Consumers and Markets Group

Economic regulation of capacity expansion at Heathrow: policy update and consultation

CAP 1658

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Contents

About this document

This document follows on from our consultations in June and December 2017 on the regulatory framework to support capacity expansion at Heathrow. It consults further on the development of the regulatory framework and includes:

- updates on the development of our thinking in relation to the overall regulatory framework, including our initial and early assessment of the overall affordability and financeability of capacity expansion;
- proposals for Heathrow Airport Limited ("HAL") to engage further on alternative commercial and delivery arrangements;
- more information on the process we are undertaking to establish the cost of capital for HAL and an explanation of our initial work to integrate our preliminary work on incentives with our approach to assessing the cost of capital and shareholder returns;
- our decisions in relation to a new interim price control that will facilitate the alignment of the regulatory processes for setting price controls with the wider timetable for capacity expansion and better protect the interests of consumers; and
- discussion and further consultation on the regulatory treatment of early construction costs and surface access costs.

It also complements our final report to the Secretary of State ("SoS") under section 16 of the Civil Aviation Act 1982 reporting on airport-airline engagement, which will be published shortly.

Views invited

We welcome views on all the issues raised in this document and, in particular, the issues set out in the executive summary and those highlighted in chapters 1 to 7.

Please e-mail responses to economicregulation@caa.co.uk by no later than 29th June 2018. We cannot commit to take into account representations received after this date.

We expect to publish the responses we receive on our website as soon as practicable after the period for representations expires. Any material that is regarded as confidential should be clearly marked as such and included in a separate annex. Please note that we have powers and duties with respect to information under section 59 of the Civil Aviation Act 2012 and the Freedom of Information Act 2000.

If you would like to discuss any aspect of this document, please contact Stephen Gifford (stephen.gifford@caa.co.uk).

Executive summary

Introduction

1. In October 2016, the Government announced that its preferred option for the expansion of airport capacity in the south east of England was the Heathrow "Northwest runway". The CAA has consistently stated that additional runway capacity in the south east of England will benefit air passengers and cargo owners. The timely delivery of more aviation capacity is required to prevent future consumers[1] experiencing higher airfares, reduced choice and lower service quality.

2. During 2017, we issued consultations on the core elements of the regulatory framework to support capacity expansion at Heathrow. These included:

   - our priorities and timetable for developing the framework for the economic regulation of HAL[2]; and
   - our initial thinking on core elements of the regulatory framework for HAL, including our approach to incentives [3].

3. These consultations stressed the importance of HAL delivering capacity expansion in a way that protects the interests of consumers by ensuring it is delivered in a timely, affordable and commercially financeable manner.

4. We published a further consultation (the "December 2017 Consultation"),[4] that took into account of the views of respondents to the June 2017 Consultation, and:

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1 In this consultation, the terms "consumers" and "users" are used interchangeably. See Appendix A.

2 See CAP 1510 Economic regulation of the new runway and capacity expansion at Heathrow airport: consultation on CAA priorities and timetable www.caa.co.uk/CAP1510

3 See CAP 1541 Consultation on the core elements of the regulatory framework to support capacity expansion at Heathrow www.caa.co.uk/CAP1541

4 See CAP 1610 Economic regulation of capacity expansion at Heathrow: Policy update and consultation www.caa.co.uk/CAP1610

- explained that the existing regulatory framework can complement a wide range of alternative delivery arrangements, including commercially negotiated contracts and competitive processes for the provision of new elements of capacity expansion. We said we expected HAL to stand by its commitment to engage in good faith with airlines and third parties coming forward and wishing to discuss and develop such arrangements;
- consulted on our approach to build an evidence base for our decisions about HAL's cost of capital for capacity expansion. As part of this, we published a report that we had commissioned from PwC that provided an early and preliminary estimate of the range for HAL's cost of capital;
- set out our initial thinking on how we should assess the financeability of HAL's proposals, including the use of notional financial structures, credit metrics and our approach to testing equity financeability;
- considered measures to promote the financial resilience of HAL that would be consistent with HAL's existing financing arrangements and should avoid any undue costs for HAL and/or consumers;
- discussed the treatment of the construction costs that HAL will need to incur before planning consent is granted. It proposed that HAL would need to demonstrate that there were clear benefits to consumers before these costs were incurred and set out further conditions and tests that HAL would need to satisfy before we could agree to them being added to HAL's regulatory asset base ("RAB") and recovered from airlines and consumers by HAL's airport charges; and
- consulted on how best further to extend HAL's current price control, so that the next price control review can be better aligned with the overall programme for capacity expansion.

5. This document builds on the December 2017 Consultation and the responses and sits alongside our work in monitoring and encouraging effective engagement between HAL and airlines on the development of plans for capacity expansion at Heathrow. Our work on airport and airline engagement has been conducted in the context not only of our regulatory oversight of HAL under the Civil Aviation Act 2012 ("CAA12"), but also a request from the SoS under section 16 of the

Civil Aviation Act 1982 that we review and advise him on how well HAL is engaging with, and responding to, the airline community on the appropriate scope, design, and costing of the new runway and capacity at Heathrow.[5] Our final report under this "Section 16" process is being submitted to the SoS on 30th April 2018 and should be published shortly.

6. The process for airport and airline engagement has allowed airlines to influence HAL's overall scheme design so that it is fit for purpose (including properly protecting consumers), efficient and affordable. Our reports to date have shown that the process of airport-airline engagement at Heathrow has had significant advantages for consumers, with airlines being able to input into the process for overall scheme design and make clear their priorities and share their expertise. HAL has responded positively by reducing the baseline costs of its draft design by £2.5 billion compared to its submissions to the Airports Commission. Nonetheless, this engagement process has revealed that much remains to be done to secure the delivery of capacity expansion in a way that is in the interests of consumers, is affordable and financeable.

7. Our final Section 16 report includes proposals for enhanced engagement and reporting for the period between now and when HAL makes its development consent order ("DCO") application under the Planning Act 2008. Our proposals for enhanced engagement and our approach to developing the regulatory framework for HAL reflect the national importance of capacity expansion at Heathrow and the challenges associated with finding an overall scheme design that protects the interests of consumers and is affordable and financeable.

8. HAL's plans for capacity expansion will develop in more detail with the identification of its "masterplan", scheduled for the third quarter (Q3) of this year. This will take into account the responses to its first planning consultation as well as its ongoing engagement with airlines.

5 See links at: http://www.caa.co.uk/Commercial-industry/Airports/Economic-regulation/Licensing-and-price-control/Heathrow-price-control-review-H7/

9. At the same time, we will continue our work on developing the overall framework for the future regulation of HAL given the context of capacity expansion. The section on next steps below sets out our plans in more detail for 2018 and we are consulting further on key milestones for 2019.

10. HAL will also need to contribute towards developing proposals for the airspace change necessary to deal with increasing congestion in the use of airspace and support capacity expansion at Heathrow. The CAA has two roles in relation to airspace change:

- making decisions on proposals to change airspace design; and
- developing a strategy and plan for the use of UK airspace for air navigation up to 2040, including for the modernisation of such airspace.

11. While we do not have any powers to require collaboration between airports to facilitate airspace change, we welcome the clearer guidance on airspace that the Department for Transport ("DfT") has put in place. The CAA's airspace plan will be reviewed during 2018, once the position on the designation of the Airports National Policy Statement ("NPS") is clear. Nonetheless, if it is to be successful, airspace change will require support from NATS, airlines, airports, other stakeholders and the Government.

Main issues raised in this consultation

12. Chapter 1 updates our approach to affordability and financeability in the light of stakeholders' responses. It explains the importance of both affordability and protecting the interests of consumers, which means a focus on cost efficiency and not necessarily the lowest possible cost approach to capacity expansion. This should not be used as an excuse by HAL to incur unnecessary costs, and airlines should expect to see no more than efficient and appropriate costs reflected in airport charges.

13. Chapter 1 also addresses financeability, clarifying our approach to assessing financeabilty using a "twin track" approach (including both moderate and higher levels of gearing) to financial structures and updating our views on the debt metrics we intend to use to help inform our assessment. The choice of HAL's

actual capital structure is the responsibility of HAL and its directors and our proposed approach should not be taken as an endorsement of any particular capital structure. Nonetheless, we expect HAL to retain access to cost efficient investment grade financing and for it to be able to demonstrate that on an ongoing basis it remains financially resilient and robust. As we noted below, we are considering strengthening HAL's financial ring fencing licence conditions to help ensure the delivery of these objectives.

14. Chapter 2 complements our final Section 16 report to the SoS, setting out our initial assessment of the affordability and financeability of the development of new runway capacity at Heathrow airport. While the range of plausible outcomes with respect to airport charges per passenger remains relatively wide, our initial assessment suggests that there are credible scenarios in which capacity expansion can be delivered affordably and financeably, with airport charges per passenger remaining close to current levels in real terms and line with the ambition expressed by the SoS on these matters in 2016.

15. We illustrate a possible scenario based on HAL's assumptions for the costs of its "Westerly Option", combined with a mid-range estimate for the cost of capital based on PwC's early and preliminary work on these matters (which was published alongside the December 2017 Consultation) that gives airport charges per passenger that are broadly consistent with 2016 levels in real terms. This is only initial analysis and is subject to further consultation, assessment, development and change.

16. Of course, this is only one scenario and all stakeholders will need to work constructively together to ensure that capacity expansion is delivered efficiently (and no unnecessary costs are incurred) to support the delivery of affordable levels of airport charges. We will seek to develop and improve our initial assessment of affordability and financeability as further information on the preferred expansion scheme becomes available during 2018 and 2019. We will continue to model scenarios as the scheme is refined and we obviously cannot rule out the need to address scenarios where airport charges per passenger vary significantly from our initial analysis, not least given the considerable uncertainties that relate to HAL's current cost estimates.

17. Chapter 3 deals with the key themes from stakeholders' responses to the December 2017 Consultation in relation to the regulatory framework and financial resilience.[6] We confirm our support for HAL engaging with an open mind with airlines and other interested parties that have ideas for alternative commercial and delivery arrangements for elements of new capacity, such as terminals, where they can be evidenced to be in the interests of consumers. We also propose new processes and arrangements for HAL's engagement on these matters.

18. To this end, we require that HAL stands by its public commitment to engage on such matters and to do so in a meaningful, constructive and imaginative way. HAL should develop a timely, open minded and effective process for this engagement. We expect all participants in these discussions to act in good faith and in a professional and constructive way, demonstrating the flexibility to find arrangements that will benefit consumers.

19. On 26th April 2018, HAL provided us with an overview of its proposals for engagement on alternative commercial and delivery arrangements. We welcome the initiative that HAL has shown in respect of these matters and will want to understand its approach in more detail. Our initial view is that it will be important that HAL:

- takes airline and other stakeholders along with it in developing these arrangements; and
- ensures that the arrangements are sufficiently flexible to allow for open minded and genuine dialogue, and for credible alternative proposals to be modified and evolve so that they can be properly evaluated in terms of integrating with wider plans for capacity expansion and protecting consumers.

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6 Generally, this consultation addresses the main issues raised by stakeholders. To the extent that stakeholders have raised issues that we have dealt with in past consultations, we have not addressed those issues again.

20. Chapter 3 also addresses respondents' comments on new licence conditions, including in relation to delivery and financial resilience, albeit that these will be dealt with in more detail in a consultation and update paper later this year.

21. Chapter 4 discusses our approach to the assessment of HAL's cost of capital and confirms that we will take into account the impact of incentive arrangements and risks on the cost of capital and shareholder returns. It summarises our initial work on calibrating the possible impact of incentives on the regulated return on equity. In due course, we will need to develop a balanced package of price control incentives, including incentives for the timely delivery of capacity expansion by HAL.

22. Chapter 5 deals with the arrangements that we will need to put in place at the end of the current ("Q6") price control, and explains our proposal to implement a two year interim price control to apply from January 2020 (subject to there being no significant changes to the forward work programme for capacity expansion). This approach has the advantages of aligning the regulatory and planning processes, will more likely result in HAL producing a high quality business plan and provide sufficient time to allow the exploration of appropriate alternative commercial and delivery arrangements.

23. Stakeholders have expressed strong support for our view that the approach to setting the interim price control should be proportionate and straightforward to implement, given that consumers' interests are best served by not unnecessarily distracting attention and resources away from supporting capacity expansion.

24. We intend to retain the RPI-1.5% price path from the current price control for 2019/20 (which will provide the immediate benefits to airlines of a real terms reduction for two years their charges), and complement this by testing for financeability in 2020/21 to determine whether a further RPI-1.5% price reduction is appropriate.

25. To ensure that consumers can share appropriately in the benefits of HAL's performance, we propose to review the assumptions on (i) passenger numbers, (ii) operational expenditure and (iii) commercial revenues to reflect forecasts as well as updating the weighted average cost of capital ("WACC") in relation to

new debt costs and the rate of corporation tax. These should be relatively straightforward to review using “top down” assumptions and a streamlined process so as not to provide an undue distraction from the work on capacity expansion.

26. The benefits of any outperformance will be shared with airlines and consumers in the longer term by adjusting regulatory depreciation by an amount representing the difference between (i) the price path we set and (ii) underlying revenue allowances calculated by reference to our updated assumptions.[7]

27. This chapter also consults on proposals for certain aspects of the timetable for both an interim price control and the main price control, in order to help ensure that we develop arrangements for the next main price control in the best way practicable.

28. Chapter 6 deals with the regulatory treatment of early “Category C” costs, being pre-DCO construction costs and including certain compensation costs arising from the acquisition of the commercial property necessary to allow for capacity expansion. We remain of the view that properly justified efficient early Category C costs incurred in a way that is clearly in consumers’ interests should be recoverable by HAL. To this end, we set out a process for determining how these costs should be added to HAL’s RAB and recovered from airlines and consumers. We will involve airlines in our assessment of costs, and test that any expenditure has been incurred in a way that is consistent with the interests of consumers. Underpinning this approach, our assumption is that HAL will incur costs efficiently and will be actively pursuing a commercially financeable plan for capacity expansion (and we will consider these factors in our testing of HAL’s costs).

29. Chapter 7 sets out the main principles of our current surface access policy (especially the “user pays” principle and that consumers’ interests are unlikely to be furthered by funding surface access projects that are not strictly necessary for airport operation/expansion). This chapter explains our view that these principles

[7] This is similar to making a revenue ‘smoothing’ adjustment.

remain appropriate as they are focused on efficiency and providing appropriate protection for the interests of consumers. Nonetheless, in response to the views of respondents to the June 2017 Consultation, we explain a number of areas where are policy could be clarified and/or further developed.

Next steps

30. During the remainder of this year, our work will transition from our initial work on developing the regulatory framework for HAL to focus the setting of the interim and next main price control for HAL. This will reflect developments in the wider programme, including progress made on developing alternative commercial and delivery arrangements, HAL's plans for a masterplan in Q3 2018 and its next planning consultation in Q1 2019. We will provide an update on affordability, financeability and the cost of capital in November 2018, building on our work in this consultation, the representations we have received on the costs of capital, and the information in HAL's masterplan. Chapter 5 consults further on the precise timing of HAL's initial price control business plan, but this is expected to be published during the second half of 2019.

31. In support of our work on the main price control (that will come into effect at the start of 2022 following the two year interim price control), we intend to publish in:

- May 2018: working papers on the cost of capital and incentives;
- September 2018: a further update and consultation on licensing issues; and
- November 2018: an update on engagement and affordability and financeability following the publication of HAL's masterplan in Q3 2018.

We are also consulting on how to best align HAL's price control business plans with the wider process in 2019 and will update our timetable for developing the regulatory framework for the remainder of the price review in the light of this consultation.

32. In support of our work on the interim price control we intend to publish in:

- September 2018: a working paper on the approach to setting the interim price control;

- Q1 2019: a further consultation on the interim price control arrangements that we will put in place for the start of 2021;
- Q3 2019: final consultation on the interim price control; and
- Q4 2019: the licence modifications to implement the interim price control.

33. Should circumstances change significantly, for example, by reference to the Government's wider timetable, we may review our timetable. For example, if the NPS or DCO is substantially delayed, we could review our timetable and take whatever steps were appropriate to protect consumers, which could include bringing forward the main review of HAL's price control or setting a longer interim control on the basis reopening more of the underlying assumptions supporting the price control.

Our duties

34. In developing this consultation, we have had full regard to our statutory duties under the CAA12, which are set out more fully in Appendix A.

Structure of this document

35. The structure of this consultation document is as follows:

- chapter 1 clarifies and updates our approach to assessing financeability;
- chapter 2 sets out our initial assessment of affordability and financeability for airport charges in the light of plans for capacity expansion, to complement our final Section 16 report;
- chapter 3 deals with developments to the regulatory framework, including alternative commercial and delivery arrangements and financial ring fencing;
- chapter 4 explores issues relating to the cost of capital;
- chapter 5 sets out our proposals for an interim price control to apply from the end of 2019;
- chapter 6 discusses the regulatory treatment of early Category C costs; and
- chapter 7 updates our thinking on surface access issues.

Chapter 1

Approach to Affordability and Financeability

Introduction

1.1 The December 2017 Consultation explained the importance of making sure that capacity expansion is affordable and noted the support given by HAL, airlines and the SoS for making sure that airport charges are maintained as close as practicable to current levels. The engagement process between HAL and airlines has a central role in the development of proposals for capacity expansion that are in the interests of consumers and are both affordable and financeable.

1.2 In this context, the December 2017 Consultation also explained our approach to assessing financeability, particularly in relation to financial structures, credit metrics and other factors important to debt financeability, and our approach to equity financeability.

1.3 This chapter summarises stakeholders' responses in relation to affordability and financeability and updates our approach to these matters. The next chapter sets out our initial assessment of the affordability and financeability of capacity expansion.

Stakeholder views

Affordability

1.4 HAL said that it understands stakeholders' concerns over affordability, is committed to trying to deliver capacity expansion with airport charges remaining close to current levels in real terms, and has made affordable charges a key criterion for developing its expansion masterplan.

1.5 In HAL's view, affordability is about the interests of consumers who will face higher airfares and reduced choice without additional runway capacity. Citing comments from the CAA's Consumer Panel, it considered that the CAA should explicitly define affordability and quantify the value of expanding Heathrow for passengers.

1.6 HAL provided a report by Frontier Economics in support of its response to the December 2017 Consultation. This report estimates the congestion premium paid by passengers because of capacity constraints at Heathrow. Using econometric analysis of 2016 outbound fare data for flights from Heathrow and from other airports, it estimates that outbound fares from Heathrow are, on average, 23% higher than from other London airports and 24% higher than from other European hub airports. The report says that passengers are paying approximately £2 billion (“bn”) more in airfares per year because of capacity constraints at Heathrow.

1.7 HAL said that the CAA needs to understand the magnitude of costs imposed on consumers through this congestion premium so that it properly takes account of consumer affordability and can assess the costs of delays to the programme. Without this assessment of consumer affordability HAL said the CAA would not be judging its regulatory decisions with an appropriate “consumer yardstick”, and would not be able to take balanced decisions on the regulatory framework. HAL explained that this consumer affordability does not have the same meaning as affordability as expressed by the SoS and airlines, but nonetheless consumer affordability should help guide the development of the regulatory framework.

1.8 Airline representatives took the view that affordability was central to the CAA discharging its primary duty and higher charges could undermine the business case for capacity expansion. They said that their views on affordability should be aligned with the CAA’s position, on the basis that airlines have a commercial incentive to meet passengers’ needs, which they said is similar to the CAA’s primary duty to protect consumers.

1.9 They also said that passengers should only have to pay for a project designed to meet their needs in the most efficient and cost effective way possible and that expansion must be delivered with no increase in charges in real terms from today’s prices. One airline took the view that this meant charges should be less than or equal to the level of airport charges at the end of the current price control period.

1.10 Airline representatives also wanted clarity over the CAA's approach to consumer willingness to pay being part of the process of developing the business plan for expansion. Airlines considered the CAA may be placing significant expectations on consumer outcomes research, which may have associated methodological issues. They said that while willingness to pay research is useful in prioritising choices, it is not sufficiently robust for establishing preferences about prices for facilities, or airport charges.

1.11 Airline representatives said there might be a case for delaying capacity expansion if this would facilitate efficient and affordable delivery by a third party developer.

Financeability

1.12 HAL welcomed the CAA's approach to developing the framework for capacity expansion in a way that reflects the importance of financeability. It suggested that the following approach to setting the price control would further promote financeability:

- targeting credit metrics that are consistent with a strong (rather than threshold) credit rating;
- ensuring that in modelling credit metrics they achieve the target levels in all periods;
- conducting the quantitative financeability assessment on a purely notional basis without considering the creditor protections in HAL's securitised structure (even though the credit rating agencies draw comfort from these protections when assessing ratings);
- using sensitivity analysis to establish that credit metrics are robust to reasonable downsides; and
- being explicit about the credit rating level that the CAA is targeting, and ensuring that any indices used in a cost of debt indexation mechanism are consistent with this rating.

1.13 HAL agreed that the ratios selected by the CAA appeared in general to be appropriate, but cautioned against "cherry picking" the least restrictive ratios used by credit rating agencies and provided a detailed technical commentary on the ratios we set out in the December 2017 Consultation. It also noted that there is less depth in debt markets for debt issues below an A- credit rating and suggested that the CAA should assess this depth of this market segment if it were to target these credit ratings.

1.14 For assessing equity financeability, HAL suggested that metrics, including dividend yields, extending beyond a five year period should be considered in recognition of the long term nature of investment in capacity expansion. It also supported the use of return on regulatory equity to assess equity financeability.

1.15 Airline representatives said HAL's responsibilities should be clear in relation to the capital structure and, to the extent that the capital structure is HAL's responsibility, it should bear both the upsides and downsides associated with its choices. One airline said the CAA should continue to assume a notional capital structure, with assumptions of a more highly geared structure only being appropriate if they created benefits for consumers. It also questioned why a qualitative assessment would be needed to supplement the quantitative assessment of the credit metrics.

1.16 Another respondent expressed doubt about whether no real increase in per passenger charges could be consistent with a financeable price control settlement and noted the need to consider the phasing of passenger volume increases when assessing financeability.

