arise solely as a result of traffic being higher or lower than forecast.

2.25 For the reasons set out in the Initial Proposals and the Final Proposals, we also continue to disagree with HAL's proposal for an expansion trigger in the Licence.

Implementation and next steps

2.26 The TRS mechanism described above will be implemented through a combination of adjustment terms in HAL's price control formula for H7 and adjustments to HAL's RAB (which will affect charges in future control periods). The adjustment terms in HAL's price control formula are set out in new licence conditions C1.20 and C1.21 in Appendix C (Notice of the CAA's decision to

modify HAL's licence).[17] The method for updating HAL's RAB is set out in Appendix H (Rolling forward the RAB), which will provide a high degree of certainty and commitment equivalent to that associated with other aspects of our approach to calculating the RAB.

2.27 We have also taken account of the TRS mechanism in a number of other parts of our Final Decision, including our assessment of HAL's cost of capital and financeability, and the calculation of the proposed allowance for asymmetric risk.

[17] These affect the price control formula for 2025 and 2026 only, as this Final Decision already takes account of actual passenger numbers in 2022. The first TRS adjustment will therefore be in 2025 and will reflect any difference between actual and forecast passenger numbers for 2023.

CHAPTER 3

Outcome based regulation

Introduction

3.1 Consumers' interests are furthered not only by ensuring that the cost to them of the airport operation services provided by HAL is appropriate, but also by seeking to ensure that the services HAL provides meet their needs in terms of their range, availability, continuity and quality.

3.2 HAL's recent price controls have included a framework of service quality rebates and bonuses ("SQRB") that was designed to identify the service standards that consumers and airlines could expect from HAL and to incentivise improvements in service quality. While aspects of the SQRB scheme have worked well, it has been focused almost exclusively on aspects of airport operation services that are directly within HAL's control. However, consumers' experience at Heathrow airport is driven by the outcomes they receive in terms of the overall service, rather than solely by the inputs provided by HAL.

3.3 During the earlier stages of the H7 review, we confirmed that we intended to transition towards outcome based regulation ("OBR"). We said that OBR should be an evolution of the SQRB scheme, with H7 as the first step in this direction, and that the services that HAL provides to airlines should remain a key part of the new framework. We also said that the new framework should include:

- outcomes: overarching objectives that identify the most important aspects of airport operation services that consumers value;
- measures: specific performance measures that indicate progress towards one or more outcomes;
- targets for each measure, based on evidence and taking account of consumer preferences and the scope for performance improvements;
- incentives to meet these targets, which may be either financial or reputational; and
- a "continuous improvement" approach that allows the OBR framework to be updated during the H7 period.

3.4 The introduction of reputational (rather than financial) incentives is important, as it allows the OBR framework to cover aspects of service quality that are not fully within HAL's control, for example because they are provided in conjunction with airlines or ground handlers.

3.5 In preparation for the expected implementation of OBR, when introducing the interim price cap for 2023 we also modified the Licence to remove the requirement for HAL to obtain and publish survey scores for two elements of the current SQRB scheme (departure lounge seating availability and flight information) that are not being carried forward into the OBR framework. This modification, which does not affect our proposed OBR framework, was supported by airlines and should allow HAL to roll out its updated Quality of Service Monitor survey in preparation for the implementation of the new framework.

The Final Proposals

3.6 We proposed to adopt the six outcomes suggested by HAL, which we considered cover the main aspects of airport operation services that are important to consumers. These are:

- an airport I want to travel from that offers me a good value choice of flights;
- I am confident I can get to and from the airport;
- I have a predictable and reliable journey;
- I feel comfortable and secure at the airport;
- I have an enjoyable experience at the airport; and
- I feel cared for and supported.

3.7 We then proposed 37 specific measures, including:

- 20 measures that will be subject to financial incentives. Many of these were carried over from the existing SQRB scheme, although four of them (helpfulness/attitude of security staff, wi-fi performance, availability of check-in infrastructure, and hygiene safety testing) were new and cover areas that directly address the passenger experience; and
- 17 measures that will be subject to reputational incentives (HAL will not face financial penalties in relation to these measures, but its performance will be published). These measures include high level indicators (such as overall satisfaction and feeling safe and secure) and more specific aspects of service quality (such as baggage performance, punctuality, immigration queues and services to passengers with reduced mobility (“PRMs”)) that are provided in conjunction with parties other than HAL.

3.8 We proposed targets for most of the measures, but not for seven of the measures subject to reputational incentives (either because sufficient data was not available or in three cases because the targets reflected airline/ground handler performance or wider public policy issues).

