

Economic regulation of Heathrow Airport Limited: policy update and consultation on the early costs of capacity expansion

CAP 1871



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About this document

This consultation document provides further information on costs Heathrow Airport Limited (“HAL”) expects to incur in advance of obtaining a Development Consent Order under the Planning Act 2008 for the expansion of Heathrow airport. It outlines the approach to spending on these early costs that we consider is in the best interest of consumers and the regulatory arrangements that should apply to this spending.

It follows on from our July 2019 consultation on early costs and our previous policy documents on these matters.¹

Views invited

We welcome views on all the issues raised in this document including the issues set out in the Executive Summary and those highlighted in chapters 1 to 3.

Please e-mail responses to economicregulation@caa.co.uk by no later than 28th February 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 Robert.Toal@caa.co.uk.

¹ Details of our previous consultations on early expansion costs are outlined in the Executive Summary.

Executive summary

Introduction

1. Capacity expansion at Heathrow airport is a very large and complex programme and achieving this within the timeframe outlined in the Airports National Policy Statement² (“NPS”) will be a significant challenge. The CAA has consistently stated that additional runway capacity in the south east of England will benefit air passengers and cargo owners. The timely delivery of more aviation capacity is required to prevent future consumers³ experiencing higher airfares, reduced choice and lower service quality.
2. In order to deliver capacity expansion in a timely way, HAL will need to incur significant planning costs (which we call “Category B costs”) and certain early construction costs (which we call “early Category C costs”). HAL had said that in order to retain a target of 2026 for the opening of the new runway, it would need to bring forward the timing of certain spending and total early costs would need to be about £2.9 billion (in 2014 prices). This includes spending of over £500 million on Category B costs and £2.4 billion (in 2014 prices) on early Category C costs, before it obtains a DCO⁴. Given the increases in its estimates of these costs,⁵ and the potentially greater consequences of this spending for airlines and passengers if a DCO were not to be granted, we asked HAL to

² For the new runway at Heathrow to be delivered by 2030. The Airports National Policy Statement (NPS) is available at: <https://www.gov.uk/government/publications/airports-national-policy-statement>

³ In this consultation, the terms “consumers” and “users” are used interchangeably. See Appendix A.

⁴ HAL will apply for planning permission to permit capacity expansion in the form of a “development consent order” (DCO) under the Planning Act 2008 (PA08). HAL is targeting late 2021 for obtaining a DCO. The DCO must meet the requirements of the NPS designated by the Government under PA08.

⁵ At the time of publishing our April 2018 consultation, HAL’s initial estimate was that it would spend approximately £650 million (2014 prices) on early Category C costs. HAL then provided further information in autumn 2018 as part of its business plan information for the iH7 price control period (2020-2021) which suggested total spending might reach £1.6 billion. See www.caa.co.uk/CAP1819, chapter 2.

consider a range of options for this spending and for the target date for runway opening.

3. In assessing these scenarios, it is important to bear in mind that while there are advantages for consumers in spending that promotes early delivery there is also a risk that these costs could become sunk⁶ if HAL's DCO application were not to be successful. This could disadvantage consumers in two ways. To the extent that these sunk costs are recovered through airport charges they could be passed on to passengers through airline fares. Alternatively, to the extent that they are not recovered through airport charges, they would increase the risks that HAL is expected to manage and, in turn, this would tend to increase HAL's financing costs, which would ultimately affect airport charges and passenger fares.
4. In the context of these difficult trade-offs, this consultation summarises the scenarios that HAL has developed and sets out our assessment of which scenario would be best in the interest of consumers. It then explains our proposals to strengthen the regulatory incentives and governance arrangements that apply to early costs, with a view to avoiding any further unexpected increases in these costs. This includes the CAA's policy decision on the regulatory treatment of Category B costs and further consultation on the regulatory treatment of early Category C costs. We also consult on whether we should introduce a new licence condition for HAL in relation to early costs.
5. While the focus of this consultation is around the approach, regulatory treatment and regulatory governance arrangements for early Category C costs, we do not rule out further changes to the treatment of Category B costs if it is appropriate to further align the treatment of these two categories of costs in response to the representations we receive from stakeholders on early Category C costs.

