Consumers and Markets Group

Economic regulation of capacity expansion at Heathrow: working paper on the cost of capital and incentives

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Summary

Introduction

1.1 In addition to our consultation papers on developing the regulatory framework and price control arrangements for Heathrow Airport Limited (HAL), we will publish further background information, detail and technical information in working papers.

1.2 This is the first of those papers, and focuses on issues relating to the cost of capital and incentives for the next main (H7) price control review of HAL. It follows on from our consultation in June 2017[1] (the "June 2017 Consultation") December 2017[2] (the "December 2017 Consultation") and April 2018[3] (the "April 2018 Consultation") on the regulatory framework to support capacity expansion at Heathrow.

1.3 We also intend to publish further consultations and updates on the regulatory framework for HAL, including on licensing issues (in September 2018), updates on affordability, financeability and the cost of capital (in November 2018) and to provide more detail of our approach to setting the interim price control for HAL (in January 2019). PwC will also produce an update of its initial estimate for HAL's weighted average cost of capital (WACC) in November 2018.

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

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

[3] See CAP 1658 Economic regulation of capacity expansion at Heathrow: Policy update and consultation www.caa.co.uk/CAP1658

Scope of this working paper

1.4 This working paper covers the following issues:

- this chapter provides a summary of the working paper, with a particular focus on our future work plans;
- Appendix A provides more detail on the points raised on the cost of capital by respondents to the December 2017 Consultation and outlines our work programme for the remainder of 2018 on these matters;
- Appendix B sets out respondents' views on indexing the cost of new debt and describes our proposed way forward;
- Appendix C provides summaries of the responses to the June 2017 Consultation on incentives and describes some of the implementation issues relating to the introduction of ex ante capital expenditure (capex) incentives;
- Appendix D sets out a summary of the main issues arising from a study we commissioned from PA Consulting on HAL's approach to cost and revenue allocations and our proposals for next steps with respect to these matters; and
- Appendix E reproduces a letter we sent to HAL following its request that we clarify certain aspects of the policy set out in the April 2018 Consultation on early Category C costs and the costs of diverting the M25 motorway.

Estimating the cost of capital parameters

Background

1.5 The December 2017 Consultation described the initial range for the weighted average cost of capital (WACC) estimated by PwC[4], and the premium for the

[4] See CAP 1611 "Estimating the cost of capital for H7 (An independent report produced by PricewaterhouseCoopers LLP). referred to as "the PwC Report": www.caa.co.uk/cap1611

additional risks associated with capacity expansion. It also outlined the process we would use to reach our final decision on the cost of capital.

1.6 Respondents provided views and detailed evidence on the CAA's approach to the cost of capital, PwC's methodology for calculating it and its initial estimate of the WACC range. Many stakeholders also provided detailed views on the specific parameters used to calculate the WACC.

1.7 The April 2018 Consultation dealt with representations on the CAA's approach to the WACC and the broader points made in relation to PwC's estimates and methodology. It emphasised the importance of creating a balanced package of incentives and that we should take appropriate account of this when setting HAL's cost of capital. It also described our initial assessment of the impact of possible *ex ante* capex incentives on HAL's return on regulated equity (RORE).

1.8 We have summarised the main points made by stakeholders on specific components of the WACC in Appendix A, together with our forward work programme in response to these points. We would welcome views from respondents on this work programme, as well as any further points or clarifications stakeholders wish to make on the cost of capital.

Next steps

1.9 Appendix A also sets out the main areas of the cost of capital that we intend to do further work on during the remainder of 2018. This work programme is summarised below. Some of this analysis will also inform our work on the NATS En Route plc (NERL) RP3 price control.

1.10 Our intention is to consider further the main issues raised by respondents on **total market returns** (TMR) including on:

- the relative weights to be placed on different historical and forward looking approaches to estimating the TMR;
- recent regulatory precedent; and
- whether the international case studies are robust and reflect appropriate benchmarks.

1.11 We intend to assess the impact of the regulatory framework and incentive arrangements on any **WACC premium** or uplift. A key input into this assessment will be the scope and strength of any *ex ante* capex incentives and their expected impact on returns, as can be measured by HAL's RORE. Our initial analysis of these matters was summarised in the April 2018 Consultation, and we noted that relatively modest *ex ante* capex incentives would not make HAL an outlier compared with the incentives set by Ofwat and Ofgem.

1.12 Further work will be undertaken on:

- whether additional risks from capacity expansion are best dealt with by a WACC premium, adjustments to beta values, or in calibrating any risk and reward package associated with incentives (or, indeed, some combination of these measures);
- how best to calibrate the above adjustments and/or premium; and
- the timing of different risks and how these should be reflected in the H7 price control (for example, whether we should reflect risks that are likely to be more pronounced after the construction period (such as volume risk) in the WACC for the H7 price control).

1.13 We propose to undertake further work on **beta values** and draw on a balance of qualitative and quantitative evidence, including the latest financial market data and analysis of airports with similar systematic risk characteristics, as well as having regard to the impact of HAL's regulatory risk, cost incentives, construction and passenger demand. This work will cover technical issues such as those raised in the recent UKRN report on the cost of capital.[5]

1.14 In relation to the **risk free rate** (RFR), the main issue for the CAA to consider is how to balance current market evidence on gilts (which may be affected by short term volatility), against more long term historical data of index linked gilts. To inform this consideration we also intend to assess:

[5] Estimating the cost of capital for implementation of price controls by UK Regulators, by Wright, Burns Mason and Pickford (March 2018). http://www.ukrn.org.uk/wp-content/uploads/2018/03/2018-CoE-Study.pdf

- whether there are any new developments in regulatory precedent we should take in account; and
- whether there are significant changes in market conditions that should be reflected in our evidence of the RFR.

1.15 In relation to **embedded debt** we intend to consider:

- the average cost of embedded debt over the H7 price control period;
- the appropriate benchmark indices to use in estimating the cost of embedded debt, and the use and calculation of any forward looking adjustments to these indices; and
- the role of HAL's actual costs, either as a cross check or for use as an input into the assessment of embedded debt costs.

1.16 We will consider further the points HAL and other stakeholders have raised (as summarised in Appendix A) in relation to the cost of **new debt**. As we explain in Appendix B, we are also considering adopting an approach to debt indexation that would adjust our allowances for the cost of new debt for market wide movements in the cost of debt finance (which will be outside of the control of HAL's management).

1.17 In relation to the **proportion of new and embedded debt** we will need to ensure consistency between our approach to financial structures and financeability, and our assumptions on the balance between new and embedded debt used to estimate the cost of capital.

1.18 We also explained in the April 2018 Consultation that we intend to retain a "twin track" approach to assessing financeability and the cost of capital, considering a notional approach but also assessing scenarios with higher levels of gearing. The notional approach benefits from extensive regulatory precedent across a range of sectors and focuses on HAL having continued access to relatively low cost investment grade debt finance. For H7 we may choose to focus on a particular level of gearing, but we would consult further before making such decisions.

