Consumers and Markets Group

Economic regulation of Heathrow Airport Limited: working paper on capital expenditure efficiency incentives

CAP 1951

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About this document

This working paper follows on from the June 2020 Consultation and provides further details of our proposed approach to capital efficiency incentives for Heathrow Airport Limited ("HAL"), including:

- a recap of our previous work in this area, including the initial views of stakeholders;
- our proposed criteria for developing new incentives; and
- further details on our broad approach to developing capital efficiency incentives.

Views invited

We welcome views on any of the issues raised in this working paper.

Please e-mail responses to economicregulation@caa.co.uk by no later than 9 October 2020. 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 Elly Shafran (elly.shafran@caa.co.uk).

Executive summary

Introduction

We explained in the June 2020 Consultation that we would focus on setting a price control for HAL that covered the operation of the existing two runways. This, combined with the impacts of Covid-19, means that we expect that less capital investment will be needed during the H7 price control period than previously anticipated. Nevertheless, a key objective of our policy for the H7 price control remains to create appropriate incentives on HAL to deliver capital investments efficiently. The difficult circumstances the aviation sector is facing means that that getting value for money from capital expenditure will be even more important. In this context, we have proposed an evolutionary approach to capital efficiency incentives and we intend to build on the approach used during the Q6 price control, including the "core and development" framework, while making improvements to it and setting clearer *ex ante* incentives for efficiency.

We recognise the stretch on resources that HAL, airlines and other stakeholders are experiencing. This working paper includes a significant amount of background information on our proposed approach. While this ensures a high level of transparency in our approach we recognise that some stakeholders may lack the resources to be able to absorb and comment on all of this information. Bearing this in mind we are happy to present our approach to stakeholders and explain key issues. Please contact elly.shafran@caa.co.uk if you would find it helpful to discuss the material in this working paper. We will also engage further with HAL and airline stakeholders to help further develop our approach to incentives during the remainder of 2020 and 2021.

1. This working paper sets out further details of the broad approach we intend to adopt for capital expenditure ("capex") incentives for HAL's next price control period ("H7") which will begin on 1 January 2022. It follows on from earlier consultations on this issue.[1]

2. The June 2020 Consultation highlighted that a key objective of our policy for the H7 price control is to create appropriate incentives for HAL to make capital investments efficiently. We consider that this remains a priority even with our focus changing to a two runway airport as the difficult circumstances that the aviation sector is experiencing as a result of the impacts of Covid-19 mean that efficiency and value for money will be particularly important.

3. Recognising the changed context since our earlier consultations on capex efficiency incentives,[2] we consider that an evolutionary approach is appropriate. Our proposal builds on the approach used during the Q6 price control period, including continuing with the "core and development" capex framework, while making targeted improvements for areas where particular issues have been identified.

4. In developing this approach, we have considered both the changing circumstances at Heathrow airport (including the pausing of capacity expansion and the impact of Covid-19 on the airport and airlines) and stakeholder responses to our recent consultations, as well as initial feedback from recent engagement with HAL and some airlines. We intend to continue to work closely with stakeholders to develop these incentive arrangements for H7.

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[1] References to previous CAA consultations on capex efficiency and definitions of terms used in this consultation are set out in the glossary at Appendix B.

[2] HAL decided to pause its expansion programme during March 2020 so our earlier consultations outlined our thinking on a capex incentive framework in the context of expansion at Heathrow airport. We have not considered expansion capex in this working paper. If expansion were to restart, we would need to consider appropriate efficiency incentives for expansion related capex.

Existing arrangements

5. In setting HAL's Q6 price control, we relied on a number of mechanisms to encourage capital efficiency. These included:

- the classification of capex as core or development spending, which allowed the price control to be flexible to the emerging capex needs of the airport;
- the use of capex triggers which provided an incentive for HAL to deliver new capital projects on time and to deliver the full project scope that was specified;
- airport/airline governance arrangements to help monitor spending during the price control period; and
- the scope for *ex post* reviews of capex incurred by HAL, to disallow spending from HAL's Regulatory Asset base (RAB) if there were to be evidence of inefficient spending.

6. A full description of the existing capex arrangements is set out in Appendix C. As part of our ongoing engagement with HAL and airlines on these matters, we have identified scope to further develop and improve these incentive arrangements.

Our proposed improvements

7. We have previously consulted on introducing *ex ante* incentives to strengthen the existing capex efficiency arrangements so that HAL would bear a pre-determined share of any under- or overspend against the capex baseline used to set the price control.

8. The June 2020 Consultation outlined a broad approach to capex efficiency incentives which maintains the flexibility of the existing Q6 framework, and includes some new elements including *ex ante* incentives and improvements to the existing governance arrangements.

9. Building on the existing Q6 capex framework, our broad approach reflects the current uncertain and rapidly changing circumstances facing the

aviation sector, and Heathrow in particular, by being flexible to what the capex programme will look like for H7.

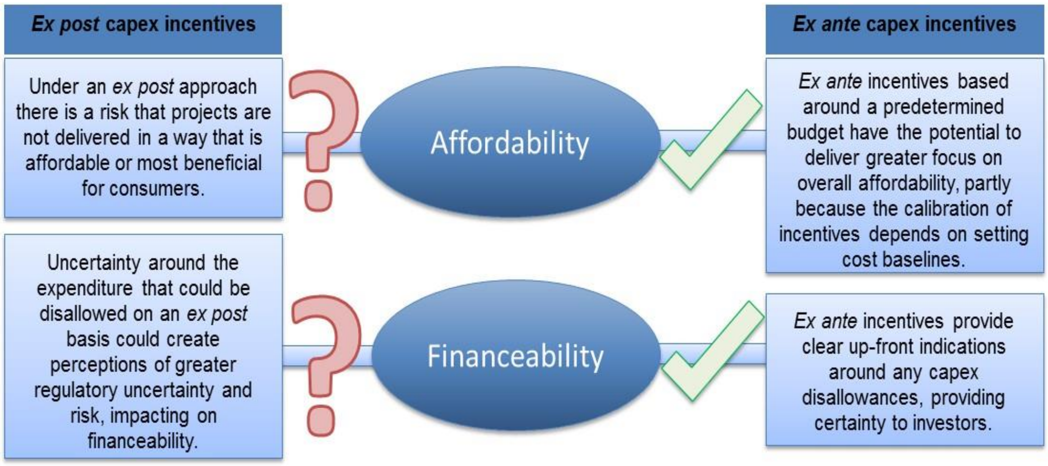
10. Our recent *ex post* reviews of capex to date have shown that assessing the efficiency of capex projects on an *ex post* basis is challenging. Not only is the *ex post* review of projects difficult and contentious, finding and quantifying evidence of inefficiency does not necessarily mean that the remaining expenditure has been incurred with the same level of efficiency that might be reasonably expected from an airport subject to strong competitive pressure. Therefore, we are seeking to further improve incentive arrangements.

11. Our proposed approach for H7 seeks to:

- create stronger, more consistent and targeted cost incentives on HAL, encouraging greater focus on contract management;
- place additional weight on project outcomes, creating stronger incentives on HAL to provide clearer scopes; and
- strengthen and improve the existing capex governance process where necessary, ensuring projects are subject to appropriate stakeholder scrutiny and holding HAL to the agreed costs, deliverables and project deadlines.

12. We will continue to focus on cost efficiency and providing value for money for consumers, particularly given the uncertain times that HAL and airlines are facing. We consider that strong and clear *ex ante* incentives should provide benefits for affordability and financeability compared to an approach that relies heavily on *ex post* efficiency incentives as illustrated in Figure 1.

Figure 1: Supporting affordability and financeability



Source: CAA

Structure of this document

13. The rest of this working paper is structured as follows:

- chapter 1 provides an overview of work we have undertaken to date to develop capex incentives for H7 and summarises stakeholder feedback to our consultations;
- chapter 2 provides further detail on the criteria for developing new incentives which were set out in the June 2020 Consultation; and
- chapter 3 provides further detail on our broad approach for efficiency incentives and outlines this could work in practice. It covers:
  - treatment of the different cost categories and incentive rates;
  - setting delivery obligations and timing incentives;
  - setting the cost baseline and dealing with uncertainty; and
  - reconciliation of incentives.

14. We set out our broad approach to capex governance arrangements in the June 2020 Consultation, that material is not repeated in this working paper.

15. We also set out in Appendix D an evaluation of our broad approach against a set of criteria that we consider are important for developing the H7 capex incentive framework.

Next steps

16. As outlined in the June 2020 Consultation, we will work with stakeholders to develop our broad approach to capex incentives further during 2020 and 2021.

17. Views are invited on any aspect of the issues raised in this paper, both through this engagement process and/or by stakeholders responding directly to this working paper. As noted at the start of the Executive Summary we would be happy to present key aspects of our approach to stakeholders so to facilitate timely and effective feedback.

