Economic regulation of Heathrow Airport Limited: H7 Initial Proposals

Section 1: Overall approach and building blocks

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Overall approach to regulation

Introduction

1.1 In the April 2021 Way Forward Document, we confirmed that we intend to set a five-year price control for H7, calculated on the basis of the continued use of:

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

1.2 We have applied similar price controls to HAL in previous regulatory periods, and they have also been used in many other regulated industries. This approach is designed to further the interests of consumers, including by protecting them from the risk of abusive conduct. Without the price control and associated incentive arrangements there would be a risk of excessive prices, a lack of investment and/or declining service standards. A core element of this approach is to encourage the regulated firm to improve efficiency to the long-term benefit of consumers.

1.3 Nevertheless, in view of the continuing impact of the covid-19 pandemic on the aviation industry and HAL, it is appropriate to consider changes to the approach we adopted to setting the Q6 price control. For instance, our preferred option is to retain a five-year price control but to introduce a new traffic risk sharing ("TRS") mechanism to help deal with the continued uncertainty over traffic levels during H7.

1.4 This chapter:

- summarises the views we set out on uncertainty mechanisms and risk sharing arrangements in the April 2021 Way Forward Document;
- explains the main points made by stakeholders on these matters and the overall approach to regulation summarised above;
- set outs out our latest views and Initial Proposals; and
- summarises next steps and implementation issues.

Background and the April 2021 Way Forward Document

1.5 Following discussion of possible risk sharing mechanisms in previous consultations, in the April 2021 Way Forward Document we said that we were minded to develop passenger traffic or revenue risk sharing arrangements to deal with the significant level of uncertainty about future passenger traffic volumes, as the aviation industry and HAL recover from the impacts of the covid-19 pandemic.

1.6 In this context, we considered that changes were needed to further the interests of consumers by:

- clarifying and limiting the risks that HAL might see significant gains or losses depending on the pace of the recovery in passenger traffic volumes (over which HAL has limited control). This could directly benefit consumers through lower charges and limit the upward pressure on HAL's cost of capital, which would feed through to higher charges; and
- allowing us to continue to facilitate the benefits for consumers that accrue from a five-year price control for the H7 period. These include stability in the regulatory regime and airport charges which enable both HAL and the airlines (that serve consumers at Heathrow airport) to plan their businesses for the benefit of consumers.

1.7 We discussed the advantages and disadvantages of either TRS or revenue risk sharing, and said that we would consider this issue further. We also said that:

- to moderate the impact of general uncertainty (and not just extreme events), there was a reasonable case for applying some risk sharing to all deviations from the forecasts used to calibrate the H7 price control, rather having 'dead bands' with no risk sharing;
- to protect HAL from extreme events, there might be stronger risk sharing for larger deviations from our forecast. But even in these cases it would be important for HAL to retain some incentive to support the growth in passenger numbers and to avoid perverse incentives that might act contrary to the interests of consumers;
- implementing risk sharing by adjusting the RAB in the following regulatory period (rather than by adjusting charges later in the same period) could be in the interests of consumers, as it would reduce the risk of airport charges increasing at a time when airlines were already facing lower than expected demand; and
- we would consider the relative merits of basing the risk sharing mechanism on either annual or cumulative differences between outturns and forecasts.

1.8 In response to HAL's proposal for a reopener condition in its licence, we reiterated our previous view that policy guidance on when reopening a price control could be a more effective approach than a formal reopener. This reflected, among other things:

- the likelihood that the circumstances that might justify reopening a price control could be complex in nature and so difficult to enshrine in a formal licence condition, given that HAL will already have a reasonable degree of protection from traffic-related shocks; and
- the limited certainty that a formal reopener would provide in practice because of the need for specificity and certainty in licence conditions, whereas policy guidance could facilitate a more flexible approach.

Stakeholders' views

Overall form of control

1.9 HAL welcomed confirmation that we would use a five-year regulatory framework, and stated that it largely agrees with the key reasons we set out for implementing risk sharing in H7. However, it re-iterated its previous proposals for:

- revenue risk sharing rather than TRS, to accommodate uncertainty about commercial revenues (for example reflecting changes in consumer behaviour after the covid-19 pandemic and future changes to VAT policy) and to reflect HAL's financial performance in the round; and
- the use of dead bands, which it argued would foster both closer commercial cooperation with airlines and commercial incentives on HAL. It stated that, without dead bands, all fluctuations in performance would be passed on to consumers.

1.10 HAL agreed with our broad suggestion to implement risk sharing by adjusting the RAB but also commented on how this approach should be implemented. It stated that the adjustment should be based on annual (rather than cumulative) differences, so that HAL's RAB can be adjusted each year. This would help mitigate the impacts of large deviations on HAL's credit metrics and financial covenants. It also said that, to assist financeability in the case of material or prolonged deviations from forecast, the H7 price control should be adjusted to reflect such changes to the RAB in the same way as the current development capex adjustment.[1]

1.11 In addition to its proposed revenue risk sharing mechanism, HAL repeated its previous suggestions that there should be a reopener condition in its licence. It provided a draft proposal which stated, among other things, that:

- HAL would be able to apply for an adjustment to the price control following a material change of circumstances (for example a change of more than 20 per cent of revenues for at least two years in succession) or where a "fundamental assumption" adopted in our final proposals proved to be incorrect; and
- we would be required to respond to any such application within 60 days, either implementing the proposed adjustment or rejecting the application.

1.12 The AOC/LACC said that airlines do not support revenue risk sharing and they explicitly rejected HAL's proposal. They remained open to a well-designed TRS scheme and proposed the following principles for the mechanism:

- it must lead to a transparent and evidence-based reduction in HAL's cost of capital;
- it should be based on an understanding of efficient opex and commercial revenues across a range of traffic scenarios;

[1] See Condition C1.9 of HAL's licence.

- it should not weaken or distort HAL's incentives for achieving efficiencies and growth; and
- it should take full account of the single till, especially as some mechanisms could lead to higher charges for airlines at times when demand is lower than expected.

1.13 British Airways (BA) also welcomed our support for a five-year price control using a single till and calculated from RAB-based building blocks. It supported the principles put forward by the AOC/LACC in relation to a TRS mechanism as well as highlighting the possible risk of price volatility. It rejected HAL's proposed revenue risk sharing mechanism, which it argued would result in outcomes that would be substantially inferior in certain scenarios.

1.14 BA also suggested that an alternative mechanism could be considered using a passenger number divisor based on Heathrow's existing capacity (rather than our forecasts).

Other uncertainty mechanisms

1.15 In addition to revenue risk sharing and a reopener provision, HAL proposed arrangements to deal with several other uncertainties:

- an expansion of the current 'S factor' in the price control formula (which allows a partial pass-through of costs resulting from changes to security standards) to cover costs arising from changes to health and safety standards;
- provision for an adjustment to the price control if a legal or regulatory change or decision meant that HAL could no longer collect the revenues forecast for its new terminal drop-off charge;
- a new pass-through mechanism in the price control formula for CAA licence fees;
- a new "expansion framework trigger" in the licence to describe a process to develop the regulatory framework for expansion and the treatment of expansion costs in particular; and
- whereas the current price control formula includes provision for the partial pass-through of the impact of the 2017 business rate revaluation, HAL proposed instead that business rates should be recovered through other regulated charges (ORCs) and any change in business rates recovered through the ORC mechanism.

1.16 Airlines stated that the do not agree with business rates being treated as an ORC (as they are not influenceable at an operational level like other ORCs) nor with CAA licence fees being passed through. Regarding expansion they stated that:

- it was not a matter for H7 but, in the event that expansion plans materialise during H7, airlines will review these plans and engage with CAA on the process of how they might be considered; and

- we should give consideration to (a) alternative delivery mechanisms, (b) ensuring a detailed framework and governance process is in place in advance of any further expenditure, and (c) the level of costs incurred by HAL to date.

Our views

The overall form of the H7 price control

1.17 For the reasons set out above, we continue to consider that a risk sharing mechanism should be included in the price control formula for H7. We consider that a TRS mechanism is preferable to revenue risk sharing for H7 as a means of implementing this in the interests of consumers. In particular, we note that:

- revenue risk sharing would reduce HAL's incentives to optimise commercial revenues. Furthermore, revenue risk sharing could distort HAL's incentives on decisions which have implications for both commercial revenues and opex (as HAL would bear the full risk of opex changes during H7 but a reduced share of risk for revenue changes). Under the single till approach, optimising commercial revenues also benefits consumers by leading to lower charges in future;
- TRS should promote transparent, accountable, proportionate and consistent regulation, as it is simpler and clearer than revenue risk sharing (which would be based on an amended definition of revenues that excludes ORCs, revenues from the terminal drop-off charge, and any other revenues that are subject to specific pass-through or similar mechanisms); and
- TRS has already been applied at a number of other European airports, and so may bring less risk of unintended consequences than revenue risk sharing. Under revenue risk sharing, for example, a special adjustment might be required if HAL were to restructure, outsource or bring back in-house any of its commercial activities in a way that leads to artificial changes in its recorded revenues.

1.18 While HAL argued for revenue risk sharing on the grounds that it would help to address certain specific uncertainties arising during H7, we consider that most of these uncertainties fall within the normal range of commercial risk that HAL faces in each five-year period. The only exception is revenue from the new terminal drop-off charge, for which we are proposing a specific partial pass-through (see Chapter 5). We also note that, even under HAL's proposed revenue risk sharing mechanism, it would continue to bear full commercial revenue risk, as well as full traffic risk, as long as revenues were within eight per cent of the forecast used to set the price control.

1.19 Our proposed TRS mechanism is designed for the specific circumstances of the exceptional uncertainty observable at the start of H7. Given the experience of the impact of the covid-19 pandemic it is likely that enhanced risk sharing arrangements will be appropriate for the future, but we will not make any final decisions on these matters as part of this price control review. If we decide to include similar risk sharing arrangements in future price controls (i.e. for H8 and beyond), a TRS mechanism may provide a more suitable starting point for such

arrangements, but we would also want to learn from the experience of the operation of these arrangements during the H7 period.

1.20 We consider the TRS mechanism should be based on cumulative deviations between forecast and outturn traffic levels during H7, rather than annual deviations. It is deviations over the whole price control period that have the greatest potential to create risk rather than annual deviations (which may cancel out). Also, if a mechanism were based purely on annual deviations and this were to feed through to annual changes in prices this could cause a degree of unhelpful instability in the level of airport charges.

1.21 We recognise HAL's argument that updating the RAB calculations during H7 may assist with financeability. We think that such updating is possible with either an annual or a cumulative approach. So, we propose that HAL's RAB should be updated each year to reflect a "running total" of cumulative deviations to date during H7. That said, we do not agree that charges during H7 should be adjusted in a similar way to the "development capex" adjustment. This approach would add further complexity to the price control and could lead to higher charges for airlines and the consumers they serve when they are already facing the impact of low demand, while it would have only a minor impact on HAL's financeability.

1.22 We agree with some of the points raised by airlines, for example that the TRS mechanism should take account of how opex and commercial revenues vary with traffic levels. While we also agree that the mechanism should not unduly distort HAL's incentives for efficiency and growth, we note some weakening of incentives is almost unavoidable with a risk sharing mechanism. Nevertheless, by adopting TRS rather than revenue risk sharing and through our choice of parameters (see below), we have sought to limit such effects.

1.23 The airlines also said that the TRS mechanism must lead to a transparent and evidence-based reduction in HAL's cost of capital. While we agree that the introduction of TRS should reduce HAL's cost of capital (relative to the cost of capital that would apply without TRS), we discuss in Chapter 9 the difficulties we face in trying to estimate a precise impact. The TRS also helps limit adjustments for asymmetric risk as discussed in Chapter 7. In any case, limiting the upward pressure on HAL's cost of capital is only one of the advantages of TRS. Others include stability in the regulatory regime and airport charges as the introduction of TRS makes it more practicable to set a five-year price control, which furthers the interests of consumers by allowing for the smoothing of charges and for a medium-term view of HAL's financeability.

1.24 As noted above, BA suggested an alternative mechanism based on Heathrow's existing capacity rather than forecasts of likely traffic volumes during H7. Our current view is that:

- in practice this approach would require hypothetical forecasts of the efficient costs and commercial revenues for an airport operating at full capacity, together with assumptions or projections about how these costs and revenues would vary for different levels of traffic below full capacity;
- our current approach, based on an assessment of efficient costs and revenues for a realistic "central case" traffic forecast, is more straightforward, easier to implement and significantly more transparent;

- it is not clear that this proposed approach would easily lend itself to different degrees of risk sharing, such as stronger risk sharing for more extreme outcomes, which is an important element of our current proposal; and
- to the extent that this proposal is motivated by concerns about HAL attempting to artificially restrict capacity,[2] we consider this risk to be small. In any case we have other tools that could be used in such circumstances, such as through investigatory/enforcement activity under Condition B3 (Promoting economy and efficiency) of HAL's licence.

1.25 The proposed TRS mechanism described below is intended to reduce the impact of the general uncertainty about traffic levels in H7 and also to give HAL a relatively high (but not complete) degree of protection from the impact of more extreme events.

1.26 In addition, for the reasons set out in the April 2021 Way Forward Document and summarised above, to the extent that additional broad-based protection from unanticipated shocks is appropriate, we remain of the view that policy guidance on the circumstances that might justify reopening a price control is preferable to a formal reopener condition in HAL's licence.

1.27 As for the specifics of the "reopener condition" put forward by HAL, we do not consider that the proposed definition of a material change is helpful, especially as HAL will already benefit from the TRS mechanism (and the other uncertainty mechanisms discussed below). We also do not consider it sensible to impose rigid timescales on a process that, by definition, would only be invoked in highly unusual, and likely complex, circumstances.

1.28 We will consider these matters further as part of our work on Final Proposals. Given the other steps we are taking to improve risk sharing arrangements, we will need to give careful consideration to the case for providing guidance on reopening the H7 price control, and the nature and scope of any such guidance. If we do put in place any guidance on reopening the price it would be appropriate for it to be as clear as practicable, so to provide an appropriate degree of transparency for all stakeholders.

Other uncertainty mechanisms

1.29 In addition to our proposed TRS mechanism, we agree there may be a case for including specific arrangements to deal with revenues or costs that are particularly uncertain. However, the case for such arrangements is strongest for revenues or costs that are material and wholly or largely outside of HAL's control. The strength of any pass-through or similar mechanism should depend on the extent to which HAL should be able to exercise at least some control over the relevant revenue or cost, or else take action to mitigate the impact of any potential change.

1.30 We agree in principle with HAL's proposal to expand the S factor and address this in the next section. Our proposed approaches to dealing with business rates

[2] See paragraph 6.11 and 6.12 of BA's response to the April 2021 Way Forward document.

and revenues from the terminal drop-off charge are described in Chapters 13 and 5.

1.31 We do not agree with HAL's proposal for an expansion trigger in its licence. We agree with the general principle that work on the development of a revised regulatory framework should resume if there were to be a sufficiently strong likelihood of progress on expansion resuming. However, it is impossible to predict if or when this might happen or what the circumstances would be at the time. It is important, therefore, to retain flexibility for all parties rather than imposing in advance a particular process or timetable.

Initial Proposals

1.32 We propose to introduce a TRS mechanism for HAL in H7. We consider this to be in consumers' interests as:

- a risk sharing mechanism 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, avoid unnecessary upward pressure on HAL's cost of capital, facilitate the certainty and advantages a five-year price control for the H7 period, and help to clarify the risks that HAL is expected to bear during that period; and
- by adopting traffic rather than revenue risk sharing, we will reduce the risk of weakening or distorting HAL's incentives for efficiency and growth, adopt a clearer and simpler approach, and reduce the risk of unintended consequences.

1.33 Our selection of parameters for the proposed TRS mechanism was informed by, among other things:

- the intention to retain an incentive on HAL to increase volumes at the airport;
- an assessment of the overall impact on HAL's EBITDA of changes in traffic levels, taking account of expected changes in opex and commercial revenues as well as the direct impact on aeronautical revenues. Our projections of opex and commercial revenues for different traffic levels were based on CEPA/Taylor Airey's analysis, as described in Chapters 4 and 5;
- a comparison with risk sharing mechanisms used at other regulated airports and in other regulated industries. This covered both the degree of risk sharing and the point at which different levels of risk sharing (or other specific arrangements) kick in; and
- an analysis of previous traffic volatility, and the number of times that different levels or types of caps would have been breached.

1.34 We also took account of the interaction between different risk sharing parameters. In a mechanism with a central band and an outer band, for example, if there is moderate risk sharing within the central band then this might allow us to push out the point at which stronger risk sharing kicks in. In contrast, if there is no risk sharing at all in the central band (i.e. it is a dead band) then this central band would need to be relatively narrow in order to provide a similar overall level of risk protection.

1.35 For these Initial Proposals we have included ranges for the risk sharing factors. We will consider these further (including any new evidence on the variability of opex and commercial revenues) before confirming specific values in our Final Proposals.

1.36 Consistent with the approach discussed in previous consultations, our proposed mechanism features:

- moderate risk sharing in a central band around the forecast of passenger levels used to calibrate the H7 price control. This aims to moderate the impact of heightened uncertainty about traffic levels in H7 and, therefore, to reduce the risk that HAL might see significant gains or losses simply because traffic recovers at a different pace. The proposed risk sharing factor in this band is between 40 and 60 per cent. Our assessment of the overall impact of traffic changes on aeronautical revenues, commercial revenues and opex indicates that risk sharing factors within this range should preserve reasonably strong incentives for HAL to encourage further traffic growth, while also blunting the impact of forecasting risk;
- stronger risk sharing in an outer band, which we propose should start when cumulative traffic levels in H7 are more than 10 per cent higher or lower than our forecast. This threshold would have been breached by the impact of the covid-19 pandemic, but not by traffic variations in other recent periods. Stronger risk sharing in this outer band is intended to significantly reduce HAL's exposure to the risk of extreme passenger traffic outcomes in future and, therefore, to clarify the risks that HAL is expected to bear during the H7 period. The proposed risk sharing factor in this band is 90 to 100 per cent, which should provide HAL with a relatively high level of protection from the impact of further traffic changes while preserving a modest incentive to generate additional traffic.

1.37 Our Initial Proposal is therefore that:

- HAL's RAB will be updated each year to reflect a proportion of the cumulative impact of differences between outturn and the forecast of traffic levels used to calibrate the H7 price control, where
  - allowed revenues for each year will be calculated by multiplying either outturn or forecast traffic levels by the maximum allowable airport charge (excluding the correction factor) for that year,
  - cumulative allowed revenues for the H7 period so far will be calculated by adding the allowed revenues for previous years in H7, uplifted for inflation and the "real" pre-tax WACC,[3] and

[3] Uplifting by the WACC is necessary to reflect the return on any incremental change (positive or negative) to the RAB, since we are not adjusting charges during H7 to reflect such changes.