1.19 We have also commissioned PwC to update its estimates of HAL's WACC, which we plan to also publish in November 2018. This update will consider the evidence submitted by stakeholders, the latest evidence from financial markets and take account of any changes in our wider approach stemming from the above work programme.

Indexing the cost of new debt

1.20 In the December 2017 Consultation, we stated that we could see advantages of introducing indexation for the cost of debt for the next H7 price control.

1.21 Appendix B summarises the views of respondents on these matters and sets out our preferred way forward. This involves indexing the cost of new debt only (with a fixed allowance set for embedded debt) with a true-up mechanism for differences between forecast and actual debt costs.

1.22 We propose to undertake further work on implementation issues, including:

- the selection of an appropriate index, including consideration of the debt tenor that should be reflected in the index;
- any adjustments that we should make to reflect HAL's specific circumstances (e.g. costs associated with non-sterling and index-linked debt, weightings to reflect RAB additions); and
- whether we should refine our approach to the true-up mechanism (e.g. whether it should adjust for all, or just a proportion of, the divergence between the cost of debt allowed in setting the price control and cost of debt reflected in the index).

Incentives

1.23 The June 2017 Consultation stressed the importance of setting a balanced package of incentives which would not only protect consumers but also allow HAL to finance capacity expansion efficiently while not exposing HAL to undue risks. The package would encourage capacity expansion at the lowest efficient costs and provide the desired outputs for consumers and airlines.

1.24 Stakeholders' responses to this consultation are summarised in Appendix C. They largely agreed with the need for a balanced package of incentives, but had substantive comments on the introduction of ex ante capex incentives.

1.25 We remain of the view that creating a balanced packed of incentives is an important objective of the price control review and that we should take appropriate account of risks in setting HAL's cost of capital and risk and reward package. Our initial assessment of the impact of possible *ex ante* capex incentives on HAL's RORE is set out in chapter 4 of the April 2018 Consultation.

1.26 As well as continuing to assess the impact of different incentives we expect to carry out further work to consider the challenges associated with *ex ante* incentives, including:

- the need for sufficiently reliable cost forecasts to underpin any ex ante incentives, and questions of how these might be developed;
- the need to define the deliverables associated with different capex allowances, so that we can identify any underspends that are due to non delivery rather than improved efficiency;
- the need for adjustment mechanisms, to avoid unnecessary rigidity and ensure that desirable design or scope changes can be accommodated even after the initial cost allowance has been set;
- considering whether adjustments for certain external cost changes might be needed;
- considering how to address the risk of "gaming" of incentives, or the risk that a change in the incentive framework could adversely affect stakeholder relationships; and
- the need to establish robust boundaries between the cost categories subject to different incentives, if *ex ante* incentives are applied only to certain cost categories.

Cost and revenue allocations

1.27 In October 2016, we commissioned PA Consulting (PA) to carry out a review of the approach that HAL takes to revenue and cost allocations, focusing on:

- how HAL allocates expenditure between operating costs and capital expenditure; and
- how it allocates costs and revenues between different activities.

1.28 The study was not able to reach any firm conclusions on HAL's overall approach, but identified (see Appendix D) four main areas of concern:

- staff costs are allocated *ex ante* based on an estimate of the proportion of time expected to be spent on particular activities. Given this approach, there is a risk that allocations may be unreliable and/or inconsistent;
- the allocation of costs as operating activities or to capital schemes may not be robust if standard operating procedures are not followed;
- capitalisation of staff costs, which increased markedly in 2013 around the boundary between the Q5 and Q6 price controls. The PA report notes that it is the insourcing of staff members following the group reorganisation, rather than any change in policy, which is the likely cause of these differences; and
- related party transactions. These can carry risks for organisations and HAL reported a number of such transactions from 2012 through to 2015. PA consider that these may warrant further investigation as the work undertaken to date has not been able to properly assess the risks to consumers from these transactions. Nonetheless, PA note that these transactions have been subject to HAL's internal and external audit procedures.

1.29 We propose the following next steps with respect to these matters:

- the Independent Planning Cost Reviewer (IPCR) will examine the capitalisation of operating costs to satisfy itself of the accuracy and

appropriateness of the allocations in respect of planning costs. Following this initial review, we will determine whether further work is required;

- HAL should provide to us the report prepared by Deloitte LLP on HAL's capitalisation policy, which should also help inform our decisions on whether further work on these matters is appropriate; and
- in our review of HAL's procurement policy, we will consider further the robustness of HAL's approach and whether it has evidence that its processes properly protect the interests of airlines and consumers.

Clarifications relating to our April 2018 Consultation

1.30 Following the publication of the April 2018 Consultation, HAL asked for certain clarifications regarding the treatment of early Category C costs and costs associated with alterations to the M25 motorway. Our response to HAL's request is set out in Appendix E.

Views invited

1.31 We welcome views on any of the issues set out in this working paper and, in particular, on the issues highlighted in this summary chapter.

1.32 Please e-mail responses to economicregulation@caa.co.uk by no later than 16th July 2018. We cannot commit to take into account representations received after this date.

1.33 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.

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

Appendix A

Estimating the Cost of the Capital parameters

Introduction

1. This appendix summarises the main issues raised by stakeholders on the components of the cost of capital in response to the publication of the work we commissioned from PwC (and published alongside the December 2017 Consultation) that estimated an early and preliminary range for HAL's WACC. It deals with:

   - total market return;
   - WACC premium;
   - asset beta and equity beta;
   - risk free rate;
   - cost of embedded debt;
   - cost of new debt;
   - proportion of new and embedded debt;
   - debt issuance costs; and
   - debt beta.

2. It also outlines the key areas in which we intend to undertake further work in developing our thinking on the WACC over the rest of 2018.

Total market return

3. PwC's TMR estimate of between 5.1% and 5.6% was based on current market expectations using dividend discount modelling (DDM) analysis of market-to-asset ratios for UK regulated utilities and investor surveys. It is lower than that used in the Q6 price control review in 2013 due to one off historical impacts that elevated historical returns, a formula effect in the calculation of RPI and PwC placing more

emphasis on *ex ante* sources in its most recent work. PwC also concluded that the "search for yield" created by a prolonged period of negative real returns on the safest assets has led to a decline in required equity market returns.

Stakeholder views

4. HAL, informed by research commissioned from NERA and EY, disagreed with PwC's estimate and methodology, stating that PwC's approach was a short term view and that more weight should be placed on historical rates of return. It challenged the assumptions used for the dividend growth model[6] and the calculation of market-to-asset ratios, concluding that an estimate of 7.0% for the TMR would be more appropriate. It noted that this is below the Bank of England's estimate of 7.2% to 8.1%.[7]

5. NERA's report[8] for HAL estimated a TMR of between 6.5% and 7.1%, based on data from the Dimson, Marsh and Staunton dataset. On PwC's approach, NERA:

   - concluded that PwC's lower TMR estimate did not reflect academic evidence in favour of a constant TMR, and the near covariance between the equity risk premium and the risk free rate; and
   - challenged the assumptions used by PwC in DDM analysis, specifically that non-UK GDP should be used instead of UK GDP (because 70% of the revenues of FTSE all share companies are derived abroad) and that the short term GDP rates used did not take into account equity analysts' forecasts of short term dividend growth.