Chapter 1
Our work to date and stakeholder views

1.1 We have engaged with stakeholders through formal consultations and informal discussions to develop our broad approach for capex incentives for H7. This chapter provides a summary of some of the key documents we have published and stakeholders' feedback on our recent consultations.

1.2 We have also engaged with HAL and some airlines to develop our approach for capex incentives further in the context of a two runway airport and we will continue to work closely with stakeholders during 2020 and 2021 to develop these arrangements for H7.

The March 2019 Consultation

1.3 In 2019, we commissioned CEPA to look at possible ways of implementing *ex ante* efficiency incentives for capex. The CEPA Report set out two main options for a new incentive regime:

- a "regulatory model" in which a single incentive rate is applied across all categories of capex (i.e. the whole capex programme) and measured against a fixed baseline subject to changes in the scope of projects actually delivered; and
- a "governance model" in which the baseline capex is updated as projects mature, coupled with a strong incentive rate being applied to particular capex categories where appropriate (with other categories subject to *ex post* review or a weaker incentive rate).

1.4 In the March 2019 Consultation, we noted CEPA's work and stated that the regulatory model had some advantages over the governance model as the latter may not provide strong enough incentives. However, we also noted that the governance model would build on the existing framework and governance processes so might be easier to introduce.

HAL's Initial Business Plan

1.5 HAL proposed that the existing Q6 framework for capex incentives should continue in H7. HAL maintained its previous position that *ex ante* incentives would not be suitable for the expansion programme since this approach would reduce flexibility and could lead to higher, not lower, construction costs. HAL also estimated that *ex ante* incentives could add at least £6 per passenger to airport charges through the "expansion premium" to the allowed cost of capital.

The January 2020 Consultation

1.6 The January 2020 Consultation set out our intention to continue to develop the capex incentive framework for H7 and provided an update on our thinking in four key areas:

- the treatment of different cost categories;
- setting delivery obligations;
- setting the cost baseline; and
- reconciliation of the incentives compared to the baseline and delivery obligations.

1.7 We had also planned to publish a working paper setting out a more detailed proposal in the spring of 2020. However, HAL decided to pause its work on expansion in March 2020 (following a decision by the Court of Appeal on the Airports National Policy Statement) and it has also had to start to deal with the impact of Covid-19. These factors have led to a significantly reduced capex programme for H7 that reflects the operation of a two runway airport. So, in place of that working paper, we held further informal discussions with HAL and some airlines on what this significant change in circumstances might mean for our broad approach to incentives for the H7 price control.

Stakeholder views

1.8 Most stakeholder responses to the January 2020 Consultation focused on a H7 incentive framework in the context of expansion, so we have not summarised all responses here.[3] Nonetheless, elements of the responses that remain relevant to informing our approach to incentives in the context of a two runway airport are summarised below.

1.9 HAL considered that neither it, nor airlines, had any appetite to introduce new *ex ante* incentives. Instead, HAL said parties should work together to improve the current framework. It suggested that the package of measures should be "holistic" and aim to optimise cost, time and quality, while providing flexibility to adjust to unforeseen circumstances and to meet the changing requirements of consumers, airlines and the airport.

1.10 HAL considered that the existing core and development capex framework provides strong, "hard" financial incentives on HAL to deliver capex efficiently, and that these incentives appear underestimated or misunderstood. It set out a stylised summary calculation of the Q6 approach, which it said demonstrated that the existing framework includes an implied *ex ante* financing cost incentive mechanism.[4] HAL's example demonstrated that the average incentive rate over Q6 is around 13% because HAL does not recover the financing costs associated with any overspend or underspend against the capex baseline agreed at Gateway 3.

1.11 HAL considered that the risks that incentives focus on need to be clearly articulated. It argued that there are multiple distinct risks in capital investment, not all of which can necessarily be incentivised simultaneously.

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[3] A full set of stakeholders' responses to the January 2020 Consultation can be found on our website. See: https://www.caa.co.uk/Commercial-industry/Airports/Economic-regulation/H7/Consultations-and-policy-documents/.

[4] Discussed further in Appendix C.

1.12 HAL also stated that it did not oppose making improvements to the current framework, if this resulted in positive outcomes for all stakeholders and suggested that this should be discussed as part of CE.

1.13 VAA said that it would be open to exploring new *ex ante* capex incentives, if there was evidence that this approach could protect consumers from the risks of cost escalation. However, it was concerned that *ex ante* incentives could overcomplicate the regulatory process or lead to regulatory “gaming” by HAL when it initially estimates its capex programme costs.

1.14 IAG supported our position that HAL should have a package of measures that allows for efficient financing but that also strongly incentivises HAL to deliver projects on budget. It also said that HAL should be incentivised to deliver projects on time and within a scope that achieves the agreed benefits.

1.15 IAG supported strong incentives on HAL to ensure it acts in a commercial way. It considered that HAL’s mismanagement and subsequent inflation of early expansion costs demonstrates that the current mechanisms in place to promote efficient capex are not fit for purpose and are not taken seriously by HAL. It suggested that a mixture of *ex ante* and *ex post* incentive mechanisms would provide the greatest protection to consumers in the future and that a strict governance protocol will be needed to support the incentive arrangements.

1.16 Heathrow West considered that the increases in early expansion costs demonstrates that HAL has a weak control of its costs. However, it was not convinced that more regulatory incentives would address this fundamental problem because HAL is rewarded for the capex it incurs and noted that as part of its *ex post* assessment of capex, the CAA has rarely disallowed costs that had been incurred by HAL.

1.17 RHC broadly supported our proposed approach. It suggested that it was not unreasonable for airlines and their customers to be required to absorb some risks, such as demand risk, as these are reflected in consumer prices. However, when designing capex incentives, it will be important to focus on the contingency costs that are included in the capex baseline, and controls for releasing those contingencies as the project progresses.

The June 2020 consultation

1.18 In the light of this feedback, we confirmed in the June 2020 Consultation that a key objective of our policy for the H7 price control would be to create appropriate incentives for HAL to make capital investments efficiently. We said that this would remain a priority even with our focus on a two runway airport as the present difficult circumstances of the sector mean that getting value for money from capex would be even more important.

1.19 We provided a high-level proposal of our broad approach for capex efficiency incentives which builds on the Q6 capex framework and includes improvements where appropriate. We said that we will publish further details on our proposal for H7 as part of this working paper.

Chapter 2
Criteria for implementation

Introduction

2.1 In developing our proposals for capital efficiency incentives, we have decided to build on the framework used in Q6, addressing areas where issues have been identified either by stakeholders or us.

2.2 To support this work, we have developed a set of criteria for the incentive framework based on feedback from stakeholders. These criteria were outlined in the June 2020 Consultation and this chapter provides further detail on these criteria and why we think they are appropriate.

Building on the Q6 incentive framework

2.3 We recognise that the Q6 incentive framework has worked well in several areas. For example, the project gateway governance process and the core and the development framework, have provided a flexible approach that has allowed HAL to adapt its capex programme during the price control period to reflect changing airline and consumer needs. It has also encouraged HAL to engage closely with airlines to develop project proposals that achieve benefits for airlines and consumers.

2.4 However, following comments from HAL, airlines and the IFS,[5] and emerging findings from our Q6 capex efficiency review, we have identified areas of the framework that could be improved, including:

- clear and strong incentives to encourage efficient capex and delivery of benefits to consumers: some airlines have said that the Q6 approach does not provide sufficiently strong commercial incentives

5 The IFS presented a working draft to HAL, airlines and the CAA in March 2020 on learning points from Q6 for H7. The IFS also produced an end of Q6 report for the CAA in July 2020.

on HAL to ensure projects were delivered on budget. Some concerns were raised by airlines about whether the benefits were delivered. While HAL takes a different view, the current uncertainties and challenges facing the industry underline the importance of future capex being efficient and delivering value for money for consumers;

- <u>predictable and transparent incentives</u>: work to review the efficiency of HAL's capex to date has illustrated that *ex post* assessments can be challenging and are likely to require expert judgement and a broad evidence base to identify inefficiencies across the capex portfolio. We consider that changes to the framework could provide stronger, more predictable and transparent incentives;
- <u>consistent incentives</u>: as part of the existing framework, HAL does face a form of *ex ante* incentive under which it does not recover the financing costs associated with any overspend or underspend against the agreed Gateway 3 capex baseline. However, the strength of this incentive varies over the regulatory period (becoming weaker over the course of the price control). As such, it is not targeted at encouraging cost efficiency and could create perverse incentives on HAL to delay spending;
- <u>incentives to deliver benefits on time</u>: some airlines noted that under the existing approach, the incentives to ensure that projects were delivered on time were not strong enough. The IFS has noted that the triggers do not address the delivery of portfolio benefits and that the criteria for trigger payments can be subjective and could be improved. The IFS has also said consideration should be given to rewarding HAL if it delivers ahead of a project trigger date, and that triggers for maintenance and improvement should be considered at the programme rather than project level;
- <u>effective governance</u>: the IFS set out several effective features of the current Q6 Gateway and governance processes. However, initial views from the IFS have also identified a number of key themes and trends with the existing arrangements:

i. development to core approach works well in most cases, but sometimes projects are driven through the Gateway process, even in cases where the supporting data is not sufficiently robust;

ii. each working group and governance group should have a clear remit to minimise repetition, and to ensure that attendance at each governance group is correct;

iii. there is a need for clearer governance at the capex programme level;

iv. agreement is needed on how the IFS is deployed at portfolio, programme and project levels, including whether the engagement criteria for the IFS need to be amended to reflect different levels of risk and uncertainty; and

v. processes for progressing development capex sometimes show a lack of alignment and compliance to HAL’s processes and procedures, such as cost planning and benchmarking.