- the cumulative impact of differences between forecast and outturn traffic levels will then be calculated as the difference between cumulative allowed revenues calculated using outturn traffic levels and forecast traffic levels;

- the proportion of the impact reflected in the RAB adjustment will be
  - 40 to 60 per cent for differences in cumulative allowed revenues of up to 10 per cent, and
  - 90 to 100 per cent for differences in cumulative allowed revenues of more than 10 per cent.

1.38 In Chapter 2 on passenger forecasts we indicate that we intend to include a "shock factor" adjustment in our traffic forecasts for the H7 period. This is a downward adjustment of 1.07% to base traffic forecasts to reflect the potential for negative shocks with no corresponding upside potential. In the past, these have included the volcanic ash cloud, SARS, 9/11 and the Gulf War among others. To maintain internal consistency, our proposed TRS mechanism will be based on a comparison of outturn traffic volumes with forecast traffic volumes including the shock factor, as this is the forecast we use to calibrate the H7 price control. If, instead, we were to base the TRS mechanism on forecasts excluding the shock factor, this would lead to a risk of consumers paying twice for those shocks that HAL has already been compensated for through the use of the shock factor.

1.39 This mechanism will not affect the level of airport charges that HAL is allowed to recover during the period of the H7 price control, but it will affect charges in future periods as the RAB will be higher or lower than it would otherwise have been had the mechanism not applied. We will need to introduce specific arrangements for the H8 price control to reflect the fact that any adjustment required for the final year of H7 will not be known at the time that we finalise the H8 price control.

1.40 For the reasons set out above, we do not intend to add a formal reopener provision to HAL's licence. However, we continue to consider that policy guidance on the types of circumstances that could justify reopening a price control might be helpful.

1.41 We will also engage with stakeholders to confirm the details of an expanded S factor, which in H7 will cover changes in health and safety requirements as well as security requirements. Among other things, it will be important to discuss the drafting of the amended provision, to ensure that the boundaries of the mechanism are clear, and also to consider whether changes are required to any other parts of the current provision (for example, to uplift the current deadband in line with inflation).

1.42 We consider that the approach to calibrating and reconciling TRS arrangements set out above will:

- help to clarify the risks that HAL is expected to bear during the H7 price control period;
- reduce the risk of significant gains or losses caused by passenger traffic variations over which HAL's management has limited control;

- avoid unnecessary upward pressure on HAL's cost of capital; and
- facilitate the certainty and stability of airport charges associated with a five-year price control.

1.43 As such, this approach should further the interests of consumers, while at the same time helping to secure that HAL is able to finance its activities.

Next steps and implementation

1.44 We welcome stakeholders' views on any aspect of the issues raised in this chapter and will consider their representations as part of our work to develop final proposals.

1.45 Even though it will not affect charges during H7, we intend to add to HAL's licence or include in policy guidance a description of how the RAB adjustments resulting from the TRS mechanism should be calculated. This will provide enhanced certainty to HAL and to other stakeholders.

1.46 We will continue to engage with stakeholders on developing arrangements to deal with uncertainty, including on the case for and scope of any guidance on reopening an existing price control and details of the expanded S factor, as well as any issues arising from our proposed TRS mechanism (including the calibration of the sharing factors and bands).

Chapter 2

Passenger forecasts

Introduction

2.1 The number of passengers using Heathrow airport is vital to the overall economics of the airport and to driving the appropriate levels of operating and capital costs necessary for the effective provision of AOS by HAL. Covid-19 has also demonstrated the vulnerability of the wider aviation sector and Heathrow to pandemic risk, with dramatic reductions in passenger numbers and uncertainty about the recovery.

2.2 As noted in Chapter 1 as part of these Initial Proposals we are introducing new TRS arrangements designed to help better manage the risks associated with variations in passenger numbers. Nonetheless, the underlying forecasts of passenger numbers is vital to setting an appropriate price control as the expected number of passengers remains key to determining the airport charge per passenger during the H7 period, the affordability of airport charges and financeability of new investment.

2.3 Bearing these considerations in mind, developing appropriate forecasts of passenger numbers is a key step in allowing us to properly consider our primary statutory duty to further the interests of consumers when establishing allowances for operating costs, capex and commercial revenues that are efficient and deliver value for money.

2.4 The rest of this chapter describes our approach to assessing HAL's forecast passenger volumes at Heathrow over the H7 period and how we have provided an independent assessment of passenger forecasts. It sets out:

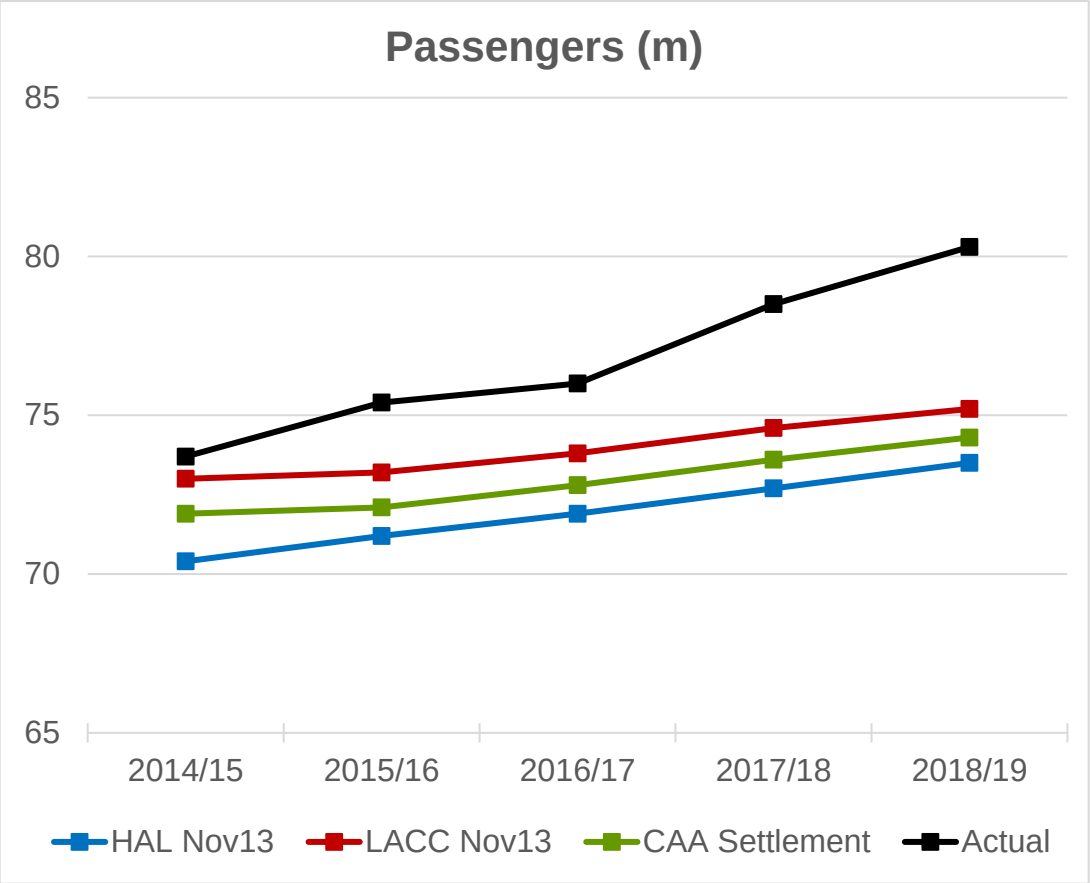
- background information, including on Q6 passenger forecasts, HAL's initial H7 forecasts and a summary of what we said on passenger forecasts in the April 2021 Way Forward Document;
- a summary of stakeholders' responses to the Way Forward consultation;
- our views on this feedback;
- HAL's updated passenger forecasts;
- our Initial Proposal, including our views on HAL's modelling and the adjustments that we have made to its approach;
- our approach to quality assurance; and
- next steps and implementation.

Background

2.5 The CAA published its Final Proposals for the Q6 HAL price control in October 2013. Figure 2.1 shows actual passenger numbers at Heathrow, the CAA Q6

forecast and the HAL and airline ('LACC') Q6 forecasts. Actual passenger numbers exceeded the CAA's forecast in each year of the Q6 price control and by 19 million (5.2%) across the Q6 period.

Figure 2.1: CAA passenger forecast and actuals for Heathrow, Q6



Source: CAA

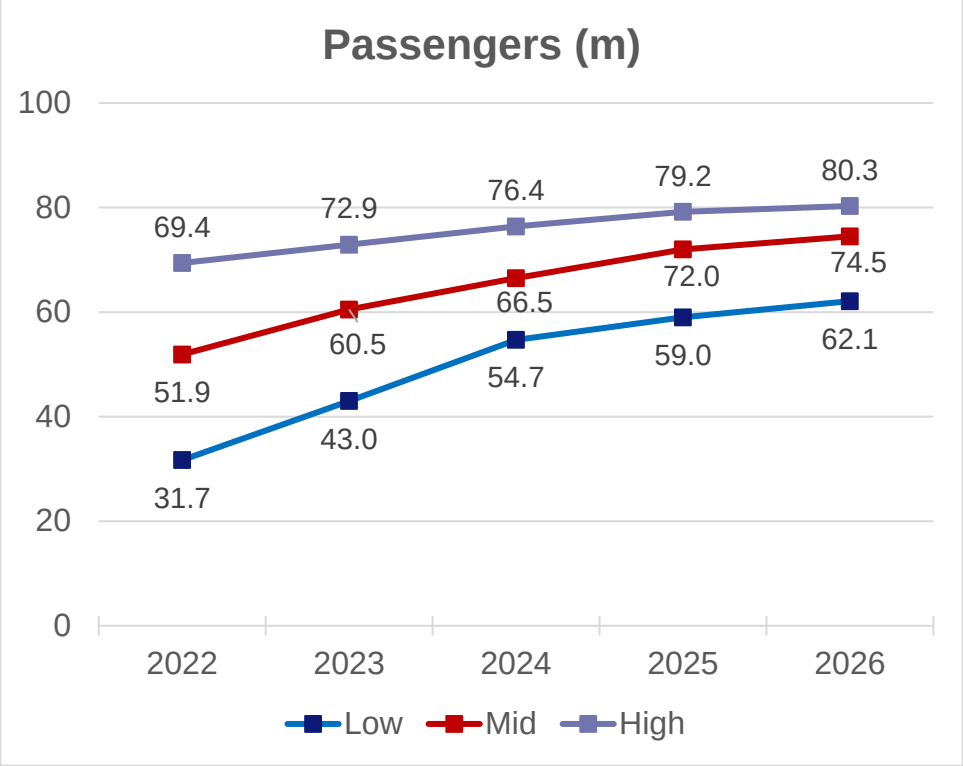
2.6 Following the impact of the covid-19 pandemic, in April 2020 passenger numbers collapsed at Heathrow airport to approximately 3% of the levels expected when the interim price control and airport/airline commercial deal was put in place for 2020 and 2021. They have started to recover but in August 2021 remained at only about 30% of pre-pandemic levels.

HAL's approach to passenger forecasting for the H7 period

2.7 As part of CE with airlines HAL explained its approach to passenger forecasting, highlighting that its established approach to forecasting was not set up to deal with the size of, nor the uncertainty associated with, the impact of the covid-19 pandemic and that updates to the models and process were required.

2.8 HAL issued its RBP in December 2020, using an updated method for the passenger forecast. It showed a steady recovery from the impact of the covid-19 pandemic. None of the output scenarios exhibited a return to 2019 passenger volumes (80.9m passengers), although HAL's "high" case approached this level in 2026 (forecasting 80.3m passengers). The "mid" case forecast 325.5m passengers for the whole of H7, with 74.5m passengers in 2026. These cases are reproduced at Figure 2.2 below.

Figure 2.2: HAL RBP passenger forecasts (Dec 2020), H7



Source: HAL RBP Dec 2020

April 2021 Way Forward Document

2.9 We recognised the continued challenges in forecasting in such uncertain circumstances and, noting HAL's commitment to issue an updated RBP in June 2021, set out our expectation that HAL's forecasts should evolve in response to new information on the likely course of the recovery.

2.10 We noted that HAL's broad approach to forecasting appeared reasonable and that we intended to base our approach around HAL's suite of forecasting models and:

- directly apply adjustments to HAL's models; and/or
- request HAL to make changes on our behalf.

Stakeholders' views

2.11 In response to the April 2021 Way Forward Document, HAL:

- indicated that the existing forecasting suite of models performs better than previous methods, but needed targeted changes in light of the impact of the covid-19 pandemic; and
- said the inclusion of the impact of the covid-19 pandemic in the demand shock factor would not "double count" the impact of the pandemic, and that the risk of a future pandemic is not nullified by the existence of covid-19, and hence should be incorporated.

2.12 By contrast, AOC/LACC said that:

- HAL had failed to develop appropriate scenarios in its RBP, which had been a key requirement from the airlines and the CAA;
- HAL's projections were inconsistent with the industry consensus of a return to the level of passengers seen in 2019 by 2024 and were, therefore, overly pessimistic. It said that, despite the near-term outlook worsening, strong demand is expected once travel restrictions are lifted and that the recovery of passenger numbers would be quicker at Heathrow than elsewhere; and
- the updated HAL forecast model was untested and expressed its concern that the CAA will use it to determine passenger traffic in H7. It also requested access to HAL's models.[4]

2.13 British Airways:

- agreed with the CAA's assessment of HAL's forecasting method and the lack of appropriate traffic scenarios supplied by HAL;
- noted its concern that the CAA may use HAL's models to produce the traffic forecast and suggested the CAA should develop its own passenger forecast model; and
- opposed the use of demand shock factors which it understood to be already incorporated in the assessment of the WACC.

Our views

2.14 We consider that HAL's forecasting approach allows the impact of the covid-19 pandemic on passenger numbers to be reflected in a consistent and transparent way. We note HAL's views on the risk of a future pandemic and agree that this should be accounted for in the price control. However, we consider that applying a shock factor to passenger forecasts would not be the appropriate mechanism for dealing with pandemic risk. We discuss this further below and in Chapter 7.

2.15 Although HAL has produced four detailed reference scenarios, which were subsequently combined into three output forecast cases, we agree with airlines that the sole use of the "mid" case across the remainder of the RBP did not meet our expectations for a range of scenarios as set out in our guidance in the June 2020 Consultation.

2.16 We note airlines' concerns over the CAA utilising HAL's forecast models and we set out our reasoning in the "Use of HAL's forecasts" section below. We also note BA's view on the inclusion of a shock factor in the forecast. However, we consider that it is valid to account for non-pandemic downside asymmetric

[4] As of mid-October 2021, HAL has not granted this request.

shocks in the demand forecast and we note that the way we estimate the WACC in Chapter 9 takes account only of systematic risk and not downside asymmetric risks.

HAL's passenger forecasting method and Updated RBP forecast

HAL's forecasting method

2.17 HAL forecasting method is detailed in its RBP and updated RBP. Broadly, it comprises:

- a demand model ("DM") which uses econometrics to forecast total market demand for direct passengers at the five main London airports (London 5), and transfer passengers across 22 hub airports (Hub 22). The DM does not produce a Heathrow-specific forecast;
- a supply model ("SM") which uses assumptions about airline capacity plans at Heathrow to forecast passenger numbers as the product of aircraft movements, "seats per movement" and load factors;
- a travel restrictions model ("TRM") which amends the SM in line with expectations around the duration and severity of covid-19 related travel restrictions by geographic market. This is complemented by demand overlays in response to the impact of the covid-19 pandemic in the DM; and
- a Monte Carlo method ("MC") which provides a forecast range based on variations in the assumed values of aircraft movements, seats per movement and load factors. This aims to reflect natural variations in the forecast drivers and deliver a more accurate forecast.

2.18 To cover the range of possible economic and epidemiologic outcomes across H7 arising from the impact of the covid-19 pandemic, HAL produced four reference scenarios and assumed a probability of occurrence for each, broadly guided by the probability of the relevant underpinning Oxford Economics GDP scenario. From the most optimistic to least, these are:

- "Pent-up Demand" ("PUD"): 10%;
- "Steady Build" ("SB"): 50%;
- "Gradual Opening" ("GO"): 30%; and
- "Autumn Reversal" ("AR"): 10%.

2.19 A scenario weighting process combines the MC results from these four reference scenarios, weighted by assumed probability of the occurrence of each, and generates "unshocked" "mid" (P50), "high" (P90) and "low" (P10) forecasts.

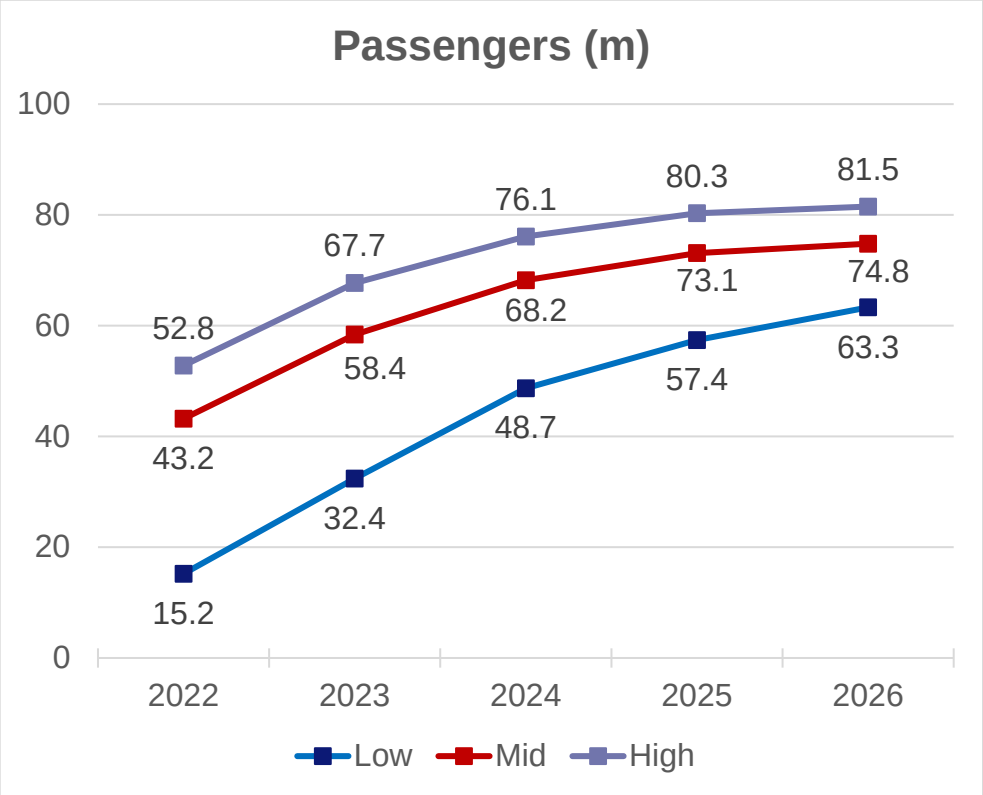
2.20 A shock adjustment is then applied to each, which takes account of asymmetric non-economic downside risks (such as the sharp falls in demand that have been seen following certain volcanic eruptions, terrorist events and international conflicts), that are difficult to predict the exact timing of, but where the occurrence in any five year forecasting period is likely enough to improve the accuracy of the forecast for that period. This shock factor is applied equally to all output forecasts.