⁶ "Sunk" costs can be considered as costs that have been properly incurred in relation to the runway expansion programme, but which would become wasted or could not be recouped by the sale of the assets created by this expenditure if the DCO is not granted due to the output resulting from these costs no longer being required.

6. Our previous policy documents and consultations on these matters include:
- the consultation we issued in July 2019⁷ on early costs and the regulatory timetable;
 - consultations in July 2016⁸, and November 2016⁹ on the regulatory treatment of expansion costs;
 - the policy statement we issued in February 2017¹⁰ on Category B costs and December 2017 policy update¹¹ on such costs;
 - guidance we issued to HAL in April 2017 on its price control business plan;¹²
 - our April 2018 guidance document¹³ and policy update on costs;¹⁴ and
 - a consultation in October 2018 that dealt with the regulatory timetable.¹⁵
7. Planning costs (Category B costs) are those costs which are “directly associated with, and incurred solely for the purpose of, seeking planning permission” for the delivery of new runway capacity at Heathrow airport. The other costs incurred by HAL before the outcome of its DCO application are in

⁷ Economic regulation of capacity expansion at Heathrow airport: consultation on early costs and regulatory timetable (“the July 2019 Consultation”): see www.caa.co.uk/CAP1819.

⁸ The recovery of costs associated with obtaining planning permission for a new Northwest runway at Heathrow airport: initial proposals (“the July 2016 Consultation”): see www.caa.co.uk/CAP1435.

⁹ The recovery of costs associated with obtaining planning permission for a new Northwest runway at Heathrow airport: final proposals (“the November 2016 Consultation”): see www.caa.co.uk/CAP1469.

¹⁰ Policy statement of the recovery of Category B costs (“the Planning Cost Recovery Policy Statement”): see www.caa.co.uk/CAP1513.

¹¹ Economic regulation of capacity expansion at Heathrow: policy update and consultation (“the December 2017 Consultation”): see www.caa.co.uk/CAP1610.

¹² Guidance for Heathrow Airport Limited in preparing its business plans for the H7 price control (“the April 2017 Consultation”): see www.caa.co.uk/1540.

¹³ Guidance on preparation of the annual budget and statement for those costs associated with obtaining planning permission for a new Northwest runway (“the Budget Guidance”): www.caa.co.uk/CAP1651.

¹⁴ Economic regulation of capacity expansion at Heathrow: policy update and consultation (“the April 2018 Consultation”): see www.caa.co.uk/CAP1658.

¹⁵ Economic regulation of capacity expansion at Heathrow: policy update and consultation (“the October 2018 Consultation”): see www.caa.co.uk/CAP1722.

addition to Category B costs¹⁶ and are a subset of HAL's overall construction (Category C) costs for expansion. HAL's most recent estimates of early Category C costs include the costs of relocating certain large commercial/other facilities, community costs (including compensation costs relating to other commercial activities, agricultural activities and residential property) and other enabling costs to prepare for construction.

Main issues raised in this consultation

8. The July 2019 Consultation highlighted that HAL's current estimates suggest that total capital costs (including both Category B and early Category C costs) to facilitate the opening of the new runway will be in the region of £14 billion (in 2014 prices).¹⁷ We recognised the importance of robust forecasts for capital expenditure and that HAL's forecasts remain broadly in line with the cost estimates it produced in 2017, although there have been some important changes to the scope of HAL's programme. Nonetheless, HAL's forecast of the element of these costs that it plans to spend ahead of obtaining a DCO has increased significantly.
9. Following the increases in HAL's forecasts of Category B and early Category C costs, we asked HAL to consider a range of options for this spending and consult with stakeholders on which scenario would be best in the interests of consumers. HAL responded to this request with a report which initially outlined four principal scenarios. It later produced further variations of these scenarios following engagement with airlines.
10. Chapter 1 outlines the broad range of evidence and views from different stakeholders that we considered as part of our assessment of HAL's scenarios. This included assurance work completed by the Independent Fund Surveyor ("IFS") which revealed that HAL's target date of 2026 for runway opening was optimistic, even with the relatively high level of spending that HAL had

¹⁶ And Category A costs which were incurred by HAL during the Airports Commission process, or before Heathrow was named as the preferred location for new runway capacity. See the Planning Cost Recovery Policy Statement for definitions of costs incurred to support capacity expansion at Heathrow.