Criteria for developing new incentives

2.5 Taking the above into account we have developed criteria for the incentive framework as set out in Table 2.1 below. We have updated the criteria over time to reflect views from stakeholders and will consider the scope for further improvements and refinements as our policy on these matters develops.

2.6 Appendix C provides an initial assessment of our broad approach to capex efficiency incentives against these criteria.

Table 2.1: Criteria for the updated capex incentives framework

Criteria	Rationale
1. Build on the approach to core and development capex and governance used for the Q6 price control, implementing improvements to address issues identified in practice and introducing new incentive arrangements, where appropriate, to reduce significantly, or eliminate, the need for *ex post* efficiency reviews by the CAA. It should also preserve the vital role of airlines in helping to assess HAL's project proposals, delivery and quality standards, and costs.	HAL and some airlines have said that the Q6 "core and development" capex framework should be retained, recognising that it offers flexibility to include capex projects during the price control where there is agreement with airlines. We agree with retaining key aspects of this framework and rather than replacing it and we plan to develop an "evolutionary" incentive framework for H7 that incorporates and builds on the Q6 core and development framework. Our *ex post* review of capex in Q6 has shown that assessing the efficiency of capex projects after they have been delivered is a challenging task particularly for the more complex capital projects undertaken by HAL. Any disallowance from the RAB is likely to require expert judgement and a broad evidence base to demonstrate inefficient spending. An *ex post* approach also means that there is uncertainity around the level of expenditure that could be disallowed, creating a level of uncertainty and regulatory risk. We are considering changes to the framework to provide clearer, stronger and more predictable incentives on HAL. We strongly agree with HAL and airlines that the H7 capex framework should recognise and incorporate a central role for airlines to review and scrutinise HAL's capex proposals.
2. Provide clear, simple and symmetrical financial incentives for capex overspending and underspending, that are proportionate, allocate appropriate risks to HAL, and minimise difficulties associated with cost allocation and the administrative burden of implementation.	HAL faced an *ex ante* incentive in Q6 from the approach to financing costs, but this incentive was not clear or consistent over time. HAL also faced "one sided" timing incentives (through trigger payments), and the incentives around delivery of benefits to consumers were not set out clearly. We are seeking to address these issues in H7, while achieving the appropriate balance of incentives between efficiency, timing and quality of projects delivered. HAL and some airlines have raised concerns that a new incentive framework will be complex. Some airlines are also concerned that different treatment of separate categories of capex could lead to "regulatory gaming" by HAL. We recognise these concerns and we expect HAL to provide a breakdown of capex that will allow monitoring of the delivery of outputs and benefits. To reduce the risk of gaming by HAL, we are proposing to adopt consistent incentives across the separate capex categories, unless there are good reasons to adopt a different incentive approach.

Criteria	Rationale
3. Not place unreasonable risks on HAL so that the overall capex programme is financeable in a cost effective and efficient way. The incentives must also retain flexibility for HAL to design and implement the H7 capex programme, allowing for appropriate and efficient changes in scope during H7.	HAL has expressed concerns that *ex ante* incentives could increase risks and the required cost of capital. This analysis was based on a rigid *ex ante* incentive regime for H7 and did not consider potential benefits to consumers from more effective incentives. We consider that HAL should bear a reasonable risk on capex overspending and underspending, so that it is incentivised to act efficiently, and that incentives should be calibrated in a way consistent with the cost of capital. We consider that incentives should be symmetrical, and we will calibrate the capex incentive rate(s) when setting the H7 price control, based on the overall package of incentives. We recognise the uncertainty facing HAL and the industry leading into the H7 price control review period and we do not intend to design a rigid *ex ante* framework. Instead we are seeking to design a framework with appropriate flexibility to allow the capex programme to evolve to meet changing consumer requirements, while still providing clear incentives on HAL.
4. Ensure that any revenue adjustments arising from the incentives lead to the charges paid by airlines reflecting efficient levels of capital spending. Efficient costs should be linked to the delivery of agreed project standards (including appropriate outputs and deliverables).	HAL has noted that one of the current advantages of the core and development capex framework is that charges during the period to reflect actual capex. We consider there would be benefits in retaining this approach where practicable. Some airlines have expressed concerns that previously it has not always been clear that capex has achieved the agreed benefits and value for money for consumers. We are aiming to design a framework for H7 that provides a clearer link between incentives and delivery of project benefits.

Source: CAA

Chapter 3

Further detail on our broad approach

Introduction

3.1 Our approach to capex efficiency incentives for H7 is to strengthen and clarify the incentives on the cost and quality of deliverables and provides more targeted timing incentives where these are required.

3.2 This chapter provides further detail on our approach that was set out in the June 2020 Consultation and sets out our thinking on how the incentive framework could work in practice. We focus on the following key areas of the incentive framework:

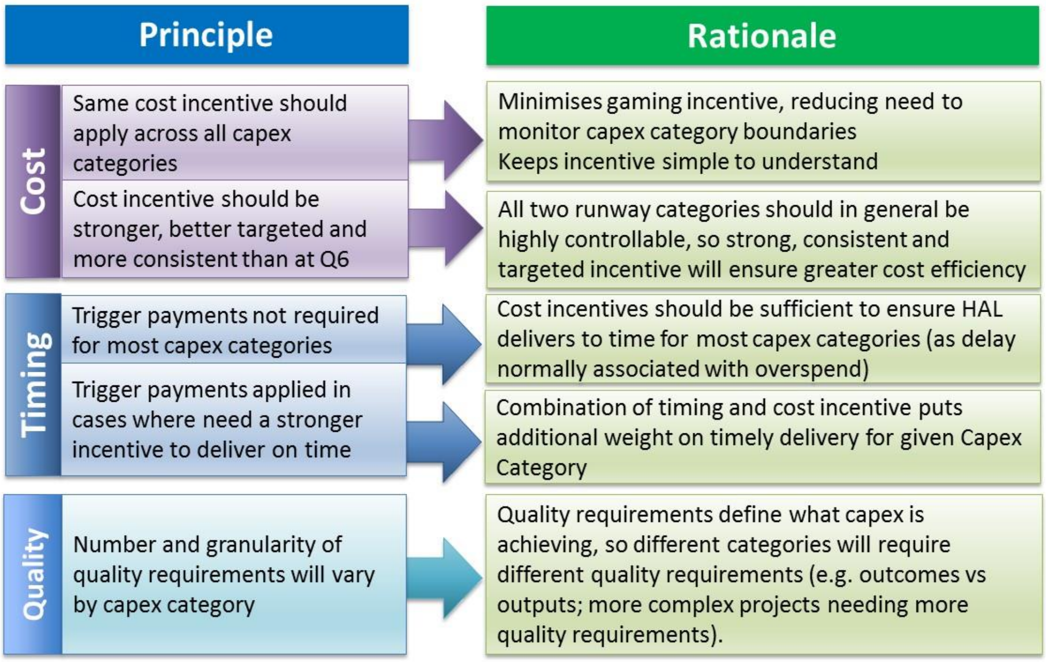
- the balance of incentives;
- defining cost categories and setting capex efficiency incentive rates;
- setting delivery obligations and quality requirements;
- setting the cost baseline; and
- reconciliation of incentives.

Balance of incentives

3.3 As noted in the previous chapter, we consider that it is important that the H7 framework provides stronger incentives on HAL to balance the cost, quality and timing of capex projects as outlined in Figure 3.1. We are proposing to apply:

- cost efficiency and quality requirements as part of the incentive mechanism that applies to all capex categories; and
- a more targeted set of timing incentives which would only apply to certain capex categories or projects, which would involve modifying and refining the existing approach to trigger payments.

Figure 3.1: Principles for the design of capital efficiency incentives



Source: CAA

3.4 We need to ensure that the changes we are proposing to make to the Q6 capex incentive framework do not lead to significant perverse incentives or unintended consequences. Table 3.1 considers how the different incentives interact and how our approach takes account of these interactions.

Table 3.1: Interactions between cost, quality and timing incentives

Interaction	Proposed solution
Cost incentives could lead to delay in delivery.	• Any financial incentive to delay spending is mitigated by making financing cost adjustments when incentives are reconciled. • A strong cost incentive should encourage timely delivery. • A backstop date in H8 for reconciliation of any delayed projects. • In-period reconciliation for some capex categories during H7, where DOs are realised during the period.
Cost incentives could lead to: - under delivery of quality requirements; or	• Capex baseline is adjusted for any under delivery of quality requirements.