HAL's updated RBP passenger forecast

2.21 HAL's updated RBP passenger forecasts are shown in Figure 2.3 below and include the following updates:

- a revised TRM, with more recent data and updated evidence-based modelling of demand according to level of travel restrictions;
- an overhaul of the four reference scenarios utilising refreshed assumptions regarding travel restrictions and the pace of UK and international vaccine rollouts; and
- refreshed econometric assumptions, including using the latest Oxford Economics forecast (April 2021), and factoring in a more pessimistic outlook for business travel.

Figure 2.3: HAL updated RBP passenger forecasts (June 2021), H7



Source: HAL updated RBP, June 2021

2.22 HAL's updated RBP "mid" case forecasts 317.7m passengers in H7, a reduction of 7.8m passengers (2.3%) compared with the RBP. This is, broadly, due to

lower passengers in the early years of H7 because of the extended impact of covid-19 and slower than expected opening of travel compared to the previous forecast. In this forecast, 2019 passenger volumes (80.9m) are not reached in the "mid" case in H7.

Initial proposals

Use of HAL models

2.23 In general, we consider that HAL's suite of models represents a reasonable approach to modelling in the difficult and uncertain circumstances of covid-19. Nonetheless, the use of these models to create scenarios involves a number of difficult judgements and it is important that we carefully review HAL's approach to these matters so that the resulting forecasts represent a reasonable view of the likely level of passenger numbers in the future. In carrying out our assessment of these matters we have:

- carefully and extensively reviewed the methodology and spreadsheets to establish a good understanding of how the models work and interact;
- taken account of a review by Steer[5] for the DM and SM, assuring us that the models have been coded correctly; and
- been able to run sensitivities and check how adjustments to the input assumptions alter the outputs.

2.24 Bearing the above in mind we have decided to use HAL's models as the basis for our passenger forecast for Initial Proposals, but where our views have differed from HAL's, we have made adjustments in the models, or corrected the output to reflect the likely effect of such differences. These are summarised below.

Adjustments to HAL forecasting approach

Asymmetric distributions

2.25 Consistent with our approach at the Q6 price control review, we have made adjustments to the forecasts to mitigate the effect of asymmetric distributions in HAL's MC method, as HAL's approach appears to introduce downside bias into the passenger forecast. This arises where the median of the randomly chosen variable, which will inform the P50 output, is not equal to the mode (or peak) of the distribution, which is one of the key input variables.

2.26 We are aware that such adjustments could lead to a forecast that could only be practically achieved by breaching a constraint, such as the number of ATMs, but we consider that the magnitude of our adjustments is not sufficient to be affected by this issue. We will continue to consider whether there is a better approach for correcting for asymmetric distribution bias in the work to support our Final Proposals.

[5] HAL commissioned Steer to review the methodology for Q6 and develop and validate the new models for H7

Fare increases in response to a reduction in business travel

2.27 HAL has assumed a fall in travel for business purposes post-pandemic and has factored this into its forecasts by assuming that business passenger numbers will:

- recover at a slower rate than leisure travel; and
- be reduced long term.

It has further assumed that average fares will increase to compensate airlines for the loss of revenue from higher-yielding business passengers.

2.28 We currently accept HAL's assumption on the long term reduction in business travel, but will keep this under review for Final Proposals as more evidence becomes available. However, we consider HAL's assumption on fares to be a too simplistic response to a complex question. In the long term, airlines must aim to be profitable and the loss of income from business travellers will need to be addressed. However, airlines will also maximise revenue from their assets, which could be achieved in a number of ways (including by seeking to increase the load factors on flights), and we are not persuaded at this stage that the overall combination of these factors will reduce passenger numbers.

2.29 We have amended this input so that the effect of fare increases due to reduced business travel is removed (but retaining the HAL assumption about the effect of carbon pricing). The effect of this on the final forecast is managed through the process described in "Heathrow market share constraints" below.

Supply capping

2.30 HAL has assumed that airlines will not be able to respond rapidly to returning passenger numbers with as much capacity as in 2019 because of the financial pressures facing them. We do not agree with this assessment, not least because fleet reductions are to some degree already taken account of in HAL's models (see "Fleet" below).

2.31 Furthermore, while airlines have suffered significant financial impacts since the start of the pandemic and have had to adapt to the evolving situation, they will want to make the most of returning demand and will likely look to meet as much of it as possible. When the application of the slot allocation rules resumes, there will be pressure on airlines to use or sell their slots. There is already evidence of new airlines[6] entering Heathrow, on both long and short haul markets.

2.32 Therefore, we have removed the supply capping for all reference scenarios apart from the low AR reference scenario which remains capped at between 80% and 85% of 2019 passenger levels during H7. For the AR scenario, we consider that severe challenges associated with the impact of the covid-19 pandemic could feasibly affect airline operations to the extent that it limits the amount of capacity that could be reinstated.

[6] Wideroe Airlines, Jazeera Airways, SKY Express, and Jet Blue have all launched services to/from Heathrow in summer 2021.

Fleet

2.33 HAL's forecasts include assumptions about retirements of B747s and A380s and the reduced usage of these aircraft at Heathrow, given that the impact of the covid-19 pandemic has accelerated aircraft retirement programmes, in particular for B747s. We understand that HAL has not validated these with airlines, rather it has taken fleet assumptions from its interpretation of information in the public domain.

2.34 HAL has assumed in all four reference scenarios that almost all airlines operating the B747 at Heathrow will not reinstate them. For the A380, HAL has assumed varying degrees of continued usage in the different reference scenarios, ranging from greater usage in the higher PUD scenario through to significant reductions in the lower AR scenario.

2.35 While we consider HAL's assumptions for the B747 to be reasonable, for the A380 (and with specific reference to the SB and GO scenarios), we observe that there are more airlines that appear committed to the aircraft than HAL has assumed. We consider HAL's assumptions for the A380 in the SB and GO scenarios to be pessimistic, and have amended the capacity in these scenarios to account for the continued use of the A380 by airlines that have indicated their commitment to the aircraft. For the higher PUD and lower AR reference scenarios, we have not made any changes.

Heathrow market share constraints

2.36 The outputs of HAL's SM and DM are consolidated through Heathrow's market share. HAL has advised that it expects[7] each market modelled in the forecast should sit between the 'trend' market share (based on 2012 to 2019), and the 2019 market share. Where they do not fall within this range, HAL typically applies manual adjustments to Heathrow passengers, ATMs or seats per ATM, that feed into the SM to ensure that they do.

2.37 We disagree with the assumption that Heathrow's market share should not exceed 2019 levels. Historical evidence shows that there is a strong inverse relationship between the size of Heathrow's market share and the overall volume of demand in the London market. This aligns with Heathrow's capacity constraints preventing an increase in traffic in line with the total market. The impact of the covid-19 pandemic has led to excess capacity at Heathrow and Heathrow's market share in 2020 has been greater than that in 2019.

2.38 We consider that, for direct markets[8], Heathrow's market share is more logically expressed as being proportional to the size of the overall London market as a "volume trended market share". We have not yet established a similar relationship for Heathrow's market share for transfer markets, but we will investigate this further in developing our Final Proposals.

[7] There are exceptions where market intelligence gives a good reason for Heathrow's market share being outside these levels.

[8] Except for the 'Domestic & Ireland' market which is greatly affected by the cessation of Flybe services from Heathrow.

2.39 For our Initial Proposals, after updating HAL's models to reflect our views on fares, fleets and supply capping, we have amended the forecast only for direct markets by replacing HAL's manual adjustments with those that ensure the SM forecast for the market falls between the 2019 market share and the volume trended market share.

Demand shocks

2.40 As noted above HAL has estimated demand shocks for the Q6 forecast based on the historical averages of demand shocks dating back to 1991. We have decided to use this as the basis for our Initial Proposals (as while it is difficult to predict the exact timing of such shocks they are likely enough to improve the accuracy of the forecast for the period), but to exclude pandemic risk because of its more exceptional nature and adjust for this as explained in Chapter 7.

2.41 We have used HAL's assumptions about demand shocks (excluding any adjustments for pandemic shocks), as given in the RBP. This is 1.07%. Chapter 1 explains our approach to TRS arrangements and how we have calibrated our approach to TRS to avoid any double counting with respect to this demand shock adjustment.

Combining and weighting of reference scenarios

2.42 We have considered HAL's approach to combining and weighting reference scenarios in assessing whether the probabilities used skew the forecasts to the downside. HAL's rationale for its combined/weighted method is that it produces the full range of outcomes and that every scenario plays into the likely outcome and as such should have an influence on the final P-values. HAL says that this produces a fair bet forecast.

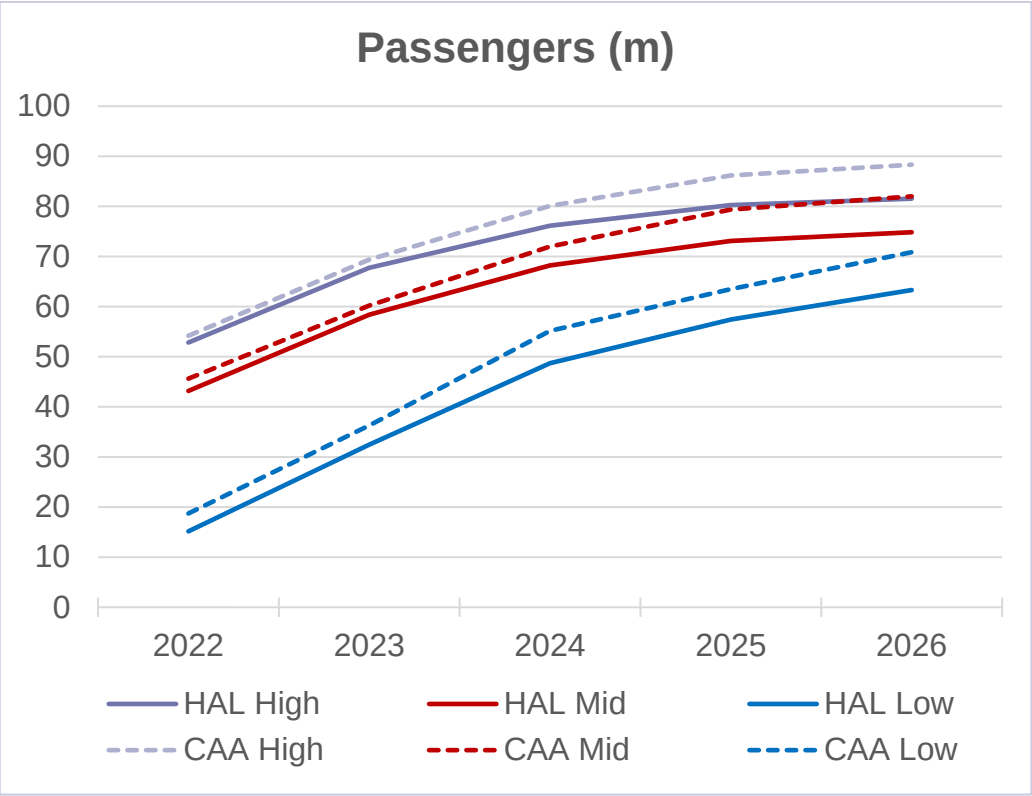
2.43 For our Initial Proposals, we have not made changes to this approach and have applied it in the same way as HAL. However, we intend to continue our review of the process ahead of making our Final Proposals and would welcome stakeholder views on these matters.

CAA's Initial Proposals passenger forecast

2.44 Taking account of the above factors should allow us to derive passenger forecasts that are consistent with our statutory duties as they properly reflect expected levels of demand and so allow the price control calculations and forecasts of casts to be based on the best available information. This should further the interests of consumers by ensuring that airport charges are no higher than is necessary, facilitate having appropriate regard to our financeability duty and ensure that the price control includes appropriate cost allowances to support HAL's provision of AOS.

2.45 Our Initial Proposal forecast scenarios for H7 are presented in Figure 2.4 and Table 2.1, together with comparisons against HAL's updated RBP forecast scenarios.

Figure 2.4: CAA Initial Proposals passenger forecasts compared with HAL updated RBP, H7



Source: CAA

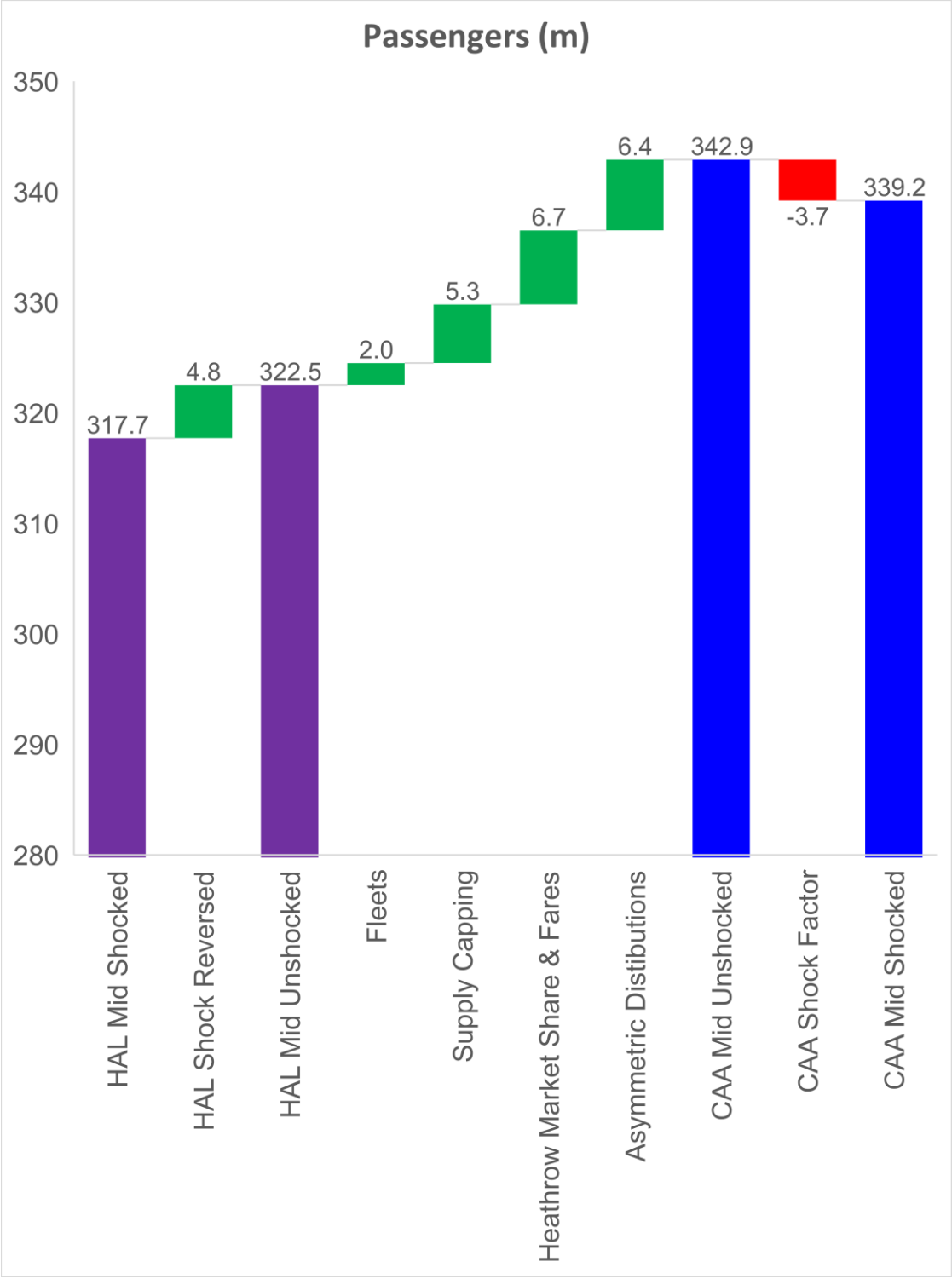
Table 2.1: CAA Initial Proposals passenger forecasts compared with HAL updated RBP, H7

	2022	2023	2024	2025	2026	H7 Total
HAL High	52.8	67.7	76.1	80.3	81.5	**358.5**
HAL Mid	43.2	58.4	68.2	73.1	74.8	**317.7**
HAL Low	15.2	32.4	48.7	57.4	63.3	**217.0**
CAA High	**54.2**	**69.4**	**80.1**	**86.2**	**88.3**	**378.1**
CAA Mid	**45.6**	**60.2**	**72.0**	**79.4**	**82.0**	**339.2**
CAA Low	**18.7**	**36.3**	**55.2**	**63.5**	**70.9**	**244.5**

Source: CAA

2.46 Figure 2.5 shows the estimated contribution of the adjustments we have made to HAL's updated RBP forecasts in order to arrive at our Initial Proposals passenger forecast. They are estimates as some of the assumptions interact and are, therefore, not mutually exclusive.

Figure 2.5: Breakdown of CAA Initial Proposals "mid" case passenger forecast, H7

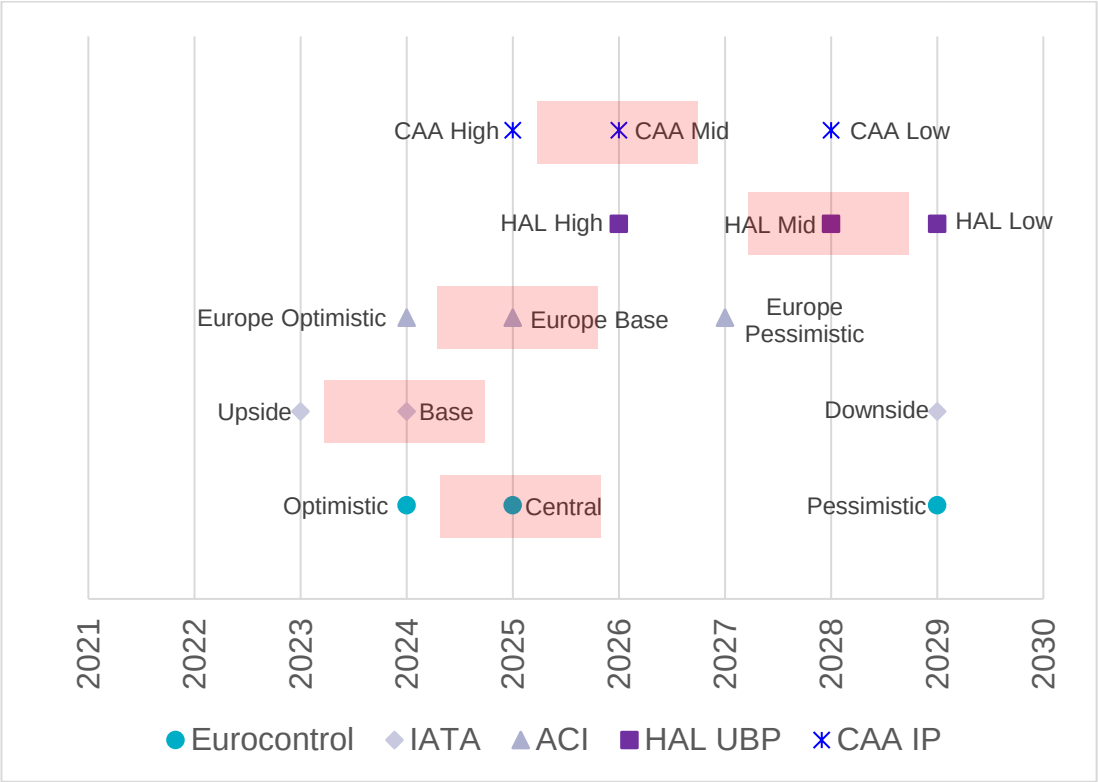


Source: CAA

2.47 Figure 2.6 shows the year of recovery to 2019 levels for our Initial Proposal forecasts compared with HAL's updated RBP and other industry forecasts. Our forecasts (including the "mid" case), are broadly in line with other industry views (ACI and Eurocontrol), and more optimistic than HAL's updated RBP. The International Air Transport Association's (IATA) latest update is more optimistic,

with a return to 2019 traffic levels two years earlier than the CAA. HAL's mid case is not expected to reach 2019 passenger levels until 2028.