6. Based on evidence from the US and European energy sectors, NERA also concluded there has been no reduction in the cost of equity, due to a fall in government bond yields, and that most energy regulators' recent decisions in these

[6] For example, the use of GDP long run dividends increases faster than GDP due to capital accumulation.

[7] Table 2.2, 'Cost of Equity for Heathrow in H7', NERA (February 2018).

[8] NERA, A review of PwC's approach to setting cost of equity in a "lower for longer" era, Oct 2017.

regions have, compared to previous decisions, either continued to use a stable or higher TMR or used higher beta allowances that offset lower TMR estimates.[9]

7. EY[10] selected 34 international infrastructure assets over the 2014-2017 period, identifying a TMR range of 4.0% to 9.1% across them, and noting that only two of these examples were within or below the range identified by PwC. In those two cases, the lower TMR was balanced by relatively high assumptions for equity betas, bringing the cost of equity to a level more comparable to others in the sample.

8. Airline representatives provided a study by CEPA which broadly supported PwC's approach[11] and suggested that:

   - competitive benchmarks showed that the current TMR is below the long-run historical average;
   - for dividend growth modelling, a specification of five years of short term data followed by a GDP-growth based long term dividend growth forecast would be appropriate; and
   - market-to-asset ratios of water companies should be used as a cross check rather than used directly to estimate the TMR.

9. One airline said that equity returns are in line with estimates from Barclays and Credit Suisse[12] and that returns on UK equities have fallen, declining from a midpoint of 4.75% in 2012 to 4% in 2017.[13]

Summary of key issues to consider

10. We will need to consider the issues summarised above further and, in particular:

9 NERA, International precedent on cost of equity, February 2018.

10 EY, Setting the cost of Equity for Capacity Expansion at Heathrow Airport: A review of evidence on the total market return for Infrastructure in other Countries; Feb 2018.

11 CEPA review of 'CAA Economic regulation of capacity expansion at Heathrow: policy update and consultation,' (CAP1610) – cost of capital issues.

12 See 'Rates of return for FCA prescribed projections', FCA (September 2017).

13 PwC estimates from 'Rates of return for FCA prescribed projections', FCA (September 2017).

- the relative weights to be placed on different historical and forward looking approaches to estimating the TMR;
- recent regulatory precedent (e.g. from Ofwat, Ofgem, Ofcom and the recent UKRN report on the cost of capital); and
- whether the international case studies selected are robust and reflect appropriate benchmarks.[14]

WACC premium or uplift

11. The December 2017 Consultation said that we expected the additional risks associated with capacity expansion, especially those associated with construction and passenger volumes, to be concentrated in the 10 years following the start of construction. The analysis conducted by PwC captured these extra risks by applying an overall WACC premium (or uplift) and keeping the asset and equity betas the same for the H7 "as is" and H7 "with R3" scenarios. PwC estimated a very initial range for this uplift at between 0.25% and 1.0%, based on an assessment of the relationship between construction risk and the WACC across six case studies.

Stakeholder views

12. HAL said that a 10-year premium would be appropriate, provided that it was fixed during the current regulatory process for both the H7 and H8 periods, and that it took account of additional risks that would arise over the whole period of the capacity expansion programme. In this light, it considered that PwC should consider the time over which the benchmark premium was applied in each of the case studies. For example, it said the premium for Hinkley Point covers a 35-year period and that PwC had not adjusted the premium when applying it to a 5-year price control period.

13. The KPMG report[15] provided by HAL set out a methodology for estimating the required premium for capacity expansion. It estimated that a 10-year WACC uplift of

[14] While international case studies provide useful evidence, we are likely to place more weight on UK regulatory precedent and evidence from UK financial markets.

[15] Risks and returns for R3, KPMG (November 2017).

1.3% to 1.4% is required to compensate for the additional risks of capacity expansion. This was based on illustrative distributions of construction and volume risks. Benchmarking returns across other infrastructure projects, KPMG suggested a premium of 1.6%.[16]

14. One airline said that the CAA should not impose regulatory incentives that increase the WACC and that the CAA should also consider whether to capture risk purely through the WACC or within cost estimates and allowances used in setting incentives. Another airline noted the reference to HAL's view that "additional returns" should be spread over a period of 15-20 years, and said that these were not necessary.

15. Another airline agreed with PwC's range for the WACC premium, although considered that the point value should be towards the lower end of the range in order to be consistent with the premium applied by the CAA to take account of the construction by HAL of Terminal 5 and Ofgem's approach at RIIO-T1. It considered that outsourcing construction risk to a third party would mean that a premium would not be needed. CEPA said construction risk was already captured in the cost of capital range and therefore did not support an explicit additional premium beyond this range.

Summary of key issues to consider

16. We will consider further the impact of the overall regulatory incentive framework and the implications for any WACC premium. A key input into this assessment will be the scope and strength of any *ex ante* capex incentives and their expected impact on returns, as measured by HAL's RORE. Our initial work on these matters, summarised in the April 2018 Consultation, suggests that the likely impact on HAL of modest *ex ante* capex incentives would not make HAL an outlier compared with the incentive arrangements that had been put in place by Ofwat and Ofgem for network companies.

17. In addition to the above analysis, we intend to consider further:

[16] Risks and returns for R3, KPMG (November 2017).

- whether additional risks from capacity expansion are best dealt with by a WACC premium, adjustments to beta values or in calibrating a risk and reward package associated with incentives (or, indeed, some combination of these measures);
- how best to calibrate the above adjustments and/or premium; and
- the timing of different risks and how these should be reflected in the H7 price control (for example, whether we should reflect risks that are likely to be most pronounced (such as passenger volume risk) after the construction period in the WACC for the H7 price control).

Asset beta and equity beta

18. HAL's equity beta describes the relative risk of HAL's expected returns compared to the returns of the overall market.[17] HAL's asset beta captures the underlying business risk faced by HAL and is independent of its gearing.[18]

19. As PwC's initial assessment allowed for extra risks associated with capacity expansion through a WACC premium, it assumed the same asset beta (0.42 to 0.52) and equity beta (0.98 to 1.23) in both the H7 "as is" and "with R3" scenarios. PwC also assumed that the asset beta for H7 remained the same as Q6 because its initial assessment was that there was no evidence of fundamental changes in risks at this early stage of the price control review process.

20. Although the asset beta was unchanged from that used for Q6, the equity beta is somewhat higher reflecting a lower assumption for debt beta.

[17] HAL's equity beta reflects the variability of the HAL's returns on equity compared with the variability of returns in the overall market portfolio.

[18] The asset beta is not directly observable but can be calculated from the equity beta, debt beta and the capital structure.

Stakeholder views

21. The NERA report[19] provided by HAL estimated a higher asset beta of between 0.55 and 0.60, based on analysis of Fraport and AdP.[20] It concluded that Heathrow is higher risk than Frankfurt, and at least as risky as Charles de Gaulle airports. HAL concluded that the most appropriate asset beta would be 0.60.