3.9 The levels of the targets we proposed were informed by a range of factors including historical performance, the views of our technical advisors and specific factors that might affect HAL's operations during the course of H7.

3.10 For those measures subject to financial incentives, we proposed a set of rebates specifying for each measure the proportion of revenues that HAL should repay to airlines if it missed the relevant target. For four measures that directly affect the passenger experience (cleanliness, wayfinding and queue times at central and transfer search) we also proposed a range of higher performance outcomes that would entitle HAL to receive bonuses.

3.11 We also proposed a continuous improvement process. In addition to the existing ability of HAL and airlines to agree changes between themselves, we proposed a mid-term review with a pre-defined scope including:

- issues that could not be resolved in time for the Final Proposals;
- any specific issues arising from the application of new measures and targets;
- any changes specifically required as a result of new investment projects;
- the appropriate level of granularity for certain targets;
- any changes necessary following the security transformation programme;
- possible changes to the way that asset availability targets are applied; and
- a possible increase in targets for three specific measures (wi-fi performance, check-in infrastructure and pre-conditioned air availability).

We stressed the importance of maintaining consistency with the broader price control settlement when carrying out this proposed review.

Summary of stakeholders' views

3.12 Many respondents repeated points that they had made in previous consultation responses, including:

- HAL's arguments for a wider check-in measure (rather than our proposed availability of check-in infrastructure measure), a different balance of rebates and for sliding scale incentives; and
- airlines' arguments that we should adopt their proposed outcomes, that we should not extend the scope of regulation to cover airlines' activities, and for a greater degree of granularity for certain metrics including security search and control post queues.

3.13 Among the new points made by stakeholders, HAL argued that a number of our proposed targets were inconsistent with the expenditure allowances included in

the Final Proposals. It challenged the omission of the carbon footprint measure, the continued inclusion of Control Post 16 ("CP16") in the control post queue measure and our decision to adopt four separate measures for stand facilities. It also argued against our proposed mid-term review, stating that this could materially alter HAL's risk exposure with no corresponding changes to cost allowances.

3.14 HAL also proposed the removal of the covid-19 safety information measure as no longer relevant, some technical changes to the calculation of the departures flight punctuality, immigration queue times and PRM overall satisfaction measures and to survey-based measures in a newly opened terminal. It said that certain reputational measures should be reported on an airport-wide basis (rather than separately for each terminal) and that, for measures subject to reputational incentives, the targets should be achievable by 2026 rather than the start of H7.

3.15 The AOC/LACC challenged our proposed targets for security queue times and our proposed bonus thresholds for security queues and cleanliness. They also argued that the timely delivery of baggage measure should have financial incentives and that the check-in infrastructure measure should cover baggage input belts, noted the lack of reference to automated security queue measurement, proposed licence drafting to deal with this and other data collection issues, and disagreed with the proposal that we should be able to make binding determinations if stakeholders cannot reach agreement on exclusions during major operational disruption events.

3.16 In addition, individual airlines challenged cases where our proposed targets were at the lower end of the range suggested by our technical advisors or lower than performance levels achieved in Q6, and said that we should tailor measures to areas that are problematic, require material opex or where the potential for consumer detriment is significant.

CAA's views on stakeholders comments

3.17 We have considered and agree with some of the minor amendments and clarifications suggested by HAL. These include:

- the removal of the "ease of understanding Heathrow's covid-19 safety information" measure: retaining this measure would be unlikely to further consumers' interests now that covid-19 related requirements have been lifted, especially considering that the OBR framework will operate for the remainder of the period to 2026. Airlines support this change, and we consider that retaining this measure would not represent a proportionate exercise of our functions;