Figure 2.6: Industry forecast comparison of year of recovery to 2019 passengers



Sources: CAA, Eurocontrol 4 year forecast May 2021, ACI forecast April 2021; IATA forecast April 2021; HAL updated RBP June 2021

Quality assurance

2.48 Skylark Consulting Group undertook an independent evaluation of our assessment of HAL's forecast and the approach we had taken to produce our forecasts for the Initial Proposals. In particular, it considered whether we had followed good practice and identified additional factors we may need to consider for Final Proposals.

~~2.49~~ Its report has been published alongside our Initial Proposals.[9] In summary, it found that our approach was reasonable and proportionate, and it agrees with the main forecast drivers. Skylark has highlighted areas for further investigation or challenge, and other relevant information we should consider. We will assess these issues as part of our work to develop Final Proposals.

[9] H7 Forecast Review [Passenger Forecasting], Skylark, October 2021 www.caa.co.uk/cap2266D

Next steps and implementation

2.50 The position in relation to covid-19 and the recovery from the pandemic has changed and evolved other the last two years and there remains significant uncertainty as to what will happen over the coming months.

2.51 If there is a significant change in the expected path of the recovery in the coming months, it will be important to take this into account in making our Final Proposals. Only in this way will we properly further the interests of consumers by ensuring that airport charges are no higher than is necessary, have robust forecasts that allow us to have appropriate regard to our financeability duty and ensure that the price control includes appropriate cost allowances to support HAL's provision of AOS.

2.52 We will continue to engage with stakeholders and build our knowledge and evidence base as we prepare our Final Proposals, including through:

- furthering our understanding of the HAL forecasting suite, with a particular emphasis on the issues identified in this chapter;
- ongoing monitoring the drivers of passenger demand and how they are evolving under the current circumstances. In particular, the impact of travel restrictions and requirements on consumer confidence and the pace of business travel recovery.

2.53 We also welcome the views of stakeholders on any of the issues raised in this chapter and will consider these carefully as part of our work to develop our Final Proposals.

2.54 Our passenger forecasts are central to the calculation of the price control set out in Chapter 11. They are also used in the calibration of the TRS arrangements set out in Chapter 1.

Chapter 3

Assessment of capital expenditure (capex)

Introduction

3.1 Capital expenditure (capex) is a key price control building block for H7 that we estimate when calculating the overall efficient cost of delivering airport operation services. Efficient investment through capex projects is required to deliver an appropriate level of service for consumers and allow for the safe and secure operation of the airport.

3.2 The starting point for this work is to set a "baseline" level of capex that we expect HAL to spend during the H7 price control. To ensure that we set this building block at a level that is appropriate to further the interests of consumers, we have:

- cross checked HAL's forecasts of its proposed capex; and
- where appropriate, produced an independent assessment of the efficient level of capex.

3.3 Taking this approach should support capex estimates for H7 that are properly evidenced and justified, support the safe and secure operation of the airport and support our assessment of the financeability of the price control (consistent with our financeability duty) as the level of capex, as reflected in airport charges, has an impact on HAL's prospective cash flow and financing requirements.

3.4 Setting an appropriate baseline level of capex is also central to:

- in conjunction with our proposals for capex incentives set out in Chapter 12 (which provide flexibility for capex to flex in response to changing circumstances), helping secure that HAL is able to meet the reasonable demands of consumers for AOS by enabling HAL to invest in the capex that supports consumers needs; and
- promoting economy and efficiency on the part of HAL, in the interests of consumers.

3.5 As such, setting a capex baseline is a core part of the discharge of our duty to further consumers' interests in relation to the range, availability, continuity, cost and quality of the AOS provided by HAL at Heathrow airport.

3.6 This chapter describes our approach to assessing the baseline efficient capex at Heathrow over the H7 period. It sets out:

- relevant background information and summarises the April 2021 Way Forward Document;

- a summary of stakeholder feedback to the April 2021 Way Forward Document and our views on that feedback;
- key features of HAL's updated capital plan, submitted in June 2021 as part of its updated RBP;
- the approach we have used to assess efficient capex;
- our estimates of efficient capex for our Initial Proposals; and
- our approach to quality assurance ("QA") for these estimates, next steps and implementation.

Background and the April 2021 Way Forward Document

Context: Q6 and the path to H7

3.7 During the Q6 price control period, HAL's capex was £3.2 billion.[10] This investment delivered several significant enhancements to HAL's assets, such as major upgrades to baggage handling systems, included some early development costs relating to expansion[11] and provided for asset maintenance and renewal.

3.8 HAL scaled back capex significantly and quickly in 2020 once the impact of the covid-19 pandemic became evident. HAL's capex during 2020 approximately halved from £296m[12] in the first six months[13] of 2020 to around £150m in the last six months, dropping further to £96m in the first six months of 2021.

3.9 HAL has said that, as a result, there is now a significant backlog in its Asset Management ("AM") activity compared to its original expectations for 2020 and 2021. Material reductions in capex have been seen at most airports since the start of the pandemic, including for comparable major hubs such as Charles De Gaulle (CdG) where the owner is expected to reduce capex in 2021 by around 30%.[14]

3.10 In developing its capital plan for H7, HAL has consulted airlines through its capex governance forums as well as the H7 engagement processes. In its December 2020 RBP, it proposed a capital plan for H7, the "central case" of which set out plans for total spending of £3.5billion (in 2018 prices).

The April 2021 Way Forward Document

3.11 The April 2021 Way Forward Document included both:

[10] In nominal prices. We assessed the efficiency of this expenditure during our *ex post* capex review, described in Appendix E of this document.

[11] The treatment of early expansion costs is discussed in Appendix F

[12] See link to Heathrow (SP) Limited, Results for the six months ended 30 June 2021

[13] i.e. the period 1 January – 30 June 2020, similarly the second half of the year was 1 July – 31 December 2020

[14] Compared to pre-pandemic levels of spend. The detailed analysis is presented in the Arcadis report.

- an initial assessment of HAL's RBP against the criteria set out in the June 2020 Consultation; and
- a summary of the steps we expected to take in developing our Initial Proposals.

3.12 We acknowledged that circumstances had generated a range of challenges for HAL in producing a robust capex plan, particularly the uncertainty associated with impact of the covid-19 pandemic. However, we explained how HAL's proposed capex plan did not meet any of the main criteria in the June 2020 Business Plan Guidance. As a result, we could not undertake a meaningful assessment of it because it lacked detail on how project budgets had been set, and on the work that HAL planned to undertake within each of the plan's strategic headings.

3.13 The April 2021 Way Forward Document also emphasised the importance of HAL providing compelling evidence in support of its estimate of core capex. In this light, we stated our intention (in parallel with HAL's development of its capital plan) to develop independent estimates of the likely level of efficient capex, taking account of the information provided by HAL, including at airport-airline governance groups. We also expected to build on the earlier work of our consultants, Arcadis, to ensure that credible independent estimates of efficient spending could be developed, in consultation with HAL and airlines.

3.14 We envisaged two broad options at that time for developing our Initial Proposals:

- to use evidence from HAL's updated H7 capex plan and assess this evidence to develop a set of capex estimates, taking account of wider information where appropriate; and
- to have a greater focus on an independent assessment and, so, to work with Arcadis to develop independent estimates of capex based on the information available from HAL, airlines' analysis, and existing information from capex governance forums. This analysis would aim to focus on the core level of capex required to maintain and operate the current airport infrastructure safely.

Stakeholders' views

3.15 HAL said that our assessment of its RBP capital plan failed to take into account its previous statements on the level of detail which would be available at the time of RBP publication, noting its extensive engagement with airline stakeholders. It also said that there was a misapprehension that airport capex should and will be set by the first day of H7, in contrast to the Q6 price control where the majority of capex spending was approved and agreed through the Q6 governance arrangements (specifically the "development to core" framework). In a similar vein, it said that CAA had misunderstood the current capex governance arrangements.

3.16 HAL stated that it intended to provide further details of its H7 capital plan in its updated RBP. It said that its plans for future airline engagement, and the detail to be provided in the updated RBP, showed that it was continuing to review and

refine its capital plan for H7 alongside the airline community, to ensure that it would deliver improvements and outcomes valued by consumers.

3.17 Airlines also considered that the RBP capital plan lacked the detail required, which led to difficulties in assessing its validity. They said that flexibility should be retained at the project level, particularly during the later years of H7, but also noted a lack of integration across other building blocks and expressed concern over justification of HAL's proposals.

3.18 They welcomed HAL's efforts to engage on developing the H7 capital plan, but said that progress had been limited. For example, airlines said that HAL had focussed on producing "one pagers" to summarise selected projects and programmes. While airlines described these as a useful tool for summarising information, they also said they were primarily statements of intent and did not sufficiently address the remaining key questions, including justifying levels of expenditure, nor did they set specific targets and measures.

3.19 Airlines suggested a structure for further engagement on the H7 capital plan. They also provided feedback on specific capex programmes such as the "Commercial Revenue" programme, which they did not support due to its apparently poor rate of return. They also said that:

- the H7 capital plan must be a response to agreed strategies, solutions and requirements with clearly defined cost benefit analyses; and
- the approach to an independent assessment that we set out in the April 2021 Way Forward Document was appropriate and they would be happy to work alongside us and our independent advisors in determining appropriate requirements for a capital plan that focused on maintaining the airports existing capabilities.

3.20 BA said that Heathrow's H7 capital plan was not well-defined, with little description of substantive deliverables or outcomes. As a result, BA said that there was limited substance to assess within those programmes. On that basis, it agreed with our statements that "the RBP capex plan lacks evidence and required detail" and that "the top-down capex plan does not provide a basis for setting a core capex allowance or baseline for H7."

Our views

3.21 We note HAL's comments on our assessment of its RBP capital plan. Determining an efficient forward-looking capex baseline for H7 (comprised of cost estimates for projects and programmes) that is based on the best available evidence is a key element of our overall H7 price control. Our assessment of the RBP capital plan took account of our expectations and understanding of the plan at that time, and our deep understanding of the current capex governance framework. While it is correct that many of the capex projects that will be delivered during H7 will not necessarily be fully developed when we set the H7 price control, this does not prevent the provision of compelling information on a substantial number of projects or the likely size of the overall programme.

3.22 As a result, we remain of the view that our assessment was reasonable and took account of our expectations and understanding of the plan at that time. We note

that HAL has developed its H7 capital plan since the RBP and our assessment of this updated plan is described later in this chapter.

3.23 We agree with airlines that:

- the H7 capital plan should be based on clearly articulated strategies, solutions and requirements, evidenced by clear cost benefit analysis consistent with good practice; and
- the “one pager” summaries provided by HAL, including the summaries submitted as part of its updated plan, are simply inadequate for the purposes of justifying a capital plan of over £4 billion over H7.

HAL’s updated RBP

3.24 HAL submitted its updated RBP, including a revised capital plan at the end of June 2021. The capital plan presented two scenarios based on the following three capex portfolios:

- "Protect the Business" (£2.5 billion total cost over H7);
- "Win the Recovery" (£1.3 billion); and
- "Build Back Better" (£0.3 billion).

3.25 The two resulting scenarios were:

- a "Safety Only Plan" which includes the Protect the Business (“PTB”) capex programmes only, at a total cost of £2.5 billion; and
- HAL’s preferred "Optimal Plan" (at a total cost of £4.2 billion), including all three portfolios, which it said would produce optimal outcomes for consumers.

3.26 HAL presented its “Optimal Plan” as consistent with both its “Mid” Case and “High” Case passenger forecasts, while it said that the “Safety Only Plan” was consistent with its “Low” Case.

3.27 HAL submitted several documents in support of its revised capital plan:

- a narrative plan with accompanying tables and graphs as part of the main body of its updated RBP;
- a spreadsheet for its “Capital Optimal Plan” including “Level 2 Detail”, which provided annual cost estimates for certain projects and programmes;
- an H7 “Asset Management Plan” (AM Plan), containing detailed cost estimates for individual projects by asset category; and
- “Programme Mandates”, which aimed to summarise key elements of particular projects or programmes on a single page (“one pagers”).

3.28 Table 3.1 below shows HAL’s estimates broken down by portfolio and by selected projects.

Table 3.1: HAL RBP Update 1 capex plan

£ million, 2018 prices		2022	2023	2024	2025	2026	H7 Total
Protect the Business	Asset Management & Compliance	235	309	314	317	325	1,500
	iH7 roll-over (KAD/TTS, T3/T4 ramp up)	63	19	-	-	-	82
	T2 Baggage (prolongation)	10	35	45	45	45	180
	Regulated Security	40	80	100	100	100	420
	Protect Efficiencies	10	25	25	20	20	100
	Protect Revenues	10	25	25	20	20	100
	Carbon – Airspace Modernisation	2	3	14	14	5	38
	Crossrail Contribution	39	39	-	-	-	78
Subtotal – Safety Only Plan		**409**	**535**	**523**	**516**	**515**	**2,498**
Win the Recovery	Security Compliance				100	130	230
	Security Transformation	10	30	75	10	5	130
	Commercial Revenues	10	70	160	170	190	600
	Efficient Airport	24	50	100	100	100	374
Build Back Better	T2 Baggage Solution				10	25	35
	Carbon, Sustainability				75	75	150
	Western Campus Connectivity & Efficiency				10	25	35
	Future Ready – Service, Resilience				50	65	115
Total Optimal Plan		**453**	**685**	**858**	**1,041**	**1,130**	**4,167**

Source: Heathrow

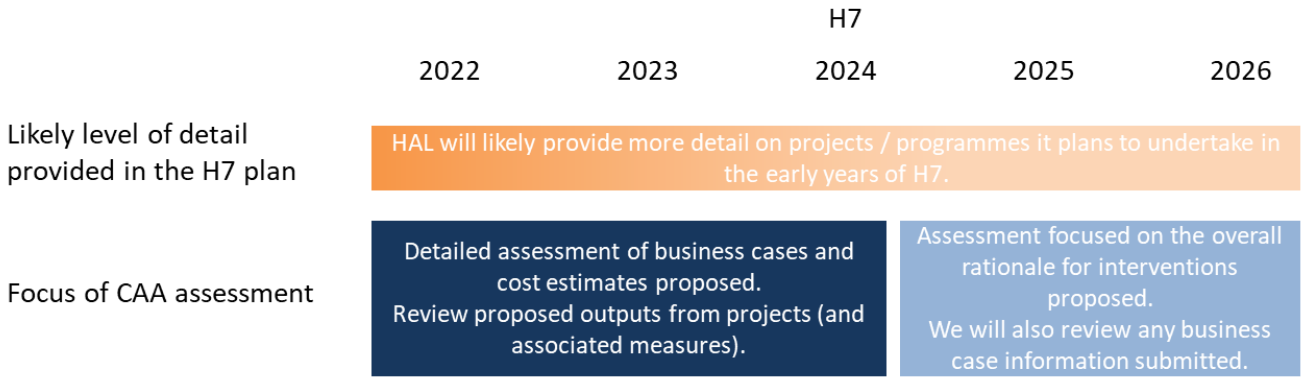
3.29 The total estimated cost of the "Optimal Plan" in the updated RBP is 20% higher than the RBP central case scenario, which HAL also used for its RBP "High" scenario. We have engaged with HAL on its updated RBP capex plan primarily through two bilateral meetings in August and September 2021. The airlines subsequently provided feedback on the updated BP capital plan as their "Airline Comments on the HAL RBP Update 1 Capital Plan", dated 1 September 2021.

Our approach

3.30 Our approach to assessing HAL's capex and developing estimates of efficient capex for H7 builds on good practice in assessing capex in the regulated sectors and, in particular, in the transport sector. We have worked collaboratively with stakeholders and our expert advisors Arcadis to produce appropriate estimates of capex for these Initial Proposals. This has entailed bottom-up assessment of efficient costs for projects and programmes, primarily through analysing the basis for disaggregated costs by project/programme and appropriate supporting evidence provided by HAL, but also taking account of the feedback from other stakeholders.

3.31 The diagram below provides a summary of our overall approach for assessing HAL's updated capex plan.

Figure 3.1: Our overall approach to assessing capex



Source: CAA

3.32 At a high-level, our approach has been to undertake a detailed assessment of any elements of the plan that were sufficiently well developed, particularly those in the Protect the Business portfolio (such as the AM spend). Our primary objective is to establish estimates of costs for an efficient baseline for capex for H7, based on those projects delivering outputs which are essential to operating and maintaining the airport infrastructure at Heathrow, and ensuring the safety and security of consumers through compliance with relevant standards.

3.33 For more discretionary elements of the plan, such as those included in the Win the Recovery and Build Back Better portfolios, which were likely to be less developed and have less mature cost estimates, we focussed our efforts on understanding whether HAL has made the case for the programmes in terms of the potential benefits they would bring.

Assessment of HAL's updated RBP

3.34 We recognise the challenges faced by HAL as a result of the impact of the covid-19 pandemic. Nonetheless, having taken account of this difficult context and noting the importance of evidence submitted by HAL, we consider that both the quality and depth of evidence supplied by HAL in its updated RBP are generally poor for this stage in the price control process. For example, very limited evidence has been provided across all projects and programmes on how costs are built up, the required business case analysis including quantified benefits delivered, or the basis for cost estimates. In particular, we consider that the updated RBP evidence base is weak noting:

- the scale of planned investment during H7, which is significantly higher (around 20% higher) than for Q6; and
- the level of evidence previously submitted by HAL at a similar stage in previous price control processes, and the evidence typically produced by other comparable infrastructure operators in the transport sector including Gatwick, Network Rail and HS1.