22. One airline said that, at this stage, it had a similar view to PwC on the range for the asset beta, but any point estimate should be lower than the Q6 value of 0.50. It concluded that HAL is lower risk than AdP and Fraport, based on the sensitivity of traffic and revenues to global shocks. It also suggested that a local index instead of a European index should be used to estimate the beta and that AENA (which includes Madrid airport) should be included as a comparator.

23. The CEPA study[21] estimated a lower range for the asset beta range of 0.33 to 0.44 for Heathrow, primarily due to its use of local indices and not applying a Blume adjustment.[22] It concluded that selecting an asset beta from within a range, rather than applying an uplift, should be sufficient to cover the additional systematic risk from capacity expansion. Similar to PwC, CEPA also concluded that Heathrow faces lower systematic risk than Fraport and ADP.

Summary of key issues to consider

24. Estimating equity and asset betas for HAL raises a range of practical problems. Beta values are usually determined using changes in a firm's share price relative to the stock market as a whole. However, given that HAL's shares are not listed, calculations for HAL cannot be undertaken using directly observed data and usually rely on analysis of comparative companies, including other airports. The selection of

[19] Cost of Equity for Heathrow in H7, A Report for Heathrow Airport, NERA (February 2018).

[20] Frankfurt accounts for around 80% of Fraport according to revenues, EBITDA and assets and Paris accounts for 64% of AdP's passenger numbers.

[21] CEPA review of 'CAA Economic regulation of capacity expansion at Heathrow: policy update and consultation,' (CAP1610) – cost of capital issues.

[22] A Blume adjustment is used to reflect the observed tendency for equity betas to approach the market average over time.

comparators and the assessment of HAL's systematic risk relative to these comparators are, therefore, both key considerations.

25. We propose to undertake further work on beta values and to commission specific research and advice as appropriate. We will draw on a balance of qualitative and quantitative evidence, including the latest financial market data and analysis of airports with similar systematic risk characteristics, as well as having regard to the impact of HAL's regulatory risk, cost incentives, construction and passenger demand. This work will also cover technical issues, such as whether to use net debt or gross debt,[23] as well as the beta estimation issues raised in the recent UKRN report on the cost of capital.[24]

Risk free rate (RFR)

26. Estimates for the RFR are usually based on the return from the safest investment class (i.e. government gilts), using evidence from nominal and index linked gilts as proxies for the nominal and real RFR respectively. PwC's initial estimate of the RFR for the H7 price control period ranged from -1.4% to -1.0% in real terms. This is lower than for the Q6 price control period, reflecting changes in market conditions and an approach that places more emphasis on recent market rates and forward looking evidence, rather than historical precedent or long-run averages.

Stakeholder views

27. The NERA report[25] submitted by HAL estimated a RFR of between -0.9% and +1.5%. The lower end of this range reflects current yields of index-linked gilts and evidence from forward markets that reflects expected future increases in interest rates. The upper end is based on long-run historical evidence adjusted for current market conditions.

[23] The CAA has previously concluded that net debt is the better measure. The discussion is covered in CAP 1115 paragraph 7.64. See http://publicapps.caa.co.uk/docs/33/CAP1115.pdf

[24] Estimating the cost of capital for implementation of price controls by UK Regulators, by Wright, Burns Mason and Pickford (March 2018).

[25] Cost of Equity for Heathrow in H7, A Report for Heathrow Airport, NERA (February 2018).

28. HAL concluded that the RFR should be 0%, noting that, although the current market value is below 0%, the current market can both be distorted by short term effects, and is not consistent with consumers' long term preference for deferred consumption.

29. One airline agreed with PwC that the RFR should be lower than the value used in Q6, noting the downward trends in yields and the effects of quantitative easing. It took the view that:

- forecasts of rates are more appropriate than forward yields in current markets; and
- evidence from OBR and PwC/FCA[26] forecasts suggested a range for the RFR should be between -1% and 0%.[27]

30. Concluding that a negative RFR is "intellectually difficult", it proposed a RFR of 0%.

31. CEPA said the use of a long term expected trailing average would be more stable than the approach used by PwC, but that the two approaches produced similar results, the ten-year trailing average of ten-year index-linked gilts being within the PwC range proposed of -1.4% to -1.0%.

Summary of key issues to consider

32. The main issues we intend to focus on in assessing the RFR is how to balance current market evidence on gilts, which may be affected by short term volatility, against more long term historical data of index linked gilts. We also intend to assess:

- whether there are any new developments in regulatory precedent we should take into account; and
- whether there are significant changes in market conditions that should be reflected in our evidence of the RFR.

[26] PwC estimates from 'Rates of return for FCA prescribed projections', FCA (September 2017).

[27] It noted an OBR forecast of 20-year gilts to be -0.7% by the end of 2022 and a PwC/FCA forecast for 10-year index linked gilts to rise to -0.40% by 2024 and to -0.25% by 2032.

Cost of embedded debt

33. PwC used 10- and 15-year trailing averages of investment grade corporate bond yields to estimate a cost of embedded debt for HAL as ranging from 1.1% to 1.8%. It concluded that the 15-year value of 1.8% for the real cost of embedded debt was more consistent with an assumption of long term notional financing and better reflected past debt issuances by HAL.

Stakeholder views

34. HAL estimated the costs of embedded debt by reference to its actual debt costs, rather than the notional approach adopted by PwC. HAL said that PwC's method underestimated debt costs as it did not reflect HAL's actual pattern of issuance, its specific credit rating, the fact that more than half of HAL's debt has a maturity date longer than 15 years, and that HAL faces higher costs (around 40 basis points) of issuing index-linked debt. HAL expected the average real cost of its embedded sterling debt to be 3.4% (including its index-linked bonds and swaps) for the H7 price control period.

35. CEPA estimated the cost of embedded debt to be 0.84% for the period 2020-24, using the mid-point of 10- and 15-year trailing averages (i.e. iBoxx non-financial corporate A and BBB rated indices). It considered the average cost of embedded debt over the price control period rather than just at the start of the period.

36. One airline said that a 1.8% cost of embedded debt for a notional company is towards the top end of any range but is not unreasonable on current evidence. It noted that Heathrow's cost of debt was reported[28] as 3.95% in September 2017, which equated to a real cost of debt of 0.34% (assuming an RPI of 3.6%).

Summary of key issues to consider

37. The CAA's approach to calculating the cost of embedded debt has been based on a notionally financed company issuing debt, with a cross check on HAL's actual debt. PwC's approach is consistent with our notional approach rather than using the

[28] Heathrow Airport Holdings Limited's consolidated debt and cost of debt (30 September 2017).

actual debt cost. In the past, we have treated actual debt costs with caution because HAL's actual gearing is much higher than the 60% notional level we use for our analysis and higher levels of gearing imply a higher cost of debt.

38. We intend to consider the following issues further:

- the average cost of embedded cost over the H7 period, rather than focusing on costs at the start of the price control period;
- the appropriate benchmark indices to use, and the use and calculation of any forward looking adjustment; and
- the role of HAL's actual costs, either as a cross check or for use as an input into the assessment of embedded debt costs.