Interaction	Proposed solution
- over specification of quality requirements to inflate the cost baseline.	• Capex baselines will not be adjusted for over delivery unless agreed as part of the governance process, with airlines fully involved in these decisions.
Detailed quality incentives could eliminate time or cost saving alternatives.	• Quality requirements to be appropriately specified using outcomes or outputs to measure the benefits to consumers, while providing flexibility to allow the delivery of more efficient and more timely solutions. • A strong cost incentive should encourage HAL to consider options for more efficient and timely delivery. • If timing incentives are applied, it may be appropriate to make these incentives symmetrical.
Timing incentive could lead to under delivery of quality requirements.	• Trigger payments to only be applied in specific cases where timing incentives need to be given more weight. • Capex baseline to be adjusted for any under delivery of quality requirements, to provide incentive to deliver quality requirements.
Timing incentive could see overspending to meet the relevant deadline.	• Trigger payments to apply only in specific cases where timing incentives need to be given more weight. • Trigger payments to be used to strengthen cost and delivery incentives.

Source: CAA

Defining cost categories

3.5 To monitor capex delivery, and to help set quality incentives, cost baselines and incentive rates, we intend to split the capex programme into a manageable number of capex categories based on HAL's proposed capital plan for H7.

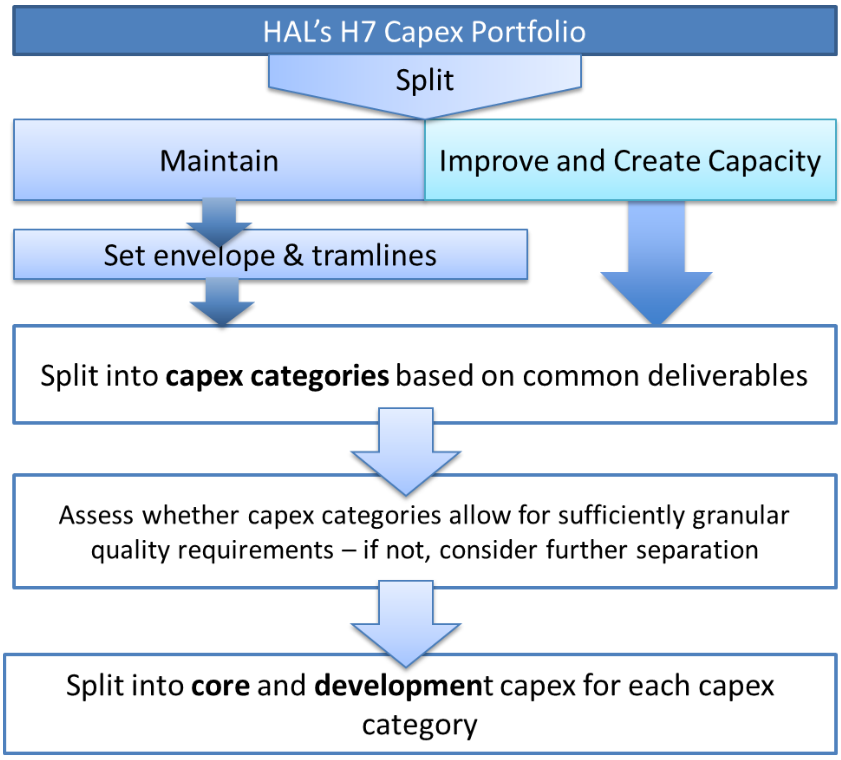
3.6 To help define the capex categories we have considered two main types of investment:

- "maintain" capex: regular investment to maintain existing service levels throughout H7. As such, it is predictable and typically includes several smaller projects; and

- "improve and create capacity" capex: investment that enhances capacity or the quality of service beyond current levels. It is likely to be less predictable than maintain capex as it covers projects that occur at different times and with different durations throughout H7.

3.7 Figure 3.2 outlines our current proposal for how the capex portfolio could be split based on clearly defined outputs being delivered, and any significant differences in the degree of risk and controllability.[6] It is worth noting that our consultants (Arcadis) did not identify any material differences in the risk and controllability of non-expansion capex that HAL submitted as part of its assessment of HAL's IBP.

Figure 3.2: Establishing appropriate capex categories



Source: CAA

3.8 We have also considered an alternative option in which the maintain capex category would be split by delivery year, rather than split by the outputs

[6] For example, our consultants identified that T5 Plus and T1 Baggage were two potential examples of capex categories with clearly defined outputs.

being delivered. We welcome views from stakeholders on which approach is likely to be the most appropriate.

3.9 Once the capex categories have been established, separate core and development baselines would be set for each category.

Cost efficiency incentives

3.10 Cost sharing allocates cost performance risk between consumers and HAL. It ensures that consumers benefit when HAL outperforms its capex baseline, while partly being protected when HAL overruns its capex baseline. Each category of capex would be subject to an appropriate efficiency incentive rate which sets out HAL's share of any overspend or underspend compared to an allowed capex baseline.

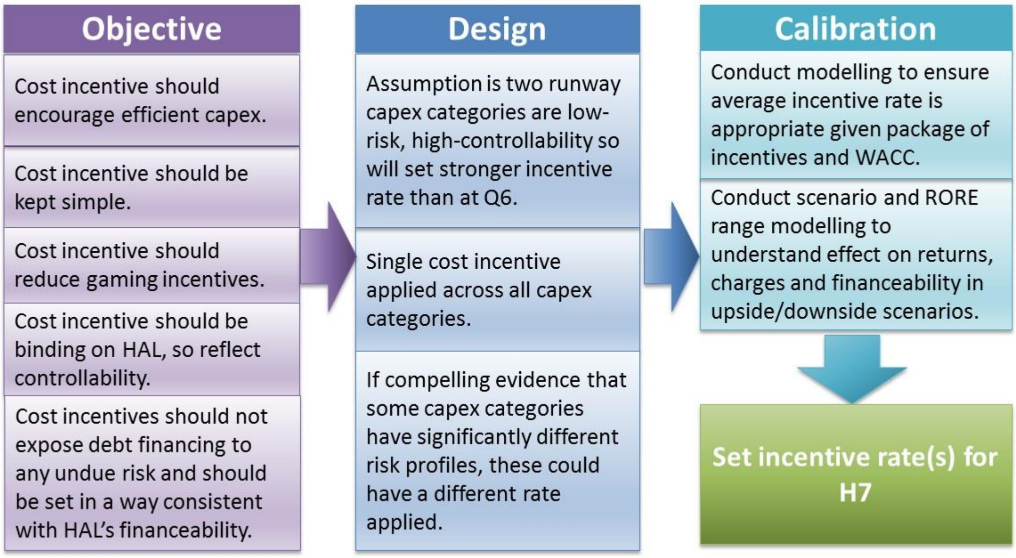
3.11 We will set capex baselines in advance for the length of the H7 price control. As discussed later, however, we are proposing a flexible approach which builds on the existing core and development framework so that any baseline we set for H7 can be updated, but only for a particular set of circumstances.

3.12 Our starting point will be to apply the same symmetrical incentive rate across all capex categories. We will only deviate from this approach if a category of capex is shown to have significantly greater risk and/or HAL has less control over the outturn spending. In these cases, we might consider a lower capex incentive rate to reflect the higher level of risk, but an initial assessment by our consultants did not identify any such exceptions.

Capex incentive rate

3.13 As noted in the June 2020 Consultation, we will develop proposals on the capex efficiency incentive rate as part of our ongoing work to develop the incentive arrangements for H7. This will be calibrated later in the price control process and will be based on HAL's proposed H7 capex programme, as well as our overall assessment of HAL's broader risk and reward package using return on regulatory equity ("RORE"). Figure 3.3 sets out our proposed approach to setting the efficiency incentive rate.

Figure 3.3: Setting the capex efficiency incentive rate



Source: CAA

3.14 Our initial view is that the capex incentive rate should be higher than the cost incentive that is in place for the Q6 price control, especially as the *ex ante* incentive rate would replace *ex post* reviews and some timing incentives. On average, as noted above, the implicit *ex ante* financing cost incentive rate over Q6 is around 13% but it was higher at the start of Q6 and lower at the end. It is based on HAL not recovering the financing cost associated with capex overspend or underspend during the Q6 price control compared to the baseline set at Gateway 3.[7]

3.15 Nonetheless, we do not consider that it is appropriate to set a capex incentive rate higher than those applied in some other regulated sectors, where cost "sharing factors" are typically in the region of 40%-50%. We recognise that in the regulated energy and water sectors, cost sharing incentives apply to total expenditure ("totex"). As such they represent a balance between opex and capex performance risk. HAL's regulatory framework has a 100% risk sharing on opex which is recovered through

[7] Appendix C sets out further details on the Q6 financing incentive rate.

charges so that HAL will retain 100% of any outperformance but will bear the full costs of any overspend.