- for measures with reputational incentives, allowing HAL to describe the targets as performance standards to be achieved by 2026 (rather than immediately): this will more accurately reflect these targets as put forward in HAL's revised business plan. Having regard to recent performance levels, we agree that HAL's performance in earlier years should be judged according to whether it is on track to meet the targets by 2026, and it will be important that HAL presents its results in a way that allows this progress to be easily monitored. This does not apply, however, to the "timely delivery from departures baggage system" measure. This covers an aspect of service quality that is important to consumers, it was not one of the measures for which HAL's revised business plan specified targets for 2026, and we consider that HAL should be expected to achieve our target performance level (98 per cent of bags delivered at least 30 minutes before departure time) as soon as the OBR framework is implemented;
- a change to the definition of the "departures flight punctuality" measure to record actual departure times as "chocks on/off" rather than take-off: this corrects an error in the definition that was agreed during previous engagement on the development of the OBR framework. Making this change brings the definition into line with the current airport industry standard and ensures the definition is consistent with the target proposed by HAL;
- a change to the definition of the "immigration queue times" measure: this is to clarify that, in line with current practice, queue times are measured once every 15 minutes and are measured for staffed immigration desks only (and not for e-gates). Bearing in mind that this measure has reputational rather than financial incentives, we consider that this is a proportionate approach that is likely to pick up any cases where queue times are significantly extended;
- a technical change to the way that the moving annual average is calculated for the "PRM – overall satisfaction" measure: this reverses a change originally proposed by HAL to weight survey responses by the number of passengers interviewed each month. Instead, survey scores will be weighted by the number of PRMs in each terminal in each month. This is consistent with current reporting and will mean that what is reported better reflects the usage of the PRM service across the airport; and

- clarification that in the case where a terminal is newly opened or re-opened, passenger survey scores will be reported from the first full month of operation: this only applies in very specific circumstances and avoids the risk that survey scores could be based on a very small sample if a terminal (re)opens late in a particular calendar month. Even though there may be a small number of days when HAL's performance is not monitored, we note that there will be strong pressure on HAL's early performance as its initial scores will be based on a small number of months rather than the moving annual average that applies when a terminal has been open for at least twelve months.

3.18 We consider that our proposed targets remain appropriate despite the comments from HAL and airlines. Many of the cases of "disallowed" expenditure identified by HAL refer to capex projects. If these projects are necessary for HAL to meet the relevant target, HAL will still be able to bring them forward during H7 under the development to core capex framework, though we also note that many of them would only be expected to have a small impact on HAL's performance. In the case of the cleanliness measure, the expenditure is opex rather than capex.[18] In view of advice from our consultants, CEPA and Taylor Airey, that they expect any need for covid-19 related cleaning to reduce over time and to be consolidated into business as usual cleaning, and also Arcadis' assessment that in 2019 and early 2020 three of the four terminals at Heathrow were receiving scores significantly above our proposed target, we consider that this target remains appropriate.

3.19 While airlines are correct in stating that where Arcadis identified possible stretch targets we have generally used the bottom of its suggested range, in each case there was a specific reason for adopting a relatively cautious approach. These included that some of the possible stretch targets were for specific terminals only (whereas our proposed targets are airport-wide), that we are already increasing some targets above performance levels achieved in part of Q6, and that we are taking account of recent challenges and/or the possible impact of future changes. In two cases (wi-fi performance and availability of pre-conditioned air) we have also said that we will consider a possible increase in the target as part of the proposed mid-term review.

3.20 We have also reviewed our proposed thresholds for HAL to start earning bonuses and are satisfied that they are appropriate. Airlines drew attention to particular cases where HAL had exceeded these thresholds in the past. But these tended to refer to specific terminals and it is important to remember that

[18] For opex we include an overall allowance when setting the maximum average airport charge, and it is for HAL to manage its business subject to this constraint on its regulated revenues.

HAL will only start earning bonuses in a particular month if its performance meets the relevant threshold in all four terminals.

3.21 Regarding other new points raised in stakeholders' responses, we have already set out in the Final Proposals the rationale for our selection of measures and our specific reasons for omitting the reduction in Heathrow's carbon footprint measure,[19] for including CP16 in the control post vehicle queue time measure, for reverting to four separate measures for stand facilities, for excluding baggage belts from the check-in infrastructure measure, and for proposing reputational rather than financial incentives for the timely delivery from departures baggage system measure.

3.22 Airlines provided some additional arguments in relation to the timely delivery measure, which we have considered, but we remain concerned that a measure with financial incentives risks introducing distractions and inflexibilities that could outweigh the potential advantages of financial incentives, especially bearing in mind that problems attributable to HAL's baggage system account for only a small proportion of the total number of misconnected bags at Heathrow.

3.23 We plan to introduce the carbon footprint measure as part of the mid-term review, and we could consider other changes at future periodic reviews, for example, if there was evidence that problems with check-in baggage belts were having a significant adverse effect on consumers.

3.24 We confirm our support in principle for the introduction of automated measurement for security queues. HAL will be able to bring forward proposals for this through the existing capex governance framework. We consider that any necessary changes to measures or targets should be introduced when the work has been (or is being) carried out and the implications can be assessed, rather than drawing up licence conditions in advance.