Our approach to assessing affordability

1.17 We understand the importance to airlines of affordability and their continued focus on these matters. To the extent practicable, we support the ambition set out by the SoS in 2016, of keeping charges close to current levels in real terms. Nonetheless, we also need to act in a way consistent with our statutory duties to protect the interests of consumers. As a result, airlines will need to accept that our assessment of cost efficiency and the consumer interest may not always align with a cost profile that produces the lowest possible charges, since developing passenger facilities of an appropriate quality, and ensuring a resilient airport are also important objectives for consumers.[8]

1.18 We are taking steps to ensure that the independent Consumer Challenge Board ("CCB") is involved in scrutinising HAL's plans for capacity expansion, and expect HAL properly to reflect the interests of consumers in the plans that it develops. We are also asking our technical consultants (Arcadis) to advise us on the steps that HAL is taking to ensure consumers' interests have been properly considered in developing its masterplan, which is due later in 2018.

1.19 The CAA has consistently stated that additional runway capacity in the south east of England will benefit air passengers and cargo owners. More aviation capacity is required to prevent future consumers experiencing higher airfares, reduced choice and lower service quality. We understand that there would be substantial costs for consumers associated with significant delays to capacity expansion. Even so, these costs should not be used as an excuse by HAL for inaction in relation to matters such as alternative commercial and delivery arrangements.[9] Airlines and consumers should expect to see no more than efficient costs reflected in airport charges and HAL should seek to win the confidence of stakeholders by thoroughly exploring all reasonable approaches to delivery.

Our approach to assessing financeability

Overall approach

1.20 We intend to retain a "twin track" approach to assessing financeability, considering a notional approach but also assessing scenarios with higher levels of gearing. The notional approach has extensive regulatory precedent across a range of sectors and focuses on HAL having continued access to relatively low cost investment grade debt finance. As our work on the price control review

[8] More generally there may be cases where higher prices are in consumers' interests if those higher prices result from costs that are less than the associated benefits.

[9] See chapter 3 for a discussion of our expectations on HAL in relation to alternative delivery mechanisms.

progresses, we may choose to focus on a particular level of gearing, but would consult further to inform the development of such an approach.

Assumptions on financial structure

1.21 For the purposes of the analysis set out in the next chapter, we have conducted our modelling on the basis of HAL notionally being 65% debt financed at the start of the period, in keeping with widely observed regulatory precedent.[10] We consider that this approach is appropriate given the relatively early stages of programme development and in the absence of any more detailed information from HAL on how it intends to finance capacity expansion. Alongside this, we are assuming a broadly symmetrical position on risk allocation and, at this early stage, do not expect regulatory incentives to create a situation where HAL would bear significantly more upside risk than downside risk, or vice versa.

1.22 We recognise that this notional structure is materially different from HAL's actual financial structure. As we indicated in the December 2017 Consultation, to address this and understand the consequences of this difference in financial structure, we intend to supplement our notional assessment with an analysis of the impacts of a more highly geared structure. We consider that this will both aid our understanding of the trade offs involved in choosing a capital structure, and allow us better to assess how the benefits from particular capital structures might be shared with customers.

1.23 For the avoidance of doubt, we remain very firmly of the view that the choice of HAL's actual capital structure is the responsibility of its directors and our proposed approach should not be taken as an endorsement of any particular capital structure. Nonetheless, we would expect HAL to retain access to cost efficient and efficient investment grade financing and that it should be able to demonstrate on an ongoing basis that the business remains financially resilient and robust. As we note in chapter 3, we are considering strengthening HAL's financial ring fencing licence conditions to help ensure the delivery of these

[10] See Appendix C for further details of our modelling assumptions and chapter 4 for further detail of our analysis of the cost of capital

objectives, for example by requiring HAL to maintain an investment grade credit rating.

Debt financeability and debt metrics

1.24 We intend to maintain the use of the credit metrics used by credit rating agencies to assist in our assessment of debt financeability. This approach has broad support from stakeholders, although we intend to refine it in the light of their comments. The rationale for using credit rating agency metrics to aid assessment of debt financeability is that this reflects, to a degree, how debt investors assess potential investments and whether debt is investment grade.

1.25 Ratings of Baa3 or BBB- or above are considered investment grade with more highly rated debt being seen as less risky and consequently less costly than lower rated debt. Sub-investment grade debt is particularly costly for borrowers. Higher credit ratings generally also increase a borrower’s ability to raise debt as more investors are willing to lend to high quality borrowers. This is likely to be a relevant consideration in the context of the main (“H7”) price control review given the large amount of debt likely to be needed to fund capacity expansion.

1.26 In response to stakeholders comments, we have recategorised some of the metrics between “core” and “secondary” and revisited the specifics of how certain ratios are calculated. Our updated view of the credit metrics is set out in Table 1.1 below. We will continue to engage with stakeholders on these matters and refine our approach as appropriate.

Table 1.1: CAA updated view of credit metrics

Credit metrics	Used in the Q6 review	Notes
Core metrics		
FFO interest cover	Yes	Moody's version of this metric to be used as Moody's regard it as a core metric while S&P see it as supplementary.
Adjusted cash interest cover (ACICR)	Yes	This is considered by Moody's to be an important metric due to Heathrow's financial structure even though this metric is not a standard core metric in its airport rating methodology.
FFO to gross debt	No	Moody's typically uses gross debt, although may also look at net debt when cash balances are material (as they are likely to be during the construction period).
Regulatory gearing	Yes	Considered by Moody's to be an important metric due to Heathrow's financial structure even though this metric is not a standard core metric in its airport rating methodology.
FFO to net debt	Yes	Core ratio for S&P, similar to FFO to gross debt. As noted above Moody's consider this ratio more relevant when large amounts of cash present on the balance sheet.
Secondary metrics		
Interest cover ratio ("ICR")	Yes	Part of Heathrow's financing covenants, but it typically achieves levels with significant headroom to covenant levels.
Net debt to EBITDA	Yes	Secondary ratio for S&P, core for Fitch
Post maintenance	Yes	Core ratio for Fitch, similar to ACICR

interest cover ratio ("PMICR")		
Debt service coverage ratio	No	Core ratio for Moody's, used to assess the ability to pay debts over their remaining term
Retained cash flow to Gross Debt	No	Core ratio for Moody's, similar to S&P supplementary ratio

Source: CAA

1.27 We note the importance to effective debt indexation of ensuring consistency between the credit rating targeted by the credit metrics used in our modelling and the credit rating of the indices used for any debt indexation mechanism. We will continue to be mindful of this need for consistency as we develop our approach to financeability and consider further the possibility of debt indexation.

1.28 We also recognise the distinction between the threshold level of a metric required for a particular credit rating and the level within that metric that sits halfway between the downgrade and upgrade thresholds for that rating. We will continue to be mindful of this distinction as we further develop our financeability policy with the aim of ensuring that our assumptions in respect of what constitutes a financeable settlement broadly align with those of relevant stakeholders such as credit rating agencies.

1.29 We intend to maintain the approach set out in the December 2017 Consultation of assessing trends in ratios as well as the absolute level of those ratios in each year. This reflects the approach taken by the credit rating agencies under which ratios falling below threshold levels by small amounts in isolated periods do not necessarily cause a rating downgrade. We recognise that a large or sustained failure to achieve threshold ratings would not be likely to be consistent with maintaining the credit rating in question and we intend to take this into consideration when assessing financeability.

Qualitative assessment of debt financeability

1.30 The December 2017 Consultation explained that we intended to supplement our use of credit metrics with a qualitative assessment of the wider regulatory framework and the business environment within which HAL operates. Relevant factors include cost, construction and volume risks, and their treatment in the regulatory framework. By taking account of the extent to which HAL faces these and other risks, we will appropriately reflect the risk profile of the regulatory settlement in our financeability assessment.

1.31 While HAL suggested that we should include the cost of debt as a material change in risk arising from capacity expansion, we may be able to deal with this through our approach to setting the cost of debt and debt indexation. In any event, we would expect the overall price control settlement to be a balanced package such that the risks that HAL bears are properly reflected in the cost of capital and its overall revenue package.

Consideration of equity financeability

1.32 Given the potential importance of additional equity finance to the capacity expansion programme, we propose to continue with the broad approach set out in the December 2017 Consultation in respect of the assessment of equity financeability. This will include consideration of equity metrics extending beyond the H7 price control period to recognise the long term view typically taken by infrastructure equity investors.

Views invited

1.33 Views are invited on any matters relating to our approach to affordability and financeability.

Chapter 2

Initial assessment of affordability and financeability

Introduction

2.1 This chapter sets out our initial assessment of the affordability and financeability of the development of new runway capacity at Heathrow. This assessment complements our final Section 16 report to the SoS on the airport-airline engagement process.[11]

2.2 Stakeholders have consistently said that capacity expansion should be both affordable and financeable. Airlines have retained a sharp focus on affordability and regard it as a key indicator of success for the airport-airline process and our Section 16 reporting.

2.3 The Transport Select Committee also recently concluded that it "would like to see evidence to demonstrate that the Northwest Runway scheme is both affordable and deliverable and that steps are being taken to address the valid concerns we heard in evidence about the high cost of the scheme and the significant risk that costs will rise", ahead of designation of the NPS.[12]

2.4 Airlines have welcomed our development of a financial model designed to illuminate issues of affordability and financeability. We have used this model to undertake an initial assessment of the affordability and financeability of capacity expansion at Heathrow.

2.5 Nonetheless, this modelling, like any other, relies on the quality and accuracy of the input data, including, in this case, forecasts of costs, the assumed cost of capital, commercial revenues and passenger traffic. At this relatively early stage

[11] Our provisional assessment has already been published as CAP 1638 Provisional assessment of airport-airline engagement on new runway capacity at Heathrow airport. See: http://publicapps.caa.co.uk/docs/33/CAP1638.pdf

[12] House of Commons, Transport Committee, "Airports National Policy Statement, Third Report of Session 2017-2019, 23 March 2018. See https://publications.parliament.uk/pa/cm201719/cmselect/cmtrans/548/548.pdf

of programme development, these drivers remain uncertain and so our modelling outputs span a relatively wide range of plausible scenarios and outcomes.

2.6 As the programme moves forward, these uncertainties should reduce and, in due course, we aim to establish a single path of prices for the next main price control (the "H7 price control"). But beyond the H7 price control, the level of uncertainty is likely to be sufficiently large that we will only be able to make projections of the range of likely price levels.

Our approach to developing scenarios

2.7 In defining scenarios for our assessment, we considered suitable forecasts for six key inputs that, together, will determine the future level of airport charges and financeability. These are the key assumptions that drive the forecasts of airport charges and financeability and are:

- passenger numbers;
- capital expenditure (or "capex"), to determine additions to the RAB and cash flows;
- regulatory depreciation;
- the allowed rate of return on the RAB (the WACC);
- operating expenditure (or "opex"); and
- non-aeronautical revenues.

2.8 In discussion with HAL and airlines we have developed four illustrative scenarios for capacity expansion, which are summarised below and in the following table:

- **HAL's "Westerly Option"[13]:** as developed by HAL in 2017 for engagement with stakeholders and using a notional WACC based on the work completed by the Airports Commission of 6%;
- **the Westerly Option with a lower cost of capital:** there is a range of evidence to suggest that the pre-tax cost of capital assumed by the

13 The background to this assumption is explained in more detail in our final Section 16 report.

Airports Commission might overestimate the expected cost of capital.[14] We therefore considered scenarios with a lower value for the cost of capital (4.57%, real, vanilla) based on analysis completed by PwC for the CAA in 2017, combined with updates to the cost of debt to reflect an increasing share of new debt over time;

- **slower build and higher costs:** this reflects downsides given the uncertainty associated with both the timing and costs of developing and running the airport in the future. This scenario could reflect possible legal, environmental, contractor or construction challenges. It assumes two years' delay to capex and capacity associated with terminal T5X and T2A phases 2 and 3[15], a 45% uplift to expansion capex in the H7 price control period,[16] higher than expected opex associated with the increase in capex, and lower than expected non-aeronautical revenues;
- **faster build and lower costs:** this reflects analysis that shows a significant level of unserved demand for air travel in London and the south east[17] and that therefore there are better opportunities to meet consumers' needs through earlier delivery of new capacity. This scenario assumes advancement by two years of capex and capacity associated with terminal T5X and T2A phases 2 and 3,[18] a 25% reduction to capex,[19] lower than expected opex associated with the reduction in capex, and higher than expected non-aeronautical revenues. We have assumed that the earlier available capacity is filled in line with passenger forecasts.[20]

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14 For example, since the Airports Commission submission, market returns and costs of debt have generally fallen, and HAL has outperformed the allowed return in the CAA's Q6 final proposals.

15 We also model the effect of capacity delays on opex and non-aeronautical revenues.

16 The 45% uplift is taken from the HAL expansion cost timetable, see Appendix 2 of CAP 1638, *op. cit*.

17 "UK Aviation Forecasts", Department for Transport, October 2017. See https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/674749/uk-aviation-forecasts-2017.pdf.

18 We also model the effect on opex and non-aeronautical revenues of capacity coming online earlier.

19 The 25% reduction is taken from the HAL expansion cost timetable, see Appendix 2 of CAP 1638, *op. cit*.

20 See UK Aviation Forecasts, *op. cit.*

Table 2.1: Summary of scenarios[21] [22]

Parameter	Updated Westerly Option	Updated Westerly Option with lower WACC	Faster build and lower costs	Slower build and higher costs
Passengers	As per Westerly Option		Passenger forecasts constrained by a capacity profile in which some expansion capacity is delivered two years early	HAL's illustrative forecast constrained by a capacity profile in which certain expansion capacity is delivered two years late
Capex	Capex profile provided by HAL		Assumes certain expansion capex brought forward by two years and that capex spend during the H7 period is reduced by 25%	Assumes a two year delay to certain expansion capex and that capex spend during the H7 period is increased by 45%
Non-aeronautical revenues	CAA analysis based on elasticities in order to broadly replicate the Westerly Option profile		Flexed in line with passenger volumes and assumes 0.3% per annum increase	Flexed in line with passenger volumes and assumes 0.3% per annum reduction
Operating expenditure	CAA analysis based on elasticities in order to broadly replicate the Westerly Option profile		Flexed in line with passenger volumes and assumes 0.3% per annum reduction	Flexed in line with passenger volumes and assumes 0.3% per annum increase
Depreciation	Pro-rated in line with capex relative to the Westerly Option capex figures			

[21] The elements of expansion capex assumed to be delivered earlier or later are T5X and T2A phases 2 and 3.

[22] The 0.3% figure is a CAA assumption to produce a credible variation in opex and non-aeronautical revenues over time.

WACC	6% based on Airports Commission with reduction over time as embedded debt is replaced by cheaper new debt	4.57% (vanilla) in H7 trending to 4.30% from H9 onwards due to replacement of embedded debt by cheaper new debt, based on PwC analysis	4.57% (vanilla) in H7 trending to 4.30% from H9 onwards due to replacement of embedded debt by cheaper new debt, based on PwC analysis	6% based on Airports Commission with reduction over time as embedded debt is replaced by cheaper new debt

Source: CAA

2.9 Further details on the assumptions for each scenario are set out in Appendix B.

2.10 These are not the only plausible scenarios that might be expected for the development of new capacity, but we consider these provide a reasonable range of scenarios from which to make our initial assessment of the affordability and financeability of capacity expansion. We will seek to develop and improve our assessment as further information becomes available.

Our initial assessment of affordability and financeability

Affordability

2.11 For each of the scenarios above, we have modelled the forecast profile of airport charges per passenger from 2018 to 2049 (in 2014 prices): airport charges range from reaching a peak of just over £20 per passenger in 2025 under the faster and cheaper scenario to reaching a peak of about £30 per passenger in 2025 under the slower build out with higher costs scenario. As a benchmark, the Airports Commission assumed that charges at Heathrow might need to rise to £29 (2014 prices)[24] per passenger to help fund capacity expansion and the estimated maximum allowable yield for 2017 is £21.90.[25]

2.12 While the range of plausible outcomes remains wide, our initial assessment, based on current information, is that there are credible assumptions that could lead to a path of prices that is broadly affordable. For instance, Figure 2.1 illustrates a possible scenario based on HAL's assumptions for the costs of the Westerly Option, combined with a mid range estimate based on PwC's early and preliminary work on HAL's cost of capital (which was published alongside the December 2017 Consultation) that gives airport charges per passenger that are broadly consistent with 2016 levels in real terms. This is only initial analysis and is subject to further consultation, assessment, development and change.

2.13 In the slower build out with higher costs scenario, charges are significantly higher than today's levels, reaching a peak of £30 per passenger in 2025. However, we would expect that a number of mitigations could be deployed to avoid these higher airport charges materialising that have not been considered here, including:

- management action to mitigate the risk of capex and opex increases;
- appropriately incentivising HAL to mitigate the risk of delay and manage cost risk; and
- further possible re-phasing of capex in response to slower than expected passenger growth.

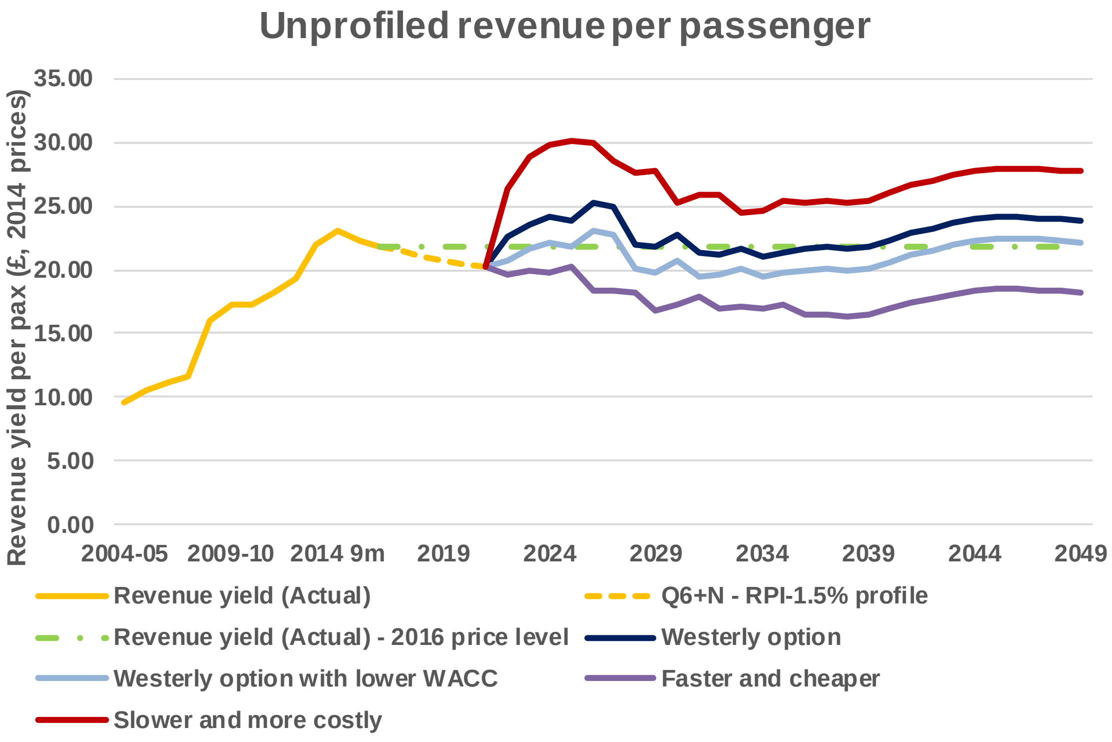
2.14 We should not unduly rely on results of this early modelling and all stakeholders and will need to work together to ensure that capacity expansion is delivered efficiently (and no unnecessary costs are incurred) to support the delivery of affordable levels of airport charges. We will seek to develop and improve this initial assessment as further information on the preferred expansion scheme becomes available during 2018 and 2019 and, as this further information

24 Table 11.4 of the Airports Commission Final Report, July 2015. See https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/440316/airports-commission-final-report.pdf

25 See Appendix A of HAL's 2017 regulatory accounts

becomes available, we cannot rule out the need to address scenarios where airport charges per passenger vary significantly from our initial analysis.

Figure 2.1 – Airport charges from range of scenarios



Source: CAA

Note: all prices in the chart above are in 2014 prices (using an RPI deflator).

Financeability

2.15 To protect consumers' interests, it is important that capacity expansion is efficiently financed. This requires us to be able to demonstrate that the regulatory framework supports financeability such that HAL can continue to access cost effective investment grade debt finance. Our initial approach to financeability focuses on the credit metrics described in chapter 1. These provide a high level view of how investors and credit rating agencies will perceive the financeability of capacity expansion. It is also based on notional gearing and we will need to have regard to other scenarios as discussed in chapter 1.

2.16 Our initial results for financeability appear to show results broadly consistent with investment grade debt financing for HAL. Under most scenarios, shown in

Figures 2.2 to 2.5, the credit metrics are forecast to meet or exceed the levels necessary to achieve a comfortable investment grade credit rating.[26]

2.17 As noted above, these are initial modelling results which are intended to indicate a range of credible scenarios given the uncertainty at this stage of the process in material input assumptions. Correspondingly the results shown in Figures 2.2 to 2.5 indicate a range of outcomes for each of credit metrics and provide some indication of the amount of headroom.[27]

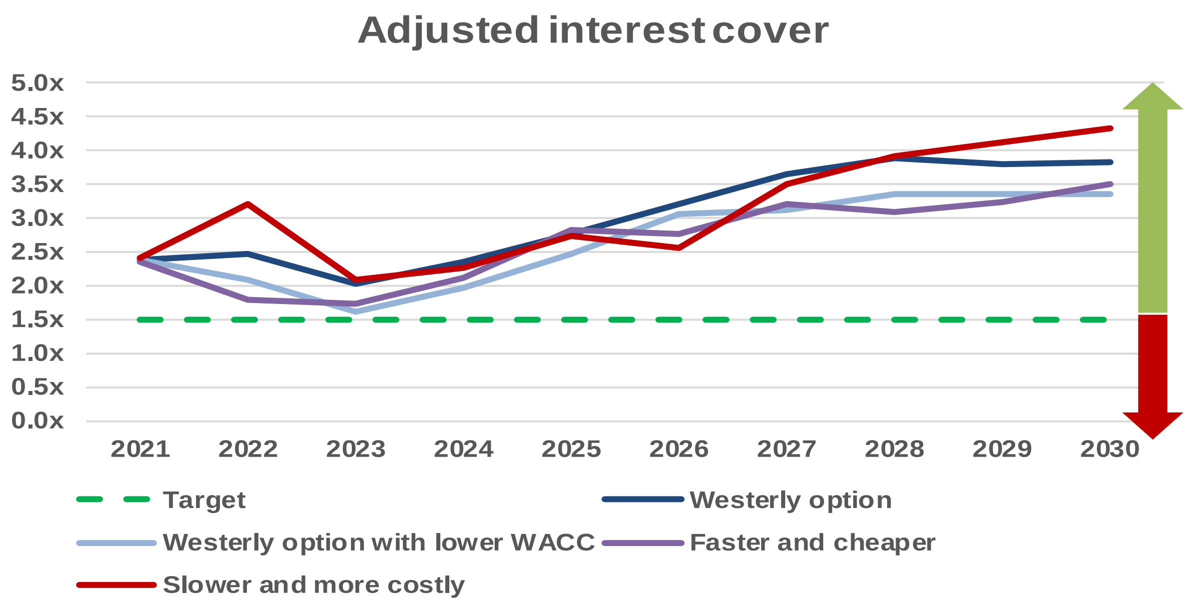
2.18 Where there is little or no headroom (e.g. the adjusted interest cover ratio in 2023), this situation is only temporary. As noted in the December 2017 Consultation, we focus more on trends and long term movements in credit ratings rather than individual years (and further mitigating actions may be available to resolve issues in individual years).