Cost of new debt

39. PwC concluded that the cost of new debt would be in the range of 0.15% to 0.65% in real terms, based on:

- an estimate of current market yields for long term investment grade corporate debt of 0% in real terms; and
- a forward looking uplift averaging 0.4% (with +/- 0.25% range) to reflect market expectations for the future path of interest rates.

40. This is lower than its estimate for the real cost of embedded debt of 1.8%.

Stakeholder views

41. HAL said that, with capacity expansion, it expects to issue around three to four times the volume of debt compared to recent years, and said that this could offset the reduction in the cost of debt resulting from a higher proportion of new debt. HAL said that, overall, PwC's approach was reasonable but that there should be two key adjustments:

- noting that Ofwat have assumed that water companies can issue debt at 15 bps below the index, and that there was a spread between HAL and Anglian Water's debt costs of 30 bps, HAL said its cost of new debt should be 15 bps above the index to reflect an appropriate premium;

- the nominal gilt forward curve should be used as it is more appropriate than the forward curve for index linked gilts used by PwC, as HAL will issue mostly nominal debt.

42. An airline agreed with PwC's method and the selection of the appropriate index, but noted that the index implied that HAL had been able to raise new debt at much lower rates than the Q6 determination of 2.5%. It also noted that there appeared to be sufficient depth in the market as the orderbook for HAL's debt in its 2016 and 2017 issuances had been between three and six-and-a-half times oversubscribed.

Summary of key issues to consider

43. We will consider further the points HAL and other respondents have raised in relation to the cost of new debt. As we explain in Appendix B, we are considering adopting an approach to debt indexation that would adjust our allowances for the cost of new debt for market wide movements in the cost of debt finance (which are outside of the control of HAL's management).

Proportion of new and embedded debt

44. PwC assumed the proportion of new debt would be 12.5% under the H7 'as is' scenario, and 60% under the H7 'with R3' scenario. The December 2017 Consultation noted that the average cost of debt and the WACC would change over time as existing debt is repaid and replaced by new debt.

Stakeholder views

45. HAL said that the proportion of new debt of 60% will only be achieved at the end of the H7 price control and that a figure of 30% is more appropriate as this would be the average for the period.

46. An airline agreed with the PwC assessment that the proportion of new debt will increase from 12.5% to 60%. CEPA estimated that the proportion of new debt under the H7 'as is' to be 20%, based on an average debt tenor of 12.5 years.

47. Another airline said that the estimate of the proportion of new debt needed to take into account the incentive on HAL to refinance its existing debt to take advantage of lower interest rates.

Summary of key issues to consider

48. We acknowledge the points made by respondents (and noted in the December 2017 Consultation) that the proportion of new and embedded debt will change over time. We will need to ensure consistency between our approach to financial structures and financeability, and our assumptions on the balance between new and embedded debt used to estimate the cost of capital.

Debt issuance costs

49. PwC suggested an allowance for debt issuance costs of 10bps, consistent with the allowance set for Q6. The December 2017 Consultation said there should be no double counting between the allowance set for issuance costs and those set for operating costs. We also said that HAL should provide evidence that debt issuance costs are efficient.

Stakeholder views

50. HAL said that a 10bps allowance would be reasonable in benign market conditions but would be too low for capacity expansion or difficult market conditions. HAL also said that there was no allowance for liquidity costs which would range between 4-40bps depending on the liquidity requirement. It considered that regulatory precedent suggested a 20bps allowance.[29]

Summary of key issues to consider

51. Issuance costs are dependent on rating agency and legal fees, as well as related issues such as market capacity and liquidity. We expect HAL to provide robust evidence in its price control business plans on the level and efficiency of these costs. We do not intend to do further work on HAL's debt issuance costs in 2018.

[29] HAL said that the Competition and Markets Authority allowed Bristol Water 10-20bps for holding cash balances and allowed NIE 20bps for debt issuance and maintaining liquidity.

Debt beta

52. The sensitivity of the firm's debt premium to the overall debt market is captured by its debt beta. Debt beta can also have an impact on the calculation of equity and asset beta values.

53. In Q6, the CAA used a debt beta of 0.10. This was consistent with the determination by the Competition and Markets Authority (CMA) for NIE and Ofgem for RIIO-ED1. However, in the more recent CMA determination for Bristol Water in 2015, the CMA assumed that debt beta was zero. PwC has used a debt beta of 0.05 in its latest report.

Stakeholder's views

54. The NERA report[30] submitted by HAL assumed a debt beta of 0.05, which was based on regulatory precedent in a range between 0 and 0.1, and consistent with PwC recommendations for H7.[31]

Summary of key issues to consider

55. We may carry out further on debt beta values as part of our wider work on equity and asset betas.

[30] Cost of Equity for Heathrow in H7, A Report for Heathrow Airport, NERA (February 2018).

[31] For example, the CMA for Bristol Water in 2010 used a debt beta between 0 and 0.1, for NIE in 2014 a debt beta of 0.05 and for Bristol water in 2015 a debt beta of 0. In its November 2017 report for the CAA on H7 WACC, PwC estimated betas for airport comparators assuming a debt beta of 0.05.

Appendix B

Indexing the cost of new debt

Introduction

1. In the December 2017 Consultation, we said that the approach we used to incentivise debt costs at the Q6 price control review, which involved a fixed allowance for these costs, can result in significant forecasting errors and should be reviewed. We expressed the view that there are advantages in debt indexation, since it has the potential to reduce variances between forecast and actual debt costs, but we would need to consider a range of issues around the implementation and practicality of debt indexation.

2. We said we would focus on indexing new debt only, with the retention of a fixed allowance for embedded debt (i.e. “part indexation”) and that this would provide the best focus for our work rather than either full indexation, or our previous approach of making fixed allowances. We decided to focus on this approach because the costs of embedded debt are less subject to the impact of market movements and seeking to index this proportion of debt may generate additional complexities and difficulties. An initial focus on the introduction of debt indexation only for new debt also has advantages in enabling policy to evolve at a sensible pace over time.

3. To implement debt indexation, we took the view that Markit iBoxx appears the most appropriate provider of indices and we identified specific candidate indices. We considered that a true-up mechanism would be necessary to adjust for movements in the cost of debt index and that this would be best implemented as an adjustment at the end of the price control period. This would be the simplest approach as it would avoid the possibility of volatility in airport charges and the complexity associated with annual updates.

Stakeholder views

4. HAL supported debt indexation but commented on implementation and suggested that the CAA should:

   - select an index that reflects debt with a relatively longer tenor as this would better reflect HAL's debt costs;
   - include currency swap costs for non-sterling debt and higher spreads for index-linked debt to form a more realistic overall benchmark (which would be higher than the iBoxx index);
   - make the true-up at the end of the price control period to revenues in the following price control period, with the assumptions for new debt costs in the price control reflecting reasonable forward looking estimates of costs (e.g. taking proper account of market evidence on forward debt costs); and
   - only include a true-up for differences between the actual and forecast cost of debt, not the quantity of debt issued, to maintain appropriate incentives.