3.25 We continue to consider that reputational measures should be reported for individual terminals (rather than on an airport-wide basis) where they relate to services provided in those terminals (rather than airport-wide issues such as surface access and punctuality). We consider this will make it easier to identify specific cases where passengers may be receiving poor service, and do not agree with HAL's arguments that this could give a competitive advantage or disadvantage to certain airlines or that applying the same target to each terminal would not be appropriate.

[19] This was omitted from the Final Proposals only because stakeholders had not provided a sufficiently detailed proposal for how Heathrow's carbon footprint should be defined and measured. However, we stressed the importance of this measure and stated that we are particularly keen to make progress on it as part of the mid-term review.

3.26 We note airlines' objections to the proposal that we should be able to make binding decisions on disputes about exclusions to the OBR regime during major disruption events. This mechanism will, however, apply only under very specific circumstances and, as stated in the Final Proposals, we consider that recent experience has shown that there is a need for such a change.

3.27 We disagree with HAL's statement that the mid-term review could materially alter its risk exposure with no corresponding changes to cost allowances. We have consistently stressed that this review should not undermine the structure of five-yearly price control reviews and should not expose stakeholders to additional risk. We have already proposed a specific scope for the review consistent with these objectives. We also note that HAL would be able to appeal to the Competition and Markets Authority if it disagreed with any changes to Schedule 1 of the Licence that we introduced following the review.

The CAA's final decision

Outcomes

3.28 We have decided that the outcomes underpinning the OBR framework will be unchanged from those put forward by HAL and set out in the Initial Proposals and the Final Proposals. They are:

- an airport I want to travel from that offers me a good value choice of flights;
- I am confident I can get to and from the airport;
- I have a predictable and reliable journey;
- I feel comfortable and secure at the airport;
- I have an enjoyable experience at the airport; and
- I feel cared for and supported.

3.29 We continue to consider that these cover the main aspects of airport operation services that are important to consumers, and they are fit for purpose for the introduction of OBR in H7. As previously stated, however, it may be useful to revisit these at the time of future period reviews, drawing on the experience of applying OBR in practice at Heathrow, to consider whether any changes would be useful.

Measures

3.30 The final list of measures that we have decided to implement is set out in Tables 3.1 and 3.2 below. There is only one change from the list included in the Final Proposals, which is the removal of the "ease of understanding Heathrow's covid-19 safety information" measure for the reasons discussed above. There will be

36 measures in the new OBR framework: 20 of these will be subject to financial incentives and 16 will be subject to reputational incentives.

3.31 We are also clarifying the definitions of the "departures flight punctuality" and "immigration queue times" measures and the way that the "PRM – overall satisfaction" measure is calculated. These changes, discussed above, are reflected in the new Schedule 1 to HAL's licence included in Appendix C (Notice of the CAA's decision to modify HAL's licence).

Targets

3.32 We have decided that the targets for each measure will be those set out in Tables 3.1 and 3.2 below. These are the same as those included in the Final Proposals.

3.33 The only change to our targets, as discussed above, is that when reporting its performance for measures with reputational incentives (except for the "timely delivery from departures baggage system" measure), HAL will be able to describe these targets as performance standards to be achieved by 2026 (rather than immediately). HAL should present its results so that such progress can be easily monitored.

Incentives

3.34 Table 3.1 shows, for each measure subject to financial incentives, the proportion of airport charges revenue at risk if it misses the relevant target. If, in a particular month, HAL misses one or more of the targets set out in Table 3.1, it will be liable to pay a rebate calculated as one-sixth of the maximum shown in that table (except for the runway operational resilience measure, for which rebates are calculated on a different basis as set out in the licence).

3.35 For four of these measures, Table 3.3 shows the level of performance (the "lower threshold") that HAL will need to achieve in all four terminals in order to start earning bonuses, and a higher level of performance (the "upper threshold") that HAL will need to achieve in all four terminals in order to earn the maximum bonus.