3.35 One specific area where HAL's evidence is particularly weak is HAL's AM Plan, which comprises a cost breakdown for AM projects, contains estimates which are inconsistent with the rest of the capex plan, and is not clearly integrated with the rest of the capex plan.

3.36 This lack of robust evidence described above has severely constrained our ability to fully implement our preferred approach. In particular, the evidence base does not contain sufficient detail on the build-up of costs to allow us to produce robust bottom-up estimates for any of the programmes or projects in the updated RBP. As a result, we have taken a top-down approach to our Initial Proposals for capex.

Developing our Initial Proposals

3.37 We have developed our assessment of capex in close collaboration with our expert advisors, Arcadis, whose report is published alongside these Initial Proposals.[15] Arcadis has provided advice on implementing our approach, and also provided comparative analysis which supports our approach, and our resulting estimates of capex. For example, Arcadis assessed normalised historical asset replacement and refurbishment rates of expenditure since 2014 and, also, compared these against other relevant hub airports, such as CdG.

3.38 Our forecasts were also produced in conjunction with the work we are undertaking in relation to operating costs and OBR, with the intention of establishing cost estimates and an approach to the quality of service that is consistent with HAL delivering for consumers and operating its infrastructure safely, securely and effectively.

[15] HAL RBP Update - Capex Plan Review, Arcadis, October 2021 www.caa.co.uk/cap2266B

3.39 We also took into account further feedback from airlines,[16] who said that additional projects or programmes that HAL outlined in the "Win the Recovery" and "Build Back Better" categories should only proceed if airlines agreed that the time was right for that spend, because it was clear that passenger numbers were recovering significantly faster than HAL had forecast.

3.40 Using the evidence in the updated RBP and other stakeholder evidence, we have developed estimates for three scenarios as follows:

- "Mid" Case: this scenario is largely similar to HAL's "Safety Only" Plan. We accept that the overwhelming majority of outputs to be delivered by this portfolio are likely to be required in H7 but we have removed costs for unevidenced iH7 roll-over projects, and the "Protect Efficiency" and "Protect Revenue" allocations, for which HAL has provided minimal evidence;
- our "Low" Case includes only committed projects in the "Protect the Business" portfolio which have a clearly defined scope and outputs, including essential security and AM capex, the committed Crossrail contribution and a committed iH7 project (T5 TTS) which we understand has been approved by airlines through agreed governance forums;
- our "High" Case includes all projects in the "Mid" case and additional "Win the Recovery" projects related to Security, as we note that the additional outputs delivered by these security-related projects may be required in H7. Nonetheless, we currently do not have sufficient evidence from HAL or other sources to support any security-related capex beyond that set out in the "Safety Only" plan. We will seek further evidence on any further critical security-related projects in advance of developing our Final Proposals. As explained below our approach to capex incentives and the "development to core" framework would also allow for any further necessary spending.

Quality assurance and relationship to capex incentives

3.41 Our approach to producing estimates of capex has been supported by and peer reviewed by Arcadis, who also provided information and assessment of industry comparators and benchmarks.

3.42 The estimates of capex that we will produce for our Final Proposals are important to calibrating the H7 price control and testing the financeability of the regulatory framework. In addition, the airport/airline framework for capex governance and our approach to capex incentives (discussed in more detail in Chapter 12) should provide additional assurance to consumers and airlines that the regulatory framework will allow sufficient capital spending by HAL such that it is able to meet the reasonable demands of airport users for AOS at Heathrow. An important element of this framework is that, we will retain the core and development framework for capex, to allow additional projects to be developed and approved during the course of the H7 price control. We will also provide for a

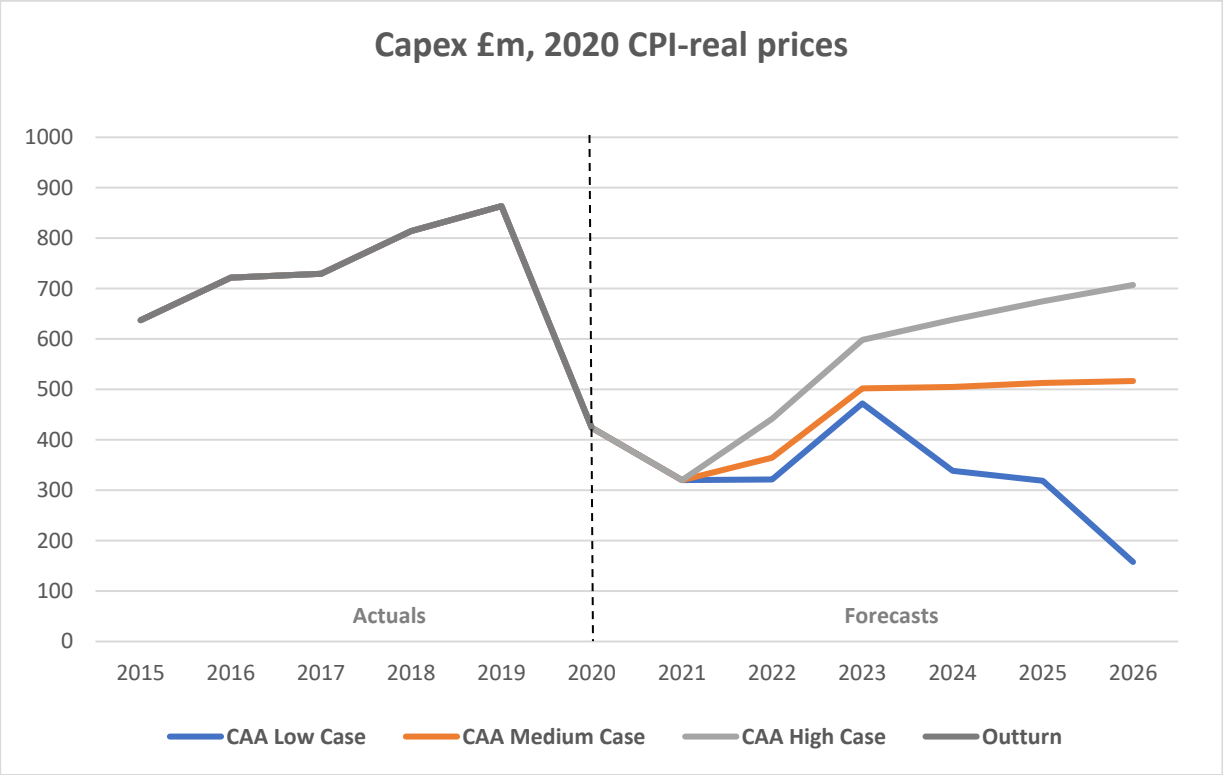
[16] That feedback is published alongside this document

new process as part of our capex incentives framework that allows for the broad level of capex spending to be adjusted within the price control period.

Initial Proposals

3.43 We have taken account of all the above in developing our Initial Proposals to further the interests of consumers in the matters discussed in paragraphs 3.1 to 3.5 above. The resulting capex estimates for our Initial Proposals for H7 are presented in Figure 3.2, together with historical capex spending.

Figure 3.2: CAA IP capex estimates for all scenarios, H7



Source: CAA analysis including using HAL data.

3.44 Table 3.2 below shows these Initial Proposal estimates by year, compared to HAL's two scenarios – the "Safety Only Plan" and "Optimal Plan" scenario. The table shows that our CAA "Mid" Case is 8% below HAL's "Safety Only Plan".

Table 3.2: CAA IP capex estimates, compared to HAL's scenarios

£m (2020p)	2022	2023	2024	2025	2026	Total H7
High	442	598	638	675	707	3,060
Mid	365	502	505	513	517	2,401
Low	322	472	338	318	158	1,608
HAL "Optimal Plan"	478	725	916	1122	1229	4,470

HAL "Safety Only Plan"	431	567	558	556	560	2,672

Source: CAA analysis

Next steps and implementation

3.45 We welcome the views of stakeholders on any of the issues raised in this chapter and will consider these carefully as part of our work to develop our Final Proposals.

3.46 We will also continue to build on our capex knowledge and evidence base as we prepare Final Proposals. In particular, we intend to develop our Initial Proposals in two ways:

- through further engagement with HAL and airlines (as a key stakeholder) to understand and assess the H7 capex plan as it develops further over the coming months, including engagement through existing capex governance forums; and
- refining the capex estimates set in this chapter, which we hope HAL will support by providing improved (more detailed and more robust) information on its capex plans. We will also work further with our technical advisors and consider whether there is merit in them, working closely with HAL as appropriate, to carry out focused deep dive assessments of HAL's current and emerging AM plans (and other committed projects), especially HAL's plans for 2022 and 2023.

3.47 Our capex estimates are used in the calculation of the price control (summarised in Chapter 11 and our assessment the financeability of the the price control. As explained above and in Chapter 12 on capex incentives, the regulatory framework is also sufficiently flexible to allow changes in the efficienct level of capex in response to changes in circumstances that may emerge during the course of the H7 price control period.

Chapter 4

Operating expenditure

Introduction

4.1 The allowance that we make for HAL's operating expenditure ("opex") in calculating the H7 price control is a key building block in the calculation of airport charges. HAL's average opex over the Q6 period was about £1.2 billion each year (2018 prices). Opex comprises of a number of components including security, staff costs, maintenance, facilities, utilities, rent and rates.

4.2 Setting an appropriate allowance for opex furthers the interests of consumers by ensuring that airport charges are calculated by reference only to an efficient level of costs and also:

- helps secures that HAL is able to finance its opex activities at the airport;
- in so doing, secures that users' reasonable demands for AOS at Heathrow are met, insofar as they relate to demands supported by opex; and
- promotes economy and efficiency on the part of HAL in its provision of AOS.

4.3 We set an allowance for opex at the start of the control period. If HAL is able to operate the airport incurring less opex than this amount then it is able to retain the difference (other things being equal). Conversely, if HAL incurs more opex than our allowance, it must fund the shortfall (other things being equal) until prices are reset at the next regulatory review. This approach provides a strong incentive on HAL to deliver services efficiently thus furthering the interests of consumers and promotes efficiency and economy.

4.4 This chapter sets out:

- further background information and summarises what we said about our assessment of opex in the April 2021 Way Forward Document;
- a summary of stakeholders' views, including a description of the opex projections included in HAL's updated RBP;
- explains our assessment of opex, including the work we have done together with our consultants (CEPA/Taylor Airey);
- our Initial Proposals for H7 opex; and
- next steps and implementation issues.

Background and the April 2021 Way Forward Document

4.5 Over the course of Q6, HAL was able to reduce its opex base in real terms from £1.3bn in 2014 to £1.2bn in 2019 (2018 prices). HAL has told us that this was

driven by reductions in people costs, savings in supplier costs and facilities operations, reduced utility costs and saving through investment in infrastructure such as automation, e-boarding gates and self-service bag drops.

4.6 As the extent of the impact of the covid-19 pandemic became apparent over 2020, HAL took a number of further steps to reduce its opex including by:

- consolidating operations, for example, into fewer terminals;
- further reducing staff costs;
- renegotiating contracts with suppliers; and
- stopping some activity.

4.7 HAL has said that these actions enabled it to save around £260m of opex from 2019 to 2020.

The April 2021 Way Forward Document

4.8 Our initial, high level, assessment of HAL's opex projections in its RBP was included in the April 2021 Way Forward Document. We noted that HAL had taken a relatively simple, top-down approach to forecasting opex for the H7 period. We said that, while the modelling approach used was clear, in many areas HAL had not provided sufficient evidence to justify its key forecasting assumptions and some items had not been adequately explained.

4.9 We said that we expected to see additional disaggregated analysis to allow us to understand better what HAL is proposing to deliver during the H7 period and provide more detail of how opex links to other aspects of its business plan.

4.10 We also outlined airlines' views on HAL's RBP opex projections[17] which, among things, included suggestions that HAL had:

- relied too heavily on top-down analysis;
- failed to capture all of the structural cost savings that HAL has achieved through its response to the covid-19 pandemic;
- excluded some known cost reductions discussed with airlines during CE that are either in progress, or are within HAL's control;
- overestimated cost pressures such as insurance and input prices, which should be largely controllable;
- inappropriately included significant pension deficit repair costs for the duration of H7 that airlines consider consumers should not bear; and
- included unsupported cost overlays related to enhanced service, the impact of the covid-19 pandemic and surface access.

[17] Airlines commissioned PA Consulting to examine HAL's RBP opex projections.

Stakeholders' views

4.11 In response to the April 2021 Way Forward Document, HAL disagreed with some aspects of our assessment as well as what we said it should include in its updated RBP. HAL said that:

- the top-down approach to forecasting remains appropriate, its method is able to accurately forecast overall opex even in the context of the unprecedented shock of covid-19 and that it had confidence that its method can accurately forecast costs through the recovery period;
- it did not agree with several of the issues that airlines raised, for example, in relation to pension costs and efficiencies for some capital programmes;
- it had provided appropriate justification and evidence to support key modelling assumptions including selecting 2019 as an efficient base year and the cost overlays it had proposed; and
- it had considered whether the sequencing of some of its key forecasting assumptions could create risks of double counting or exclusions and concluded that these were not significant issues in the context of its overall opex projections.

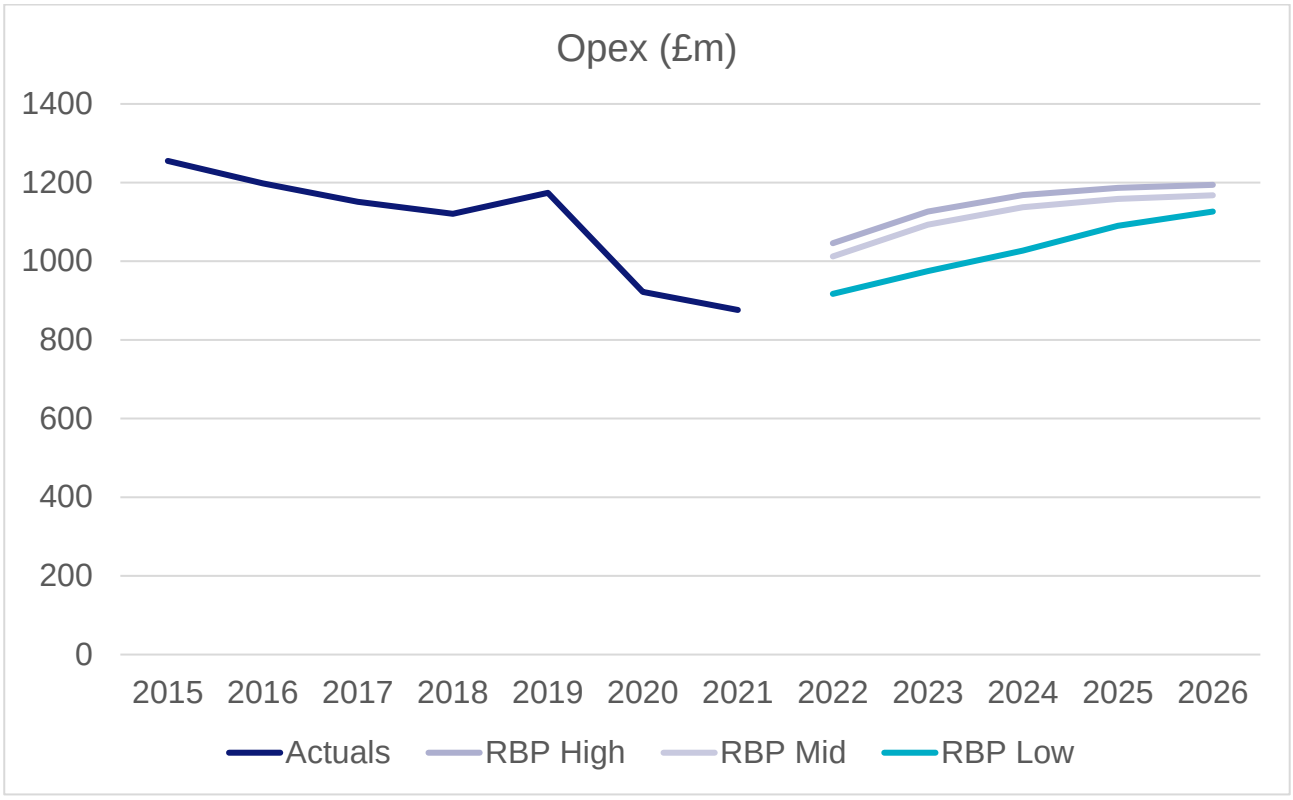
4.12 HAL also said that our proposal to use bottom-up analysis to assess opex forecasts contradicts what we had said in the June 2020 Consultation.

4.13 Airlines said they broadly agreed with our assessment of HAL's RBP opex projections, our requirements for HAL's updated RBP, and they supported our approach to appoint a consultant to review HAL's opex projections. Airlines also said that they expected to see stronger links with other building blocks including HAL's capex plan and passenger forecast scenarios.

HAL's updated RBP

4.14 HAL's latest opex forecasts from its updated RBP are shown in Figure 4.1 below.

Figure 4.1: Updated RBP opex forecasts compared to 2015-2019 (2018 RPI deflated prices)



Source: HAL Regulatory Accounts, HAL updated RBP

Note: 2021 data is forecast

4.15 Further details of HAL's opex forecasts, based on its RBP Mid case passenger forecasts, are set out in Table 4.1 below. In summary, HAL has forecast average annual opex of £1,114 million over H7 compared to average opex of £1,180 million during Q6 from 2015-2019 (2018 prices). Given the lower passenger numbers it expects, HAL has projected average opex per passenger in H7 of £18.21 compared to £14.51 in 2019.

Table 4.1: Updated RBP Mid opex forecasts (£m, 2018 RPI deflated prices)

HAL updated RBP Mid forecast	2022	2023	2024	2025	2026	H7 Total
People	266	301	320	329	333	1550
Operational costs incl. insurance	266	286	297	302	306	1456
Facilities maintenance costs	162	170	176	176	176	859
Rates costs	115	115	115	115	115	573
Utility costs incl. distribution contract	80	87	88	88	89	432
General expenses incl. consultants & marketing, gen ex & interco	105	114	119	123	124	584
Surface access initiatives	9	10	12	15	15	61
Overlays	10	10	11	11	11	53
Total	**1012**	**1093**	**1137**	**1159**	**1168**	**5569**
Total per passenger	**24.36**	**19.44**	**17.32**	**16.46**	**16.21**	**18.21**

Source: HAL updated RBP

4.16 Over the course of the H7 period, HAL is projecting that opex will increase in each year from 2021 and return close to 2019 levels by 2026, despite passenger numbers in HAL's modelling being lower than in 2019.

4.17 HAL made some changes to its opex forecasting approach in response to CAA and airline feedback on its RBP. However, the updated RBP maintained that higher operating costs per passenger are necessary for H7, compared to the previous regulatory period, because:

- in its view cost savings achieved in 2020 are largely temporary and will not be sustained in H7;
- passenger numbers remain lower than 2019 levels, but because it has a largely fixed operating cost base[18], the same costs will be shared between fewer passengers creating upward pressure on operating costs per passenger;
- the impact of the covid-19 pandemic has led to a significant increase in the per passenger cost of service (such as additional hygiene requirements, colleagues to provide additional assistance, social distancing requirements) which HAL says is likely to persist through H7; and
- because it has already achieved opex efficiencies during Q6 and is at the efficiency frontier according to its benchmarking analysis, only further capital investment in automation and security transformation can reduce operating costs during H7.