2.19 As with affordability, stakeholders should not rely unduly on these very early results. Capacity expansion will require very significant amounts of new financing and financeability will remain a key issue throughout the H7 price control review. Further details on our assumptions for assessment of financeability are set out in Appendix C.

[26] See Appendix B for a summary of the sources used to inform our choice of benchmarks for credit metrics.

[27] We note that the results in Figures 2.2 to 2.5 are based on scenarios in which cost upsides and downsides are anticipated and factored into the calculation of allowed revenues. In practice cost out- and under-performance that is not anticipated can arise and this can also impact on credit metrics. We expect that as we develop our approach to financeability assessment we will conduct further analysis that looks at the impact of such unanticipated out- and under-performances.

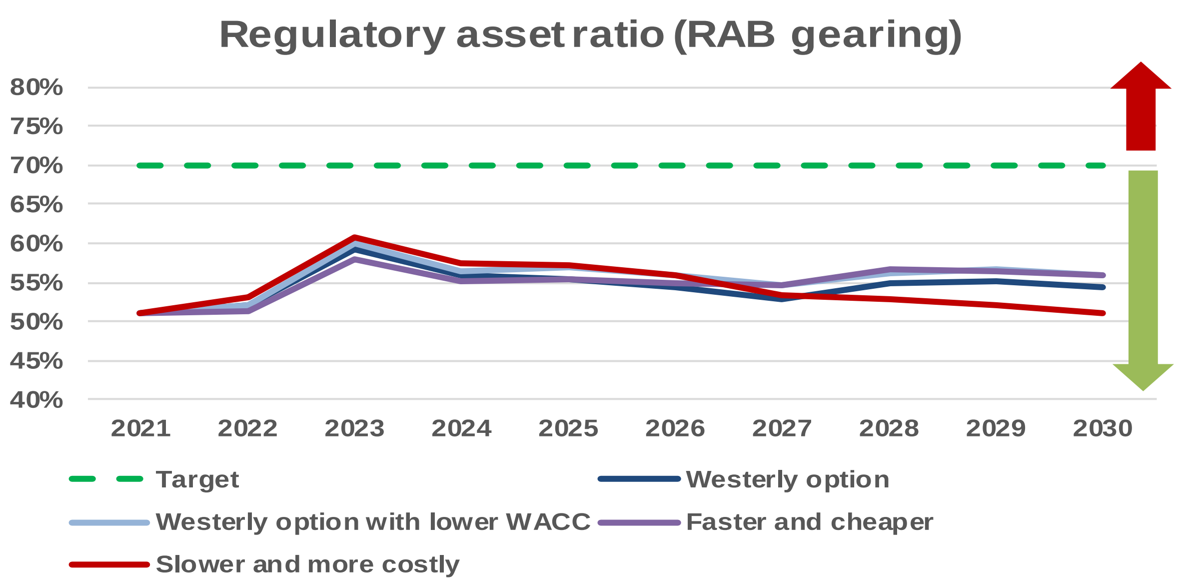
Figure 2.2: Adjusted cash interest cover



Source: CAA

Note: The red arrow indicates the range that constitutes breach of the benchmark whilst the green arrow indicates the range consistent with the benchmark and associated credit rating

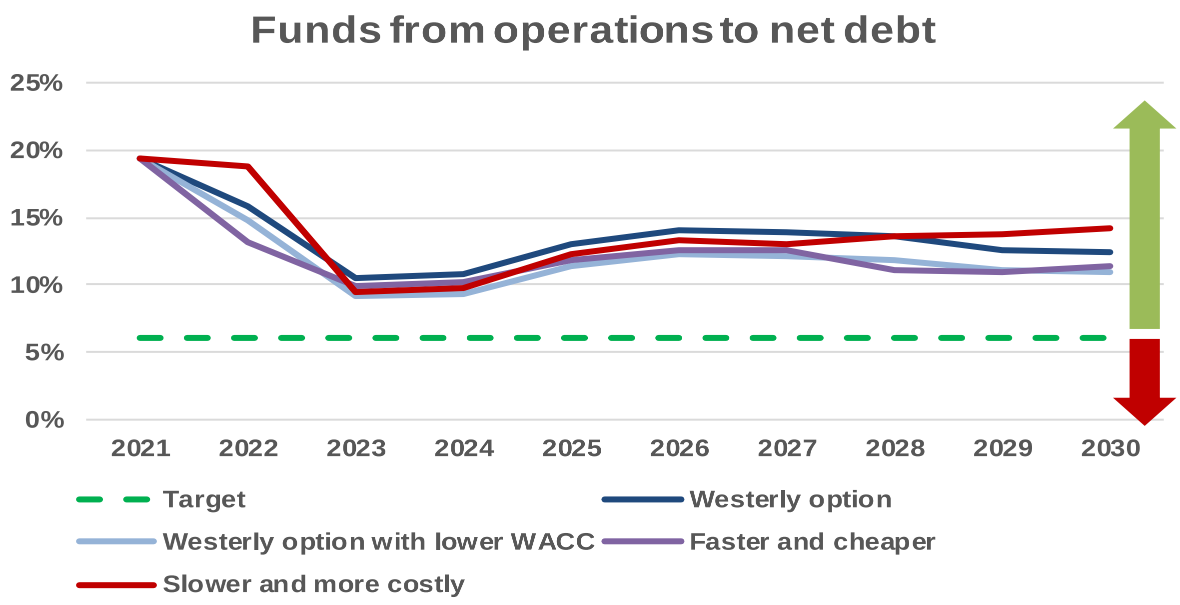
Figure 2.3: Gearing



Source: CAA

Note: The red arrow indicates the range that constitutes breach of the benchmark whilst the green arrow indicates the range consistent with the benchmark and associated credit rating

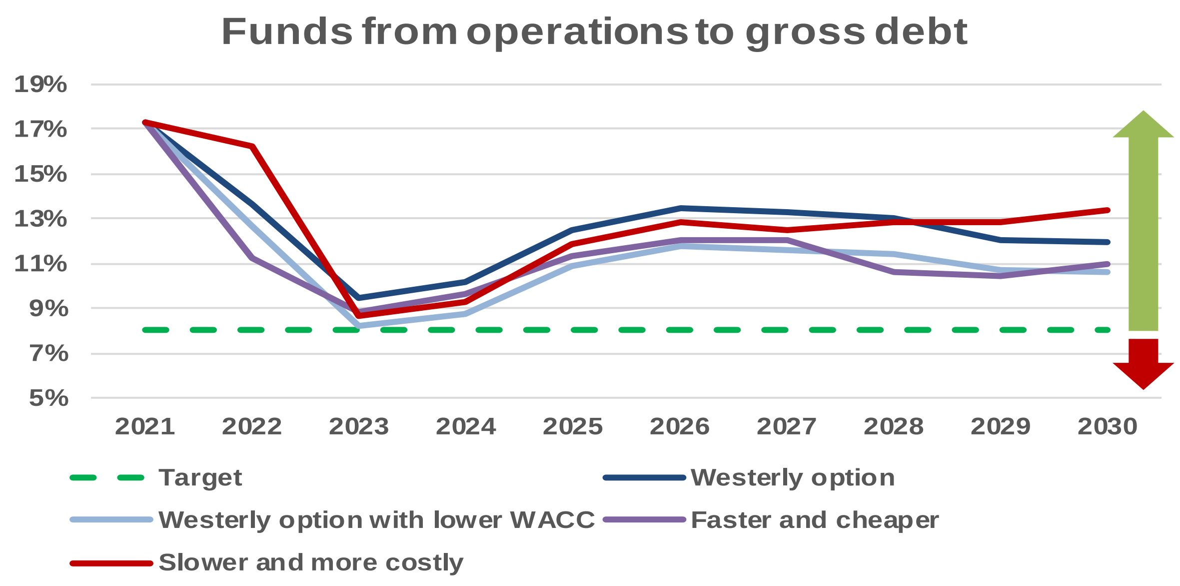
Figure 2.4: Funds from operations to net debt



Source: CAA

Note: The red arrow indicates the range that constitutes breach of the benchmark whilst the green arrow indicates the range consistent with the benchmark and associated credit rating

Figure 2.5: Funds from operations to gross debt



Source: CAA

Note: The red arrow indicates the range that constitutes breach of the benchmark whilst the green arrow indicates the range consistent with the benchmark and associated credit rating

Views invited

2.20 Views are invited on any matters relating to our initial assessment of affordability and financeability.

Chapter 3

Evolutions to the Regulatory Framework

Introduction

3.1 Our previous consultations have identified possible advantages in alternative commercial and delivery arrangements for elements of new capacity that might be able to lever on competitive forces to better protect the interests of consumers.

3.2 This chapter deals with a number of key themes from stakeholders' responses to the December 2017 Consultation on these and other issues relating to the development of the regulatory framework, including:

- our approach to alternative commercial and delivery arrangements and the development of new arrangements for enhanced engagement on these matters; and
- the development of licence obligations relating to engagement, delivery and transparency, and financial ring fencing.

Alternative commercial and delivery arrangements

3.3 In the December 2017 Consultation, we reiterated our long standing position that the CAA is in favour of competitive arrangements where they can be shown to be in the interests of consumers. We confirmed our view that the CAA12 is flexible enough to accommodate a wide range of commercial structures at Heathrow, even if it does not permit the imposition of commercial structures, forced divestment of assets, or the licensing of a new participant without first conducting a market power determination.

3.4 We confirmed that we are seeking to support and encourage the timely introduction of more competitive arrangements in the interests of consumers. We stated our expectation that HAL should engage in good faith with airlines and third parties. To reinforce this, we made it clear that we expect HAL to address how it has engaged with potential third party providers in its business plans and that not following up appropriate opportunities may provide evidence of inefficiency.

3.5 We also stated that:

- there may also be merit in introducing a relatively simple condition to require HAL to operate, maintain and develop Heathrow in an economical, efficient and timely manner; and
- we would also consider whether there are other more timely and effective steps we might take to facilitate appropriate commercial and delivery arrangements.

Stakeholder views

3.6 There was some common ground across respondents in that they expressed a willingness to engage on the development of alternative commercial and delivery arrangements.

3.7 However, there were also significant differences of opinion:

- HAL set out principles that it could follow in engaging on third party proposals. These included requirements that proposals be developed in a way that allows testing against its masterplan options, that proposals pass feasibility tests and are consistent with the NPS, that proposals do not create undue risks for timely delivery and that proposals do not undermine its normal commercial incentives. It also said that a broadly drafted licence obligation would not be appropriate as such a condition could give rise to significant concerns over interpretation and enforcement;
- airlines and another stakeholder questioned the CAA’s interpretation of its duties and powers around the introduction of competition and suggested that the CAA should ask the SoS for more powers, including through potential new legislation. They were concerned that the CAA was overplaying the risk of delay, and that an inefficient scheme could be more detrimental to consumers than a short delay.

3.8 Two different approaches emerged from other respondents in relation to alternative commercial/delivery arrangements:

- airline representatives said they were interested in the idea of establishing a separate company (BuildCo) to deliver expansion in a way more directly aligned with customer requirements, for a fixed price and with shareholders including HAL, airlines and possibly third parties; and
- The Arora Group proposed an alternative design for western terminals backed by different commercial arrangements. It said that capacity expansion "should be evaluated within a framework of strategic criteria which are wider than the CAA's current focus on affordability and financeability". In particular, it said that efficiency, capability, user support, phasing opportunity and an overall strategic plan for facilitating competition should be taken into account. It also said that there was substantial stakeholder concern over HAL's performance and an almost universal view that HAL is not capable of delivering capacity expansion in an efficient and timely manner.

3.9 Stakeholders also expressed frustration at HAL's approach to engagement and suggested that the CAA should:

- have proper regard to its statutory duty to promote competition and give greater weight to competition in developing the regulatory framework for capacity expansion;
- not prematurely dismiss the exercise of its powers under the Enterprise Act 2002;
- consider issuing a licence to a new entrant to design, construct, own and operate a new terminal at Heathrow;
- take a more active role in enforcing HAL's existing licence conditions (including the obligations on HAL to secure the procurement of capital projects in an efficient and economical manner), to support the development of alternative delivery arrangements;
- develop options for facilitating engagement with HAL in relation to alternative means of delivering the scheme;

- impose new licence conditions on HAL, for example, to consider alternatives, to require or incentivise competition, or to enter commercial arrangements; and
- promote transparency through the release of a report by PA Consulting on cost and revenue allocations, compelling HAL to release information and reports funded through its Category B cost allowances, and by increasing the transparency of HAL's RAB.

3.10 One airline expressed a note of caution around the potential for commercial negotiations to be compromised by HAL's market power and the disparity between airlines' bargaining positions. Another stakeholder noted that HAL's ability to enter commercial arrangements might be constrained by its financing arrangements.

3.11 Subsequently, in its submission to the CAA to inform our final Section 16 report, HAL made a number of observations about whether separate terminal operation and/or delivery ("STOD") would be in the interests of consumers. It raised concerns that STOD could:

- hinder competition and the entry of new carriers, since an incumbent carrier (or a non-airline entity delivering the terminal for a particular airline tenant) would have an incentive to manage the release of capacity so as to control the rate at which competitors can enter;
- require a level of due diligence over the plans and financial capacity of a new delivery partner that could delay capacity expansion;
- lead to inefficiency and higher prices due to the dis-benefits of splitting capital delivery and running two projects that are not strategically phased competing for raw materials and in labour markets;
- create operational difficulties due to the loss of coordination required to safely and efficiently manage aircraft and passengers and align the different companies operating at Heathrow, particularly at times of disruption and from the loss of economies of scale in the deployment of key operational resources such as security officers, engineering and Border Force; and

- would not necessarily lead to effective competition between terminal operators, since this requires over provision of capacity (with estimates ranging between 10% and 20%) which would require significant extra capital investment.

3.12 HAL said that alternative commercial and delivery arrangements should as a minimum be consistent with the timely delivery of capacity, enable new airlines to enter and grow, and promote both cost efficiency and service excellence.

CAA views

3.13 Overall, our aim is to promote capacity expansion in a way that is consistent with our statutory duties and protects the interests of consumers. This includes both:

- the timely delivery of capacity expansion, since the lack of airport capacity in the south east of England has significant costs for consumers; and
- incentivising efficient delivery, including by levering on the advantages of competitive forces where practicable.

We regard this approach as entirely consistent with the appropriate discharge of our statutory duties and functions.

3.14 We have consistently supported the exploration of alternative commercial and delivery arrangements with a view to establishing whether they could be integrated into the overall plans for capacity expansion in a way that would help protect the interests of consumers. During 2017, a range of stakeholders expressed support for alternative arrangements that could see a greater role for competitive forces in helping ensure the efficient delivery of capacity expansion. Nonetheless, we considered there was a lack of detail on the commercial underpinnings for such arrangements, and how they could be integrated into the existing regulatory framework and planning processes.

3.15 As noted above, in response to the December 2017 Consultation, stakeholders have now brought forward separate proposals, albeit not containing all the necessary details, that each appear worthy of consideration and which may act as pointers towards potential commercial and delivery arrangements. We have been told that, to date, there has been limited engagement between certain key stakeholders on these matters. Bearing all of this in mind, we have considered how these proposals can best be assessed to establish whether they could be developed in a way that furthers the interests of consumers, promotes competition and is consistent with the timely delivery of capacity expansion.

3.16 We note the comments made by HAL on STOD in its submission for the final Section 16 report, and the discussion of it by the Competition Commission ("CC") in its 2009 report.[28] We are also conscious of the issues that have been raised by respondents in relation to the possibility that commercial agreements might lead to discriminatory arrangements, or new capacity being developed in a manner that favoured incumbents, for example, by creating barriers to entry for potential new airlines at the airport.

3.17 While it is appropriate to consider both the advantages and disadvantages of various alternative commercial and delivery arrangements, it is too early to take a final view on any particular form of alternative arrangements or the comparative merits of such arrangements. In particular:

- we have not reached the point in the process where HAL has engaged effectively with parties coming forward with alternative proposals; and
- we would expect that any such proposals will evolve during the course of engagement with HAL.

3.18 It is, however, important to note that we will need assurance from all relevant parties that any approach to alternative delivery of capacity expansion will not undermine the ability for the expansion programme as a whole to be efficiently commercially financed and delivered in a timely way in the interests of consumers.

[28] See Competition Commission Airports Market Investigation final report, especially at paragraphs 10.26-10.28 and 10.346-10.351 and Appendix 10.11:

http://webarchive.nationalarchives.gov.uk/20140402170726/http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/non-inquiry/rep_pub/reports/2009/fulltext/545.pdf
http://webarchive.nationalarchives.gov.uk/20140402212103/http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/non-inquiry/rep_pub/reports/2009/fulltext/545_10_11.pdf

3.19 As for HAL's latest comments about STOD in the context of the Section 16 report, we consider that proper engagement will enable HAL and other stakeholders to understand better, and provide evidence on, the issues that STOD might raise in the context of concrete proposals, rather than the more hypothetical discussion provided by the 2009 CC report.

3.20 In this context, we are clarifying, reinforcing and extending our policy of requiring HAL to engage with interested and credible parties on alternative commercial arrangements. We want to discover more about whether these, or other alternatives, might benefit consumers through bringing better design, financing, operation and/or delivery arrangements. To do this, we are seeking to ensure that key stakeholders properly engage to explore how to improve design and delivery.[29]

3.21 To drive this, we require that HAL not only stands by its public commitment to engage, but also to do so in a proactive, timely and constructive way, thinking more broadly about alternative commercial and delivery arrangements. We expect that this will involve HAL treating the proposals put forward by stakeholders as genuine alternatives and seeking to help resolve any potential weaknesses or difficulties with particular proposals. Similarly, we will expect other participants in these discussions to act in good faith and in a professional and constructive way, demonstrating the flexibility to find arrangements that will benefit consumers.

3.22 Not only should this approach best protect the interests of consumers, it should also have advantages for HAL. These include:

- being able to rely on competitive processes better to manage cost efficiency and the risks to shareholders of a failure to deliver efficiently;
- demonstrating that it has exploited commercial opportunities to help protect consumers that we would then take into account in assessing HAL's risk and reward package;

[29] Our approach to HAL's price control after the end of 2019 will also give additional time prior to the submission of HAL's initial business plan[29] for commercial arrangements to be developed.

- winning the "hearts and minds" of stakeholders and so making the process for capacity expansion easier and lower risk; and
- avoiding unnecessary and potentially difficult regulatory interventions, whether in the form of new licence obligations, licence enforcement or arrangements similar to those proposed by Ofgem with respect to its "Competition Proxy" model.

3.23 We will also consider whether new licensing tools are appropriate, whether in relation to the enforcement of existing conditions, or the creation of new obligations, rather than relying on wider powers such as competition law. We note the suggestions put forward by respondents, and will keep both HAL's approach, and its actions following this consultation, under review.[30] Our approach to these matters will primarily be related to whether there is evidence (and how strong that evidence is) that alternative approaches could better protect the interests of consumers, such as through improved affordability, financeability or deliverability.

3.24 Some stakeholders have suggested that the CAA should request that the Government brings forward legislation to change the scope of its powers. Bearing in mind the scope for meaningful engagement on alternative commercial proposals within the existing framework, and the lack of clarity about the best way forward on alternative arrangements, we do not see that this is either justified at this point, or that it would lead to any change (even if appropriate changes were to be identified at this stage) that is likely to be implemented in a timetable that is consistent with the interests of consumers given the length of time it would take. Any significant change would need new legislation, which would take significant time to develop, consult on, and pass through the Parliamentary process.

[30] In this context, we note that HAL has indicated its willingness to engage in commercial negotiations without being constrained by its financing arrangements. Clearly, it is for HAL to manage the relationship with its investors, but we shall be mindful of whether these might have an impact in the light of HAL's behaviour in the coming months.

Arrangements for enhanced engagement

3.25 We welcome the public statements made by HAL on 26th April 2018 about engaging with stakeholders on alternative commercial and delivery arrangements. We note that HAL has also, in its response to the December 2017 Consultation, suggested some principles to guide its engagement on alternative arrangements, including that proposals are sufficiently detailed to allow testing against its masterplan options and that they align with its commercial incentives. We note that some of this may have been superseded by HAL's subsequent statements, but we consider that, if there are issues or difficulties with a particular proposal, HAL should approach them with an open mind. In such circumstances, it should articulate the issues and present them in terms of the evidence it has in relation to consumers' interests and where possible, it should set out the steps necessary for the resolution of its concerns.

3.26 In this context, it is our view that:

- for alternative designs, third parties should only be expected to have prepared equivalent relevant detail for their proposals to that which HAL published in its main consultation document for its first planning consultation;[31]
- for commercial and delivery arrangements, we expect HAL to engage with both airlines and credible other parties on the alternatives outlined in the responses to the December 2017 Consultation, as well as other similar proposals coming forward;
- HAL should be open minded at this stage on its approach to procurement and it should not rule out procuring terminal capacity through, for example, a design and build approach, rather than simply relying on its previous or preferred approach; and

[31] See https://www.heathrowconsultation.com/wp-content/uploads/2018/01/Expansion-Consultation-Document.pdf

- in developing their proposals, we would expect third parties to be aware of the potential concerns that HAL has raised and to have considered ways to mitigate their impact.