3.36 These incentives are unchanged from the Final Proposals.

Table 3.1 Measures subject to financial incentives

Measure	Metric	Target	Maximum rebate (% of airport charges revenues)
Cleanliness	Survey score	4.15	0.4
Wayfinding	Survey score	4.20	0.4
Helpfulness/attitude of security staff	Survey score	4.10	0.2
Wi-fi performance	Survey score	4.05	0.2
Security queue time – central search	% of queues < 5 mins % of queues < 10 mins	95% 99%	1.0
Security queue time – transfer search	% of queues < 10 mins	95%	0.5
Security queue time – staff search	% of queues < 10 mins	95%	0.4
Control post vehicle queue time	% of queues < 15 mins	95%	0.4
Availability of lifts, escalators and travelators	% of time available for use	99%	0.7
Availability of check-in infrastructure	% of time available for use	98%	0.5
Availability of arrivals baggage carousels	% of time available for use	99%	0.35
Availability of T5 track transit system (TTS)	% of time available for use 1 train 2 trains	 99% 97%	 0.3 (T5 only)
Availability of stands	% of time available for use	99%	0.2
Availability of jetties	% of time available for use	99%	0.2
Availability of fixed electrical ground power	% of time available for use	99%	0.15
Availability of stand entry guidance	% of time available for use	99%	0.2
Availability of pre-conditioned air	% of time available for use	98%	0.2
Pier-served stand usage	% of passengers served	95%	0.3 (not T5)
Hygiene safety testing	% of amber tests resolved within 24 hours % of red tests resolved within 4 hours	100% 100%	0.2
Runway operational resilience	Fixed rebate (£) per type of incident		0.5

Table 3.2 Measures subject to reputational incentives

Measure	Metric	Target
Overall satisfaction	Survey score	4.26
Customer effort (ease)	% of passengers reporting 'easy' or 'very easy'	91%
Enjoy my time at the airport	% of passengers reporting 'enjoyable' or 'very enjoyable'	80.5%
Feel safe and secure	% of passengers agreeing they felt safe and secure	96%
Ease of access to the airport	Survey score	4.44
Helpfulness/attitude of airport staff	Survey score	4.36
Passengers with reduced mobility – overall satisfaction	Survey score	4.0
Immigration queue times	% of queues < 45 mins (non-EEA) or 25 mins (EEA)	95%
Timely delivery from departures baggage system	% of bags delivered >30 mins before departure time	98%
Departures flight punctuality	% of flights departing within 15 mins of scheduled departure time	80.5%
Airport that meets my needs	% of passengers agreeing the airport meets their needs	n/a
Baggage misconnect rate	% of bags that miss their intended flight	n/a
Airport departures management	Average time between start request and take-off	n/a
Airport arrivals management	Average time between touch down and chocks on	n/a
% of UK population with 3 hours (and one interchange) of Heathrow by public transport	% of UK population	n/a
Passenger injuries	Number of passenger injuries	n/a

Table 3.3 Bonuses

Measure	Maximum bonus (% of airport charges revenues)	Lower performance threshold	Upper performance threshold
Cleanliness	0.36	4.35	4.65
Wayfinding	0.36	4.40	4.70
Security queue time – central search (queues < 5 minutes)	0.54	97.0	99.0
Security queue time – transfer search (queues < 10 minutes)	0.18	97.0	99.0

Continuous improvement

3.37 HAL and airlines will be able to agree changes to certain parts of the OBR framework between themselves, in which case we will be able to implement the change with immediate effect. As set out in the Final Proposals, if they are not able to reach agreement on a proposed change, then either party could request that we modify the Licence. In those circumstances, if we decided that a modification was required in the interests of consumers, we would use the procedure set out in section 22 CAA12 to make the modification (rather than the current condition D1.8 which we are removing from the Licence).

3.38 In addition, we intend to carry out a mid-term review of the OBR framework. Consistent with the scope set out in the Final Proposals, this will cover:

- issues that could not be resolved in time for inclusion in the Final Proposals: including the definition of a measure relating to Heathrow's carbon footprint which we regard as a priority for the review. Other issues to be addressed include setting targets for the airport departures management and airport arrivals management measures (as well as ensuring that the definitions are fit for purpose) and also for an airport that meets my needs;
- any specific issues arising from the application of new measures and targets: this could include any definitions that are difficult to apply or measure in practice, or any targets that now appear unachievable for reasons outside of HAL's control. Conversely, however, if a target appears potentially too low, we would not generally expect to make any adjustment until the next price control review;
- any changes that are specifically required as a result of new investment projects that have been agreed between HAL and airlines;