¹⁷ More information on HAL's expansion programme costs is set out in Appendix B.

proposed. The IFS indicated that an opening date for the new runway between early 2027 and late 2028 would be more realistic for HAL's preferred approach to early spending.

11. In terms of assessing the relative merits of the scenarios, we have considered the trade-offs between higher early Category C costs and later delivery of runway opening. Given the information presently available, we regard HAL's Scenario 2a to be in the best interests of consumers. This scenario involves HAL incurring lower levels of early Category C costs and a modest delay to the opening of the new runway (of around six to eight months) compared to the likely range of dates for HAL's preferred scenario. While we recognise the potential benefit to consumers of the runway opening being as early as possible, we are also mindful of the risks associated with sunk costs and consider that, at this time, Scenario 2a provides an appropriate balance across a broad range of considerations, including:
- HAL has not been able to secure airline support for its preferred scenario;
 - in contrast there is a degree of airline support for Scenario 2a;
 - the IFS has expressed a number of concerns about HAL's preferred scenario, including whether the early delivery date for the new runway is plausible and the sharp ramp in activities that the scenario implies; and
 - there are a number of challenges associated with assessing the efficiency of early costs, such that the costs and timetable for Scenario 2a may be more reasonable and proportionate.
12. Nonetheless, it is important to stress that we also propose to retain a flexible approach, so if important new information emerges that indicates a different approach would better protect consumers, we will consider and discuss with stakeholders how the wider programme plans can be best adapted to take account of this information. Therefore, if there is more certainty about the overall programme at the time of the next main programme "gateway" (due Spring 2020),¹⁸ we can consider whether there is a case for accelerating early

¹⁸ A "gateway" is a term used by HAL to refer to a review conducted at key points during a project's life to ensure

spending. We are also open to HAL and airlines (and/or other stakeholders) considering any new information and making joint representations or proposals to the CAA to change the approach to early spending.

13. We recognise that the approach that the CAA takes to early Category C costs can affect the timetable for delivering capacity expansion. However, this is only one of many factors that affect the timetable and, as noted above, even before our decision on early Category C costs, independent assessment had indicated that HAL's proposed opening date for the third runway was optimistic. While we recognise the importance of timely delivery and the commitment that HAL has shown to the programme, it is also for HAL to manage the overall timetable for capacity expansion in a way that takes account of all relevant factors and builds confidence with stakeholders in the likely target dates for delivery of the new runway.
14. Chapter 2 discusses the regulatory treatment of each of Category B and early Category C costs incurred by HAL. In relation to Category B costs, our policy is largely finalised (but we do not rule out further changes to the treatment of Category B costs if it is appropriate to further align the treatment of these two categories of costs in response to the representations we receive on early Category C costs). Our existing policy (established in 2017) for Category B costs incurred up to £265 million (in 2014 prices) remains unchanged to avoid undermining the stability of the regulatory framework by retrospective action. For costs above this level, we are enhancing the regulatory arrangements to strengthen the governance and regulatory incentives that apply to those costs, in part to recognise the concerns about the increases in HAL's cost estimates, including:
 - enhanced reporting arrangements;
 - implementing a cap on the total amount of Category B costs that HAL will be allowed to recover; and

that the scope is still on track and has the appropriate management systems in place to ensure successful delivery. The next gateway is M5, which HAL is expected to enter on 17 February 2019.

- allowing HAL a lower allowed return on such costs if HAL is not granted a DCO.