3.27 In pushing forward this engagement, HAL should not simply discount proposals because of issues of consistency with the NPS (although clearly consistency with the NPS will be required for any eventual planning consent). Rather, it should work with stakeholders to provide the opportunities for proposals to be modified and made consistent with the NPS.

3.28 As noted above, we expect all participants in these discussions to act in a professional and constructive way, demonstrating the flexibility to find arrangements that will benefit consumers.

3.29 Further, in respect of its commercial incentives, HAL should be mindful that, given its market position, and as the holder of a licence under CAA12, it cannot expect to put its own narrower interests ahead of those of consumers. Evidence of this would be considered by the CAA, including in guarding against the recovery by HAL of inefficient or inappropriate costs.

3.30 We note and welcome the public statements that Heathrow made on 26th April 2018 on its approach to dealing with third parties. To support this enhanced approach to engagement we expect that HAL should develop and come forward to stakeholders with a process for engagement to commence before the end of May 2018. This process should build on the considerations set out in paragraph 3.26 above and:

- involve all parties engaging constructively;
- provide a level playing field for third parties' ideas to be considered, with HAL fully involved in helping to solve potential problems with alternative proposals and making constructive suggestions for improving alternative proposals;
- include an appropriate and timely approach for a dispute resolution process (for example through escalation to senior executives, the CAA or a third party meeting chair/mediator);

- incorporate appropriate monitoring and reporting: this might include using the IFS to help monitor progress and facilitate discussions;
- provide objective evidence of the progress made in these discussions; and
- make progress and report back to the CAA in time frames that are related to and consistent with relevant programme milestones, such as the development of HAL's masterplan and the issue of HAL's second planning consultation.

3.31 Finally, HAL has indicated that it expects to proceed with engagement at least to the point where it has determined and can demonstrate that alternative proposals have value or are impractical and/or are not in the consumer interest. The CAA will also consider the views of other parties and will monitor progress and seek to guard against minor concerns being used to prevent progress where pragmatic solutions to those issues could be developed. HAL will need to justify its actions to all interested stakeholders (and the CAA) and demonstrate how it has weighed both the potential benefits and costs of alternative arrangements.

3.32 Further details on our wider requirements for enhanced engagement and reporting are set out in our final Section 16 report to the SoS on airport-airline engagement which will be published shortly.

3.33 We also expect HAL to be transparent with some of the key information it holds, subject to appropriate protection for commercially confidential material. Specific areas where we expect progress are:

- where it would reasonably support discussions and the development of an alternative commercial proposal, publication of relevant materials and reports prepared for the planning process and funded by consumers through Category B cost allowances; and
- the provision of more granular information on HAL's RAB through visibility as to how the information in HAL's regulatory accounts aligns with the asset value information in its statutory accounts.

3.34 We will also publish the final report from PA consulting on Heathrow's cost and revenue allocation shortly.[32]

New licence conditions

3.35 In parallel with the enhanced engagement process explained above, we will consider whether new licence conditions for HAL will be needed (including the specific proposals for new licence conditions put forward by stakeholders in response to the December 2017 Consultation). While we are concerned that introducing new licence obligations now may not be a sufficiently flexible tool to deal with the circumstances that may emerge over time, they may be appropriate following further consultation, or if arrangements for enhanced engagement do not make substantial progress.

3.36 We have already discussed the potential merits of a simple licence condition that would require HAL to operate, maintain and develop Heathrow in an economical, efficient and timely manner to satisfy the reasonable requirements of users regarding the quality and capacity of the airport. At this stage, however, we note that, while a simple obligation could enable the CAA to retain the flexibility to target specific interventions to hold licensees to account, unless it were to be supported by CAA policy guidance, the transparency and effectiveness of such a condition could be undermined.

3.37 To address these concerns, there is merit in considering whether such a condition should be accompanied by policy guidance from the CAA setting out our expectations, and which could be expected to evolve in line with the CAA’s expectations on relevant issues, subject to appropriate governance. While these expectations would not necessarily be set out in the condition itself, they could be tailored to both expansion generally and engagement specifically, including expecting HAL to:

- pursue design and development work on new capacity;

[32] PA Consulting: “Final report on a study of Heathrow's cost and revenue allocations”

- engage in good faith with its airline customers and third parties, including in relation to the development and implementation of appropriate alternative commercial and delivery arrangements;
- prepare the DCO application in a timely and efficient manner;
- address operational resilience during construction; and
- prepare and provide information on cost efficiency and information to support affordability modelling.

3.38 We would expect that the governance requirements of any such CAA guidance would ensure that it was subject to consultation with stakeholders and that, should we consider that circumstances had changed such that a material change to the guidance was needed, it would be very likely that we would consult on changes. We will explore the issues that such a condition and CAA guidance may raise in the consultation and update paper on licensing which we are planning to publish later in the year. There might also be links to financial ring fencing as discussed below.

Financial resilience and ring fencing

3.39 The December 2017 Consultation discussed whether the protections offered by HAL's existing financial arrangements remain fit for purpose in the light of the challenges of capacity expansion. We noted it is appropriate for us to review the existing licence protections as they are significantly less comprehensive than those in other regulated sectors. In doing so, we would have regard to HAL's financing arrangements and said that we could see no evidence that would justify an approach that would precipitate a large scale refinancing by HAL.

3.40 We noted that we would address some aspects of financial resilience and stability as part of developing the wider regulatory framework and we started to explore whether there is scope to strengthen the existing financial ring fencing conditions. We set out an initial assessment of conditions and said that we would assess the advantages and disadvantages of each in more detail before finalising our approach and emphasised the importance of a proportionate approach that would avoid unnecessary costs for HAL and consumers.

Stakeholder views

3.41 There was significant common ground among respondents that the CAA should take care not to unnecessarily disturb HAL's existing financing arrangements or unduly constrain its ability to raise debt finance.

3.42 HAL took the position that an overall regulatory framework that appropriately compensates HAL for the risks that it takes on is the best way to ensure its financial resilience. Any obligations that would duplicate the contents of its financing platform would be redundant and additional obligations could be costly. It also made a relatively large number of comments about the specific areas where we suggested that new obligations might be appropriate in the December 2017 Consultation.

3.43 Airline representatives and other respondents took a more supportive approach to the CAA's proposals, noting that creditors' objectives may differ significantly from those of the CAA and supporting proposals to move towards more comprehensive obligations in the licence relating to financial ring fencing. Airlines and other respondents also made of range of further points, including:

- the CAA should carry out a comprehensive assessment of risks as HAL's corporate structure would make it difficult or impossible for an orderly administration procedure;
- encouraging the CAA to consider a temporary lock up on HAL's ability to pay dividends, so that its cash flow could be used to help fund construction;
- that there are strong market based incentives for financial resilience and that even in the circumstances of financial distress it is very likely that HAL would generate positive operational cash flows; and
- supporting protections that do not reduce bond holder security, with HAL's shareholders carrying residual risks.

CAA views

3.44 We acknowledge stakeholders' concerns that our approach should be proportionate and supported by an assessment of the costs and benefits of any new obligations. In this context, we observe that financial resilience regulation is concerned with managing high impact/low probability events and, as such, quantifying consumer benefits can be difficult. To address this, therefore, the emphasis of our approach will be on safeguards that have more limited costs. We also consider that some of the concerns raised by stakeholders can be addressed by appropriate drafting of any licence obligations.

3.45 We note that there are possible links between financial resilience and other licence conditions, including possible licence conditions relating to delivery. We are also of the view that regulatory rules serve a distinctive purpose from those set out in HAL's financing arrangements, and, therefore, we are continuing to consider the extent to which the CAA should apply its own rules in areas where there are "neighbouring" obligations in HAL's finance agreements, for example, in relation to HAL maintaining an investment grade credit ratings. We intend to consider these issues further in consultation and update paper later this year.

Views invited

3.46 Views are invited on any aspect of the regulatory framework and, in particular, on:

- our approach to alternative commercial and delivery arrangements;
- the introduction of a high level obligation on HAL to operate, maintain and develop Heathrow in an economical, efficient and timely manner, coupled with the potential for guidance focusing on the expectations that such an obligation on HAL would bring in relation to:
  - (i) pursuing design and development work on new capacity;
  - (ii) engaging with its airline customers and third parties, including in relation to the development and implementation of appropriate alternative commercial arrangements;
  - (iii) preparing the DCO application in a timely and efficient manner;
  - (iv) addressing operational resilience during construction; and
  - (v) the preparation and provision of information on cost efficiency and information properly to support affordability modelling.

Chapter 4

Cost of capital and incentives

Introduction

4.1 Since capacity expansion will require the financing of significant amounts of capital expenditure, the cost of financing and the WACC will be very important to determining the overall level of airport charges.

4.2 Alongside the December 2017 Consultation, we published an initial report we had commission from PwC which set out early and preliminary estimates of the range for the WACC.[33] This report included separate ranges for (i) HAL's existing business (operating a two runway airport or "as is" scenario), and (ii) HAL's business taking into account the impacts of capacity expansion and a third runway (the "with R3" scenario).

4.3 The December 2017 Consultation said that we would incentivise the efficiency of overall costs, including operating, capital and financing costs. This would require us to balance incentives for efficiency with the risks that such incentives could create, as these risks could put upward pressure on the WACC. In establishing this balanced package of incentives, we would seek to encourage overall efficiency, allow HAL to finance expansion, and find a solution that is affordable.

4.4 This means that we need to consider incentives alongside our work on the cost of capital. Bearing this in mind, in this chapter we discuss:

- the responses to the December 2017 Consultation on the cost of capital;

[33] See CAP 1611 "Estimating the cost of capital for H7 (An independent report produced by PricewaterhouseCoopers LLP). referred to as "the PwC Report": http://publicapps.caa.co.uk/docs/33/CAP1610(120014-12-2017).pdf.

- our initial work on calibrating the possible impact of incentives on the regulatory allowances for the cost of capital (and, in particular, on the regulated return on equity); and
- the next steps with respect to these matters.

Cost of capital

4.5 The December 2017 Consultation noted that the PwC Report provided evidence that the market wide real cost of equity and real cost of debt have fallen significantly since the Q6 price control review which came into effect in 2014. The PwC Report also included a very initial range for any additional premium that might be required to take account of the additional risks associated with capacity expansion. In general, the premium for capacity expansion identified by PwC was not sufficient to offset the reductions it identified in the WACC resulting from its view of changes in market wide conditions.

4.6 We said that these were early and preliminary views, that much further work would be required on these matters and we would consider carefully the views of respondents on the cost of capital and related matters.

Stakeholder views

4.7 HAL said that "*for the avoidance of doubt, the returns described in the PwC report will not allow investment under today's framework. This is not consistent with the CAA's primary duty to consumers*." It also said "*this duty is to further the interests of users of air transport services regarding the range, availability, continuity, cost and quality of airport operation services. It is not to target returns of investors.*"

4.8 Further, it said that "*the CAA is prejudicing its assessment of this balance by adopting an approach that states the WACC should be the minimum expected return. This creates a significant risk of setting a low WACC that a) discourages marginal investment to further the interests consumers and b) puts at risk the delivery of expansion to consumers. This is contrary to its duties*."

4.9 HAL suggested that the CAA should take a longer term view of the WACC, develop a framework for risk that covers at least the H7 and H8 price controls and consider returns with reference to specific construction, demand and financing risks. HAL has also suggested that uncertainty about the cost of equity could be dealt with by setting the WACC in a way that gave it an incentive to invest and deliver new capacity for consumers.

4.10 Airlines (and other respondents that commented) generally supported the approach to the cost of capital set out in the PwC Report. The LACC/AOC commissioned CEPA to support its assessment of HAL's cost of capital. CEPA has questioned the approach adopted by PwC of adding a premium to a base WACC, suggesting that no such premium would be required to allow the financing of capacity expansion.

4.11 Views of respondents and their main concerns on the specific parameters used to calculate the WACC will be addressed in a future CAA publication.

CAA views

4.12 The December 2017 Consultation explained that the range for the WACC set out in the PwC Report was an early and preliminary estimate, and this remains the position. Decisions on the WACC range, and where within that range to set the WACC, are not required until we start to develop proposals for the next main price control in 2020 and 2021. It is not necessarily the case that we will set the WACC at the minimum of the range identified in the PwC Report, nor can it be inferred that our final decisions on the WACC will fall within the PwC range. We have yet to consider in detail all the representations we have received, there may be further representations as our work progresses and evidence from financial markets may change.

4.13 In setting the cost of capital and developing incentives, our overall objective is to encourage the timely delivery of capacity expansion at the lowest overall efficient cost, consistent with HAL providing the outputs that consumers and airlines expect. This means that the regulatory framework will be developed so that the cost of capital is no higher than necessary, but also offers HAL a reasonable return which is commensurate with the level of risk it faces.

4.14 We do not consider our work on the cost of capital sets a target return, as it is only one part of the regulatory framework and should be supplemented by a balanced package of incentives that allows for efficiencies to be shared with consumers and additional rewards for HAL's shareholders. We also understand the significant consumer and wider economic benefits from capacity expansion, but these only serve to reinforce the importance of capacity expansion being carried out efficiently (including in relation to both capital and financing costs) so that consumers do not pay more than is reasonably necessary.

4.15 There are significant uncertainties in estimating the cost of capital and, in particular, the cost of equity finance. We will seek to resolve this uncertainty by considering benchmark data and other evidence to guide our judgement. Nonetheless, we have also said to HAL that that the best way of resolving these uncertainties could involve joint working on commercial and regulatory arrangements that would allow for the market testing of the cost of equity.

Assessing the impact of incentives

4.16 The June 2017 Consultation discussed *ex ante* incentives on HAL's capex. This would represent a change from our past approach (based mainly on *ex post* efficiency reviews) but could provide stronger incentives for HAL to invest efficiently and avoid cost overruns. An *ex ante* capex incentive would involve rewarding HAL for delivering at costs below a pre-set budget and penalising HAL for costs that turn out above that budget.

4.17 We do not yet have a final view on whether, or how, *ex ante* capex incentives might be introduced. However, we have identified three examples of the broad types of option that might be most appropriate. These are:

- a moderate *ex ante* incentive applied to all of HAL's capex;
- a moderate *ex ante* incentive applied only to a subset of HAL's capex, with other cost categories remaining subject to *ex post* efficiency reviews; and
- a weaker *ex ante* incentive applied to all of HAL's capex (this would not be sufficient to function as our only means of promoting efficiency, so we

might need to retain the option of carrying out *ex post* efficiency reviews alongside this option.)[34]

4.18 While there are many possible variations on the three options identified above, they capture several important aspects of our current thinking, including that we would not currently expect any *ex ante* incentives to be very strong (e.g. with HAL bearing close to 100% of the risk and reward). We would need to consider the design and implementation of any incentives carefully, taking into account issues such as whether there should be any “dead bands”, caps/collars, reopeners, indexation of elements of the target cost and so on. Further discussion of our initial views on some of the implementation issues that we will need to consider will be addressed in a future CAA working paper on these matters, which we intend to publish shortly.

4.19 As a first step in considering whether *ex ante* capex incentives could form part of a balanced package, we have carried out some initial analysis of the effect such incentives could have on HAL’s Return on Regulated Equity (“RORE”) under a range of expenditure outcomes. RORE reflect the return on the level of equity assumed by the CAA in setting the price control. Other economic regulators have used such “RORE ranges” to understand the possible impact of both individual mechanisms and the overall package of incentives.[35]

4.20 At this early stage, we are focusing on testing a range of *ex ante* capex incentives that could form part of a balanced package of incentives, rather than seeking to draw any detailed conclusions on the link between different forms of risk and HAL’s allowed returns, as this would seem to be premature without at least outline proposals on incentive mechanisms.

[34] For some specific projects, as an alternative to the threat of *ex post* reviews, we could consider whether to apply stronger *ex ante* incentives.

[35] See for example sections 10.2 and 10.3 of Ofwat, “Delivering Water 2020: Our final methodology for the 2019 price review”, December 2017; and p31-33 of Ofgem, “RIIO-GD1: Final Proposals - Finance and uncertainty supporting document”, December 2012: https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Final-methodology-1.pdf and https://www.ofgem.gov.uk/ofgem-publications/48156/3riiogd1fpfinanceanduncertainty.pdf

4.21 Our initial work also starts to examine whether particular incentives would make HAL an outlier compared with the incentives placed on other network companies subject to economic regulation. While there are some variations in the incentives placed on individual companies in each of the energy and water sectors, the overall picture within sectors is reasonably consistent. We note that:

- Ofgem's current packages of incentives for electricity and gas distribution companies lead to RORE ranges of about 8-9% for electricity or 6-8% for gas. Within these overall ranges, total expenditure incentives account for a range of around 3% for electricity or 4-5% (for gas;[36] and
- Ofwat's current proposals for an overall risk and return package for 2020 to 2025 envisage a total RORE range of around 9-10%, with total expenditure incentives accounting for a range of around 4%[37]; and
- RORE ranges are typically intended to capture the impact of reasonable upside and downside scenarios, but not the very worst (or best) cases. Ofwat, for example, states that its RORE ranges are based on P10 and P90 outcomes.[38]

4.22 For our initial analysis, we have examined the impact of relatively large under and overspends. There are a number of reasons why a narrower range may be applicable later in the process and before incentive arrangements are finalised. We might expect that, where relevant, the intensity of engagement between HAL and airlines should make these more effective than for past projects. These could include:

- by the time we would implement *ex ante* cost incentives, considerable efforts by HAL, airlines and other stakeholders will have been devoted to

[36] See p33 of Ofgem, "RIIO-GD1: Final Proposals - Finance and uncertainty supporting document", December 2012; and p46 of Ofgem, "RIIO-ED1: Final determinations for the slow-track electricity distribution companies", November 2014. *Op cit*, and: https://www.ofgem.gov.uk/ofgem-publications/91564/riio-ed1finaldeterminationoverview.pdf.

[37] See section 10.3 of Ofwat, "Delivering Water 2020: Our final methodology for the 2019 price review", December 2017*, op. cit.*

[38] P90 is a high cost estimate such that there is estimated to be a 90% probability of actual costs being at or below this level.

reviewing and amending the design and phasing of different parts of the expansion programme;

- in addition, by that time we would expect HAL to have adopted risk management measures that would help to reduce the risk of significant cost overruns;
- there may be a lower risk of late design or scope changes (which are a common cause of major cost overruns), because of the extensive stakeholder input at earlier stages; and
- if HAL still faces very large risks that are outside of its control, we could consider implementing general or specific adjustment mechanisms or reopeners to reduce or remove the impact of these risks when applying any *ex ante* incentives, albeit that these would need very careful design in order not to undermine the overall incentive in question.

4.23 We have adopted “low” and “high” capex scenarios of -15% and +25%. In other words, these cases assume that HAL either underspends by 15% or overspends by 25% compared with the forecast that would underpin the *ex ante* incentive. To illustrate the impact of more extreme outcomes, we also included “very low” and “very high” cases in our analysis. Our assumptions for these cases are based on the range of outcomes reported by an academic study of 258 transport infrastructure projects internationally.[39] The distribution of outcomes suggests a cost range of around 70% between the 10th and 90th percentiles. We have used this range to inform our “very low” and “very high” cases, which assume cost outcomes of -25% and +45%.

4.24 This asymmetric range of possible outcomes does not mean that we should necessarily increase the level of allowed returns to HAL. The overall expected impact of the incentive on HAL’s returns could still be positive, for instance, if typical expected outcomes were to be dominated by modest levels of

[39] See Figure 1 in Flyvbjerg B, Holm M and Buhl S, “How common and how large are cost overruns in transport infrastructure projects?”, Transport Reviews, 2003: https://www.tandfonline.com/doi/abs/10.1080/01441640309904.

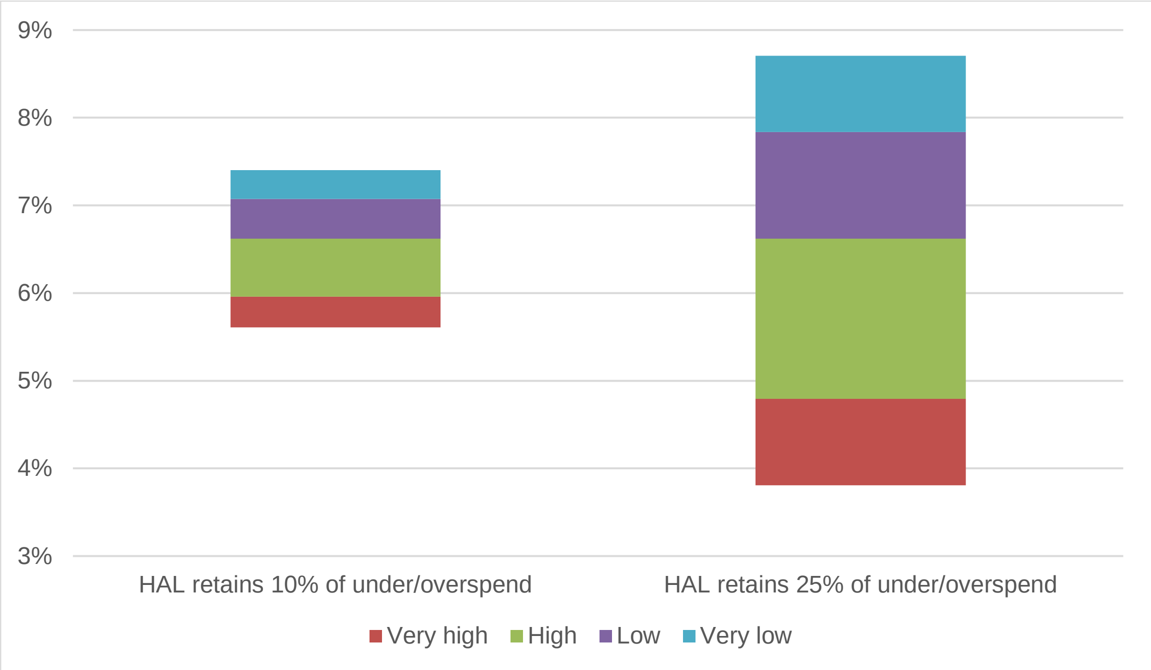
outperformance, but occasionally there might be very substantial cost inflation or inefficiency.