[18] HAL said that before covid-19, 94% of airport costs were fixed or semi-fixed, RBP update, chapter 5.4 page 6.

4.18 HAL has continued to use a top-down approach to forecast opex. This approach takes 2019 as the base year, from which it:

- projects forward using high level cost drivers which estimate changes in elements of opex such as passenger volumes or other cost drivers; and
- includes several modelling "cost overlays" that it says are necessary to account for additional structural changes in operating costs which cannot be accounted for using the top-down cost drivers, such as the impact of the covid-19 pandemic or additional costs for enhanced services during H7.

4.19 HAL maintains that this top-down driver-based forecasting approach has several advantages, for example it is adaptable to different passenger growth scenarios and provides transparency.

4.20 Other key elements of HAL's proposal for opex include:

- people costs have been forecast assuming an elasticity of 0.39 to passenger numbers;
- the impact of changes in terminal use (as a result of the impact of the covid-19 pandemic) has been reflected in HAL's forecasts of people, operational, facilities and maintenance and utility costs;
- insurance costs are assumed to increase by 10% per annum due to increasing premiums;
- an allowance for input price inflation has been included where HAL considers that certain increases in input costs (above the standard economy wide measure of inflation) are outside of its control[19]; and
- ongoing efficiency is assumed to be 1.2% per annum[20] which HAL says is contingent on the approval of its £4.2bn capex plan which it states includes projects that will deliver opex efficiency.

4.21 In response to HAL's updated RBP, airlines have said they consider HAL's opex forecasts for the H7 period to be unduly pessimistic and there is greater scope for cost reduction.

Our approach to assessing opex and Initial Proposals

4.22 As noted in the introduction we are seeking to further consumers' interests and have regard to the need to promote economy and efficiency on the part of HAL by assessing HAL's forecasts and reaching an independent view of an efficient level of opex. Such an approach is not straightforward to implement, particularly given the uncertainties created by the impact of the covid-19 pandemic.

[19] HAL also considered input price inflation below economy wide inflation for certain input costs.

[20] HAL states that this assumption is based on capital efficiency 1.1% plus frontier shift 0.1%, HAL's RBP update, chapter 5.4, page 15.

4.23 The April 2021 Way Forward Document explained that our preferred approach to estimating opex would entail some degree of "bottom-up" assessment for each element together with a "top-down" overview. These approaches would provide a sense check and facilitate a qualitative assessment of trends over time and, ideally, be supported by relevant comparator and benchmarking information.

4.24 We consider that HAL has provided a reasonable level of detail on opex in its updated RBP and this has been an improvement from the level of information included in the RBP and earlier IBP. This means that the updated RBP contains sufficient detail to enable a certain degree of bottom-up assessment of opex for H7.

4.25 We noted in the April 2021 Way Forward Document that we intended to commission expert advice to support our assessment of HAL's projections. We therefore commissioned advisors CEPA/Taylor Airey to work with us on the assessment of HAL's opex.

CEPA/Taylor Airey study

4.26 We asked CEPA/Taylor Airey to work closely with us to:

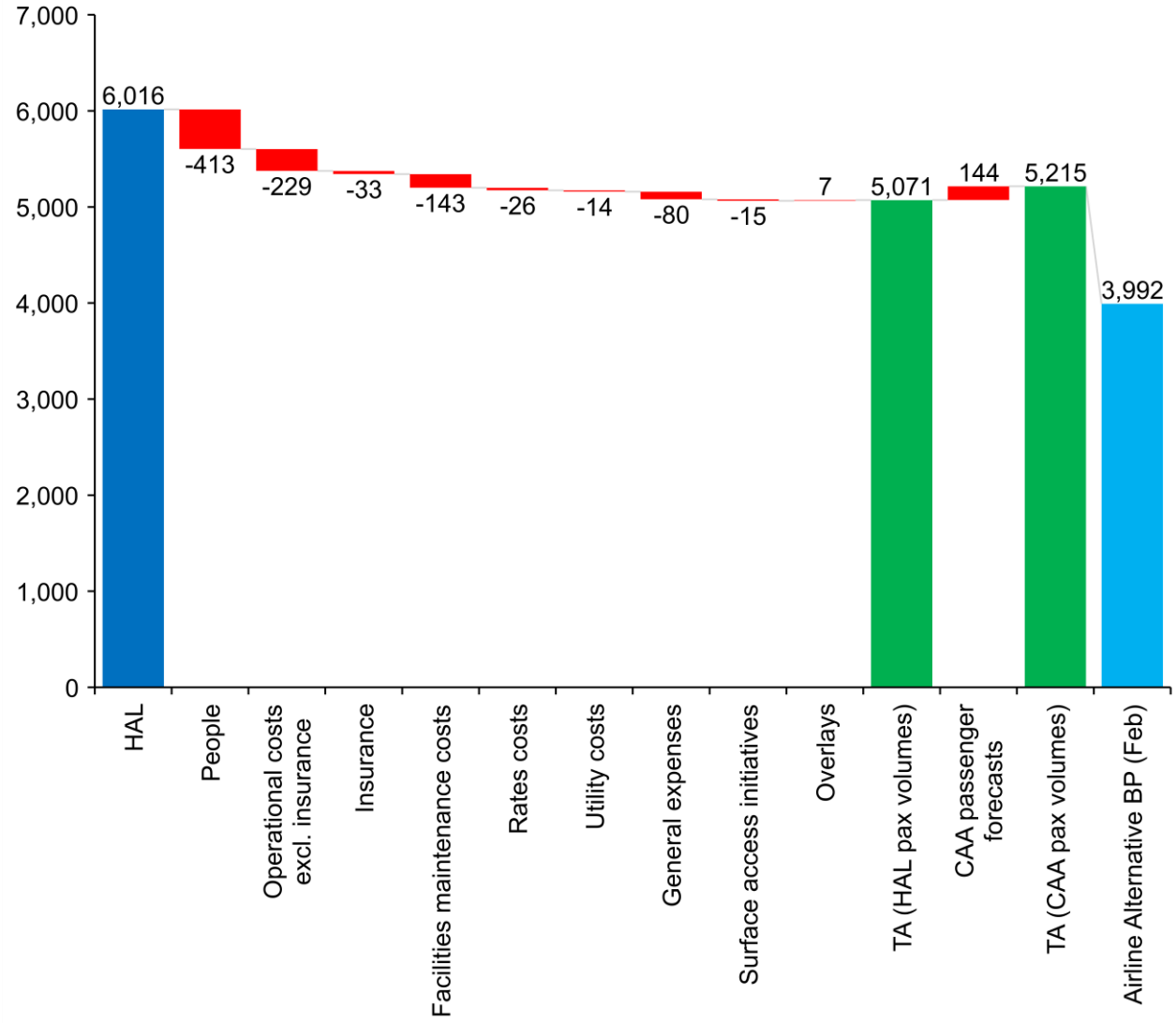
- review HAL's various opex forecasts, focusing on the most recent update provided in the updated RBP;
- gather relevant evidence such as comparators and benchmarks to support our assessment;
- where appropriate, challenge the evidence base underpinning HAL's forecasting assumptions; and
- develop an alternative set of assumptions to derive a view of the efficient level of opex for HAL over the H7 period.

4.27 In carrying our their assessment, CEPA/Taylor Airey relied mainly on HAL's top-down forecasting approach to develop a view of efficient opex, making changes to HAL's forecasting assumptions where they considered these were required.

4.28 Full details of this assessment are set out in the CEPA/Taylor Airey Report.[21] Figure 4.2 has been taken from the CEPA/Taylor Airey report and shows their view of an appropriate level of opex for H7, compared to HAL and airline forecasts of opex in 2020 CPI deflated prices.

Figure 4.2: Overview of HAL, CEPA/Taylor Airey and Airlines' Alternative Business Plan (ABP) view of H7 opex (£m, 2020 CPI deflated prices)

[21] Review of H7 Opex and Commercial Revenues: Initial Assessment and Forecasts, CEPA Taylor Airey, September 2021 www.caa.co.uk/cap2266A

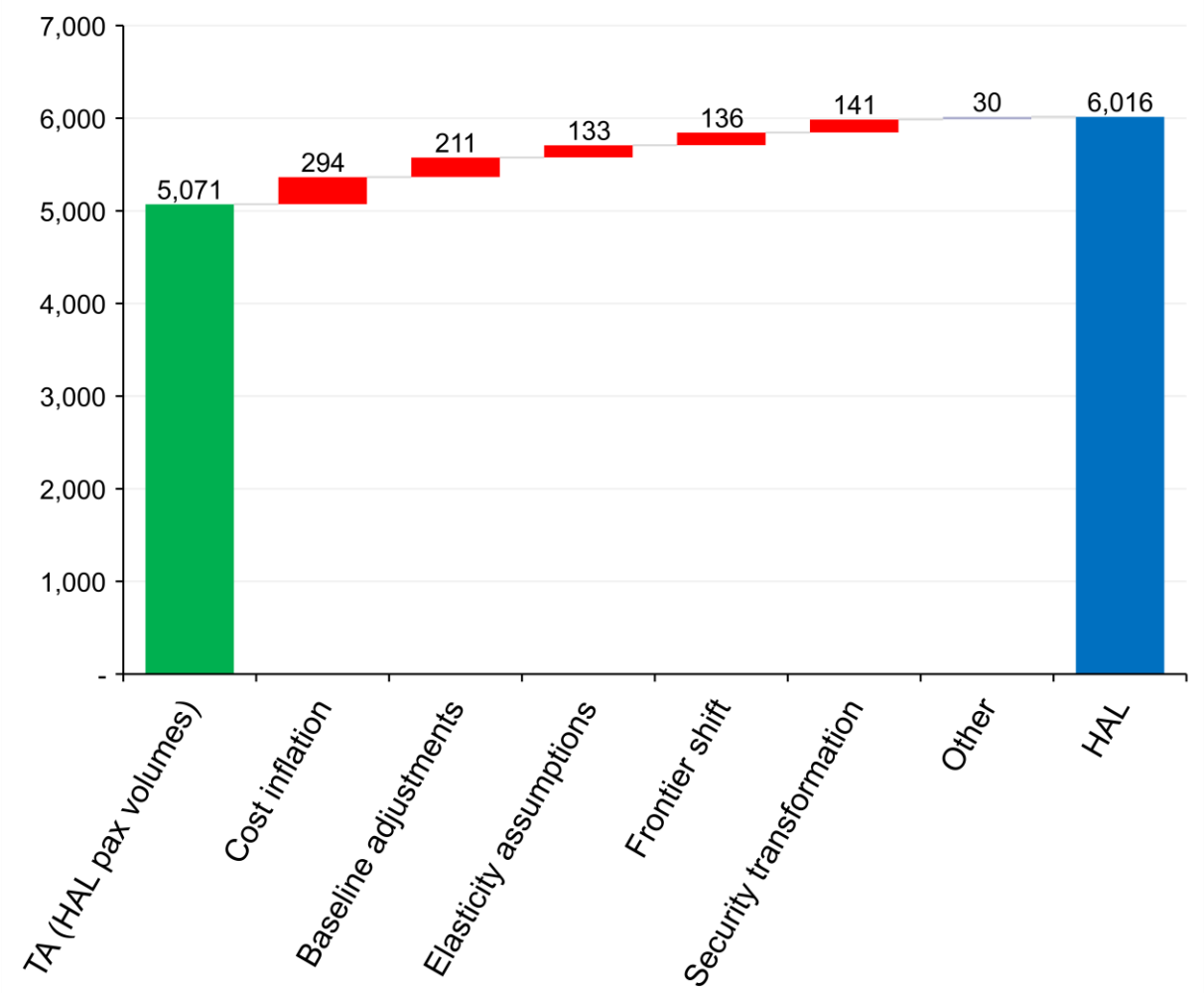


Source: CEPA/Taylor Airey analysis

Note: excludes pension deficit repair costs

4.29 Over the five years of the H7 period, CEPA/Taylor Airey project that HAL's opex would be £801m lower than HAL's forecast, a difference of around 13%. Figure 4.3, based on estimates in the CEPA/Taylor Airey report, summarises the key areas of HAL's forecasts where CEPA/Taylor Airey arrived at a different view.

Figure 4.3: Largest differences in CEPA/TA's alternate opex forecasts compared to HAL's view (£m, 2020 CPI deflated prices)



Source: CEPA/Taylor Airey analysis

Note: excludes pension deficit repair costs

4.30 In developing their forecasts CEPA/Taylor Airey:

- assumed that cost inflation will increase with CPI, rather than RPI and made fewer real price effects adjustments than HAL;
- made an adjustment to the 2019 base year (the baseline) to better represent their view of an efficient starting point on the basis they did not agree that HAL's 2019 opex performance represents frontier efficiency;
- agreed that some of the opex reductions in 2020 will be temporary but considered that some of HAL's pandemic-related efficiency measures can be carried forward to H7. For example, benefits from structural organisational changes and revised contracts would be expected to be retained during H7 regardless of future passenger volume growth;
- proposed that the ongoing efficiency challenge for H7 should not be linked to the size of the capital plan;

- developed detailed modelling for operational and non-operational staff costs to challenge HAL's proposed elasticity assumptions, which were not supported by the evidence, and assumed that security transformation will have a significant benefit on people costs; and
- assumed a different level of opex for the modelling cost overlays because HAL either did not provide sufficient evidence to support the level of additional costs, or provide assurance that costs included in the overlays did not overlap with business as usual activities accounted for elsewhere in HAL's forecasts.

Table 4.2: CEPA/Taylor Airey view of opex forecasts (£m, 2020 CPI deflated prices)

CEPA/Taylor Airey Mid forecast	2022	2023	2024	2025	2026	H7 Total
People	242	258	269	268	263	1300
Operational costs incl. insurance	237	263	280	288	289	1358
Facilities maintenance costs	145	157	166	172	174	814
Rates costs	119	119	119	119	119	593
Utility costs incl. distribution contract	85	92	94	95	97	465
General expenses incl. consultants & marketing, gen ex & interco	103	111	117	120	120	571
Surface access initiatives	9	9	10	12	11	51
Other overlays	18	16	13	10	7	64
Total	**958**	**1023**	**1067**	**1084**	**1082**	**5215**
Total per passenger	**21.00**	**16.99**	**14.83**	**13.66**	**13.20**	**15.37**

Source: CEPA/Taylor Airey analysis

Initial Proposals

4.31 We are publishing the CEPA/Taylor Airey report alongside these Initial Proposals and welcome input from all stakeholders on the key issues raised by it. We will be discussing the findings in detail with HAL and airlines ahead of our Final Proposals. In the meantime, we have used the findings from the CEPA/Taylor Airey review and information from HAL's updated RBP to inform these Initial Proposals.

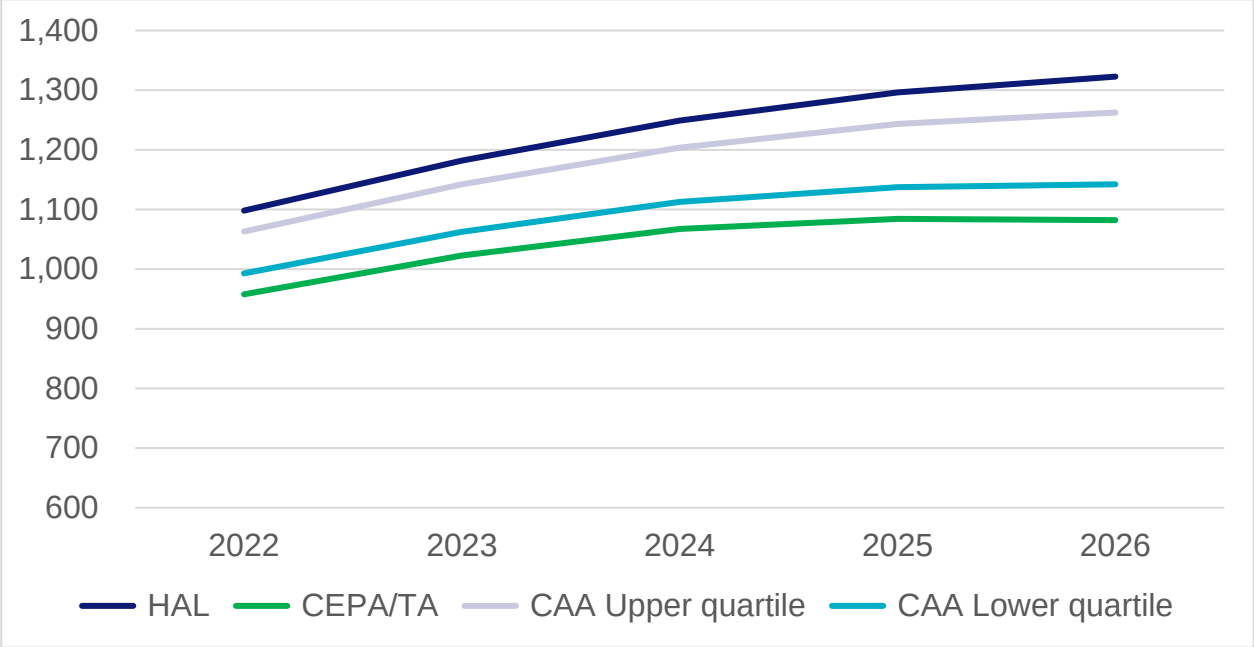
4.32 For the purpose of modelling our price control for Initial Proposals, we have developed ranges based on two scenarios. We have described these two scenarios as lower and upper quartile forecasts.

4.33 For opex we have created these two scenarios by defining a range based on:

- a "ceiling" of the opex estimates from HAL's updated RBP, scaled to CAA "mid case" passenger forecasts; and
- a "floor" of the CEPA/Taylor Airey "mid case" scenario, as described in this chapter.

4.34 We have assessed the upper end of our range (or upper quartile) as 75% of the way from the floor to the ceiling. The lower end (or lower quartile) of our range is 25% of the way from the floor to the ceiling as set out in Figure 4.4 below.

Figure 4.4: Summary of HAL, CEPA/TA and CAA Upper and lower opex projections (£m, 2020 CPI deflated prices)



Source: HAL updated RBP, CEPA/Taylor Airey analysis and CAA analysis

Note: excludes pension deficit repair costs

4.35 Our upper quartile scenario estimates that opex will increase from £1,063 million in 2022 to £1,263 million in 2026. Our lower quartile scenario estimates that opex will increase from £993 million in 2022 to £1,142 million in 2026.

4.36 The upper quartile of our range (including the impact of using our passenger forecasts for the H7 period) is around 4% lower than HAL's proposed opex while the lower quartile is around 11% lower over H7 as a whole.