3.16 We will consider the appropriate capex incentive rate further as part of developing our initial proposals for H7. As noted above, in reaching judgements on these matters we will take into account the advantages of creating appropriate incentives for cost efficiency, our approach to setting HAL's allowed returns and cost of capital and our overall approach to assessing HAL's financeability.

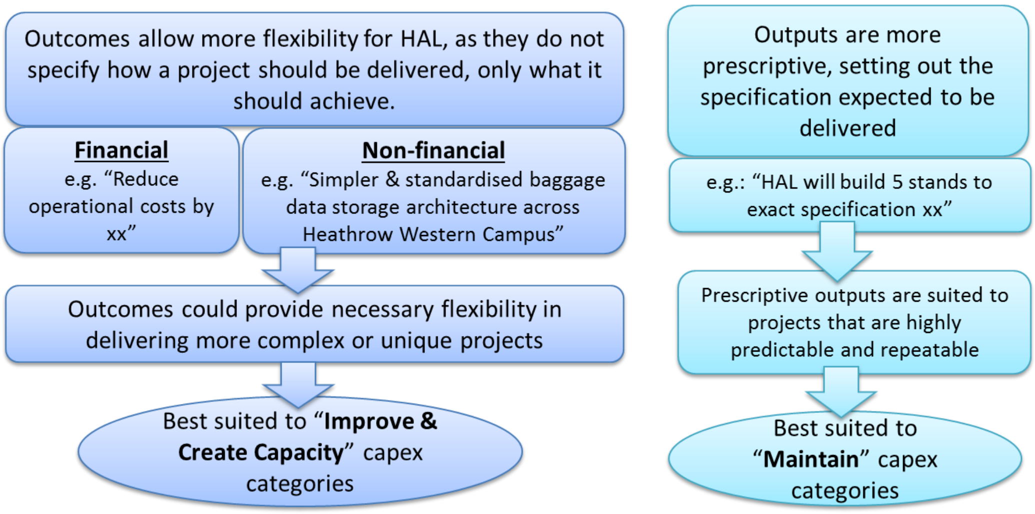
Setting delivery obligations

3.17 To balance the cost incentives on HAL, we need to ensure that it also faces incentives to deliver the outputs and benefits that have been agreed with airlines. Under the existing incentive framework, it has not always been clear whether capex that has been invested during the price control period has achieved the benefits that were agreed with airlines. Our approach for H7 seeks to address this issue so that any failure to deliver the outputs and benefits would lead to an adjustment to the allowed cost baseline.

3.18 We propose that each defined category of capex will have a cost baseline as well as one or more DO and a list of associated quality requirements which will describe the outcomes or outputs to be delivered.

3.19 We expect that the number and granularity of quality requirements will vary by capex category, but they should not prescribe how a solution is delivered. Since the quality requirements will define what the capital investment should achieve, more complex capex programmes might require several quality requirements. The description and level of detail for the DOs and quality requirements should be tailored to each capex category as illustrated in Figure 3.4.

Figure 3.4: Approaches to setting DOs



Source: CAA

3.20 Benefit management criteria were agreed for capex projects at Q6 that passed through Gateway 3. We consider that quality requirements for H7 could be similar to these criteria. However, some airlines have expressed concerns that agreed benefits were not always delivered during Q6. So, while quality requirements for H7 will be similar to the Q6 criteria in some ways, our intention is to make them more clearly binding on HAL. To achieve this, we propose that:

- the list of quality requirements would be used to check that benefits agreed at Gateway 3 have been achieved when the DO is completed;
- any changes to DOs or individual quality requirements during H7 would need to be agreed as part of the capex governance process;
- capex baselines may need to be updated to reflect changes to DOs or quality requirements that have been agreed with airlines.

Example delivery objectives

3.21 We propose that each DO and associated quality requirements should have three elements:

- a delivery requirement - a description of the output being delivered;

- a timing requirement - a description of when the output will be delivered by month/quarter and year; and
- a quality requirement - a description of the benefits being delivered, including the required quality and scope.

3.22 Table 3.2 sets out some suggestions for DOs and associated quality requirements that our consultants (Arcadis) identified based on a review of HAL's IBP.

Table 3.2: Example DOs

Capex category	Delivery Obligations and Quality Requirements
T5 Plus Description: additional capacity in T5 to meet passenger demand within the existing terminal footprint. Initial assessment suggests low to medium risk of cost overrun and a medium to high degree of controllability.	**DO:** <u>To undertake the necessary projects to increase the number of passengers able to use T5 so that the terminal capacity is increased from [X] mppa to [Y] mppa, by [date].</u> **Quality requirements:** • Increase passenger processing capacity at T5 check-in by [X%] in line with IATA ADRM standards. • Increase passenger security capacity in T5 by [X%] in line with IATA ADRM and other appropriate security requirements / Standards. • To increase the space within the IDL to cater for additional passengers in line with IATA ADRM standards. • Increase capacity for arriving passengers in T5 by [X%] in line with IATA ADRM standards. • To ensure the increase in terminal capacity does not increase the current queuing or waiting times for passengers.
T1 Baggage Description: Baggage system prolongation works. Initial assessment suggests low risk of cost overrun and high degree of controllability.	**DO:** <u>To undertake the necessary works to prolong the [asset] life of the T1 baggage system to support the operation of Terminal 2 by [date].</u> **Quality requirements:** • To deliver the required baggage handling capacity based on DDFS, IATA ADRM guidance and operational procedures at the airport.

Capex category	Delivery Obligations and Quality Requirements
	• To increase resilience of the existing baggage system to ensure passengers are not adversely impacted by the prolongation of the asset use.

Source: CAA

Delivery objectives and the governance process

3.23 We expect that DOs would initially be set for core capex but would subsequently be applied to other projects that transition from development to core capex during the control period. We consider the DOs and quality requirements would be discussed by HAL and airlines and developed during the early stages of the capex planning process but would be formally attached to the core capex baseline during Gateway 3.

3.24 Subsequent changes to the DOs or quality requirements during H7 would need to be agreed as part of the capex governance process. HAL would need to demonstrate that these changes were in the interest of consumers. It would also be necessary to consider any appropriate changes to the capex baseline to reflect changes made to the DOs.

3.25 Consistent with the exiting core and development approach, we expect that the CAA would have a role as arbiter in circumstances where HAL and airlines do not agree on either the new DOs and quality requirements (where projects pass Gateway 3), or changes to existing DOs, or alternatively where parties agree but project outcomes are not deemed to be in consumers interests.

Timing incentives

3.26 We do not expect trigger payments to be required for most capex categories. We expect that stronger cost efficiency and quality incentives for H7 will encourage HAL to deliver projects on time, because delays can lead to increases in project costs and/or delays in operating cost savings.

3.27 However, we consider it would be proportionate to apply additional weight on timely delivery for certain capex categories. Where there is clear evidence that airlines and consumers would suffer significantly from the benefits lost by late delivery we would apply timing incentives in the form of trigger payments.

3.28 This approach helps to balance timing and cost incentives across HAL's capex portfolio, focusing additional incentives where timely delivery is most important. In contrast, if we were to apply timing incentives in all cases, then we would need to consider weaker cost incentives to maintain an appropriate overall balance of risk or reward consistent with the allowed cost of capital.

3.29 In response to a suggestion made by the IFS, we propose that trigger payments should be symmetrical so that HAL would receive a reward for early delivery, but it would receive a penalty for late delivery against the agreed trigger date.

3.30 Overall, we consider the criteria used in Q6 to develop trigger payments remain appropriate, but we have proposed some changes so that wording is in line with our broach approach. We have listed below the proposed trigger payment criteria for H7:

- triggers should be based on the delivery of outcomes/outputs with demonstrable benefit to consumers;
- the airport operator should have management control or substantial influence over the elements that determine the success of the project;
- the optimal delivery of the project subject to the trigger (in terms of content, order and phasing) should be reasonably predictable for the period;
- the existence of an incentive mechanism should not itself distort delivery of the programme away from the best that can be achieved based on all emerging information;

- the additional risk implied by basing reward more on delivery and less on capital spending should make the most appropriate use of an airport operator's capacity to bear risk; and
- triggers should be applied to projects where timely delivery is important to consumers and/or airlines.[8]

3.31 As stated above, we expect that trigger payments will not be applied for most capex categories. In these circumstances, we recognise the need to ensure that HAL does not face an incentive to delay capital spending. We identified that this is an issue with the existing Q6 incentive framework. To address this issue, we propose to make adjustments for financing costs at the time when the incentives are reconciled so that they are NPV neutral, as well as introducing backstop reconciliation arrangements (discussed later in this chapter).

Setting the cost baselines and dealing with uncertainty

3.32 In line with the Q6 approach, we will set an overall capex envelope. Within this envelope, for each category of capex identified, we propose to set a firm cost baseline for core capex and an indicative cost baseline for development capex. The capex baselines will require an annual profile so that charges can be set during H7.