4.25 For a range of capex under or overspends, we calculated the impact on HAL's RORE of it being penalised by either 10% or 25% of any overspends (or allowing HAL to retain either 10% or 25% of any underspend). Together, these cases illustrate the likely broad impact of the options for incentive arrangements described above:

- penalising or rewarding HAL by 25% of any overspend or underspend gives an indication of the likely impact of applying a moderate cost sharing incentive (such as 25%) to all of HAL's capex; and
- penalising or rewarding HAL by 10% of any overspend or underspend gives an indication of the likely impact of applying either (a) a weaker incentive (such as 10%) to all of HAL's capex, or (b) a moderate incentive to a subset of HAL's capex (for example, a 25% incentive applied to 40% of HAL's programme).

4.26 The figure below shows the estimated RORE ranges associated with these cases. For illustrative purposes, these are centred on a base case using a real post-tax RORE of 6.5%. Using the above scenarios, exposing HAL to 25% of any capex under or overspend would lead to a RORE range of 3% between the low and high cases. Even between the very low and very high cases, the RORE range is less than 5%.

Figure 4.1: Estimated RORE ranges



Source: CAA analysis

4.27 This is very preliminary analysis, and more detailed work is required to understand both the financial and the practical implications of *ex ante* capex incentives. Nonetheless, the main initial conclusion we draw from this analysis is that the broad types of incentive described above would not make HAL an outlier compared with the incentives currently placed on energy and water network companies. If, having given proper consideration to the practical issues, we were to decide to introduce *ex ante* capex incentives, our analysis suggests that the options described above could operate as part of a balanced package of incentives. This balanced package could also include incentives for the timely delivery of capacity expansion.

Next steps

4.28 We will shortly issues working papers on:

- our initial views on some of the implementation issues with *ex ante* incentives; and

- summarising the main points raised respondents by respondents on the components of the WACC set out in the December 2017 Consultation

and explaining our plans for further work on these matters.

Views invited

4.29 We would welcome views from stakeholders on any matters relating to the cost of capital and, in particular, on our initial work on calibrating the impact of incentives on the regulatory allowances for the cost of equity finance.

Chapter 5

Interim arrangements to apply after the end of the Q6 price control

Introduction

5.1 This chapter deals with the arrangements that we will need to put in place at the end of the Q6 price control. This price control was originally designed to operate for the five year period from to 31st December 2018. In 2016, we announced that we would extend the control by one year (to the end of 2019) to deal with the uncertainty associated with the Government's decision on the location for capacity expansion in the south east of England. The December 2017 Consultation discussed ways of further extending the price control and better aligning the price control timetable with the wider timetable for capacity expansion.

5.2 The main sections of this chapter:

- provide a summary of the discussion in the December 2017 Consultation of these matters;
- set out the views of respondents; and
- explain our proposed way forward and set out for consultation proposals for certain aspects of the timetable for setting both an interim price control and the main price control.

The December 2017 Consultation

5.3 We have consistently said that there are benefits to consumers in better aligning the main price control timetable with that of the wider programme for capacity expansion, so that the information available at the main price control review reflects the best information available on capacity expansion. In proposing changes to achieve this objective, we discussed the advantages of an approach that would be pragmatic, support capacity expansion, promote stability in charges and incentive arrangements, and support overall affordability. We also said we would only make changes that were proportionate and focused on protecting consumers. We explained that a further price control extension of at least one year would be needed, but our overall approach should be robust in case a two year extension would better suit the circumstances of capacity expansion.

5.4 Noting stakeholders' desire for early decisions on our approach, we said that we intended to make decisions in April 2018 on the overall price path and consulted on options for this of RPI-0% or RPI-1.5%. To ensure that consumers share in the success that HAL has experienced in operating the airport and the efficiency gains it has made, we suggested updating or rolling forward certain key assumptions used to set the Q6 price control. We said that we would then adjust regulatory depreciation by an amount representing the difference between (i) the price path we set (i.e. RPI-0% or RPI-1.5%) and (ii) the underlying revenue allowances calculated by reference to our updated building block assumptions. Using depreciation in this way would reduce the RAB (and consequently airport charges) in future years.

5.5 To calibrate underlying revenue (which would be the basis for adjusting regulatory depreciation) we sought a proportionate approach that would be fit for purpose for either a one or two year extension, without the complexity and potential distraction of conducting a full price control review. We said we would use a "top down" approach and could:

- roll forward either the RPI-1.5% revenue assumption or the underlying assumptions used for Q6; or
- taking account of HAL's performance, use outturns and/or forecasts to reset, on a "top down" basis, some of the assumptions on revenue building blocks (such as traffic volumes, operational costs, commercial revenue, debt financing costs and corporation tax rates).

5.6 As noted above, we indicated that we would decide on HAL's price path and our approach to calibrating its revenue allowances in April 2018. The final work on calibrating the extension would then proceed during 2018 ahead of licence modifications in 2019. We said we would decide on the duration of the extension in the light of circumstances, including the timing of the designation by Parliament of the NPS.

Stakeholder views

Duration of the extension

5.7 Respondents had different views on the duration of the price control extension:

- HAL preferred a two year extension to align with the planning process, give adequate time to explore commercial agreements, allow for contingency and avoid problems in the development of its business plans;
- airline respondents questioned whether, given the uncertainties with the wider capacity expansion timetable, it was possible to fully align the price control and planning processes, and strongly preferred a single year extension; and
- another respondent acknowledged the benefits of matching the price control timetable to the DCO process.

Setting the price path and approach to calibrating revenue allowances

5.8 Respondents also had differing views on the price path and the approach to calibrating underlying revenue allowances:

- HAL suggested using an RPI-0% price path, with underlying revenue allowances recalibrated by resetting the interlinked and simpler revenue building blocks. It argued against reviewing the WACC or its elements due to the complexity of the issues and the significant amounts of time and resources necessary to complete this work. Instead of adjusting regulatory depreciation, HAL proposed addressing the difference between the price path and revenue requirement during the period of the price control extension by a revenue adjustment to the next main price control;
- airline representatives did not support either a RPI-0% or RPI-1.5% price path. Instead, they suggested that the price should be based directly on the revised revenue building blocks, with passenger numbers, opex, single till revenue and the WACC being adjusted for actual and expected

performance. One airline said the whole regulatory settlement should be reset and considered that a rollover of RPI-1.5% could only be considered if HAL's "excess earnings" could be used to offset the early costs of capacity expansion; and

- another respondent said that the building blocks for passenger forecasts, operational expenditure, revenue and the WACC should be reset.

Way forward on the duration of the extension

5.9 The criteria set out in paragraph 5.3 above remain relevant to our decisions on the further extension of the price control. While we may not be able to synchronise the regulatory process exactly with the planning process, we should seek broad alignment to ensure that we have the best information available to set the next main price control. This would:

- help support the creation of a high quality business plan by HAL, using the latest and most timely information; and
- reduce the risk that the H7 price control would be based on underdeveloped information, particularly on the costs of capacity expansion, that would be superseded by improved information as the design process continues.

5.10 It is also important that the process for realigning the price control timetable does not unduly distract stakeholders or resources from the wider process for capacity expansion. Therefore, it remains our view that we should adopt a proportionate and targeted approach, consistent with the interests of consumers. This suggests that a full review of the price control will not be appropriate.

5.11 HAL's comments that a two year interim price control would best allow it to produce a high quality business plan, reduce regulatory uncertainty and allow for engagement on alternative commercial arrangements have significant strength. By contrast, airlines' suggestion for a single year's extension do not appear adequately to address the evidential, process and timetable issues which would arise from seeking to set a full price control starting from January 2021.

5.12 Interim arrangements covering two additional years have the advantage that it will provide more time to discuss alternative commercial arrangements and ensure robust information is available on the costs of capacity expansion.

5.13 A two year extension may, however, give rise to some challenges. For example, we are conscious that HAL has made projections of capex that show very significant levels of spending in 2021 (on the basis that its DCO application will be approved in the middle of 2021). Much of this capex would be incurred after the DCO is granted and would be in addition to the early Category C costs discussed in chapter 6. To resolve this, HAL may need to accept that the regulatory framework for the main price control could encompass some expenditure that it undertakes after the DCO is granted but before the start of the main price control.

5.14 Furthermore, in setting the interim control, we would also need to consider affordability (in the light of the discussion later in this chapter) and we would also need to test for financeability, particularly in the second year of the interim control when HAL's capex could be relatively high.

5.15 On balance, however, we do not regard these issues as so significant as to undermine the case for a two year interim price control and consider that, in summary, such an approach would have the following advantages:

- it better aligns the regulatory and planning processes than a one year control;
- in practical terms, it is more likely to result in the production of a high quality business plan by HAL based on more better quality information, as well as allowing the consumer research being undertaken by HAL to be robust and wide ranging;
- it provides HAL, airlines and others with sufficient time to engage in commercial discussions on elements of the masterplan such as the construction of new terminal capacity; and
- it can better allow for the development of incentives for the main price control in a way consistent with efficient delivery of capacity expansion.

5.16 Bearing the above in mind, we have decided that a two year interim price control represents the best way forward. This is subject to there being no very significant changes to the forward work programme for capacity expansion, such as the NPS not being designated in a timely way in 2018.

Way forward on calibrating HAL's revenues

Approach

5.17 In the December 2017 Consultation, we said we would make proportionate changes to the assumptions underlying the Q6 price control to protect the interests of consumers. This approach remains valid, but we also need to take into account the circumstances of a two year interim control and, in particular, that by the end of this period, it will be eight years since the last main price control review took place. Therefore, it will be appropriate to assess a broader range of issues than we did for the one year rollover of the Q6 control for 2019.

5.18 While this will involve looking at a broader range of issues, it is important that we balance this approach with avoiding all the complexity and potential distraction from capacity expansion that a full price review would entail. Rather than the "bottom up" and detailed assessment of issues which would be appropriate for a full review, we intend to adopt a broader "top down" assessment of some of the more straightforward revenue building block assumptions. This should mean that consumers will still share appropriately in the benefits of the efficiency gains and outperformance that HAL has achieved during the Q6 price control period, but avoid the complexity and resource requirements of a full review as well as through promoting the affordability and financeability of expansion.

Recalculating key building blocks

5.19 In the December 2017 Consultation, we outlined three options for carrying out a "top down" assessment of the building blocks used to calculate HAL's price control revenues:

- a simple rollover of the price path, without any reference to the underlying building blocks. This is the approach we adopted in Q6+1, when we simply extrapolated airport charges by the Q6 determination of RPI-1.5%;

- rolling forward the same trends in the revenue building blocks that were assumed in setting the Q6 price control to reset the underlying revenue allowance; and
- resetting some of the building blocks to take account of expected performance in 2020 and 2021 and, therefore, effecting a more significant reset of the underlying revenue allowance.

5.20 As noted above, the circumstances of a two year control suggest that the third option would best protect the interests of consumers. It is also important to consider the range of revenue building block assumptions that should be updated and reset to achieve this.

5.21 A proportionate approach involves balancing the advantages of reviewing a relatively wide range of the assumptions used to set the Q6 price control against creating undue complexity and distraction. Reviewing more assumptions would ensure that consumers benefitted more from HAL's observed outperformance against the original assumptions and would also avoid perceptions of "cherry picking" assumptions that might favour either HAL or consumers. On the other hand, reviewing all the incentive arrangements and all the elements of the WACC would be unduly complex for a two year interim control.

5.22 To strike this balance, we propose to review a small number of the most significant building block assumptions: (i) passenger numbers, (ii) opex, and (iii) commercial revenues to reflect current forecasts. These should be relatively straightforward to review and both HAL and airline respondents agreed that these building blocks should be reset.

5.23 As for the WACC, we note that HAL did not consider that any changes would be appropriate, while airlines wanted a full reset of the WACC. The CEPA report that was provided alongside the AOC/LACC submission to the December 2017 Consultation concluded that it would be straightforward to use the PwC work that was published alongside that consultation to update the WACC. However, as we explained in the December 2017 Consultation, PwC's work only provides an early and preliminary estimate of a range for the WACC, and significant further work would be required before the CAA could make a full determination of the WACC.

5.24 Bearing in mind:

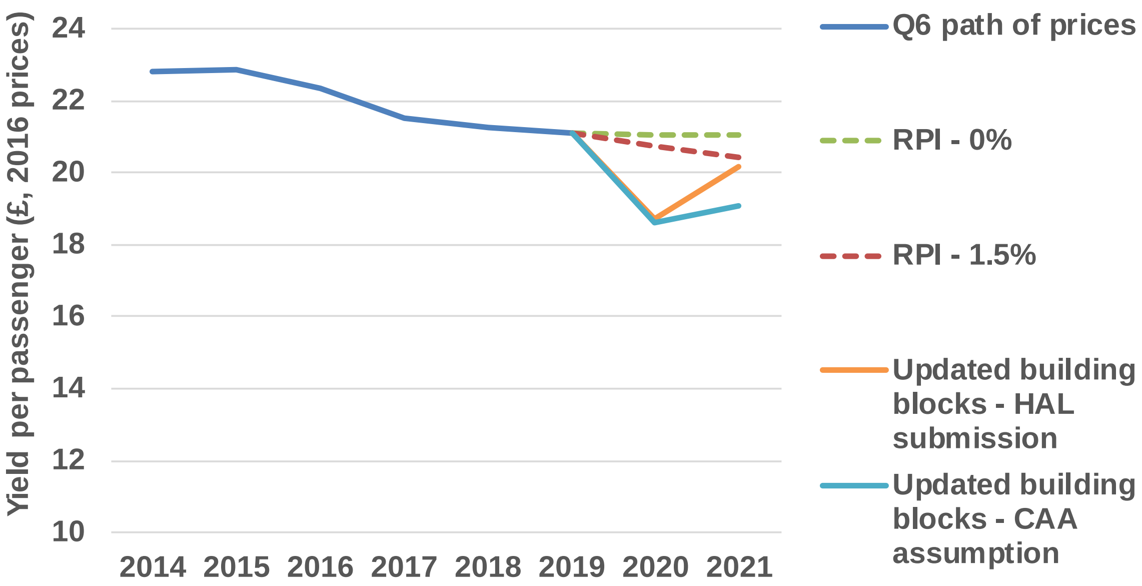
- it was clear from our description in the December 2017 Consultation, PwC's work on its own does not provide a sufficiently well developed evidence base on which we could take such a decision; and
- resetting the WACC would, in any event, involve choosing a single point estimate from the range identified in the PwC work

we do not consider that applying the PwC work provides a simple solution for setting the WACC for the interim price control.

5.25 Nonetheless, as we noted in the December 2017 Consultation, two elements of the WACC could be updated simply by using directly observable information: new debt costs and the rate of corporation tax. We therefore consider that it would be in the interest of consumers to update these elements of the WACC.

5.26 The December 2017 Consultation set out initial modelling of the possible impact that resetting the assumptions for passenger numbers, opex and commercial revenues has on HAL's average revenue requirements. This very initial work (which remains subject to review and revision) is summarised in Figure 5.1 below, alongside the possible impact of updates to estimates of capex in 2020 and 2021. All these assumptions will need to be reviewed and updated later in 2018 and 2019, taking account of the latest information from HAL and consultation with stakeholders. They should therefore be treated with significant caution.

Figure 5.1: Impact of resetting the building blocks: initial and preliminary estimates



Source: CAA calculations

5.27 The two “updated building blocks” price paths reflect updated estimates of capex in 2020 and 2021 compared to our modelling in the December 2017 Consultation. They are based on HAL’s current plans and a sensitivity defined by the CAA to reflect a possibility that capex is reprofiled and lower than HAL’s forecast for 2021.[40] The “HAL submission” price path uses capex figures from HAL as at March 2018.

5.28 Further details of the assumptions used in our modelling is set out in Appendix D.

5.29 In the December 2017 Consultation, we said that we would adjust for differences between the revised regulatory building blocks and the price path using regulatory depreciation. In its response, HAL said equivalent changes could be made by making revenue adjustments. We remain of the view that that adjusting regulatory depreciation is probably the simplest and most straightforward approach (as it would allow for a one-off set of adjustments).

[40] Specifically, we assume that £0.5 bn of 2020 early Category C costs are moved to 2021 and £2.6 bn of 2021 R3 capex costs moved to 2022 in H7.

Way forward on the price path

5.30 In the December 2017 Consultation, we highlighted our ability to set a different path from that implied by the resetting of the revenue building blocks underlying the price control. This approach could help in the short term by providing reasonable stability in charging levels, and in the medium term by supporting affordability and financeability.

5.31 As noted above, stakeholders' views diverged on these issues. Airlines were strongly against an RPI-0% price path, while this was HAL's preferred option. We remain of the view that both these price paths would be credible alternatives and would have a range of benefits, including:

- providing greater price stability than a price path aligned directly with a reset of the building blocks;
- delivering both HAL and airline stakeholders with earlier price certainty for each of 2020 and 2021; and
- supporting medium term affordability and financeability through the associated adjustments to regulatory depreciation.

5.32 An interim control based on RPI-0% would provide the most flexibility, as it would be associated with a greater level of regulatory depreciation over the period of the interim control, so that HAL (and therefore charges paid by consumers) would have a lower RAB to finance in the future. On the other hand, the difference between the two options is relatively modest (around £30 million ("m") per year) in the context of capacity expansion. Given the possibility of relatively high capex in 2021, both options would require us to test for financeability. Moving to RPI-0% would also require an additional change to the regulatory framework as the existing price control is RPI-1.5%. We have said that we will make changes only where necessary and appropriate. Therefore, we intend to retain the RPI-1.5% price path for 2020, but complement this by testing for financeability for 2021 to determine whether an RPI-1.5% price reduction is appropriate for the second year of the interim price control.

Process for determining the revenue building blocks and financeability testing

5.33 To deliver our approach to (i) resetting the price control building blocks described above, (ii) testing financeability and (iii) making a final determination of charging levels for 2021, we envisage taking the following steps:

- assessing evidence submitted by HAL in the fourth quarter of 2018 on forecasts for the price control building blocks for 2019-2021, including capex, and following consultation with stakeholders. This will include a published submission with supporting evidence from HAL;
- further consultation on the revenue building blocks and the implications for regulatory depreciation in Q1 2019;
- update and final consultation in the third quarter of 2019, including financeability testing and final determination of the charging level for 2021; and
- licence modifications in the fourth quarter of 2019 to implement the interim price control for 2020 and 2021.

5.34 We will also continue to develop our approach to cost efficiency incentives in the meantime, as envisaged above.

5.35 Finally, it is important to note that the arrangements set out in this chapter are based on assumption that the current timetable for capacity does not change significantly. If a significant change were to occur (such as the NPS not being designated during 2018) we could review our timetable and take whatever steps were expedient to protecting consumers. These could include bring forward the main review of HAL’s price control or setting a longer interim control on the basis of reopening much of the underlying assumptions supporting the price control.

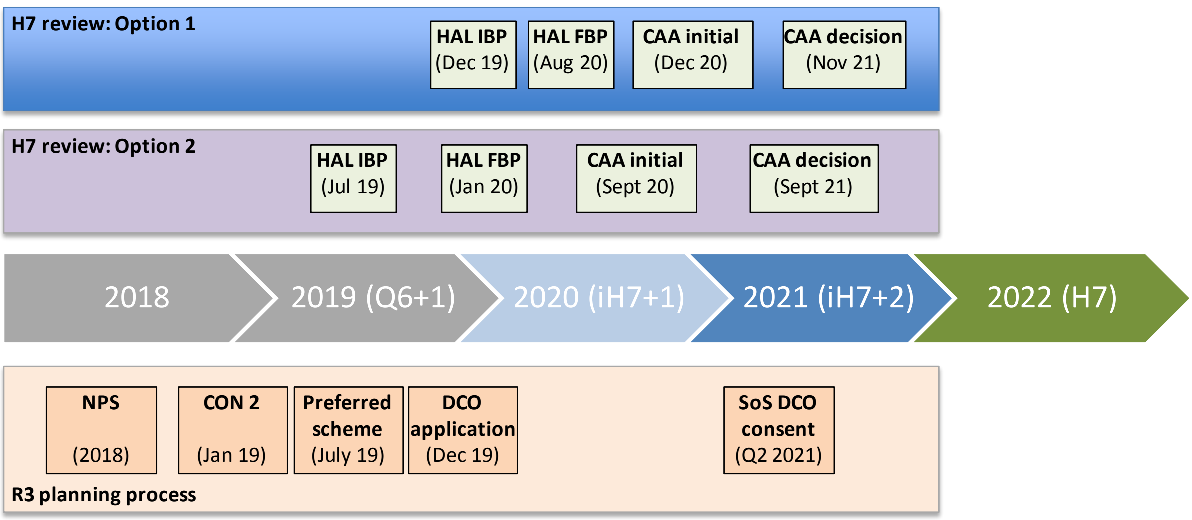
Better aligning interim milestones for stakeholders

5.36 To maximise the opportunities provided by a two year interim control, we are consulting further on the timetable for the key milestones and deliverables for the next main review. In particular, we would welcome views on whether we should:

- simply move each of the H7 price control review milestones back by two years to reflect the length of the interim price control (Option 1); or
- align the delivery of HAL's initial and/or final business plans for the price control more closely with the major steps it will undertake in the DCO application process (Option 2).

5.37 The interim milestones for two different options for the H7 price control review are illustrated in Figure 5.2. We consider that Option 2 has move advantages than Option 1. Requiring HAL to produce an initial business plan in July 2019 would align the regulatory and business plan process more closely with the planning process and would mean that HAL's final business plan could take account of both airport-airline engagement and the views of wider stakeholders on capacity expansion. In both options, HAL would have more time to prepare its initial business plan and undertake consumer research than under a one year interim price control.

Figure 5.2: Options for milestones for the H7 price control review with a two year interim price control



Note: "iH7" refers to the interim price control, "CAA initial" refers to the CAA's initial proposals for the H7 price control

Views invited

5.38 Views are invited from stakeholders on any of the issues raised by the interim price control and, in particular, on:

- the further information that should be provided by HAL best to support the setting of an interim price control on the basis described in this chapter; and
- the process for resetting the revenue building blocks and financeability testing for 2021; and
- how to develop the timetable for the next main price control to take advantage of the development of a two year interim price control and whether we should align HAL's initial or final business plan with the major steps of the DCO process.