4.37 We consider that the approach that we have set out above should support us in establishing an H7 opex allowance that provides HAL with sufficient funding under the price control to support an efficient level of operating costs. This will promote consumers' interests directly in relation to the costs they face, but also:

- secures that HAL is able to finance its opex activities at the airport;
- secure that users' reasonable demands for AOS at Heathrow care met, insofar as they relate to demands supported by opex; and
- promote economy and efficiency on the part of HAL in its provision of AOS by incentivising it to optimise its opex.

Other opex issues

Business rates

4.38 As discussed in Chapter 13, we are proposing to retain the existing 80/20 cost sharing arrangement for business rates so that HAL retains an efficiency incentive, including in relation to any negotiations on revaluation with the

Valuation Office Agency. These arrangements also mean that, if our forecast business rates turn out to be different following the rates revaluation, the difference in costs will be partially passed through to consumers.

Pension deficit repair costs

4.39 HAL has proposed that it should be allowed to recover between £20 and £25 million (nominal) a year of pension deficit repair costs[22] during H7, an approach which HAL considers is consistent with our previous decision on these matters.

4.40 As part of our Q6 determination, we decided that efficient pension deficit repair costs should be included in HAL's opex allowance, consistent with the policy principle that consumers pay for deficits and benefit from surpluses.[23]

4.41 We note airline views that HAL has included significant pension deficit repair costs for the duration of H7 which airlines consider consumers should not bear. Given the longer-term nature of pension deficit repair costs, we are of the view that there are advantages in consistent treatment over time.

4.42 We note that HAL carried out two Defined Benefit (DB) pension scheme assessments in Q6 in September 2015 and September 2018. As we understand that these assessments are undertaken in a three-year cycle and, as at October 2021, we expect that a new valuation should take place soon. In its updated RBP, HAL said that it is considering options for treatment of its DB scheme for H7 and will provide an update on this work in its second updated RBP. Our expectation is, therefore, for HAL to carry out an actuarial valuation to identify the amount of any further pension deficit repair costs in H7 in its second updated RBP. The September 2018 valuation submitted alongside the RBP forecasted that the deficit will be closed in September 2022.[24] Therefore, we expect additional evidence from HAL on why it has maintained a deficit of between £20 and £25 million (nominal) per annum throughout H7 in its updated RBP.

4.43 Our Initial Proposals have retained HAL's forecasts of these costs of between £20 and £25 million (nominal). We will further review this allowance as part of our work to develop Final Proposals.

Next steps and implementation

4.44 We welcome the views of stakeholders on any of the issues raised in this chapter and will consider these carefully as part of our work to develop our Final Proposals.

4.45 More broadly we will continue to refine our projections of opex in developing our Final Proposals. This will be informed by responses to this consultation and updated analysis by CEPA/Taylor Airey.

[22] These costs are separate from HAL's ongoing costs of contributing to pension schemes, which we have dealt with in the same way as normal operating costs and were considered as part of the CEPA/Taylor Airey review of opex.

[23] See para E62 in CAP1138

[24] Mercer - Scheme funding report of the actuarial valuation BAA pension scheme as at 30 September 2018 – December 19

4.46 We do not intend to make any significant changes to HAL's licence to implement our approach to opex. Nonetheless, the allowance that we determine will be an important component in the calculation of the revised price cap, as explained in Chapter 11. We will ensure that the business rates term in the licence is updated to reflect the H7 period, but we do not intend to change the incentive mechanism.

Chapter 5

Commercial revenues

Introduction

5.1 The allowance that we make within the calculation of the H7 price control in respect of HAL's commercial revenues is a key building block in the calculation of airport charges. HAL's average commercial revenues over the Q6 period was £960 million per annum (2018 prices). Commercial revenues comprise a number of components including revenues that HAL generates from retail shops in terminals, property rents, access to the airport (rail, car parks and the forthcoming terminal drop-off charge) and other services. These revenues are all included in the "single till", under which the proceeds from those commercial activities are deducted from the cost of delivering airport operation services when determining the level of cap on HAL's airport charges per passenger. In developing projections for commercial revenues we aim to incentivise HAL to optimise the level of commercial revenues in H7.

5.2 Setting an appropriate allowance for commercial revenues furthers the interests of consumers by ensuring that airport charges are set at an efficient level, it also allows for an appropriate and realistic assessment of issues such as HAL's financeability.

5.3 We will set an allowance for commercial revenues as part of the price review and if HAL is able to generate higher revenues then (other things being equal) it is able to retain the difference. Conversely, if HAL makes less revenue than our projection then (other things being equal) it must fund the shortfall until prices are reset at the next regulatory review. This approach provides a strong incentive on HAL to optimise commercial revenues and furthers the interests of future consumers by ensuring that in the longer-term airport charges are no higher than necessary. It also helps to support our secondary duty to promote efficiency and economy.

5.4 This chapter describes our approach to assessing commercial revenues for Heathrow over the H7 period. It sets out:

- further background information and summarises what we said about our assessment of commercial revenues in the April 2021 Way Forward Document;
- a summary of stakeholder feedback and our views on that feedback;
- key features of HAL's most recent commercial revenues forecasts, submitted as part of its updated RBP;
- the approach we have used to assess commercial revenues and our approach to making projections for these Initial Proposals; and
- next steps and implementation issues.

Background and the April 2021 Way Forward Document

5.5 Over the course of Q6, HAL was able to increase commercial and cargo revenues in real terms from £910 million in 2015 to £981 million in 2019 (2018 prices). Its commercial and cargo revenues have been significantly reduced in 2020 and 2021 due to the impact of the covid-19 pandemic: in 2020, revenues were £470m (2018 prices), with a further reduction from that level expected for 2021.[25]

5.6 The April 2021 Way Forward Document set out our initial assessment of HAL's RBP against the criteria set out in the June 2020 Consultation. It also set out, at a high-level, the steps we would go through in developing these Initial Proposals.

5.7 Our iinitial assessment for commercial revenues in the updated RBP recognised that HAL had taken a clear approach to forecasting but identified concerns around:

- the limited links between commercial revenues and the capex plan in the RBP;
- the lack of detail to support a number of proposed downside overlay adjustments to HAL's top-down forecasting method; and
- the lack of a clear and consistent reconciliation of differences between the RBP (based on HAL's statutory accounts) and the Regulatory Accounts.

5.8 Beyond the compliance assessment, we identified a number of additional issues:

- HAL's simple, top-down method to forecast commercial revenues was not appropriate for some elements, including:
    - retail revenues: these are heavily influenced by the forecast passenger mix which had not been included in HAL's forecasts; and
    - property revenues which are not affected by passenger volumes to the same degree as other revenues.
- HAL's proposed elasticities assigned to relevant revenue drivers such as passenger numbers and terminal area appeared to be informed by expert internal knowledge and/or judgment rather than objectively verifiable evidence; and
- the overlay forecasting approach which implements a specified percentage reduction to account for potential negative impacts in H7 was also not well supported by appropriate evidence. For example, the significant estimated impact of the removal of airside tax free shopping from 1 January 2021 was not well evidenced.

5.9 We said in the April 2021 Way Forward Document that we would commission expert advice to support our assessment of commercial revenues in H7.

[25] Cargo revenues have increased during 2020 and 2021 through the utilisation of spare capacity.

Stakeholders' views

5.10 We received responses on commercial revenues from HAL, BA and the AOC/LACC. HAL also submitted its updated RBP with updated forecasts at the end of June 2021.

5.11 HAL reiterated its view that a driver-based forecasting method is appropriate for forecasting commercial revenues and that the CAA's approach was disproportionate. HAL referred to comparisons of the outputs of its method against actual reveues in 2020 which it considered to be helpful in validating the approach.

5.12 It challenged the CAA's finding that it had not considered airline feedback, stating that it had done this and implemented changes where it deemed the changes to be appropriate**.** HAL also committed to providing further evidence in relation to the efficiency of the 2019 base year and to support overlays in the updated RBP. HAL also challenged the weight that the CAA gives to airlines' views.

5.13 HAL suggested that some CAA statements in the June 2020 Consultation implied that a bottom-up approach to cost and revenue forecasting is less useful given the covid-19 related uncertainty in the short term. It said that the suggested use of targeted bottom-up assessments in the CAA's April 2021 Way Forward Document was inconsistent with this previous position.

5.14 It said that the current level of uncertainty is more severe for commercial revenues and advocated for revenue risk sharing to mitigate major forecasting risks such as the airside tax free shopping policy changes and the impact of the covid-19 pandemic (this issue is considered further in Chapter 1).

5.15 AOC/LACC broadly agreed with the CAA's assessment, including:

- that the RBP did not contain sufficient detail to support the H7 price review process; and
- there were weaknesses in HAL's evidence supporting base year efficiency and its proposed overlays.

5.16 It also said that there is a greater urgency in addressing opex and commercial revenue concerns due to the lack of any ongoing review and governance protection in relation to those key building blocks when compared to the position in relation to capex.

5.17 BA challenged HAL's reliance on econometric benchmarking evidence to support its base year and suggested this is not a substitute for detailed bottom-up analysis**.** It also criticised HAL's proposed downside overlay to allow for the removal of airside tax free shopping as not relying on any detailed evidence (for example on types of passengers or categories of outlet). BA cited the continued demand for retail space at Heathrow and the exit of only one major retailer (Dixons) directly attributable to the policy change as evidence that the most likely impact of the removal of tax free shopping in H7 is significantly lower than HAL's forecast suggests.

5.18 It broadly agreed with our assessment of a lack of "line of sight" between HAL's commercial revenue generation capex programme and the level of efficient commercial revenues in H7. It further stated that analysis presented in capex governance suggests that the commercial revenue portfolio in the RBP provides an insufficient return on investment.

5.19 BA also said that the proposed terminal drop-off charge presents a number of issues that should be addressed in H7. In particular, it said there appear to be insufficient regulatory constraints on HAL's ability to vary the level of the charge.

Our views

5.20 In developing our approach to these matters we have engaged with HAL and airlines including our assessment of HAL's plans and by sharing our emerging views on the process for developing commercial revenue projections for H7. We will continue to assess all evidence on its merits regardless of the stakeholder that has provided it.

5.21 The high-level approach set out in the April 2021 Way Forward Document was aimed at identifying the type of methods that can assist in forecasting commercial revenues most accurately. The targeted use of bottom-up evidence on commercial revenues can be important and we do not accept that this approach is disproportionate and consider that it is targeted at the areas where intervention is most necessary. Our approach to making projections of commercial revenue is described below in the section on Initial Proposals.

5.22 We agree with BA's general assessment of HAL's RBP:

- HAL's approach to forecasting using econometric methods has limitations and the targeted use of bottom-up analysis is important to improve forecasting;
- the lack of a line of sight between proposed capex and commercial revenues remains an issue, though we note the updated RBP contained some more detail on these matters; and
- we should develop an appropriate approach to the regulation of the terminal drop-off charge.

5.23 We also note the AOC/LACC's view that determining the efficient level of commercial revenues as part of the H7 settlement is more urgent than, for example, capex where the development and core capex framework provides some additional protection.

HAL's updated RBP

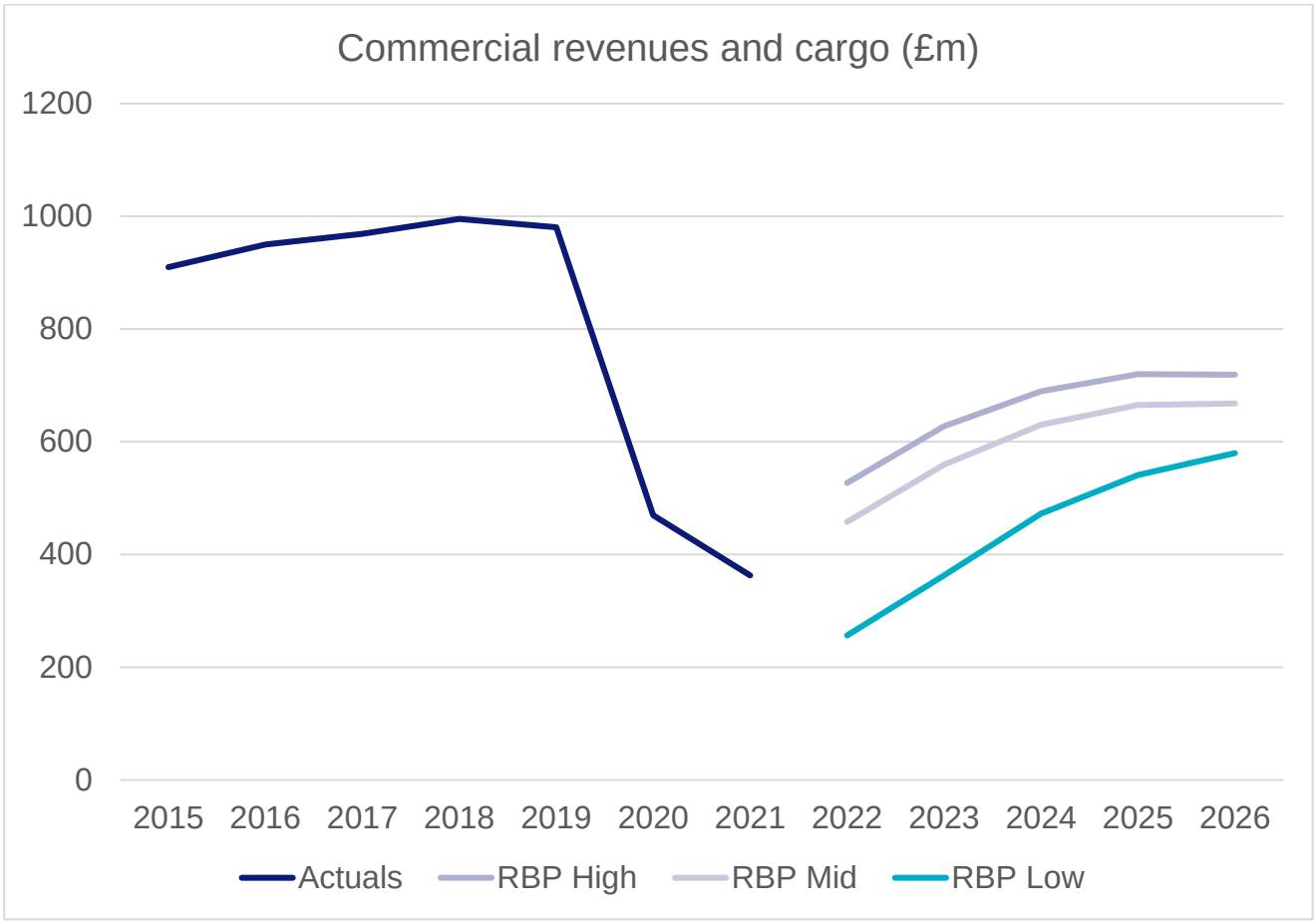
5.24 HAL's updated RBP was based on the same top-down forecasting framework for commercial revenues in H7 as the RBP. In general, the updated RBP:

- kept the method largely intact, with no changes to the elasticity assumptions;
- updated the overlay assumptions in the light of our feedback and to a lesser extent, the feedback of airlines;
- responded to our priority information requirements set out in Appendix G of the April 2021 Way Forward Document; and

- provided more detailed narrative to address areas where our assessment identified gaps and weaknesses.

5.25 The latest commercial and cargo revenue forecasts from HAL's updated RBP are shown in Figure 5.1 below:

Figure 5.1: Updated RBP commercial and cargo revenues forecasts compared to 2015-2019 (£m, 2018 RPI deflated prices)



Source: HAL Regulatory Accounts, HAL updated RBP

Note: 2021 data is forecast

5.26 Further details of HAL's commercial and cargo revenue forecasts, based on its RBP "Mid" case passenger forecasts, are summarised in Table 5.1 below. Overall, HAL has forecast average annual commercial and cargo revenue of £596 million over H7 compared to average commercial and cargo revenue of £961 million during Q6 from 2015-2019 (2018 prices). That translates into projected average commercial and cargo revenue per passenger in H7 of £9.75 compared to £12.12 in 2019.

Table 5.1: Updated RBP commercial and cargo revenues forecasts (£m, 2018 RPI deflated prices)

HAL RBP Mid forecast	2022	2023	2024	2025	2026	H7 Total
Retail and Bureaux	158	220	263	283	294	1217
Surface Access	60	92	116	124	127	520
Service	27	37	43	46	47	200
Rail	45	60	70	75	77	328
Property	102	109	114	114	114	552
Other	1	1	1	1	1	6
Intercompany	0	0	0	0	0	0
Terminal drop-off charge	46	47	50	60	57	261
Red Terminal	16	6	0	0	0	22
Minimal capex overlay	-14	-27	-39	-50	-61	-191
Total commercial revenues	**442**	**546**	**618**	**653**	**656**	**2914**
Cargo revenue	16	14	13	12	12	66
Total commercial and cargo revenues	**458**	**559**	**630**	**665**	**668**	**2981**
Total per passenger	**11.02**	**9.95**	**9.60**	**9.45**	**9.27**	**9.75**

Source: HAL updated RBP

Our approach to forecasting commercial revenues

5.27 We are seeking to further consumers' interests and have regard to the need to promote economy and efficiency on the part of HAL by assessing its forecasts and reaching an independent view of an efficient level of commercial revenues. Such an approach is not straightforward to implement, particularly given the uncertainties created by the impact of the covid-19 pandemic.

5.28 The overarching objective of our approach is to determine a projection for commercial revenues that is reasonably accurate and based on the most relevant evidence available. Such an approach will help to ensure airport charges are no higher than necessary, so furthering the interests of consumers, and is also consistent with our secondary duty to promote the efficiency and economy of HAL.

5.29 As we noted above, HAL has provided further information on commercial revenues in its updated RBP which has been helpful in supporting our assessment of commercial revenues for H7.

5.30 We said in the April 2021 Way Forward Document that we intended to commission expert advice to support our assessment of HAL's projections. We have appointed CEPA/Taylor Airey to work with us and develop an independent assessment and projections of commercial revenue to support our Initial Proposals.