3.33 We intend to broadly maintain the existing project Gateway governance process for H7. At Gateway 3, an investment decision is made on whether to proceed with a project:

- a "go" decision would lead to a transfer of capex from development to core capex, and an adjustment to the core baseline, delivery date and a delivery objective would be set; and
- a "no go" decision would require the project to be resubmitted later or the capex is removed from the baseline where there is agreement

[8] Previously for Q6, triggers applied to projects with a total expenditure of more than £15 million, or more than 0.5% of HAL's projected annual capex.

between HAL, airlines and the CAA that individual development project should no longer be taken forward.

3.34 Nonetheless, given the uncertainties facing the sector and the impact this is likely to have on HAL's forecast capex plan, we are proposing a more flexible approach for H7. We propose that baselines adjustments can be made either during (on an annual basis), or at the end of H7. As part of the capex governance process the capex baselines can be adjusted for a wider set of circumstances including:

- the transition of projects from development to core capex (development and core capex baselines updated to reflect the movement of capex);
- agreements between HAL, airlines and the CAA that individual development projects should no longer be taken forward (downward adjustments to capex baselines);
- non-delivery or under delivery of the DO and quality requirements (downward adjustments to capex baselines); and
- agreed changes in capex, DO or quality requirements (upwards or downward adjustment to capex baselines).

3.35 We intend to develop further guidance on the process for adjusting the capex baselines as part of finalising the incentives framework. For example, adjusting a baseline when a delivery objective has been partially delivered will need to be carefully considered. We expect that the approach for adjusting baselines should be a proportionate and simple process.

3.36 As set out in the June 2020 Consultation, as part of designing a more flexible framework in an uncertain environment, we have also considered whether it is appropriate to apply "tramlines" to act as upper and lower "bounds" for the overall envelop for capex required to maintain HAL's assets. Should actual or forecast "maintain capex" and other projects that are particularly important to consumers, fall outside these tramlines, we would conduct a detailed review of the capex programme during H7, working with HAL and airlines. As part of this review, we would consider whether it is appropriate to revisit the capex baseline, and associated delivery obligations, for the remainder of the price control.[9] If we decided to introduce such a mechanism, the tramlines would also be adjusted during H7 to reflect any adjustments to the maintain capex baselines.

Reconciliation of efficiency incentives

3.37 The June 2020 Consultation set out some high-level principles that we are considering for the reconciliation process.[10] This section sets out further details of these principles.

Options for the timing of reconciliation

3.38 We consider there is merit in reconciling incentives during the H7 period to provide more immediate incentives, but we also acknowledge the practical difficulties of doing this for every category of capex. An alternative option would be to reconcile incentives for all capex categories at the end of the price control period.

3.39 In the June 2020 Consultation we proposed that efficiency incentives could be reconciled:

- during H7 where this is practicable for example, for some maintain capex categories where the outputs have been delivered;
- at the end of H7 for other capex categories, where the DO is complete; or
- at a backstop date in the next price control period where reconciliation is not possible by the end of H7 because delivery has been delayed.

3.40 We said we will need to revisit this issue based on HAL's H7 capex programme which will be set out in its RBP. The most appropriate

[9] This review would not revisit the capex incentive rate for maintain capex which would be determined as part of the H7 price control.

[10] See para 3.25 of the June 2020 Consultation.

approach will be informed by the nature and mix of HAL's planned capex programme.

3.41 In line with the Q6 approach, where trigger payments for timing incentives are considered necessary, they will be reconciled at quarterly capital portfolio boards. Late or early delivery of projects would lead to trigger payments (rebates/bonuses) being agreed as part of the capex governance process.

Impact of reconciliation on charges and the RAB

3.42 Regulated charges would be set based on the overall forecast capex baseline[11] and would be updated annually during H7 to reflect agreed changes to the capex baselines.[12] This approach is consistent with the current Q6 approach where charges are updated to reflect the evolving capex baseline during the price control period as projects move from development to core.

3.43 At the point of reconciliation, we would finalise the capex baseline, reflecting any changes that have been made (see paragraph 3.34), and reconcile the RAB for differences between outturn capex and the final baseline, multiplying any over or under spending by the capex incentive rate.

3.44 As an example, a 25% capex incentive rate on an overspend of £100 million would mean that £75 million is added to the RAB and recovered through charges whereas the remaining £25 million would be at HAL's risk and would not be added to the RAB. This example is illustrated in Table 3.3 which also demonstrates applying the incentive rate on any underspend against the capex baseline.

[11] Reflecting the associated capital charges – depreciation and allowed return.

[12] This approach is consistent with Q6 where charges are updated to reflect the evolving capex baseline during the price control period when HAL and airlines agree to move projects from development to core capex.

Table 3.3: Example incentive rate reconciliation

£ million	Example 1	Example 2	Example 3
H7 capex baseline	1,000	1,000	1,000
HAL outturn capex	1,110	1,000	900
Overspend (underspend) on baseline	100	0	(100)
Cost sharing rate – symmetrical	25%	25%	25%
Overspend (underspend) at HAL's risk	75	0	(75)
RAB adjustment	75	0	(75)
Capex added to HAL's RAB	1,075	1,000	925

Source: CAA

3.45 We would apply any adjustment to the RAB so that it is NPV-neutral by accounting for the associated financing costs (based on the allowed cost of capital). This approach means that the incentive rate is consistent over time so there is no longer a financial incentive to delay spending which was an issue identified with the current framework.

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 Secretary of State or international obligation on the UK notified by the Secretary of State; 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

Glossary

Acronym/term	Definition
IATA – ADRM	International Air Transport Association - Airport Development Reference Manual.
The April 2018 Consultation	CAA publication CAP1658 “Economic regulation of capacity expansion at Heathrow: policy update and consultation”. See chapter 4: www.caa.co.uk/CAP1658.
The April 2020 Update	CAA publication CAP1914 “Economic regulation of Heathrow: programme update”. See: www.caa.co.uk/CAP1914.
BA/IAG	British Airways plc/International Airlines Group (owner of British Airways).
CAA (“us”/”we”)	The Civil Aviation Authority.
CAA12	Civil Aviation Act 2012.
Capex	Capital expenditure.
CE	Constructive Engagement: a process mandated by the CAA that requires the airport operator to discuss its business plan with the airlines before we need to reach a decision on the appropriate price control.
The CEPA report	Possible ways of implementing ex-ante efficiency incentives for Heathrow’s capital expenditure. March 2019. See: www.caa.co.uk/CAP1782b.
Consumers	As defined in CAA12, consumers are passengers and cargo owners, both now and in the future.
Core and development capex	Core capex is capex that has been through Gateway 3 (investment decision stage) of capex governance, in line with the approach for the Q6 price control. Development capex is capex at an earlier stage of development and has not passed through Gateway 3.
DDFS	Design day flight schedule.

Acronym/term	Definition
DO	Delivery Obligation, as defined in the CAA's capex incentives proposals.
Ex ante efficiency incentives	Incentives that are set before the price control period starts and before the regulated business incurs costs.
Ex post efficiency incentives	Incentives that involve an assessment of efficiency after the price control has concluded and / or after the regulated business incurs costs.
Expansion	HAL's programme to expand Heathrow airport by the construction of a new northwest runway and associated infrastructure in accordance with the NPS.
Gateway 3	An investment decision stage of capex governance, in line with the approach for the Q6 price control.
H7	The next HAL price control, assumed to be in place from 1 January 2022. If set for the usual five year period, this will run for the years 2022-2026.
HAL	Heathrow Airport Limited, the licence holder and operator of Heathrow airport.
Heathrow Capex Efficiency Handbook	One of a number of documents produced by HAL with airlines as part of the airport/airline capex governance protocol for Q6. The other documents include the Q6 Capital Investment Triggers Handbook, and the Capital Investment Protocol. The documents are intended to provide detail and guidance to those involved in the Heathrow project Gateway lifecycle process.
IATA	International Air Transport Association, a global trade association representing airlines.
IDL	International Departure Lounge
IBP	HAL's Initial Business Plan. This was published in December 2020 in the context of expansion and in response to the Updated Business Plan Guidance. See: https://www.heathrow.com/company/about-heathrow/economic-regulation/h7-update.
IFS	The Independent Fund Surveyor for Heathrow, which is jointly appointed by HAL and the airlines, with a duty of care to the CAA. The scope of the IFS role is broadly to

Acronym/term	Definition
	assure that capital funds are invested efficiently to meet agreed project objectives.
The January 2017 Consultation	CAA publication CAP1510 "Economic regulation of the new runway at Heathrow Airport: consultation on CAA priorities and timetable" See chapter 4: www.caa.co.uk/CAP1510.
The January 2020 Consultation	CAA publication CAP1876 "Economic regulation of Heathrow Airport Limited: further consultation on regulatory framework and financial issues" See: www.caa.co.uk/CAP1876.
The June 2020 Consultation	CAA publication CAP1940 "Economic regulation of Heathrow: policy update and consultation". See www.caa.co.uk/CAP1940.
LACC	London (Heathrow) Airline Consultative Committee, set up by IATA to implement a collaborative consultation framework for Heathrow airport.
The March 2019 Consultation	CAA publication CAP1782 "Economic regulation of capacity expansion at Heathrow: policy update and consultation". See: www.caa.co.uk/CAP1782.
The May 2018 Consultation	CAA publication CAP1674 "Economic regulation of capacity expansion at Heathrow: working paper on the cost of capital and incentives". See: www.caa.co.uk/CAP1674.
Mppa	Million passengers per annum.
NPV	Net Present Value.
NPS	The Airports National Policy Statement published on 5 June 2018 produced by the Government under the Planning Act 2008.
OBR	Outcomes Based Regulation. Our policy was set in our Guidance for Heathrow Airport Limited in preparing its business plans for the H7 price control (see www.caa.co.uk/CAP1540) and updated in the Updated Business Plan Guidance.
Opex	Operational expenditure.