Chapter 6

Early Category C costs

Introduction

6.1 This chapter deals with the regulatory treatment of early Category C costs. These are HAL's pre-DCO construction costs and include certain compensation costs arising from the acquisition of the commercial property necessary to allow for capacity expansion. They are separate from planning costs.[41]

6.2 The main sections of this chapter:

- summarise the discussion in the December 2017 Consultation on early Category C costs;
- set out the views of respondents; and
- review the additional information provided subsequently by HAL and update our proposed approach for the governance and regulatory treatment of these costs.

The December 2017 Consultation

6.3 The December 2017 Consultation focused on: (i) the costs of providing compensation to those major commercial enterprises that will need to be moved or extinguished to allow for capacity expansion; and (ii) early residential compensation costs.

6.4 We made it clear that early Category C costs should only be incurred if there are expected benefits to consumers in terms of accelerating and/or reducing the overall costs of the programme. We also said that these assessments should take full account of the uncertainties associated with the programme for capacity expansion, and that the expected benefits to consumers in terms of the overall

[41] We set out our approach to the regulatory treatment of "Category B" planning costs in February 2017. See: CAP 1513. https://publicapps.caa.co.uk/docs/33/CAP%201513%20FEB17.pdf.

programme timetable or future cost savings should exceed the present value of the costs to be incurred. We also described the evidence and efficiency criteria that HAL would need to provide to support its case for specific allowances for these costs.

6.5 For large commercial/other compensation costs, we proposed that HAL should put the case for this spending and its evidence on cost efficiency through the existing capex governance arrangements (consistent with the suggestions made by HAL in its response to the June 2017 Consultation). Disagreements between HAL and airlines on these matters would come to the CAA for consideration (alongside special costs, such as those for Waterside) before any costs could be added to the RAB.

6.6 Bearing in mind the limited materiality of early residential costs, we proposed a similar approach, with these costs to be considered in the round as a single item. We noted that HAL had not provided sufficient detail for us to be able to move forward either on small commercial/agricultural costs or the potentially larger category of other enabling costs.

6.7 We said that the timing of any cost recovery should be consistent with wider considerations of affordability and financeability.

Stakeholder views

6.8 HAL said that it is essential for the timely delivery of expansion that the CAA makes a final policy decision for all the elements of early Category C costs in its April 2018 consultation. It suggested that any policy uncertainty would delay progress towards early design, procurement and the start and finish of construction. In its view, HAL should be able to recover the costs plus the associated return from when spending takes place.

6.9 HAL's position on governance arrangements for large commercial/other displaced users appears to have evolved. It has stressed the highly specialised nature of the costs and confidentiality concerns in relation to individual displaced users. HAL has now proposed that the appropriate governance should be for either the CAA, or an independent specialist third party acting on behalf of the CAA, to assess whether the investment is required and is efficiently developed.

Under its approach, HAL would use the existing capex governance process, but HAL would not be compelled to agree the detail of spending on individual projects with airlines.

6.10 In responding to the December 2017 Consultation airlines made similar comments as in their responses to the June 2017 Consultation, including:

- early Category C costs should be incurred at HAL's own risk, at least until DCO grant;
- if the DCO is not granted, HAL should not be able to recover such costs;
- HAL has not demonstrated that there has been sufficient progress on affordability or scheme design; and
- recovery of such costs should reflect an element of risk sharing between HAL and airlines.

6.11 Other stakeholders were broadly in favour of HAL recovering efficient costs if the DCO is granted.

6.12 No specific comments were received on our suggestions for the sort of information and evidence that HAL should provide in support of early Category C costs (as set out in Appendix G of the December 2017 Consultation).

Further information provided by HAL

6.13 HAL has provided additional information on the scope of its compensation schemes and updated its estimates of costs. It has also explained that it will not be able to provide firm cost estimates until it has developed a preferred masterplan later this year.

6.14 The three basic categories of these costs are described in more detail below:

- <u>commercial/other compensation costs</u>: these are the 7 large commercial/other projects[42] that HAL has identified that may need to be moved or extinguished to enable capacity expansion and on which early

[42] These remain as set out in CAP1610, chapter 5, para 5.10.

action may be necessary for the timely delivery of the overall programme. HAL's initial estimates suggest that it could spend approximately £199m[43] on this category of costs in the period of 2017 to DCO grant (assumed mid 2021). HAL has now provided further information on these costs and (as described above) has suggested that the governance of these costs should differ from the other categories due to the specialist and confidential nature of the commercial negotiations;

- compensation for residential, small commercial and agricultural interests:
  - (i) residential costs will include both purchasing property under HAL's property Hardship Scheme and the statutory blight regime.[44] HAL's initial estimate suggests it will spend £15 to £20m on residential costs before the DCO is granted;
  - (ii) for small commercial and agricultural interests, HAL's latest estimate of compensation costs up to DCO grant is £20m. These estimates are not yet well developed, although HAL has said that its aim in undertaking this early expenditure is to reduce the overall cost of the total compensation for these businesses where early engagement enables relocation rather than later extinguishment;
  - (iii) in addition, HAL has drawn attention to the costs of seeking agreement with property and land owners and the overall costs of administering the various compensation schemes. HAL has indicated the types of activities which would be covered under these costs, with an overall estimate of £33m. It has, however, stated that this is early work and subject to further review.

HAL has said that the governance for these costs should involve it following the existing capital investment protocol.

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[43] The figures set out in this chapter are HAL's current estimates of expenditure, subject to a range of up to 25%. The figures are highly preliminary and subject to significant review. Phasing of early spending will vary significantly as the programme evolves. CAP1610 included an estimate of £130m for 2017 to 2020, which is consistent with the £199m for 2017 to 2021.

[44] Further detail on these schemes was included in CAP1610 para 5.10. Cost estimates for residential consistent with CAP1610.

- other enabling costs: HAL forecasts that it could spend around £400m on other enabling costs ahead of the grant of the DCO. The scope of these costs includes ground investigations, scoping, estimation, procurement, detailed design and construction planning. The scope, key deliverables and cost forecasts will become more robust as masterplan development proceeds, but we understand that, if construction is to commence as soon as the DCO is granted, a certain amount of activity would need to have been carried out in advance. HAL's intention is for governance to follow the existing capital investment protocol.

Way forward

6.15 As we explained in the December 2017 Consultation, the key to HAL justifying early Category C costs is to show that the expenditure is in the interests of consumers and will be efficiently incurred. While we understand airlines' concerns about aspects of this spending, we do not consider these reservations as sufficient to justify changing our broad approach to the regulatory treatment of these costs as set out in the December 2017 Consultation. In taking this approach, we note HAL's desire for certainty and consider that it is important that the scheme is not unduly held back by concerns from HAL over funding in the period prior to the grant of the DCO, provided that HAL can demonstrate that the spending in question is in the interests of consumers.

6.16 So, we remain of the view that properly justified early Category C costs that are to be incurred in a way that is clearly in consumers' interests should be recoverable, even if HAL's DCO application were to be rejected by the SoS as part of the planning process.

6.17 Nonetheless, ensuring that:

- there is a clear case for expenditure (which should include taking proper account of the uncertainty associated with the wider programme and whether final planning consent will be given); and
- any expenditure incurred is in the interests of consumers.

remains of central importance to our approach and we will guard against the recovery of costs that is not in the interests of consumers.

6.18 In establishing a framework for Category B costs (the costs of preparing the DCO application) we introduced the role of the IPCR (Independent planning cost reviewer). This was created as an addition to the activity of the IFS to provide assurance that the costs reported were efficient, correctly allocated, and had not already been funded in the price control. These concerns will equally exist with early Category C costs and we will explore extending the role of the IPCR to providing equivalent assurance over Category C costs, while not duplicating the activities of the IFS.

6.19 We accept that HAL is working towards the creation of its masterplan and we expect that this will reduce uncertainty and allow more progress on establishing the case for specific elements of Category C expenditure and providing robust information on cost efficiency.

6.20 HAL has much more work to do in providing robust information on the need for the individual components that will make up its early Category C spending and providing evidence and assurance on cost efficiency. Nonetheless, there are advantages in clarifying the governance processes for these costs now, so that HAL can develop the business case for these costs in a proportionate and timely way. It is also important that the regulatory framework promotes the timely development of capacity expansion, which should benefit consumers by reducing the costs of constraints in airport capacity in the south east of England. Bearing this in mind, we discuss further the appropriate governance and regulatory treatment of the three main categories of early Category C costs below.

Regulatory treatment of early compensation costs for large commercial/other projects

6.21 As we recognised in the December 2017 Consultation, this category of costs may provide challenges for the existing capital governance processes (in particular, in relation to the Waterside property, which is currently occupied by IAG).

6.22 We have considered HAL's latest views on the governance of these costs, including issues around the special nature of the costs and the need for commercially sensitive negotiations. In general, while we strongly support airline engagement in scrutiny of costs and it is important that airlines remain part of the process for agreeing the regulatory treatment of early Category C costs, the specialist nature and difficulties associated with the costs of the large commercial/other projects suggests that we should adapt the existing capital governance process to reflect these circumstances.

6.23 Bearing the above in mind, we have refined the approach set out in the December 2017 Consultation for the governance and regulatory treatment of these costs, as set out below:

a) HAL should seek agreement from the airlines on the overall need for, and broad timing, of this expenditure and why it supports a programme schedule that is in the interests of consumers. This should be done through the existing capex governance protocol. HAL would also explain its approach to providing assurances on cost efficiency;

b) a CAA-appointed expert will assess the negotiation process and outcome and report to the CAA on the appropriateness of the settlement (with a summary report presented to the relevant airline engagement group);

c) the CAA will then determine whether there is any evidence either that spending has not been categorised properly (to guard against the double counting of costs), is inefficient, or not in the interests of consumers, which would justify excluding the recovery of expenditure from the RAB. In doing so, we would consider carefully the evidence that HAL provides on efficiency and that it is pursuing capacity expansion in a way consistent with the interests of consumers, and any representations from airlines and other interested stakeholders.

6.24 Once we have made and published our determination under part (c) of the process discussed immediately above it will be important that cost recovery is consistent with the overall objective of affordability and financeability, with any approved expenditure being remunerated at HAL’s cost of capital until it is recovered.

Regulatory treatment of compensation for residential, small commercial and others

6.25 The December 2017 Consultation explained that, given the statutory drivers and limited materiality of early residential compensation costs, there would be merit in considering these as a single item, using the existing capex governance process to seek the views of airlines on cost efficiency. Any disputes arising from this process would be referred to the CAA for determination.

6.26 We remain of this view but will also test these costs to establish that there have been properly categorised and are in the interests of consumers (as above) before determining that they can be included in the RAB.

6.27 As noted above, HAL has also indicated that it will incur costs associated with small commercial and agricultural compensation and certain costs associated with negotiation and administration. We propose to treat these costs in a similar way to early compensation residential costs discussed above, but with each type of cost (residential, small commercial and other) being treated as a separate item in the capex governance process.

Regulatory treatment of early expenditure on other enabling costs

6.28 Our initial view is that the above processes could also be used to determine the regulatory treatment of early expenditure on other enabling costs. This would the involve the CAA in dealing with disputes, considering issues around appropriate allocations (to avoid any possible double recovery of costs) and ensuring cost recovery is in the interests of consumers.

6.29 Nonetheless, given the potential scale of these costs, we may need to refine this approach as more detail is available on these costs and ensure that the treatment of these costs is reasonably integrated with our broader approach to cost incentives. For instance, where these costs support projects that fall within the scope of any *ex ante* cost incentives that we might develop, there may also be a case for these incentives to apply to total project costs, thus including elements of early Category C costs. We will consider these matters further as we develop our work on cost incentives.

Views invited

6.30 Views are invited on any matters relating to the regulatory treatment of early Category C costs and, in particular, on our suggestions for the governance and regulatory treatment of these costs.

Chapter 7

Surface access

Introduction

7.1 Capacity expansion at Heathrow airport is expected to allow for a very substantial number of additional passengers. Surface access refers to all the ways in which passengers, visitors, employees and commercial vehicles travel to and from the airport when they are not in an aircraft. High quality surface access links (including road and rail access) will contribute to the experience of passengers, freight operators and people working at the airport. Rail and other public transport options may also contribute to meeting targets for air quality and reducing congestion.

7.2 The June 2017 Consultation set out for consultation a statement of the CAA's current policy on surface access costs. We did not update on these matters in detail in the December 2017 Consultation, so are addressing these issues in this document.

7.3 This chapter summarises stakeholders' views on whether our current policy remains robust and fit for purpose, in the context of capacity expansion at Heathrow, together with the CAA's response.[45] It also addresses certain related issues that have emerged through HAL's engagement on capacity expansion with airlines and other parties since the June 2017 Consultation was published.

7.4 Our policy is based around the principles that:

- consumers' interests are unlikely to be furthered by airport operators bearing the costs of projects beyond those which are (i) strictly necessary to enhance the efficient operation of the airport and/or (ii) necessary to secure planning permission for expansion; and

[45] Although, note that some of these issues were dealt with in the December 2017 Consultation at Appendix B.

- to the extent that it is practicable, the users of surface access projects should pay for them (the "user pays" principle).[46]

Stakeholder views

7.5 Respondents commented not only on the statement of policy, but also raised some broader issues relating to surface access.[47] While there was support from respondents for the principles set out in our current surface access policy and, particularly, the user pays principle, there were a relatively wide range of views on the treatment of any residual costs (i.e. costs not directly funded through fares or other direct user contributions) of surface access schemes. There were also comments on the potential importance of modal shift from road to public transport to meet air quality targets and prevent congestion. A number of respondents called for more joint working to try and resolve these issues.

7.6 HAL considered that the current surface access policy remains broadly fit for purpose, with clearly set out criteria. However, it suggested that significant work needs to be done, in conjunction with all stakeholders, to develop a common approach or method for assessing the benefits and costs of surface access projects to passengers. It considered that this was the most contentious area when deciding its contribution to the costs of Crossrail at the Q6 price control review.

7.7 Airline representatives emphasised the importance of the user pays principle and expressed concerns about the possible impact of surface access funding by HAL on the overall affordability of capacity expansion. Some airlines said that the airport should not bear any of the residual costs of surface access schemes. They saw a role for national and local government in delivering infrastructure that will benefit the wider UK economy as well as the airport, and were concerned that HAL had already made unilateral commitments on surface access.

[46] For these purposes, the "user pays" principle means that all users of the surface access scheme should pay for it to the greatest extent practicable and any residual costs should be split between airport users and non-airport users in proportion to the benefit each receives.

[47] See also Appendix B to the December 2017 Consultation.

7.8 Gatwick Airport Limited (GAL) agreed that the overarching principles of the policy remained broadly appropriate but said that HAL must be expected to cover its own capital and operating costs without state assistance, noting the constraints around issues of competition, Government funding and state aid.[48] GAL also noted the commitments HAL has already made around air quality, modal share and rail accessibility. It said that these investments are only needed now to facilitate Heathrow expansion and should be funded by the airport.

7.9 Transport for London raised concerns about the environmental impacts of expansion, particularly regarding noise and air quality, and the funding of surface access schemes for expansion. It considered that our surface access policy was too narrow in scope, and would prevent HAL from making necessary investments in surface access schemes that are mainly required to facilitate expansion. It noted that HAL's expansion programme relied on a surface access package that delivered no increase in highway traffic, no worsening of air quality and an attractive public transport offer to encourage modal shift and accommodate the increased airport demand alongside non-airport background flows. It argued that it would be unacceptable for the regulatory framework unduly to restrict HAL's contribution to the cost of these schemes.

7.10 Other respondents:

- encouraged the CAA to align its user pays approach with the "polluter pays" principle used in several other environmental policies;
- took the view that rail schemes are needed regardless of whether expansion occurs or not;
- called for a more explicit reference in the policy to the relationship between the surface access schemes, modal shift, air quality and the importance of these in gaining planning consent;
- called for a more coordinated approach to resolve these issues; and

[48] See Appendix B to the December 2017 Consultation on these issues.

- said that rail schemes should seek to maximise the potential for non-airport traffic to increase the efficiency of the service through greater utilisation of capacity and subsequently higher revenues.

CAA views

7.11 We remain of the view that the main principles of our current surface access policy continue to be appropriate as these are focused on efficiency and providing appropriate protection for the interests of consumers. Our overarching view is that capacity expansion is in consumers' interests and that necessary surface access provision to allow expansion is, therefore, also in consumers' interests because it will:

- allow for the additional passengers, employees and freight using the expanded airport; and
- contribute to achieving planning consent through mitigation of the adverse impact on the wider community.

7.12 Nonetheless, we do not consider it is in consumers' interests for them to pay for surface access schemes, or enhancements and upgrades to schemes, that are not required for capacity expansion. We also agree with respondents' strong support for the user pays principle (although we also understand that such a principle is capable of a range of interpretations).

7.13 Respondents have raised important issues (and other issues have emerged through discussions with stakeholders) that warrant further consideration. These include:

- our approach to assessing HAL's surface access strategy holistically so to meet most efficiently air quality and/or congestion obligations;
- the treatment of the costs of schemes necessary for planning consent, and testing for overall affordability;
- consistency with the CAA's duties under CAA12;
- the application of benefit tests; and
- further engagement and coordination.

7.14 We set out our latest thinking on these issues below.

Possible refinements to our approach

Developing a holistic approach

7.15 Our policy does not explicitly address how surface access schemes might be expected to help address wider legal or planning obligations around air quality or congestion targets.

7.16 Clearly, these are important matters and directly related to our surface access policy where:

- HAL would be required to meet such targets as part of the planning process; and
- the most efficient way of meeting such requirements would be through investment in surface access projects.

7.17 We will, therefore, need to develop our policy to set out how we will acknowledge and address this. This is likely to include a holistic review of the costs and benefits of the airport operator's overall surface access strategy, to ensure that it meets relevant legal and planning obligations at lowest efficient overall cost. This would be in addition to our work reviewing the individual schemes proposed to assess their efficiency and the benefits that accrue respectively to airport users and non-airport users overall.

Costs necessary for planning consent and affordability testing

7.18 At present, our policy discusses the importance of the airport operator being able to demonstrate that surface access projects (considered jointly with the airport development that they enable) deliver benefits to airport users that are greater than the associated costs. Consistent with our overall approach to the regulation of capacity expansion at Heathrow, we also expect the total costs of capacity expansion (including any contribution toward the cost of surface access schemes to be made from airport charges) to be subject to efficiency, affordability and financeability tests. This also applies to the costs of any obligations that emerge during, or at the end of, the planning process. We would also expect HAL to seek to minimise the scope for unexpected costs arising late in the process.

Consistency with the CAA's duties under CAA12

7.19 We noted in the June 2017 Consultation that our policy was developed under the previous statutory regime.

7.20 Our primary duty under CAA12 is to further the interests of users of air transport services, regarding the range, availability, continuity, cost and quality of airport operation services. We refer to this as a duty to protect the interests of consumers. CAA12 also requires us to have regard to the need to secure that the licensee can take reasonable measures to reduce, control or mitigate the adverse environmental effects of the airport and associated facilities. This duty is widely cast, because, in this context:

- associated facilities are those "used, or intended to be used in connection with that airport" and can be seen to include the various activities around the airport; and
- the "environmental effects" of the airport include (i) visual or other disturbance to the public (ii) the effects from works carried out at the airport, or the associated facilities or to extend the airport or the associated facilities; and (iii) the effects from services provided at the airport or the associated facilities.[49]

7.21 CAA12, therefore, provides two means by which the CAA should take surface access requirements into account. The first of which is to do so directly, by considering the direct benefits to users (being passengers and cargo owners) which arise from making it easier for them to access the airport. However, because many of the benefits of a surface access scheme to an airport expansion programme also arise from facilitating journeys made by companies and workers providing services at the airport (including cargo vehicles, retail, groundhandling and catering suppliers), we also need to consider the impact of these journeys. We need to do this, because:

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49 See s1(3)(d) and s1(6) CAA12.

- those journeys indirectly benefit consumers, as the additional passengers and cargo operators at an expanded airport would not be able to receive the services that benefit them without these additional movements; and
- reasonable surface access investments enable the airport to take steps to mitigate the adverse environmental effects of the airport and its associated facilities.

7.22 However, our primary duty is to protect consumers and so it would not be appropriate for us to require passengers and cargo owners to fund wider benefits associated with environmental improvement, unless these are a direct legal or planning requirement on HAL.

Benefit tests

7.23 Under our surface access policy, we do not expect the airport operator to contribute to the funding of schemes beyond those strictly needed for the efficient operation of the airport or to obtain planning permission. This is consistent both with our statutory duties and protecting consumers.

7.24 Where a contribution to funding by the airport operator is appropriate, it is important to consider the comments made by TfL that it may not always be appropriate to recover residual costs on the basis of the proportion of benefits accruing to airport and non-airport users. Bearing this in mind, it may be appropriate to supplement the existing approach with an additional test to establish that airport users properly fund the efficient incremental costs of including the airport within a surface access scheme that may be necessary for purposes other than airport expansion. We would also expect the promoters of surface access schemes (in particular public transport schemes) to have a clear incentive to promote use by non-airport users to develop a viable business case for their schemes.

Further engagement and coordination

7.25 Oversight of the design and delivery of Heathrow’s surface access arrangements (as opposed to the elements of funding relevant to airport charges) falls outside the CAA’s statutory role. Similarly, we do not have the power to set up a separate institution to deliver decisions on surface access: this would be an issue for Government to address.

7.26 That said, we agree that there needs to be greater coordination of this work between the various stakeholders and we will work closely with HAL, the airline community, the DfT, TfL and other agencies, to translate our policy into robust assessments of the appropriate balance of the surface access costs that should be met by airport users and non-airport users, both at a strategic level and on a scheme-by-scheme basis. We will seek to agree a common method to assess the relevant costs and benefits and to apportion the costs of the relevant schemes in a balanced and equitable manner. We will make use of HAL's modelling in our assessment, but will also consider alternative assessments to the extent that it is reasonable to do so.