5. Airline representatives welcomed the CAA's consideration of debt indexation and wanted to understand how debt indexation could best be made to work in the context of capacity expansion. Individual airlines considered that indexation should be extended to embedded debt as there will be opportunities for debt restructuring or refinancing.

6. The LACC/AOC response included a note prepared by CEPA that raised concerns about the concept of risk sharing. CEPA said that further clarity was required on these matters but cautioned against an approach that would involve sharing differences between allowed and actual costs, as there would be limited benefits to consumers in such an approach and practical issues with introducing such a mechanism.

7. Gatwick Airport Ltd (GAL) noted that much of the variance between forecast and outturn costs in the last period was attributable to quantitative easing and that indexation is unlikely to have a material effect under normal market conditions. GAL also noted a number of challenges with implementation

including potentially negative impacts on the incentive to raise efficient finance, pressures on financeability from a lagging index, and pressures to introduce *ex post* adjustments to the indexation policy.

8. Another respondent supported indexation of new debt and recognised the practical difficulties of applying indexation to embedded debt, although it considered that the CAA should consider the impact of refinancing on the proportions of new and embedded debt.

CAA views and next steps

9. We welcome the broad support for debt indexation of the cost of new debt and will continue to develop our approach to indexing the costs of new debt, with adjustments to HAL's price control revenues to be made by a true-up mechanism at the following price control review. This approach should reduce the impact of forecasting errors while also maintaining incentives for efficient debt financing, to the benefit of consumers.

10. It is not our intention to investigate the indexation of embedded debt further, given that this approach would create additional complexities and there is no clear evidence that it would benefit consumers. We understand that HAL will refinance its debt and that over time embedded debt will be redeemed and replaced by new debt, but we will take account of this in setting both the cost of capital and approach to debt indexation. HAL could also pursue a wider refinancing of its existing debt, but we would expect this to result only in limited savings to HAL as, in general, bondholders will have contractual protections from the adverse economic consequences of the early redemption of outstanding debt.

11. In our forthcoming work to develop a mechanism to implement debt indexation we will consider:

- the choice of index and HAL's suggestions that the index should reflect debt with a relatively long tenor, to be a better proxy for HAL's likely financing strategy. It will also be important to maintain consistency between

the approach to selecting a debt index and the assumptions used in estimating the cost of capital for the H7 price control;

- whether we should make any adjustments to the index to reflect non-sterling and index-linked debt, while also protecting the incentives on HAL to adopt an efficient approach to financing. We note that accessing a range of debt markets may increase certain transaction costs, but it may also allow HAL to lever on a wider range of debt providers which should help it control costs; and
- we accept the points made by respondents that it would be unduly complex to introduce debt indexation and arrangements to adjust for differences between allowed and actual debt costs or the allowed and actual quantity of debt. Nonetheless, we have not ruled out setting the true-up mechanism in a way that would provide for the adjustment of only a proportion of the difference between the cost of debt allowed in setting the price control and the cost indicated by the debt index.

Appendix C

Approach to incentives

Overall approach to incentives and capex

1. The June 2017 Consultation set out our early thinking in relation to the approach we should take to developing price control incentives for HAL. We stressed:

   - the importance of the overall package of incentives being reasonable, protecting consumers and allowing HAL efficiently to finance capacity expansion, while not exposing HAL to undue risks; and
   - the need for incentives to support our overall goals of encouraging both capacity expansion and business as usual activities at the lowest efficient cost consistent with providing appropriate outputs for consumers and airlines.

2. We noted that this would involve an element of balance, in that incentives (including for cost efficiency) could increase risks and these risks would need to be considered in setting the cost of capital. We highlighted the most important incentives, including those relating to capital expenditure, operating expenditure, commercial (non-aero) revenues, outcomes and timely delivery, passenger traffic and debt finance costs.

3. We also explained the potential advantages of introducing *ex ante* efficiency incentives for capex, including that HAL would face clearer efficiency incentives because it would bear a predetermined share of any capex under- or overspend. We also identified some of the potential challenges associated with applying these incentives to HAL's capital costs. These included the need to obtain reasonably accurate forecasts of capital expenditure, the possible need for separate forecasts of different categories of capital expenditure, and ensuring that HAL would retain sufficient incentives to deliver high quality and fit for purpose infrastructure. We said we would carry out further work to consider

how *ex ante* incentives could be applied to HAL's capex as part of a balanced package of incentives.

4. Where outcomes were concerned, we noted the importance of building on the success of the Service Quality Rebate Scheme (SQRB) and incentivising resilience. We said that incentives on HAL to deliver capacity expansion in a timely way would be important given the significant consumer benefits associated with reducing capacity constraints in the south east of England.

5. In relation to the incentives for operating costs and commercial revenues, we saw less of a case for change, as these will be less affected by capacity expansion in the period of the next price control, while new capacity will be under construction. We noted similar considerations apply to passenger traffic, but that, in the longer term, there might be significant advantages in looking again at these issues. This is because, when new capacity starts to become available, there will be greater risks associated with passenger traffic growth and there may be potential for HAL to work more closely with airlines to develop options for securing growth.

Stakeholder views

6. In general, respondents to the June 2017 Consultation did not question the vision for a balanced package of incentives. Nonetheless, there were a relatively wide range of comments about the individual elements that could make up this package. One respondent stressed that timely delivery should be an important part of the package, while another suggested that the Consumer Challenge Board (CCB) could have an important role to play in defining the outcomes for consumers that capacity expansion should deliver.

7. Broadly speaking, respondents were content with, or did not comment on, the existing incentive arrangements for commercial revenues and operational expenditure (opex). There was some airline support for the CAA's proposal to re-examine volume risk in the longer term, but respondents also cautioned the CAA to be mindful of issues of affordability/prices and the importance of obtaining robust forecasts on which to base incentives.

8. There was more significant comment on capex incentives, with particular discussion of the merits of *ex ante* incentives. HAL expressed concerns over the use of *ex ante* incentives, which it considered would represent a significant departure from current regulatory practice and could introduce new risks for costs, delivery times and financeability while reducing flexibility. It took the view that the current regulatory framework, which has been developed over time to take account of the specific circumstances at Heathrow, works well, ensuring that consumers only pay for projects actually developed, incentivising efficient decision making and providing for efficient delivery of projects.

9. HAL reiterated these concerns in its response to the December 2017 Consultation. It also noted wider concerns that *ex ante* incentives could raise costs, citing the National Audit Office's comments on Hinkley Point C power station and long term PFI contracts as well as a report it had commissioned from KPMG.

10. By contrast, airline representatives were generally supportive of our proposal to investigate the use of *ex ante* incentives, but with some acknowledging the potential disadvantages. Some airline representatives took the view that HAL should bear all of the risk of cost overruns, although others acknowledged that some risk sharing might be acceptable if it was manifestly in the interests of consumers.

11. In this context, individual airline representatives said that both *ex ante* and *ex post* scrutiny of capex are required, stressed the need for CAA to undertake or commission its own benchmarking analysis rather than relying on HAL's studies alone, and highlighted the risk that incentives could affect the quality or timing of investment.