Acronym/term	Definition
Q6 or Q6 price control	The "Q6" price control is the price control for the period from 2014 to 2018, the approach to which has subsequently been successively extended to cover 2019-2021.
P50 cost estimate	A P50 cost estimate is one that, based on information available and for the scope defined at the time, is expected not to be exceeded for 50% of the time. Q6 core capex baselines were set at the P50 level reflecting that projects which have based Gateway 3 should have firm costs and a clear scope.
P80 cost estimate	A P80 cost estimate is one that, based on information available and for the scope defined at the time, is not expected to be exceeded for 80% of the time. Q6 development capex baselines were set at the P80 level reflecting the level of uncertainty of these projects.
RAB	Regulatory Asset Base.
RBP	Revised Business Plan.
Regulatory Year	Means for each of the seven years from 2015 to 2021, the twelve month period beginning on 1 January and ending on 31 December (as defined in HAL's licence granted under CAA12).
RHC	Richmond Heathrow Campaign.
VAA	Virgin Atlantic Airways.
WACC	Weighted Average Cost of Capital.

Appendix C

The current capital efficiency arrangements

Introduction

1. Our broad approach for H7 builds on the existing capex framework that was developed for Q6 by proposing improvements where appropriate. This appendix sets out in detail existing arrangements, which were put in place for Q6 and have continued for the subsequent extensions to the price control (including for the period of the commercial deal, which covers 2020 and 2021).

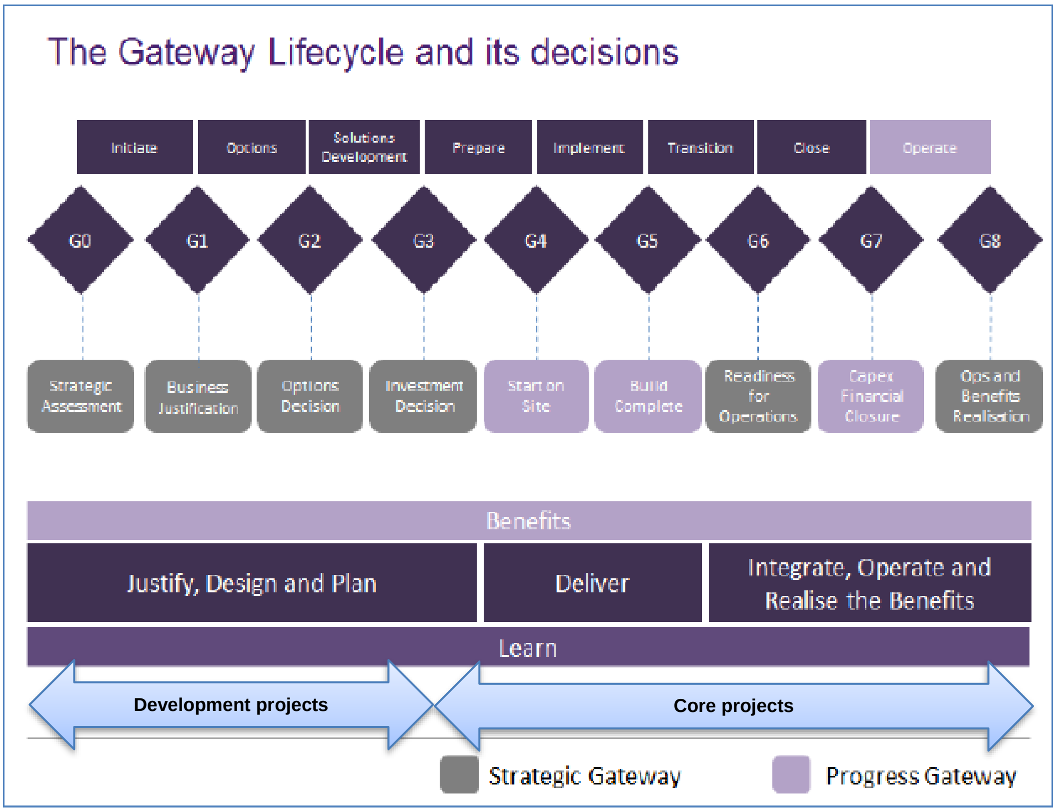
Q6 capex framework

The gateway process

2. The overall framework for capital investment decisions involves assessment at a portfolio level, broken down into programmes, which are then further broken down into individual capex projects. Projects follow an eight phase “Gateway” process which aligns with each project’s level of maturity.

3. Project business cases are reviewed at key points (Gateways) throughout their life to ensure that the scope is still on track and has the appropriate management systems in place to support successful delivery. The project Gateway lifecycle process is illustrated in in Figure C.1.

Figure C.1: The Q6 project Gateway process



Source: Heathrow Capex Efficiency Handbook (CAA overlay to outline core / development projects)

A flexible approach to setting the capex envelope

4. An initial capex envelope was set which comprised a fixed baseline for core capex and an indicative baseline for development capex:

- core capex: included projects that had gone through Gateway 3 at the time of setting the price control so that the scope and associated cost estimates were reasonably certain. Cost estimates for core capex projects were provided at the P50 level; and
- development capex: included projects that had not gone through Gateway 3 at the time of setting the price control, so there was a level of uncertainty over whether these projects would be required during the price control period. Estimates were at the P80 level to reflect a higher level of uncertainty.

5. Over the course of the price control period, projects can transition from development to core capex by going through Gateway 3. This flexible, two-tiered approach enables those development projects, that were not

yet fully specified or sufficiently costed at the time of setting the price control, to be developed further and, where appropriate, delivered during the price control period[13].

Governance of capex investment

6. The capex programme is monitored through the airport/airline capex governance arrangements, with the IFS providing the role of an expert independent reviewer.

7. Projects are managed under the project Gateway process outlined in Figure C1. The decisions to move development projects from development to core are agreed by HAL and airlines at regular Capital Portfolio Board meetings.

8. The CAA has a role as arbiter in circumstances where HAL and airlines do not agree on the scope or cost of projects, or alternatively where parties agree but projects are not deemed to be in consumers interests.

Treatment of over- or underspend against the capex envelope

9. A flexible recovery mechanism is included in HAL's licence[14] so that HAL is remunerated for development projects that are developed during the control period:

   - the fixed core baseline set at the start of the price control means that no adjustments are made to the price cap during the price control period to reflect any differences between the baseline and outturn capex for those projects falling within the core baseline, until the price cap is reset as part of the H7 review; and
   - cost allowances for individual development projects only become fixed within the control period, once they have progressed through the Gateway 3 process with agreement by airlines. The allowance

[13] Development projects which advanced to core capex at Gateway 3 are costed at P50.

[14] The maximum revenue per passenger (price cap) is based on forecast core and development capex set as part of the Q6 regulatory determination. Condition C1.9 of HAL's licence includes a mechanism (the "cumulative development capex adjustment") that allows the price cap to be revised during the price control period, reflecting agreed changes to the development capex baseline.

within the price cap calculation for development capex is adjusted on an annual basis to reflect projects that are developed during the control period.

10. The price control adjustment mechanism also includes provisions to ensure that HAL does not receive a rate of return for development projects anticipated in the price control allowance but not undertaken during Q6.

11. Financing costs are not adjusted to take account of overspending or underspending compared to the fixed core capex baseline. This is discussed in more detail in the next main section of this appendix.

Ex post efficiency review

12. Capex incurred during Q6 ("outturn capex") will be added to HAL's regulatory asset base ("RAB"), subject to an *ex post* review which is carried out by the CAA. We may disallow capex from HAL's RAB where there is evidence of inefficiency or misallocation of spend. We will shortly publish a working paper to update on our progress with the *ex post* Q6 efficiency review.

Trigger mechanisms

13. "Payment triggers" impose penalties on HAL for key projects if there are delays to the agreed delivery date. These are payments for each month of delay and are based on allowed financing costs of the capex.