7.27 HAL is continuing to develop its surface access strategy and is engaging with the airline community and various other stakeholders on both its strategy and on individual schemes. Where third party promoters of individual schemes consider that their schemes are particularly significant and have an important role to play in the surface access strategy for expansion, we would urge them to engage not only with HAL, but also with airlines and other stakeholders so that the merits of their schemes can be considered in the context of the overall delivery of capacity expansion.

Views invited

7.28 Views are invited on any matters relating to our surface access policy and, in particular, on our proposed approach to:

- assessing HAL's surface access strategy holistically so to meet most efficiently air quality and/or congestion obligations;
- taking account of the costs of schemes necessary for planning consent and testing for overall affordability;
- ensuring consistency with the CAA's duties under CAA12;
- the application of benefit tests; and
- further engagement and coordination.

Appendix A

Our duties

1. The CAA is an independent economic regulator. Our duties in relation to the economic regulation of airport operation services ("AOS"), including capacity expansion, are set out in the CAA12.

2. CAA12 gives the CAA a general ("primary") duty, to carry out its functions under CAA12 in a manner which it considers will further the interests of users of air transport services regarding the range, availability, continuity, cost and quality of AOS.

3. CAA12 defines users of air transport services as present and future passengers and those with a right in property carried by the service (i.e. cargo owners). We often refer to these users by using the shorthand of "consumers".

4. The CAA must also carry out its functions, where appropriate, in a manner that will promote competition in the provision of AOS.

5. In discharging this primary duty, the CAA must also have regard to a range of other matters specified in the CAA12. These include:

   - the need to secure that each licensee is able to finance its licensed activities;
   - the need to secure that all reasonable demands for AOS are met;
   - the need to promote economy and efficiency on the part of licensees in the provision of AOS;
   - the need to secure that the licensee is able to take reasonable measures to reduce, control and/or mitigate adverse environmental effects;
   - any guidance issued by the SoS or international obligation on the UK notified by the SoS; and
   - the Better Regulation principles.

6. In relation to the capacity expansion at Heathrow, these duties relate to the CAA's functions concerning the activities of HAL as the operator at Heathrow.

7. CAA12 also sets out the circumstances in which we can regulate airport operators through an economic licence. In particular, airport operators must be subject to economic regulation where they fulfil the Market Power Test as set out in CAA12. Airport operators that do not fulfil the Test are not subject to economic regulation. As a result of the market power determinations we completed in 2014 both HAL and GAL are subject to economic regulation.

8. We are only required to update these determinations if we are requested to do so and there has been a material change in circumstances since the most recent determination. We may also undertake a market power determination whenever we consider it appropriate to do so.

Appendix B

Further details on initial assessment of affordability and financeability

Assumptions for assessment of affordability

1. This appendix sets out the key assumptions in the financial model that we have used for financeability and affordability scenarios used in chapter 2.

Overall approach

2. We have modelled a regulatory regime which broadly resembles the Q6 regulatory regime. Our modelling does not include *ex ante* incentives or assume that parties other than HAL will be ultimately responsible for delivering expansion. Our assumptions in these areas should not be seen as an indication of final policy.

3. Throughout our modelling we have sought to use a coherent set of assumptions. For example, where we have made assumptions about changes in capex phasing we have modelled associated changes in passenger volumes, operating expenditure and non-aeronautical revenues.

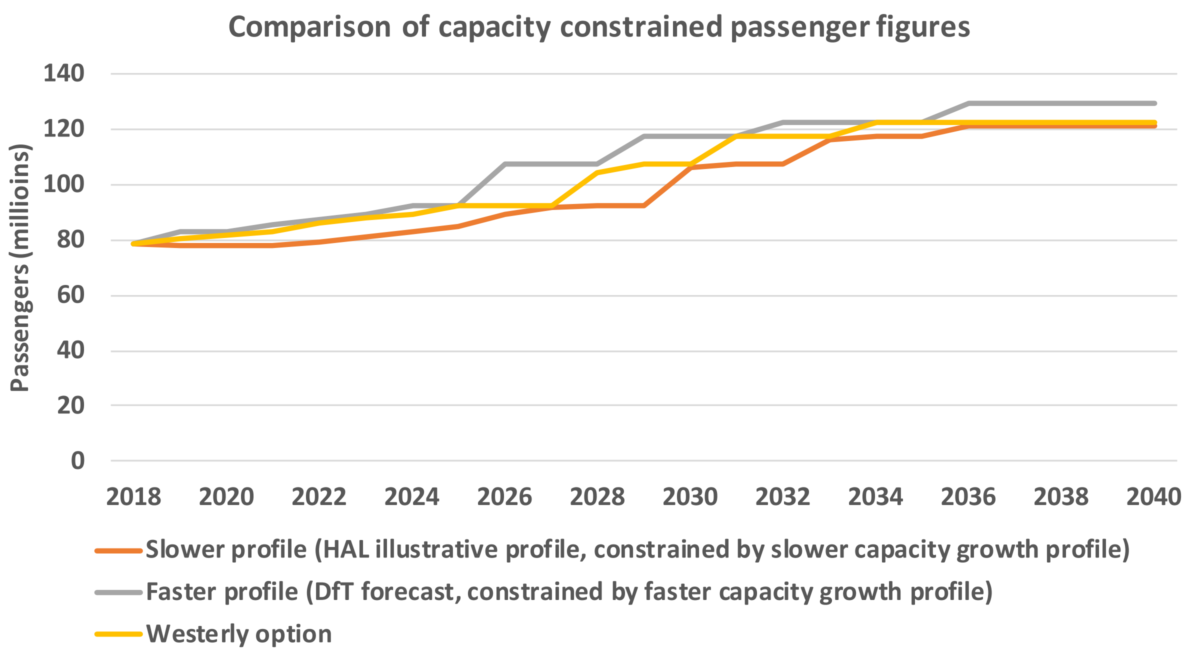
Passengers

4. The passenger forecast we used for the Westerly Option analysis is based on a forecast developed between HAL and airlines. The faster passenger profile uses DfT forecasts for demand[50] constrained by capacity figures which reflect capacity for T5X and T2A phases 2 and 3 coming online two years earlier than in the Westerly Option. The slower passenger profile uses HAL's illustrative passenger forecast subject to

[50] UK Aviation Forecasts, DfT, October 2017. See: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/674749/uk-aviation-forecasts-2017.pdf

capacity constraints in which capacity for T5X and T2A phases 2 and 3 are delayed by two years.

Figure B.1 – Passenger forecasts under the four scenarios used in chapter 2



Source: CAA

Capex

5. The forecast for capex we used for the development of the Westerly Option analysis is based on an envelope based around expenditure of £45.3bn between 2017-2048 (in 2014 prices) which was developed by HAL for the purposes of its engagement with airlines. As stated in chapter 2, we have uplifted expansion capex in the slower and more costly scenario increased by 45%. In the faster and cheaper scenario we have decreased expansion capex by 25%.

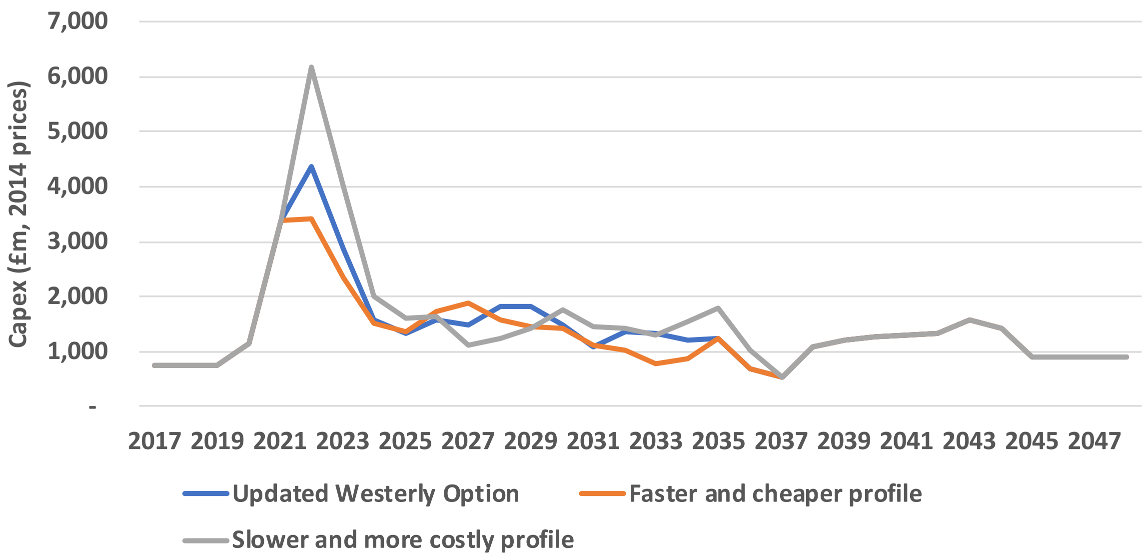
6. This cost range has been taken from HAL's cost expansion timetable.[51] This range represents HAL's estimates of the level of uncertainty within the current cost estimate given the stage of maturity of the masterplanning process. We have not applied these changes to forecast capex

[51] Appendix 2 of CAP 1638. See: http://publicapps.caa.co.uk/docs/33/CAP1638.pdf

attributable to running the airport, which should be more stable and certain.

7. We have also re-profiled capex associated with T5X and T2A phases 2 and 3. In the faster scenario this capex is brought forward two years and in the slower scenario it is deferred two years.

Figure B.2 – Capex forecasts under the scenarios used in chapter



Source: CAA

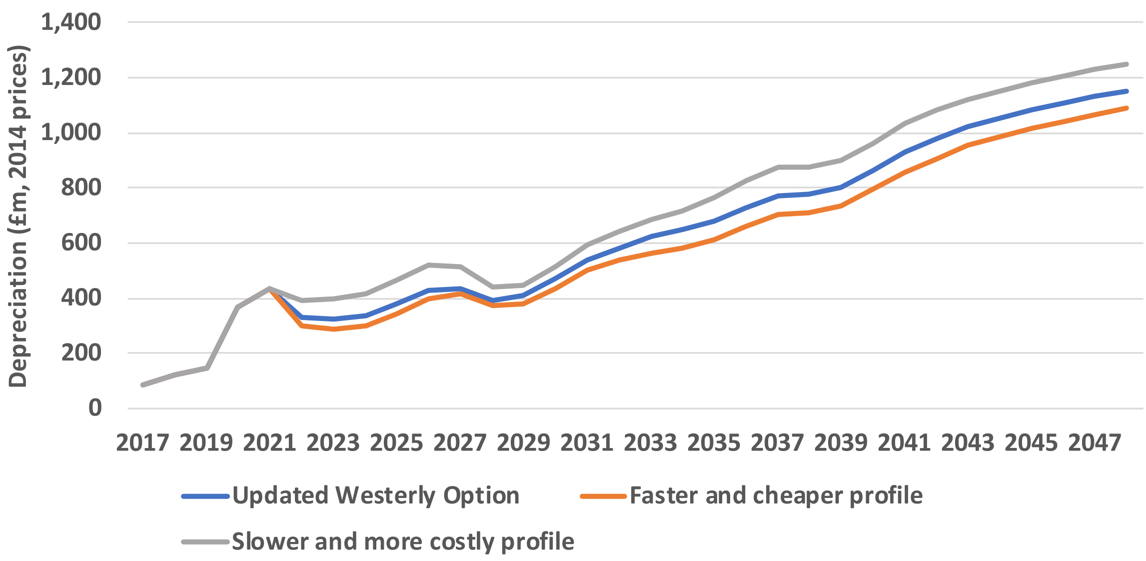
Regulatory depreciation

8. The forecast for regulatory depreciation we used for the Westerly Option analysis is based on the regulatory depreciation profile developed by HAL for the purposes of its engagement with airlines. This is based on an accounting approach using "straight line" depreciation, assumptions for average asset lives with depreciation beginning from operation of the assets. We have not sought to profile regulatory depreciation at this early stage of the analysis of expansion development, although we recognise that this could be an important policy lever in balancing affordability and financeability.

9. In each year, we have increased or decreased regulatory depreciation in proportion to the changes in capex under each scenario. So, where

increases in capex in a particular year arise from either bringing capacity expansion forwards or applying an uplift for scope and cost uncertainty, depreciation increases by the same proportion.[52]

Figure B.3 – Depreciation forecasts under the scenarios used for chapter 2



Source: CAA

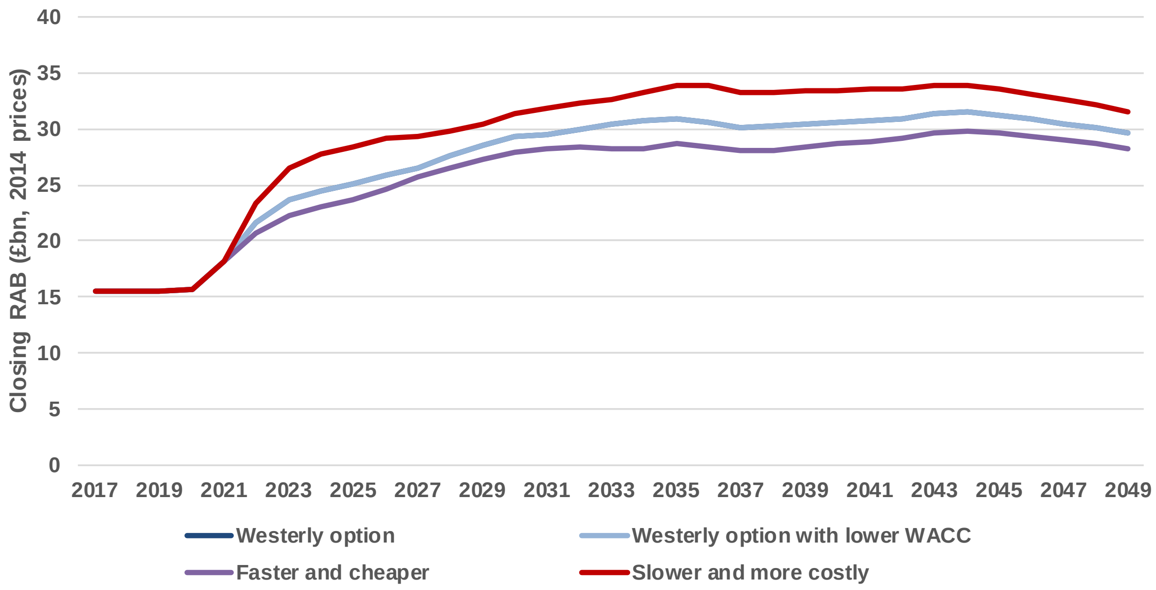
Regulated Asset Base (RAB)

10. The RAB forecast we used for the Westerly Option analysis has been calculated as the opening RAB in 2016, plus capex additions and less regulatory depreciation. The RAB calculation is, therefore, the result of the capex and regulatory depreciation inputs described in the sections above for each scenario.

11. In calculating the RAB we have taken account of the additional regulatory depreciation assumed to arise in the interim price control period after the end of the current Q6 extension in order to achieve an RPI-1.5% path of prices.

[52] Implicitly, this approach assumes that the changes in capex under each scenario do not lead to a material change in the average asset life or depreciation profiling. This seems a reasonable simplifying assumption for the purpose of this modelling.

Figure B.4 – RAB forecasts under the scenarios used in chapter 2



Source: CAA

Opex

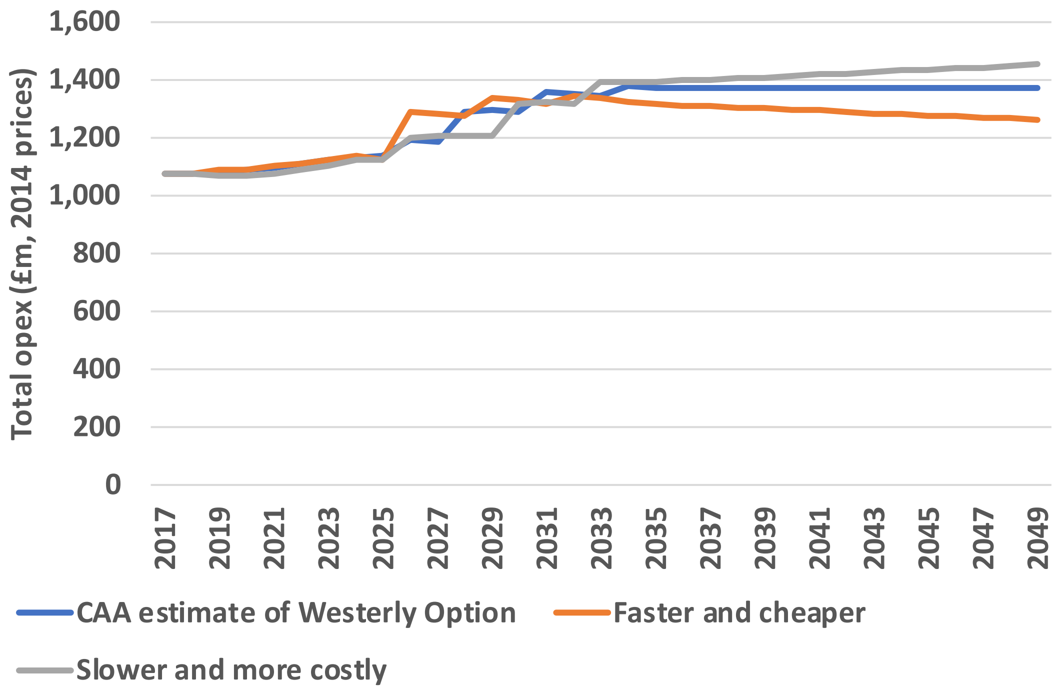
12. The forecast for opex we used for the Westerly Option analysis has been estimated based on 2017 and 2018 forecasts from Heathrow's December 2017 investor report[53] and then calculated from 2019 based on elasticities for passengers and terminal capacity. We have used elasticities from the Heathrow "Taking Britain Further" report[54] submitted to the Airports Commission in 2014 and have reviewed the resulting profile with HAL.

13. Under each scenario, we have modelled opex changes using the elasticities and changes in passenger and terminal capacity forecasts. We have overlaid this with a 0.3% p.a. increase or decrease in opex per passenger.

[53] Heathrow (SP) Limited and Heathrow Finance plc Investor Report, December 2017. See: https://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/Heathrow_SP_investor_report_December_2017.pdf.

[54] Heathrow: Taking Britain Further, Technical Submission, volume 1, 2014. See: https://www.heathrow.com/file_source/Company/Static/PDF/Companynewsandinformation/TBF_techspec_vol1.pdf

Figure B.5 – Opex forecasts under the scenarios used in chapter 2



Source: CAA

Non-aeronautical revenues

14. In a similar way to opex, the forecast of the non-aeronautical revenue we used for the Westerly Option analysis has been estimated based on 2017 and 2018 forecasts from HAL's December 2017 investor report[55] and then calculated from 2019 based on elasticities for passengers and terminal capacity. We have used elasticities from the Heathrow "Taking Britain Further" report[56] submitted to the Airports Commission in 2014 and have reviewed the resulting profile with HAL.

15. We have also made compounding annual reductions in car parks, retail and concessions, rail and other revenues in line with feedback received from HAL. We then calibrated the size of this adjustment to produce a profile that, when combined with the non-aeronautical revenue profile,

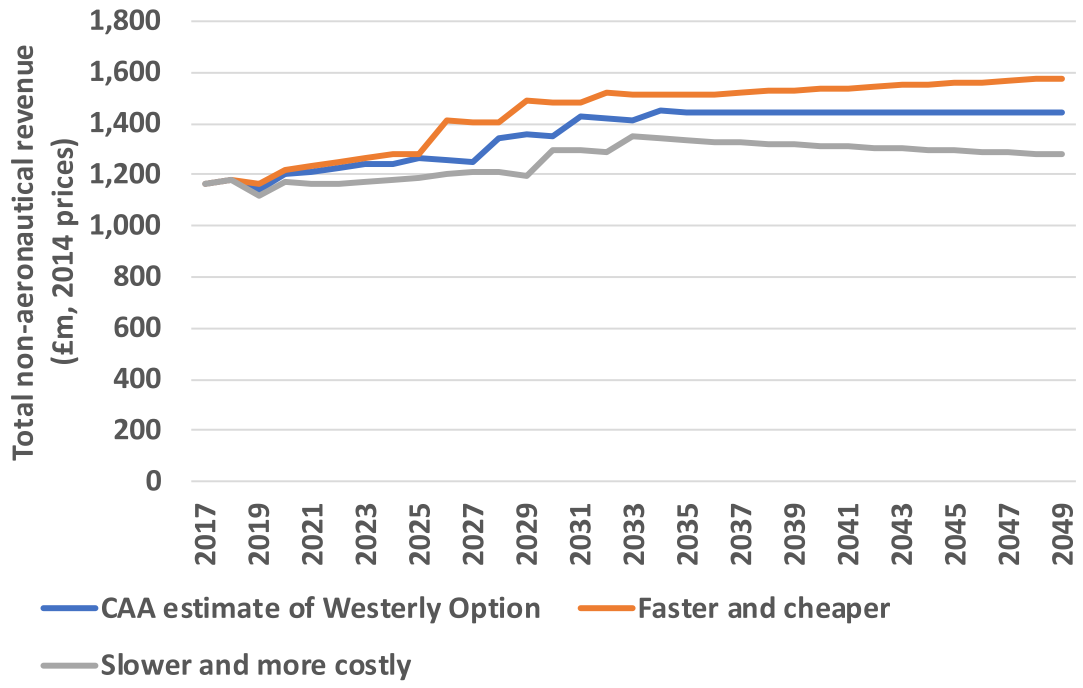
[55] Heathrow (SP) Limited and Heathrow Finance plc Investor Report, December 2017, *op. cit.*

[56] Heathrow: Taking Britain Further, Technical Submission, volume 1, 2014, *op. cit.*

broadly aligns with the one shown in the Westerly Option. The resulting value of this parameter is 1.3% per annum.

16. Under each scenario, we have modelled non-aeronautical revenue changes using the same elasticities and changes we used in the passenger and terminal capacity forecasts. We have overlaid this with a 0.3% p.a. increase or decrease in non-aeronautical revenue per passenger.