12. Some other respondents commented on capex efficiency, including arguments that expansion provides a great opportunity to introduce competition in order to promote the efficient delivery and operation of new capacity, and that HAL should receive no additional payment until expansion is complete.

Further assessment of *ex ante* capex incentives

13. Capex efficiency will be especially important in the next price control period, reflecting both the large volume of investment required and the potentially significant impact on charges if costs are higher than expected. Bearing this in mind, we will continue to explore options that could place stronger incentives on HAL to manage the expansion programme as effectively as possible.

14. Compared with our current framework of *ex post* efficiency reviews, *ex ante* capex incentives have a number of significant potential advantages including:

- stronger and clearer incentives for HAL to ensure capex is incurred efficiently;
- reduced regulatory uncertainty, since the outcome is not dependent on a subjective retrospective review of HAL's performance;
- a focus on preventing overspends rather than disallowing inefficient costs after the event; and
- ensuring that airlines receive some protection from the impact of any overspend.

15. However, there are also some risks of distortions and practical challenges, including:

- the need for sufficiently reliable cost forecasts, to avoid exposing HAL and consumers to unnecessary forecasting risks;
- possible incentives for HAL to inflate its initial cost forecasts. There may also be a risk that a change in incentives will adversely affect stakeholder relationships; and
- the need to define the deliverables associated with each cost estimate, together with an adjustment mechanism to accommodate subsequent substantive changes in design and scope. This could lead to increased complexity and there may be some risk of diluting the impact of the stronger efficiency incentives.

16. Our current thinking on possible forms of *ex ante* incentives recognises that a cautious approach may be appropriate for the introduction of a new regulatory approach, and that the risk of distortions (e.g. incentives for regulatory gaming) might increase with the strength of incentives.

17. Reflecting this initial view, we have identified three examples of broad types of options that might be most appropriate if we do decide to apply *ex ante* incentives to HAL's capex in H7.[32] The first, and most straightforward, option is to apply a uniform, moderate incentive rate to all of HAL's capex during H7.

18. A moderate incentive rate could be in the region of 25 per cent.[33] This is towards the bottom end of the range of incentives applied by other economic regulators.[34] Nevertheless, an incentive at this level or higher could be sufficiently strong that *ex ante* incentives could serve as our primary capex efficiency incentive mechanism and replace the current system of *ex post* efficiency reviews.

19. A second option would be to restrict the application of *ex ante* efficiency incentives to only a subset of HAL's capex. Again, we would expect the incentives to be relatively modest. Other cost categories, which are not subject to *ex ante* incentives, could continue to be subject to *ex post* efficiency reviews.

20. This option could be attractive if we concluded that there are particular categories of capex that are much better suited than others for *ex ante* incentives, for example because costs are much easier to forecast and/or HAL

[32] These options are also described in the April 2018 Consultation, including our assessment of their potential impact on HAL's risk profile.

[33] This means that HAL would bear 25 per cent of any capex under or overspend compared with the forecast that underpins the *ex ante* capex incentives. The remaining 75 per cent would be recovered through higher or lower airport charges, for example through an adjustment to the opening RAB for H8.

[34] For example, a 25 per cent incentive rate currently applies to Network Rail's renewals and enhancement expenditure (see section 12 of ORR, "Periodic Review 2013: Final determination of Network Rail's outputs and funding for 2014-19", October 2013). By contrast, Ofwat is proposing totex cost sharing rates of between 35 and 65 per cent for the period from 2020 to 2025, with a narrower range of 50 to 65 per cent applying to underperformance (see section 9 of Ofwat, "Delivering Water 2020: Our final methodology for the 2019 price review", December 2017. Note that different rates will apply to companies categorised as being under 'significant scrutiny' in the initial assessment of business plans).

has a much greater ability to manage the risk of cost overruns. Similarly, if we concluded that the administrative burden of *ex ante* incentives might be too great, it could be possible to reduce this burden by focusing *ex ante* incentives on a smaller number of cost categories.

21. However, an important additional consideration with this second option is that we would need to define clear boundaries between those capex categories subject to *ex ante* incentives and those that are not. We would also need to take steps to prevent HAL from increasing profits simply by changing the way that it allocates costs between different categories. To some extent similar risks might arise under the first option, and indeed under the current regulatory framework, because different incentive arrangements apply to opex and capex. But it is possible that such difficulties could be more serious if different categories of capex are subject to significantly different incentives.

22. A third possible option would be to apply much weaker *ex ante* incentives, for example an incentive rate in the region of 10 per cent or possibly lower. These incentives would probably apply to all of HAL's H7 capex, but they would be too weak to function as our main efficiency incentive mechanism. Instead, therefore, weak *ex ante* incentives could be applied alongside our current system of *ex post* reviews.[35]

23. This third option would ensure that HAL has some financial efficiency incentive across all parts of the expansion programme, even if in practice the incentive is a relatively weak one. It could also provide a backstop way of holding HAL to account for its cost estimates in the case where we decide against a full implementation of *ex ante* incentives. While the practical challenges noted above might still be relevant (for example, the incentive for HAL to overstate costs), it is possible that they could be less serious because of the much weaker incentive rate.

[35] For certain cost categories, we could also consider applying stronger *ex ante* incentives rather than relying on the threat of *ex post* efficiency reviews.

24. There are many different ways that *ex ante* incentives could be introduced, featuring different incentive rates, "dead bands", tapers or caps/collars, and applying these to different categories of capex in different ways. In addition, there are many practical implementation details that would need to be addressed before putting such incentives into practice.

CAA views and next steps

25. We remain of the view that creating a balanced packed of incentives is an important objective of the price control review and that we should take appropriate account of risks in setting HAL's cost of capital and risk and reward package. We describe our initial assessment of the impact of possible *ex ante* capex incentives on HAL's risk profile in Chapter 4 of the April 2018 Consultation.

26. As well as continuing to assess the impact of different incentives on HAL's risk profile, we expect to carry out further work to consider the challenges associated with implementing *ex ante* incentives, the best way to address these, and whether they could mean that the disadvantages of *ex ante* incentives outweigh the potential benefits. These challenges include:

- the need for sufficiently reliable cost forecasts to underpin any *ex ante* incentives, and questions of how these might be developed;
- the need to define the deliverables associated with different capex allowances, so that we can identify any underspends that are due to non delivery rather than improved efficiency;
- the need for adjustment mechanisms, to avoid unnecessary rigidity and ensure that desirable design or scope changes can be accommodated even after the initial cost allowance has been set;
- considering whether adjustments for certain external cost changes might be needed;

- considering how to address the risk of “gaming” of incentives, or the risk that a change in the incentive framework could adversely affect stakeholder relationships; and
- the need to establish robust boundaries between the cost categories subject to different incentives, if *ex ante* incentives are applied only to certain cost categories.