Ex ante financing cost incentive

14. In response to the January 2020 consultation HAL provided a stylised example to demonstrate the Q6 *ex ante* financing cost incentive rate, illustrated in the Figure C.2. HAL noted that, if a project is delivered below or above the Q6 core capex baseline, HAL is fully exposed to any financial outperformance or underperformance.

Figure C.2: Illustrative example of Q6 *ex ante* incentives, assuming overspend in year 1

£m	Year 1	Year 2	Year 3	Year 4	Year 5	Cumulative ex ante incentive	Cumulative ex ante incentive (%)
G3 Value	100						
Outturn	110						
Deviation from G3	10						
Average value of Deviation (ie. Average RAB)	5	10	10	10	10		
WACC	5.35%	5.35%	5.35%	5.35%	5.35%		
Outperformance / Underperformance of return year 1	0.27	0.54	0.54	0.54	0.54	2.41	24%
Outperformance / Underperformance of return year 2	0.00	0.27	0.54	0.54	0.54	1.87	19%
Outperformance / Underperformance of return year 3	0.00	0.00	0.27	0.54	0.54	1.34	13%
Outperformance / Underperformance of return year 4	0.00	0.00	0.00	0.27	0.54	0.80	8%
Outperformance / Underperformance of return year 5	0.00	0.00	0.00	0.00	0.27	0.27	3%

Source: Heathrow response to the January 2020 Consultation

15. HAL calculated that throughout Q6, the financing cost incentive was on average 13.4% of the difference between the capex baseline agreed at Gateway 3 and the actual capex incurred during Q6. HAL also noted that the actual value at risk has varied throughout the Q6 period. Based on an assessment of HAL's analysis, we noted in the June 2020 Consultation that the existing *ex ante* incentive was around 13%.

Appendix D

Assessing our broad approach against the criteria for developing new incentives

Introduction

1. This appendix shows how our broad approach to capex incentives set out in chapter 3 meets the criteria for developing new incentives set out in chapter 2 of this working paper.

Our assessment

2. We have compared our broad approach to capex efficiency incentives to a counterfactual approach. The counterfactual reflects HAL's view of capex incentives which it set out in its IBP which is that the Q6 incentive framework should be maintained for H7. We recognise that HAL proposed to make some improvements to the Q6 approach (in relation to governance), but these changes were not defined as part of its IBP submission, so we have not considered them in detail here.

3. The key features of each approach are presented in Figure D.1 and our assessment against the criteria for incentives is set out in Table D.1 below.

Figure D.1: Two approaches assessed against criteria for incentives

Approach in Q6	Broad approach in H7
Core and development framework with vital role for airlines	Similar to Q6, retain core and development framework with vital role for airlines
Ex post assessment of inefficient capex at end of period	*Ex ante* incentives on over/underspend linked to quality of deliverables, with *ex post* reviews only by exception
Ex ante financing cost incentive (around 13% on average)	*Ex ante* incentive rate to be higher than Q6, with adjustment for financing costs
Trigger payments penalise HAL for late delivery of projects	Trigger payments to be more targeted and symmetrical
Charges reflect development and core capex allowances, updated during period	Similar to Q6, charges reflect development & core capex allowances, updated during period
Gateway process and governance at portfolio and project levels	Similar to Q6, but with enhanced governance at portfolio and project levels

Source: CAA

Table D.1: Initial assessment of our proposed broad approach to capex incentives

Criteria for implementation	Continuation of Q6 approach (counterfactual)	Broad approach to H7 capex incentives
1. Build on the approach to core and development capex and governance used for Q6, implementing improvements to address issues identified in practice and introducing new incentive arrangements, where appropriate, to reduce significantly, or eliminate, the need for *ex post* efficiency reviews by the CAA. It should also preserve the vital role of airlines in helping to assess HAL's project proposals, delivery and quality standards, and costs HAL's project proposals, delivery and quality standards, and costs.	• Overall Q6 governance process is maintained. • Reliance on *ex post* assessment with limited *ex ante* incentives. • Issues identified with the Q6 arrangements remain (outlined in chapter 2). • Airlines will maintain the same role as in the Q6 capex governance, and core and development process.	• The wider capex governance arrangements are updated to reflect IFS recommendations. • *Ex post* reviews of spending incurred by HAL only planned by exception for capex categories where the risks are significant and are outside of HAL's control. • *Ex post* assessment of baselines only required where there is a material change in core costs caused by reasons outside of HAL's control. • Approach places emphasis on airlines and HAL to set clear output requirements for each category of capex (delivery obligations and associated quality requirements), with HAL's allowed cost baseline being adjusted if outputs are not delivered . • The role of airlines would be strengthened reflecting the IFS recommendations on more effective governance.

Criteria for implementation	Continuation of Q6 approach (counterfactual)	Broad approach to H7 capex incentives
2. Provide clear, simple and symmetrical financial incentives for capex overspending and underspending, that are proportionate, allocate appropriate risks to HAL, and minimise difficulties associated with cost allocation and the administrative burden of implementation.	• HAL must agree costs and project scope with airlines to get go ahead decision at Gateway 3. • HAL then faces an *ex ante* financing cost incentive which is not clearly targeted. The financing cost incentive is complex and not transparent as the strength of the incentive varies depending on when the overspending occurred. • *Ex post* assessment allows airlines to recover some of the inefficient overspending, but only where this is clearly identified as being within HAL's control. Therefore, the risk of bearing overspending may be skewed towards airlines. • Trigger payments are simple to understand, although airlines have expressed concerns about how these payments link to the realised project benefits.	• HAL's capex will be assessed against the baseline agreed with airlines at Gateway 3. • Plan to set single incentive rate across capex categories, departing from this only by exception. • Issues identified with the financing cost incentive will be addressed as part of the reconciliation process so that incentives for H7 are NPV-neutral. • Capex incentives share the risk of overspending and underspending between HAL and airlines. The capex incentive rate will take account of the likely scale of overspending and underspending, and HAL's ability to control costs. • HAL receives additional returns for delivering efficiently and early and will need to manage project cost and timing risks to avoid incentive penalties. • Greater scrutiny of maintain (and important project) capex if forecast, or outturn capex falls outside tramlines that we intend to set around the overall envelope for maintain capex. Governance provides significant scrutiny for large discretionary capex projects.

Criteria for implementation	**Continuation of Q6 approach (counterfactual)**	**Broad approach to H7 capex incentives**
		• All categories will have clear quality and timing of delivery requirements. • We do not expect that trigger payments will be required for most capex categories. If trigger payments are necessary, they will be better targeted and symmetrical to ensure that HAL is rewarded for delivering benefits early, as well as penalised for delivering them late.
3. Not place unreasonable risks on HAL so that the overall capex programme is financeable in a cost effective and efficient way. The incentives must also retain flexibility for HAL to design and implement the H7 capex programme, allowing for appropriate and efficient changes in scope during H7.	• *Ex post* assessment places some risk on HAL that a significant (but uncertain) amount of inefficient capex could be disallowed. However, historically, this has been quite low. • Risk that *ex ante* financing cost incentives lead to significant foregone returns. However, this varies with the timing of overspending. • *Ex post* incentive varies depending on how easy it is to identify inefficient capex that was within HAL's control. • Financing cost incentive varies depending on timing, and is a function of the WACC, so not clearly targeted.	• As part of setting the H7 price control, the financial impacts of capex incentives will be modelled to ensure that HAL does not face unreasonable risks. This should put downward pressure on HAL's overall cost of capital and the level of allowed returns. • Risk mitigations have been included, such as baseline adjustments (set out below). • The framework is flexible to respond to any material changes in the scope of HAL's capex programme, including: ▪ setting separate baselines for core and development capex and allowing changes to these baselines where there is agreement at Gateway 3 that development capex should move to core capex;

Criteria for implementation	Continuation of Q6 approach (counterfactual)	Broad approach to H7 capex incentives
	• Trigger payments penalise HAL for late delivery of projects, but not clear if this links to the realisation of project benefits.	▪ setting DOs that reflect the outputs being delivered; and ▪ changes to baselines where costs increase/decrease for reasons outside of HAL's control. • Reconciliation will be against capex baselines that have been adjusted to reflect under delivery of projects (assessed using quality requirements).
4. Ensure that any revenue adjustments arising from the incentives lead to the charges paid by airlines reflecting efficient levels of capital spending. Efficient costs should be linked to the delivery of project standards (including appropriate outputs and deliverables).	• Charges reflect development and core capex baselines. • Airlines approve project scope at Gateway 3, with trigger payments set against the delivery timing. • No additional incentives are in place for project standards.	• During the price control, charges reflect baseline capex, adjusted for any agreed changes to the baseline. • Incentives to be measured against a baseline that reflects the delivery of agreed DOs and quality requirements. • Airlines to play key role in agreeing DOs for capex, which measure requirements for delivery, timing and quality.

Source: CAA