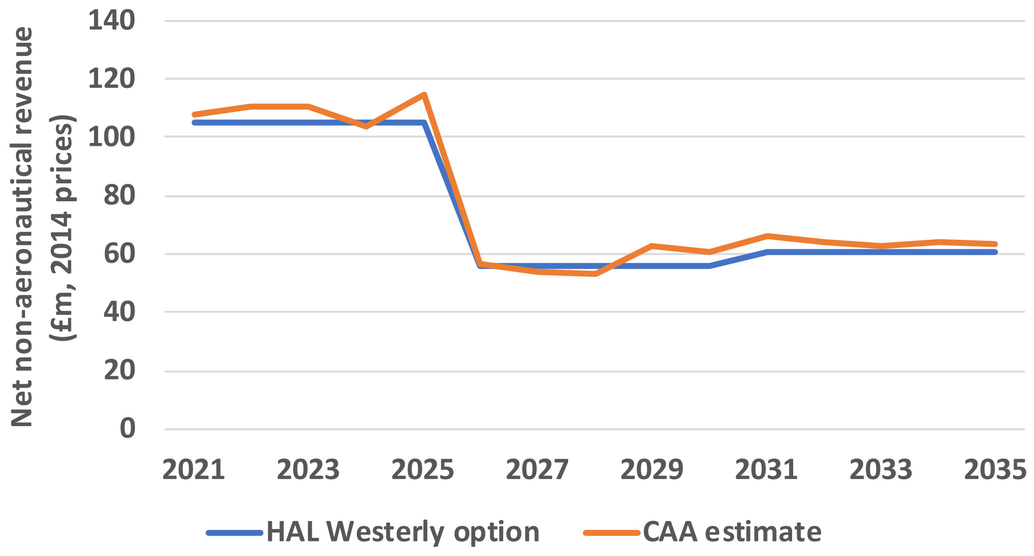
Figure B.6 – Non-aeronautical revenue forecasts under the scenarios used in chapter 2



Source: CAA

17. Figure B.7 below shows the net non-aeronautical revenues (i.e. non-aeronautical revenues less opex) from the Westerly Option and compares them with the figures we have estimated and upon which we have built our scenarios.

Figure B.7 – Net non-aeronautical revenue forecasts under the scenarios used in chapter 2



Source: CAA

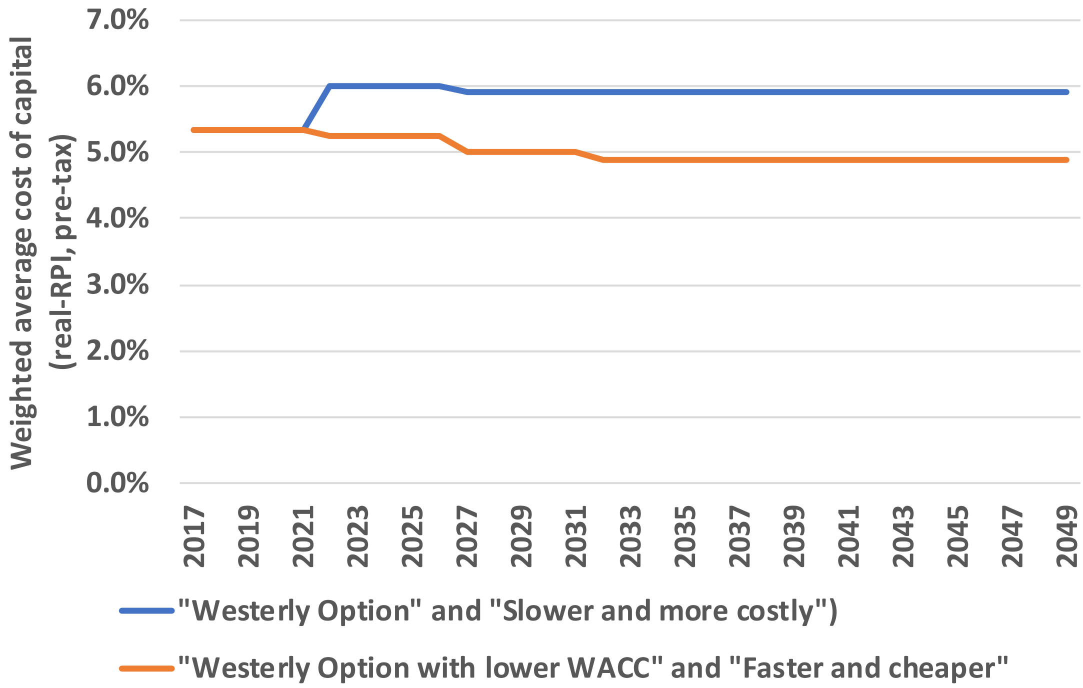
Allowed cost of capital and tax

18. The allowed cost of capital and tax forecasts we used for the Westerly Option analysis is based on the Airports Commission figure of 6% pre-tax WACC.

19. For the Westerly Option scenario, we have assumed a lower WACC of 5.24% (pre-tax, equivalent to a vanilla WACC of 4.57%) in H7 trending to 4.88% (pre-tax, equivalent to a vanilla WACC of 4.3%) from H9 onwards due to replacement of embedded debt, based on analysis for the CAA by PwC. We have used forecasts for new debt costs to remain flat at 65bps (real) and have applied this to debt drawn in H7 and subsequent price control periods such that the proportion of new debt increases over time.

20. In developing all the scenarios, we have used a pre-tax WACC on a real RPI basis, and we have averaged the WACC over each five year price control period.

Figure B.8 – Pre-tax real RPI WACC forecasts under the four scenarios used in chapter 2



Source: CAA

Q6 extension

21. In line with the approach set out in chapter 5 on the extension of the Q6 price control, we have assumed that the Q6 price control for HAL will be extended a further two years to 2021 and that prices will be profiled based on RPI-1.5%. We have modelled this by calculating the revenues that result from the building blocks and including additional depreciation as necessary to bring the overall revenue to the level required to achieve an RPI-1.5% path of prices.

Appendix C

Assumptions for assessment of financeability

Introduction

1. This appendix provides further detail on the assumptions underlying our assessment of financeability in chapter 2. In particular, it specifies the approach to calculating credit metrics that we have used and summarises the assumptions we have made about HAL's capital structure.

Definitions and benchmarks for credit metrics

2. In the light of the responses to the December 2017 Consultation, we have reviewed the definitions and benchmarks for the credit metrics. Table C.1 provides an updated set of benchmarks and Table C.2 provides our updated proposals for how the credit metrics should be calculated. It is the comparison of modelled results against these benchmarks which informs our assessment of financeability in chapter 2.

3. The benchmarks set out in Table C.1 are drawn from the Q6 final proposal, various credit rating agency methodology documents and Heathrow's own financing documents. These are presented for information and comparison and we have not yet reached a view on the particular benchmark to use in instances where these different sources use different benchmarks for a given ratio. For the purposes of the modelling results in chapter 2, we have presented the ratio threshold as the lowest of the investment grade benchmarks where there is a range of possible benchmarks, and we interpreted results in this light.

Table C.1 – Definitions for the proposed credit metrics

Credit metrics	Definition	Proposed calculation
Core metrics		
FFO interest cover	Measures a company's ability to meet interest payments from operational cash flows. Uses cash interest, so excludes accrued index linked interest to improve comparability with other regulated companies.	FFO interest cover = (FFO + Cash interest expense) / Cash interest expense
Adjusted cash interest cover (ACICR)	Measures a company's ability to meet interest payments from operational cash flows, after payment of capital charges and before revenue profiling adjustments. This is a more conservative measure than FFO interest cover because the company cannot reduce capital charges or profile revenue to improve the interest coverage.	ACICR = (FFO + Cash interest expense – Regulatory depreciation + Profiling adjustment) / Cash interest expense
FFO to gross debt	Measures a company's debt burden relative to its operational income. Moody's uses gross debt (rather than net debt) on the basis that operational airports do not typically carry large cash balances.[57]	FFO to Gross Debt = FFO / Total Debt
Regulatory gearing	Measures the extent of a regulated company's indebtedness relative to its regulatory asset base.	Gearing = Closing Net Debt / Closing RAB
FFO to net debt	Measures a company's debt burden relative to its operational income. Moody's states that analysts may find it analytically useful to also consider FFO / Net Debt where material cash balances are held as part of prefunding strategies.	FFO to net debt = FFO / Average Net Debt

[57] We note that during the expansion construction period, cash balances are likely to be significantly above typical levels at times to ensure sufficient liquidity is available to fund expansion. We look at the ratio of FFO to both gross debt and net debt so can assess the impacts in both terms.

Secondary metrics		
Interest cover ratio ("ICR")	Measures a company's ability to meet interest payments from earnings after subtracting an amount (2% of RAB[58]) to maintain regulatory assets.	ICR[59] = (EBITDA – Tax charge – 2% of Closing RAB) / Cash interest expense
Net debt to EBITDA	An alternative measure of leverage used by S&P and Fitch to measure a company's level of indebtedness.	Debt to EBITDA = Closing Net Debt / EBITDA
Post maintenance interest cover ratio ("PMICR")	Measures a company's ability to meet interest payments from earnings, after payment of capital charges and tax. Used by Fitch and similar to core interest cover ratios above.	PMICR = (EBITDA – Tax charge – Regulatory depreciation) / Interest paid
Debt service coverage ratio ("DSCR")	Measures a company's ability to meet interest payments from operational cash flows, where interest payments are annualised over the remaining life of the concession. An alternative measure of interest cover used by Moody's.	DSCR = (FFO + Cash interest expense) / Debt service annuity Debt service annuity = (Gross debt * Discount rate) / (1 - (1 / (1 + Discount rate) ^ remaining concession life))
Retained cash flow to gross debt ("RCF")	Measures a company's debt burden relative to its operational income after paying dividends	RCF to Debt = (FFO – Dividends paid) / Gross Debt

Source: CAA

4. Several of the ratios above refer to cash interest expense. Cash interest expense is defined as follows:

[58] The CAA used the reduction of 2% of total RAB at Q6 as an estimate of the amount required to maintain the regulatory assets.

[59] This definition follows the definition set out in HAL's financing agreements with its long term creditors. Accordingly this ratio is assessed net of tax charge even though, in practice, interest is paid pre-tax.

cash interest expense = interest expense – non-cash elements of interest expense.[60]

Table C.2 – Information to inform benchmarks for credit ratios

Credit metrics	CAA Q6 final proposals	Credit rating agencies (CAA interpretation)	Heathrow Finance Ltd covenants
Core metrics			
FFO interest cover	2.25-3.0x (Moody's Baa2)	2.5-4.5x (Moody's Baa) 1.5-2x (S&P BBB)	-
Adjusted cash interest cover ("ACICR")	-	~1.0-1.2x (Moody's Ba1) 1.5-2.5x (Moody's Baa)	-
FFO to gross debt	-	8-14% (Moody's Baa)	-
Regulatory gearing	68-75% (Moody's Baa2)	80-85% (Moody's Ba1) 55-70% (Moody's Baa)	72.5% (class A), 85% (class B), 90% (Holdco)
FFO to net debt	6-10% (Moody's Baa2)	6-9% (S&P BBB)	-
Secondary metrics			
Interest cover ratio ("ICR")	1.4-1.6x (Moody's Baa2)	-	1.4x (class A), 1.2x (class B), 1.0x (Holdco)
Net debt to EBITDA	7.0x (Fitch A-) 10.0x (Fitch BBB)	~7.5x (S&P BBB) ~8-9x (Fitch BBB)	-
Post maintenance interest cover ratio ("PMICR")	1.5-1.6x (Fitch A-) 1.2-1.3x (Fitch BBB)	~1.3-1.5x (Fitch, BBB)	-

[60] These non-cash elements of interest expense include, for example, the uplift in the amount of index-linked debt owed due to inflation. Other examples of non-cash interest also exist but in practice this is the only example that applies within our modelling.

Debt service coverage ratio ("DSCR")	-	3-4.5x (Moody's Baa)	-
Retained cash flow to gross debt ("RCF")	-	6-10% (Moody's Baa)	-

Sources:

- **CAA, "Economic regulation at Heathrow from April 2014: Notice granting the licence" (CAP 1151, February 2014)[61];**
- **Moody's, "Rating Methodology: Privately Managed Airports and Related Issuers" (December 2014)[62];**
- **Moody's, "Credit opinion: Heathrow Finance plc" (October 2016)[63];**
- **Moody's, "Regulated Water Utilities" (December 2015);[64]**
- **Fitch, "Rating Criteria for Airports" (December 2016);[65]**
- **Fitch, "Fitch assigns Heathrow Finance's Notes 'BB+'; Affirms existing notes" (June 2017);[66]**
- **S&P, "Corporate Methodology", (November 2013);[67]**
- **S&P, "Heathrow Funding Ltd. Class A and Class B debt affirmed at 'A-' and 'BBB' on criteria revision; outlook Stable; Off UCO", (June 2017).[68]**

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61 CAP 1151, Economic Regulation at Heathrow from April 2014: Notice granting the licence. See: https://publicapps.caa.co.uk/docs/33/CAP1151.pdf.

62 See: https://www.moodys.com/credit-ratings/Heathrow-Finance-plc-credit-rating-821091654

63 See: https://www.moodys.com/credit-ratings/Heathrow-Finance-plc-credit-rating-821091654

64 Heathrow has a financing structure which shares some characteristics with the financial structures of some UK regulated water utilities. For source see: https://www.moodys.com/research/Moodys-new-rating-methodology-for-regulated-water-utilities--PR_191994

65 See: https://www.fitchratings.com/site/re/891804

66 See: https://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/2014-10-16-Heathrow-Finance-plc-Fitch-Rating.pdf

67 See: http://www.maalot.co.il/publications/MT20131127143756a.pdf

68 See:

Notes: For Fitch, ratings are based on High Midrange revenue risk profile (based on Stronger volume risk and Midrange price risk). For S&P, credit ratings are based on "Excellent" business risk profile, Low volatility and Aggressive financial risk profile.

Assumptions for HAL's financial structure

5. As mentioned in chapter 2, we have modelled on the basis of a 65% gearing at the start of the period. In the past, we have used 60% gearing as a modelling assumption. Our modelling shows that for any initial level of gearing the gearing level falls immediately due to the way the model funds liquidity requirements. By using 65% as the initial gearing level, and the upper bound on gearing that the model allows, the observed gearing over the period is materially lower than 65%.[69]

6. The H7 price control period contains a considerable amount of capex. The profile of capex means that a static assumption for a minimum cash balance would not reasonably approximate actual liquidity requirements. We have therefore modelled liquidity requirements taking account of all sources and uses of liquidity within the model.

7. We have discussed our approach with HAL and, informed by those discussions, have assumed that one third of the total liquidity requirement will be held in cash with the rest treated as available undrawn credit facilities.

https://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/RatingsDirect_HeathrowFundingLtd.pdf

[69] See chapter 2, Figure 2.3

Appendix D

Modelling of interim price control arrangements to apply from the end of 2019

1. This appendix describes the key assumptions used to calculate HAL's allowed revenues for the proposed interim price control to apply from the end of 2019 and the resulting price path, as discussed in chapter 5.

2. For this, we have estimated HAL's revenue per passenger for two capex scenarios and present these alongside the price paths implied by RPI-0% and RPI-1.5%. The assumptions used to calculate the price paths are initial estimates at this stage, particularly for capex, and will be revised later in 2018 as the preferred capacity expansion masterplan is developed.

3. The two tables below summarise our initial estimates of HAL's revenue per passenger for the two different capex profiles during the interim price control period and are compared to each of a RPI-0% and RPI-1.5% price path. As described in chapter 5, we propose to adjust regulatory depreciation by the difference between the RPI-1.5% price path and that implied by the underlying revenue allowances.

Table D.1 – Estimated revenue per passenger for 2019-2021 (£, 2016 prices)

Scenarios	2016	2019	2020	2021
RPI-0%	22.3	21.1	21.1	21.0
RPI-1.5%	22.3	21.1	20.7	20.4
Updated building blocks – HAL submission	22.3	21.1	18.7	20.1
Updated building blocks – CAA assumption	22.3	21.1	18.6	19.1

Source: CAA calculations

Table D.2 – Breakdown of revenue per passenger for 2019-2021 (£, 2016 prices)

Scenarios and adjustments	2016	2019	2020	2021
RPI-0%	**22.3**	**21.1**	**21.1**	**21.0**
Reduce yield for RPI-1.5%	-	-	(0.3)	(0.6)
RPI-1.5%	**22.3**	**21.1**	**20.7**	**20.4**
Reduce yield for Q6 building blocks rolled forwards with updated capex	-	-	(0.8)	(0.4)
Adjust for actual and expected performance on pax	-	-	(0.6)	(0.5)
Adjust for actual and expected performance on opex and single till revenues	-	-	0.4	0.9
Adjust for actual performance on WACC	-	-	(1.0)	(1.1)
Updated building blocks - HAL submission	**22.3**	**21.1**	**18.7**	**20.1**
Adjust for different capex assumption	-	-	(0.1)	(1.0)
Updated building blocks - CAA assumption	**22.3**	**21.1**	**18.6**	**19.1**

Source: CAA calculations

4. The rest of this appendix provides further detail on how we modelled the scenarios and price paths shown above.

Simple extrapolation based on flat real charges (RPI-0%)

5. HAL's starting revenue per passenger in 2014 is £22.261 as set by Condition C1 of its licence. Under this scenario, this was rolled forwards using the price control formula from Q6: $Y_t = Y_{t-1} * (1+ RPI_{t-1} + X)$. In this scenario, RPI is actual RPI and forecasts based on HM Treasury consensus forecasts from June 2017 and X is set at -1.5% for Q6 (2014-2018) and Q6+1 (2019), and then set to 0% in each subsequent year. In other words, prices remain broadly flat in real terms from the level in 2019.

Simple extrapolation of prices based on the existing price control (RPI-1.5%)

6. This is similar to the scenario above, but the X factor is set at -1.5% for each year starting from 2020. In other words, prices follow the price control formula set for the Q6 period.

Q6 building blocks rolled forwards with updated capex

7. Under this scenario, we used the same approach described above to estimate prices up to 2019. From 2020, rather than prices being rolled forward by extrapolation, we calculated prices using the underlying regulatory building blocks (i.e. opex, capex, depreciation, allowed return, single till revenues and passengers). We then calculated prices on an unsmoothed basis (i.e. total revenue/number of passengers).

8. The assumptions we used were as follows:
   - capex: the capex profile submitted by HAL in March 2018 which is summarised in the table below:

Table D.3 – HAL's capex projection for 2019 to 2021 (£m)

	Price base	2019	2020	2021
Expansion capex	2014	167	485	2,515
Non-expansion	2014	182	306	509
Maintenance	2014	391	350	350
Total	**2014**	**740**	**1,140**	**3,374**

Source: HAL

- regulatory depreciation: 5% of the opening RAB in line with the end of Q6 (averaging approximately £680m p.a. in 2011-2012 prices), with the RAB being calculated as being net of RAB additions and depreciation;
- opex: in line with the forecasts for the end of Q6, opex per passenger reducing by 1.65% p.a. in real terms from 2019;
- single till (commercial) revenues per passenger staying constant in real terms;
- passenger growth of 1% p.a.; and
- WACC: identical (pre-tax) to Q6 (5.35% real).

Adjustment for actual and expected performance on passengers

9. This adjustment resets passenger forecasts from 2020 based on information on actual performance and initial assumptions for forecast performance.

10. To reset these, we used HAL's actual performance up to 2017 (78.0m passengers) and recent forecasts from HAL for performance up to 2018 (78.8m passengers). For the period beyond 2018, we used illustrative passenger forecasts provided by HAL. These figures show a shock adjustment in 2019 with a 1.1m reduction in annual passenger numbers and average annual growth thereafter of 1.08%. This growth rate appears broadly in line with annual passenger growth over the period from 2005 to 2017 which averages 1.3%.

Adjustment for actual and expected performance on opex and single till revenues

11. This adjustment resets opex and single till revenues based on actual performance up to and including 2017 and forecasts thereafter. The forecasts were developed using 2017 and 2018 forecasts from Heathrow's

December 2017 investor report[70] and then calculating figures from 2019 onwards based on elasticities for passengers and terminal capacity. We have used elasticities from the Heathrow "Taking Britain Further" report[71] submitted to the Airports Commission in 2014 and have reviewed the resulting profile with HAL.

12. For single till revenues we have also made compounding annual reductions in car parks, retail and concessions, rail and other revenues in line with feedback received from HAL. We then calibrated the size of this adjustment to 1.3% per annum to produce a profile that, when combined with the non-aeronautical revenue profile, broadly aligns with the one shown in the Westerly Option.

Adjustment for actual performance on WACC

13. We adjusted the WACC based on actual new debt costs and changes in the corporate tax rate as follows:

- cost of new debt: we have adjusted this from the assumption of 2.5% (real) used to calculate the Q6 price control, to 0.25% based on estimates from HAL on the actual cost of new debt seen over Q6; and
- tax: we have adjusted the applicable tax rate from 20.2% assumed to calculate the Q6 price control, to reflect the UK Government's policy to reduce the corporation tax rate from 19% currently to 17% by 2020-2021. This gives a blended tax rate of 17.3% if we assumed it was to cover the period 2020-2021.

14. Overall, these adjustments reduce the pre-tax WACC from the Q6 assumption of 5.35% (real) to 4.83%.

[70] Heathrow (SP) Limited and Heathrow Finance plc Investor Report, December 2017. See: https://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/Heathrow_SP_investor_report_December_2017.pdf.

[71] Heathrow: Taking Britain Further, Technical Submission, volume 1, 2014. See: https://www.heathrow.com/file_source/Company/Static/PDF/Companynewsandinformation/TBF_techspec_vol1.pdf

Adjustment for different capex assumption

15. The “HAL submission” price path uses capex figures provided to the CAA by HAL in March 2018. HAL developed these capex figures on the basis of a Q6+1 extension.

16. We have undertaken a sensitivity test to assess the impact of a deferment in capex on the price path. We assume that early Category C costs are deferred from 2019 to 2020 and that R3 capex is deferred from 2020 to 2021.

17. The net effect of these adjustments is a reduction of in the capex profile of £0.3bn in 2020 and £2.0bn in 2021 as shown in the table below.

Table D.4 – CAA sensitivity test on capex for 2019 to 2021

	Price base	**2019**	**2020**	**2021**
Expansion Capex	2014	167	167	485
Non-expansion	2014	182	306	509
Maintenance	2014	391	350	350
Total	**2014**	**740**	**823**	**1,344**