CEPA/Taylor Airey study

5.31 The depth and quality of information provided by HAL meant it was not feasible for CEPA/Taylor Airey to undertake a full bottom-up assessment of HAL's

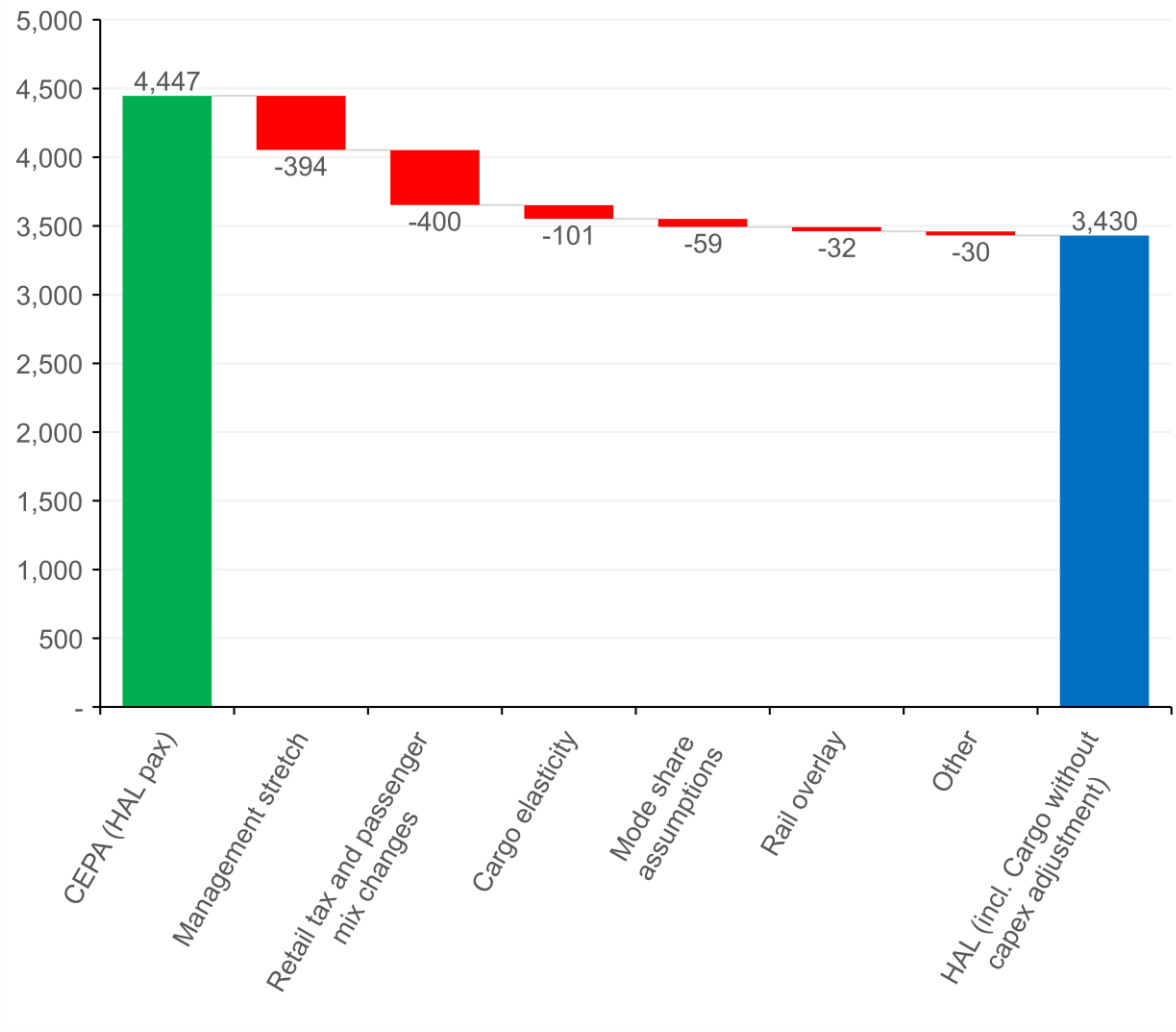
forecasts across all elements of revenues.[26] Instead, CEPA/Taylor Airey scrutinised the evidence base underpinning HAL's key forecasting assumptions and presented alternative assumptions to propose a view of the efficient level of commercial revenues for the H7 period.

5.32 We worked closely with CEPA/Taylor Airey to design the approach and to support their work. With CEPA/Taylor Airey support, we conducted targeted engagement with HAL and airlines on certain aspects of our approach. The final CEPA/Taylor Airey report has been published alongside these Initial Proposals. We set out below the key findings and then compare them to HAL and airline projections.

5.33 In developing its assessment of the efficient level of commercial revenues, CEPA/Taylor Airey made several changes to HAL's key forecasting assumptions. These are set out in detail in CEPA/Taylor Airey's report and the impact of these revised assumptions on projections of commercial revenue is summarised in Figure 5.2 below.

[26] This has been the typical approach that we have taken to assess airport commercial revenues for previous price controls.

Figure 5.2: Largest differences in CEPA/TA's alternate commercial revenue and cargo forecasts compared to HAL's view (£m, 2020 CPI deflated prices)



Source: CEPA/Taylor Airey analysis

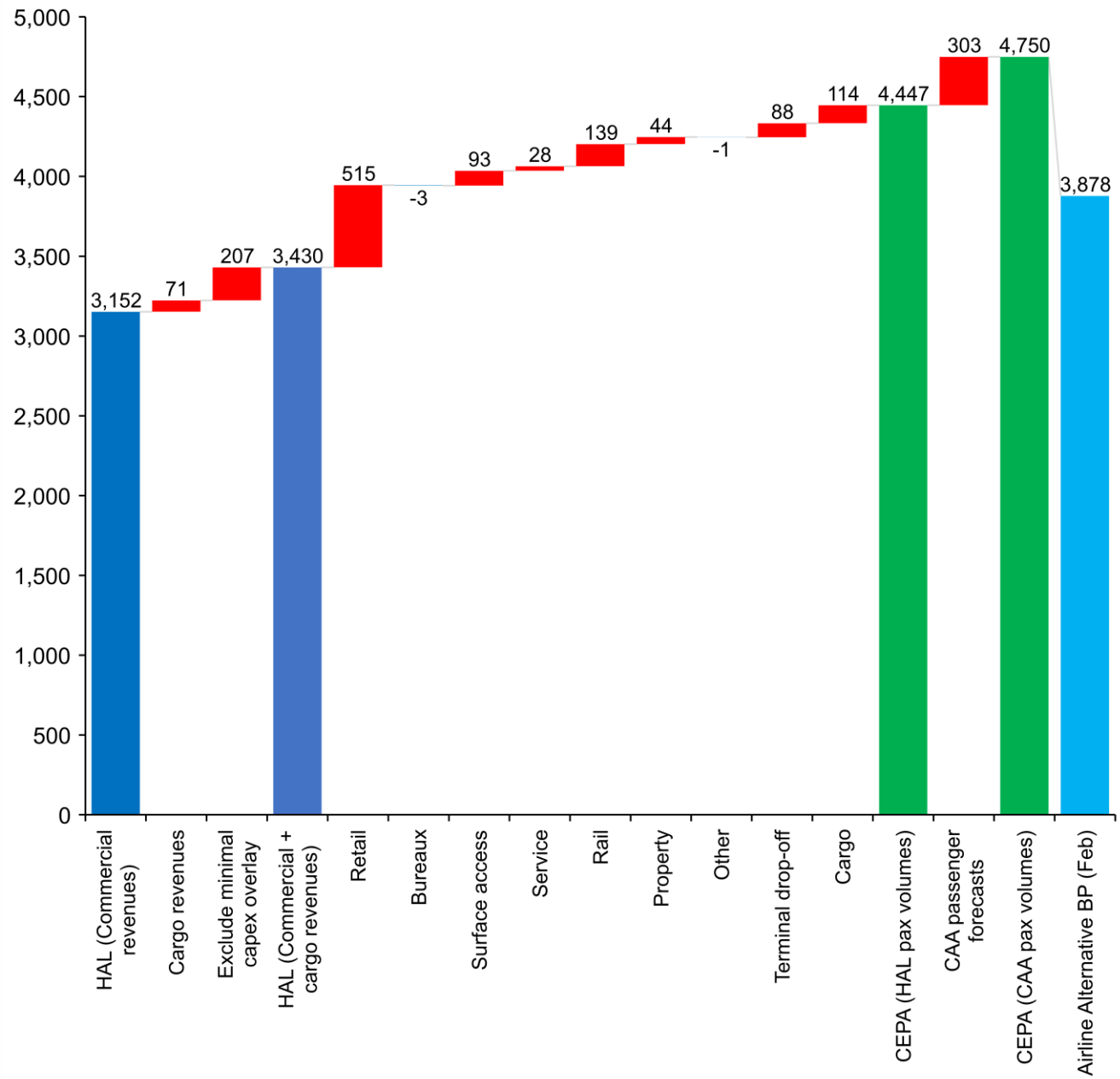
5.34 CEPA/Taylor Airey's forecasts differed from HAL's in the following areas:

- CEPA/Taylor Airey assess that HAL can increase average revenues per passenger through H7, based on HAL's historical performance of increasing average revenues above passenger growth rates: they have therefore applied a 2% "management stretch" challenge to estimates of relevant revenues for H7, compared to HAL's assumption of no stretch;
- a large difference between CEPA/Taylor Airey and HAL's assessment of the impacts of changes to taxation rules for Heathrow in relation to airside VAT-free and duty-free retail, and the impacts of the forecast passenger mix on retail income. CEPA/Taylor Airey's approach applies a consistent elasticity framework to estimate the impacts of both tax changes, and explicitly forecasts the impact of the geographical passenger mix on retail revenues, taking account of varying estimated spend per passenger between market segments;

- use of a lower elasticity of cargo revenues with respect to passenger numbers compared to HAL's approach, to better reflect the actual trends observed for cargo revenues in 2020 and 2021: CEPA/Taylor Airey assesses that these trends are likely to persist for several years during H7, in the context of spare capacity at the airport;
- an alternative set of mode share estimates, using the evidence provided by HAL to better reflect anticipated surface access trends; and
- a challenge to HAL's approach of assuming reduced ticket prices of the Heathrow Express premium rail service.

5.35 Figure 5.3 presents, at a more granular level, the gap between HAL and the views set out in the CEPA/Taylor Airey report. It also compares to the total estimate in the airlines' Alternative Business Plan (ABP) from February 2021.

Figure 5.3 Overview of HAL, CEPA/Taylor Airey and Airlines' ABP view of H7 commercial and cargo revenues (£m, 2020 CPI deflated prices)



Source: CEPA/Taylor Airey analysis

5.36 The variance between CEPA/Taylor Airey and HAL is £1,526 million or 47%.[27] However, the chart also makes two adjustments:

- excluding the minimal capex overlay, as there was no evidence justifying this overlay; and

[27] Including cargo revenues

- excluding the volume effect due to using the CAA's passenger volume forecast as the relevant passenger numbers driver for the forecasts instead of HAL's view of passenger numbers in the updated RBP.

5.37 Taking these adjustments into account, the difference between CEPA/Taylor Airey and HAL reduces to £1,016 million or 30%. The CEPA/Taylor Airey total forecast is above airlines' view set out in their Alternative Business Plan of £3,878 million, although we note that the airlines' estimate was based on several assumptions which are now not fully consistent with the HAL and CEPA/Taylor Airey estimates.[28]

Table 5.2: **CEPA/Taylor Airey view of commercial and cargo revenue forecasts (£m, 2020 CPI deflated prices)**

CEPA/Taylor Airey Mid forecast	2022	2023	2024	2025	2026	H7 Total
Retail and Bureaux	257	348	424	475	499	2003
Surface Access	104	133	147	167	176	727
Service	38	47	55	61	63	264
Rail	81	102	108	119	125	534
Property	119	125	130	132	135	640
Other	1	1	1	1	2	6
Intercompany	0	0	0	0	0	0
Terminal drop-off charge	61	72	80	100	97	410
Red Terminal	17	7	0	0	0	24
Total commercial revenues	**677**	**834**	**945**	**1055**	**1096**	**4608**
Cargo revenues	55	38	24	14	11	142
Total commercial and cargo revenues	**732**	**872**	**969**	**1070**	**1108**	**4750**
Total per passenger	**16.04**	**14.48**	**13.46**	**13.48**	**13.51**	**14.00**

Source: CEPA/Taylor Airey analysis

Initial Proposals

5.38 We are publishing the CEPA/Taylor Airey report alongside these Initial Proposals and welcome input from all stakeholders on the key issues raised by it. We will be discussing the findings in detail with HAL and airlines ahead of our Final Proposals. In the meantime, we have used the findings from the CEPA/Taylor Airey review and information from HAL's updated RBP to inform these Initial Proposals.

[28] The ABP was issued in February 2021 and is based on analysis of HAL's RBP rather than the updated RBP. Therefore, the ABP view is based on the RBP passenger forecast and is not fully comparable to CEPA/Taylor Airey and HAL's view of commercial and cargo revenues. There are also other significant comparison issues - the ABP excludes cargo revenues and did not include any revenues from the terminal drop-off charge.

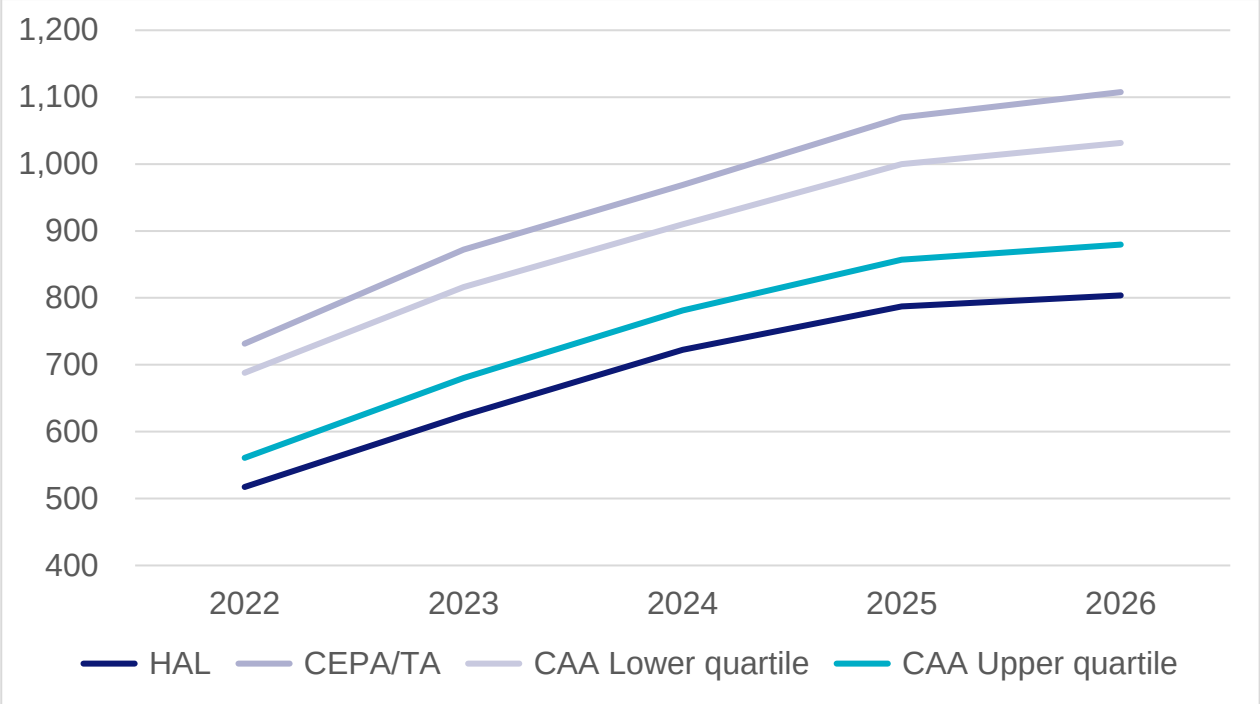
5.39 For the purpose of modelling our price control for Initial Proposals, we have developed ranges based on two scenarios. We describe these two scenarios as lower and upper quartile forecasts.

5.40 For commercial revenues we have created these two scenarios by defining a range based on:

- a "ceiling" of the commercial revenue projections from CEPA/Taylor Airey "mid case" scenario; and
- a "floor" of the commercial revenue projections from HAL's updated RBP, scaled to the CAA mid case passenger forecasts.

5.41 We have assessed the upper end of our range (or upper quartile) as 25% of the way from the floor to the ceiling. The lower end (or lower quartile) of our range is 75% of the way from the floor to the ceiling as set out in Figure 5.4 below.[29]

Figure 5.4: Summary of HAL, CEPA/TA and CAA Upper and lower commercial and cargo revenue projections (2020 CPI deflated prices)



Source: HAL updated RBP, CEPA/Taylor Airey analysis and CAA ranges

Note: the ranges exclude ORCs

5.42 Our lower quartile scenario assumes that commercial and cargo revenues will increase from £688 million in 2022 to £1,032 million in 2026. Our upper quartile scenario assumes that commercial and cargo revenues will increase from £561 million in 2022 to £880 million in 2026.

[29] For cargo revenues, we base the CAA Lower Quartile on CEPA/Taylor Airey's view of cargo revenues and the CAA Upper Quartile on HAL's updated RBP, scaled to the CAA mid case passenger forecasts

5.43 The lower quartile of our range (including the impact of using our passenger forecasts for the H7 period) is around 29% higher than HAL's proposed commercial and cargo revenues while the upper quartile is around 9% higher over H7 as a whole.

5.44 We consider that the approach that we have set out above should result in scenarios that allow the exploration of different levels of revenues and management stretch in targets, and this will support the process of assessing the appropriate level of airport charges (so furthering the interests of consumers) and will also facilitate the identification of an efficient level of commercial and cargo revenues.

Terminal drop-off charge

5.45 HAL intends to introduce a terminal drop-off charge at Heathrow airport. The proposed charge will be in the form of a fixed levy for vehicles that drop-off passengers at the forecourts to the four Heathrow terminals. HAL has suggested a level of the charge of £5 in 2022 to 2024, with this likely to increase to £6 in 2025 to 2026 to reflect a proposed inflationary increase which will be reviewed and refined later in H7. HAL has said it plans to implement the charge in Q4 2021.

5.46 Further details of HAL's proposals are set out on its website. We need to consider how best to regulate this new charge in order to protect consumers' interests given the material level of uncertainty around volumes and the new pricing arrangements. To deal with these issues in a way consistent with the interests of consumers our Initial Proposals are to introduce:

- a risk sharing mechanism under which HAL would bear 35% of any differences between actual and forecast drop-off charge revenues in H7, so if the revenue is greater than forecast, airport charges would reduce by approximately two thirds of this difference;
- a requirement for HAL to notify airlines and the CAA of any increases of the charge beyond 10% of the baseline levels noted above, but not to require HAL to formally agree any charge increase in advance with the CAA or airlines;
- inclusion of a provision to adjust HAL's price control in the event that a change to statutory legislation (that might include a change made to introduce 10 minutes of mandatory free parking) that would prevent HAL from levying a terminal drop-off charge. Such an event would reset the assumption on drop-off charge revenue to zero and allow HAL to recover the H7 projection of this revenue from airport charges; and
- application of the above adjustments through a new term in HAL's licence with an in-period true up through the K-factor.

Next steps and implementation

5.47 We welcome the views of stakeholders on any of the issues raised in this chapter and will consider these carefully as part of our work to develop our Final Proposals.

5.48 More broadly we will continue to refine our estimates of commercial and cargo revenues in developing our Final Proposals. These estimates will be informed by responses to this consultation and updated analysis by CEPA/Taylor Airey as appropriate.

5.49 The ranges for commercial revenues identified above have been used in the calculation of the price controls in Chapter 11. We also intend to make changes to HAL's licence to implement our proposals for commercial revenues in relation to the terminal drop-off charge. These would codify the risk sharing arrangements for terminal drop-off charge revenues.