- the most appropriate level of granularity for targets such as security queues and asset availability measures: including whether targets should be set on a monthly, daily or other basis, whether targets should be set for individual control posts or groups of control posts, and the possible harmonisation of security queue targets. We intend to consider these issues in advance of the mid-term review, including the nature and timing of any possible change (though it is important to note that at this stage we have not reached a view that a different approach would be appropriate). If we were to propose any changes that would take effect during H7, our aim would be to ensure that these had a neutral impact on the net revenues that HAL might expect to earn from bonuses and/or pay out as rebates during the remainder of H7;
- any changes to security queue measures and targets necessary to reflect (in a neutral way) the impact of the security transformation programme or the installation of new queue measurement systems: this could also include any proposals to rebalance the rebates for different security queue times, especially if this is backed up by a strong evidence base and/or broad agreement between HAL and airlines;
- possible changes to the way that asset availability targets are applied: if there is reasonable agreement between HAL and airlines on an alternative approach; and
- in a strictly limited number of cases, we will consider a possible increase in targets: these are discussed in the Final Proposals and are:
    (i) a possible increase in the wi-fi performance target to 4.10;
    (ii) a possible increase in the availability of check-in infrastructure target to 99 per cent; and
    (iii) a possible increase in the availability of pre-conditioned air target to 99 per cent.

Conclusion

3.39 We consider that the introduction of the OBR framework is an important development that will help to make sure that the outcomes valued by customers using all aspects of the airport are increasingly the ones focused on by HAL. We recognise that the framework will evolve in the future, but the changes for H7 represent an important start to a more consumer focused framework.

3.40 For the reasons set out above, we consider that our final decision on the OBR framework will further consumers' interests by ensuring that the airport operating services HAL provides meet their needs in terms of their range, availability, continuity and quality. Among other things, we consider that the OBR framework will:

- strengthen the link between economic regulation and consumers' needs and priorities, thereby securing that consumers' reasonable demands for airport operation services are met in terms of the outcomes incentivised;
- incentivise HAL to deliver more innovative solutions and service improvements as circumstances change, so promoting economy and efficiency in the way in which those outcomes are delivered;
- improve transparency, and encourage HAL to exercise its co-ordinating role across the airport to improve outcomes for consumers, again promoting HAL in meeting the reasonable demands of consumers and doing so efficiently; and
- allow us to carry out our regulatory activities in a way that is transparent, accountable, proportionate and consistent, and targeted only at cases in which action is needed.

3.41 We have also considered the financial impact of the rebates and bonuses on HAL, and do not consider them to be set at a level that is likely to have a material impact in practice on its ability to finance its regulated activities.

Implementation and next steps

3.42 We have already modified HAL's licence to remove references to two elements of the current SQRB scheme (departure lounge seating availability and flight information) that will not be carried be carried forward into the new OBR framework.[20]

3.43 The remaining changes will be implemented through the new Schedule 1 set out in Appendix C (Notice of the CAA's decision to modify HAL's licence). This is the same as the Schedule 1 included in the Final Proposals, except for a small number of minor changes to reflect the amendments and clarifications listed in paragraph 3.17 above and to clarify that bonuses for the period before 1 May 2023 will be based on the current SQRB scheme.

3.44 As well as changes to introduce the new measures, targets and incentives, the new Schedule 1 also includes a change that will allow us to make binding decisions on disputes about exclusions to the OBR regime during major operational disruption events. As stated in the Final Proposals, we would only expect to consider the most serious cases where the risk of consumer harm or the financial impact on HAL is significant. Before considering a case, we would expect to see evidence that all parties have made a genuine attempt to resolve

[20] See chapter 3 and Appendix B (paragraph B3) of the decision implementing the interim price cap for 2023: CAP 2515.

the disagreement on a bilateral basis, including, if necessary, with senior Executive involvement, before referring the matter to us.

3.45 The new OBR framework will take effect from 1 May 2023. HAL's performance in March and April 2023 will continue to be subject to the current SQRB scheme, with any rebates and bonuses for those months calculated in accordance with the current licence conditions. Rebates and bonuses from May 2023 onwards will then be calculated in accordance with the new Schedule 1 set out in Appendix C (Notice of the CAA's decision to modify HAL's licence). They will also be subject to independent audits in accordance with condition D1.5 of the Licence.

3.46 We currently expect to carry out the mid-term review of the OBR framework in the 2024. Given the time period that has already elapsed in the H7 period, it is our intention that this review should be carried out in a way that allows all stakeholders (including passengers and their representatives) to contribute, but is able to reach relatively swift conclusions.

3.47 We expect to engage with stakeholders later in 2023 and early in 2024 to address those issues that could not be resolved in time for the Final Proposals and to understand how the new OBR framework is bedding in and whether there are any specific issues arising from the application of new measures and targets. We also expect to carry out some initial analysis to inform our consideration of the most appropriate level of granularity for targets such as security queues and asset availability measures.