Appendix D

Cost and revenue allocation

1. In October 2016 we commissioned PA Consulting (PA) to carry out a review of HAL's revenue and cost allocations, focusing on areas such as how it allocates expenditure between opex and capex, and how it allocates costs and revenues between different activities. This work took longer than originally planned as in response to PA's requests for information HAL provided extensive management accounting data, which took an extended time for PA to process.

2. Building on this analysis, PA produced a draft report in May 2017. HAL raised a number of concerns about the analysis in PA's draft report and provided significant amounts of further information. This information included data from up to ten years ago and reconciliations to accounting structures that are no longer in place. We have taken time to review the draft report and discussed with PA and HAL the best way to proceed and decided that not all this information warranted further detailed assessment. Nonetheless, we consider that there are useful insights that can be drawn from the analysis undertaken to date and the comments that HAL has made in relation to this analysis.

3. PA have now produced a final report on this basis and HAL's comments are embedded in the study.[36] The final report identifies four areas of concern, which will require further investigation to resolve or explain them before firm conclusions can be made about HAL's overall approach to cost and revenue allocation. The four main areas of concern are:

    - staff costs are allocated ex ante to activities based on an estimate of the proportion of time that is expected to be spent on particular activities. Given this process, there is a risk that allocations may be unreliable and/or inconsistent;

[36] Cost and Revenue allocation, PA Consulting (publication planned later in 2018).

- the allocation of costs as operating activities or to capital schemes may not be robust if standard operating procedures are not followed;
- capitalisation of staff costs, which increased markedly in 2013 around the boundary between the Q5 and Q6 price control periods. The PA report notes that these changes coincide with the insourcing of staff following a group reorganisation, rather than any change in capitalisation policy; and
- the PA report that related party transactions can carry risks for organisations and that HAL reported a number of such transactions from 2012 through to 2015. PA consider that these warrant further investigation as the work undertaken to date has not been able to properly assess the risks to consumers from these transactions. Nonetheless, PA notes that they have been subject to HAL's internal and external audit procedures.

4. Our initial response to each of these concerns and proposals for next steps is set out below.

5. **Allocation of staff costs:**

- the allocation of staff costs to capex projects on this estimated basis forms less than 6% of the capex programme (and this is likely to fall as the expansion project increases in spend). The allocations would need to contain very significant inconsistencies to cause major distortions;
- in reviewing planning costs, the IPCR[37] will examine the capitalisation of opex to satisfy itself of the accuracy and appropriateness of the allocations. Subject to this review, we will determine whether further work is required; and
- as we note below, we have also asked HAL to provide further information on its capitalisation policy and will carefully consider this to help inform our decisions on whether further assessment of these matters is warranted.

[37] Independent Planning Cost Reviewer who have been engaged to carry out a review of the Category B planning costs that HAL have reported.

6. **Allocation of costs:**

- the IPCR will carry out a sample of costs to review the accuracy of cost allocations, with a particular focus on planning costs. Subject to its initial findings, we will determine if additional work is required; and
- we understand that Deloitte LLP has performed a review of HAL's capitalisation policy (as part of the 2017 audit of the statutory accounts) and we have asked HAL to provide us with the report that it has received on these matters.

7. **Historical changes in the level of capitalisation of costs:**

- the change in the level of capitalisation between the Q5 and Q6 price control periods has been explained by HAL as an organisational change, bringing staff from LHR Airports into Heathrow Airport Limited. We understand that this coincided with wider changes in the group structure and are not proposing further work on these matters.

8. **Related party transactions:**

- the ownership of HAL is such that no one party has a majority shareholding and so all shareholders are individually incentivised to ensure that no one shareholder is given preferential treatment. We understand that related party transactions are collated and reported in accordance with Heathrow's procedures, are presented to its Audit Committee on a quarterly basis, disclosed in the statutory accounts and externally audited; and
- in our review of HAL's procurement policy, we will consider further the robustness of HAL's approach and whether it has evidence that its processes properly protect the interests of airlines and consumers.

9. We would welcome any comments on these issues and the next steps set out above, and on the PA report.

Appendix E

Clarifications of the April 2018 Consultation

1. Following the publication of the April 2018 Consultation, HAL asked for certain clarifications regarding the treatment of early Category C costs and costs associated with alterations to the M25. Our response to HAL's request is set out below.

> As you will know our April 2018 Consultation explained the importance of the timely development of airport capacity in the south east of England and set out our proposed approach to the development of the regulatory framework for HAL and the treatment of early Category C costs. I also understand that there are advantages in supporting the process for finalising the National Policy Statement for Airports, which is a necessary part of the wider planning process, provided that such an approach is consistent with our statutory duties. In these specific circumstances I am content to provide certain further clarifications to the policy and proposals set out in our April 2018 Consultation.
>
> In respect of early Category C costs we have stressed the importance of a thorough process – including the involvement of airlines, evidence of efficiency and appropriate third party review, and final consideration and testing by the CAA. The purpose of this process will be to check that the recovery of such costs, including those relating to Blight, is consistent with consumers' interests. Where this final testing leads to the approval of costs we envisage that the costs would be included in the Regulatory Asset Base (RAB) and recovered on this basis (net of any receipts, such as from the subsequent sale of any properties purchased by HAL). I can confirm that once such approval has been given I would not expect it to be in the interests of consumers for the CAA to revisit such decisions, irrespective of the commercial decisions of other parties and the reasonable commercial decisions of HAL, as investor confidence in the RAB is central to attracting low cost finance to the sector on an ongoing basis and so is key to protecting the interests of future consumers. I understand that such an approach is consistent with wider decisional precedent by economic regulators and the CMA in developing price controls. Nonetheless, we would need to consider any representation from other stakeholders, on these or related matters. Our decisions on the above would also (in general)

be put into effect by price control licence modifications, which are subject to appeal to the CMA and any independent determination it may make.

More generally, we have said that the regulatory process will take account of statutory and planning obligations required to gain planning consent. We understand that Highways England has licence obligations and statutory guidance relating to the future proofing of the highways network and efficient and economical development. In these circumstances, our initial view is that airport users should only bear the costs of alterations to the highways network (and the M25 in particular) that are essential for airport operation and/or expansion, and that regulatory allowances for any future proofing should be strictly limited to initiatives that are supported by clear and compelling analysis that demonstrates they are necessary and appropriate. Our very initial assessment is that such an approach would be consistent with the statutory requirements on Highways England. Any such investment would also need to be consistent with our overall objectives of ensuring that capacity expansion is affordable and financeable, and with any regulatory allowances based on efficient costs. We also note that where a highways diversion is required only for the purposes of allowing for the physical development of airport infrastructure and does not improve access to the airport, it would not have the characteristics of a surface access scheme.

We also said in our April 2018 Consultation that we assume that HAL will incur costs efficiently and will be actively pursuing a commercially financeable plan for capacity expansion. This remains the position and we would expect that as we develop the regulatory framework for HAL that this framework will provide for clear incentives on HAL to deliver capacity expansion in a timely way, and protections for consumers from any material failures by HAL to deliver.

I intend to publish this letter in a supplementary working paper to our April 2018 Consultation (and we may receive representations from other stakeholders on these matters as part of that process that we would need to take into account).