15. Chapter 2 also outlines for consultation our approach to the regulation of early Category C spending. We remain of the view that there are advantages to adopting similar governance and regulatory arrangements for the higher levels of Category B costs and early Category C costs. However, there are some aspects of early Category C costs that warrant different regulatory treatment. For example, the risk sharing arrangements that apply to Category B costs create appropriate incentives for HAL to make a high quality DCO application and so we do not propose to develop similar arrangements for early Category C costs.
16. Following on from the proposal outlined in the July 2019 Consultation, chapter 3 considers whether it is appropriate to develop a modification to HAL's licence that would support stronger and more formal governance arrangements for the preferred programme of early Category C costs. A draft licence modification is also set out in Appendix F for consultation.

Next steps

17. We invite comments from stakeholders on the issues raised in this consultation document by 28th February 2020. We cannot commit to taking account of representations made after this date.
18. Having considered emerging evidence and stakeholders views on our proposals for early Category C costs, we intend to:
- carry out further work to establish the appropriate level at which to set a recovery cap;
 - develop further our approach to assessing the efficiency of HAL's construction costs incurred in advance of HAL obtaining a DCO;
 - set out our final decisions on the regulatory treatment of early Category C costs through a policy statement in late April 2020 or early May 2020; and

- if we decide that it is appropriate to modify HAL's licence in the light of stakeholders' responses to the issues raised in chapter 3, issue a further statutory consultation on a draft licence condition.

Our duties

19. In developing this consultation, we have had full regard to our statutory duties under the Civil Aviation Act 2012 ("CAA12"), which are set out more fully in Appendix A.

Structure of this document

20. The structure of this consultation document is as follows:
- Chapter 1 sets out our assessment of HAL's early Category C cost scenarios and our present view as to which scenario is likely to be best in the interests of consumers;
 - Chapter 2 outlines our policy on the regulatory treatment of Category B costs and consults on our approach to the regulation of early Category C costs;
 - Chapter 3 considers whether a modification to HAL's licence to reflect our proposed policy on early Category C costs is appropriate;
 - Appendix A summarises our statutory duties;
 - Appendix B provides a breakdown of HAL's expansion programme costs and summarises the findings from the expert reviews of these costs;
 - Appendix C describes the evidence we have considered in respect of the consumer benefits associated with airport expansion;
 - Appendix D explains our approach to setting the recovery cap for HAL's Category B costs;
 - Appendix E sets out our proposed treatment of Category B and early Category C costs in HAL's regulatory asset base ("RAB"); and
 - Appendix F sets out a draft licence condition on early Category C costs.

Chapter 1

Analysis of scenarios

Introduction

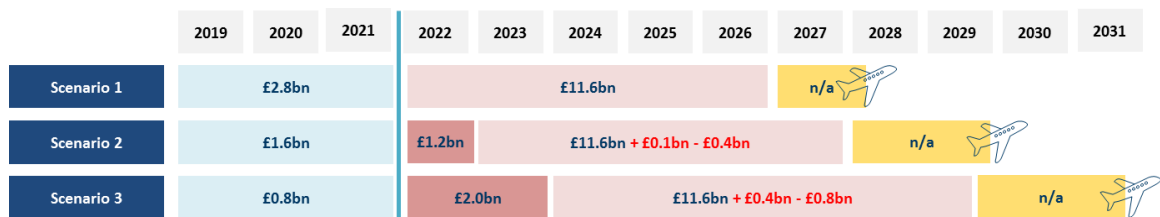
- 1.1 Following the increases in HAL's forecasts of early costs (the costs of capacity expansion in advance of HAL obtaining a DCO) we asked HAL to set out a range of scenarios for early Category C costs and consult with stakeholders on which scenario would be best for consumers. HAL responded to this request with a report submitted to us on 31 July 2019 ("HAL's Submission"), which outlined four principal scenarios. It then engaged with airlines on the advantages and disadvantages of these scenarios.
- 1.2 This chapter:
- describes the scenarios and the assurance work carried out by the IFS on each of the scenarios;
 - summarises the feedback we have received from stakeholders to date on the scenarios; and
 - sets out our assessment of which scenario is likely to be best in the interests of consumers given the information that is currently available.
- 1.3 By providing guidance on the scenario that is likely to be best in the interests of consumers, we are seeking to avoid a situation where uncertainty about the best approach for consumers could cause unnecessary delays to the overall programme for capacity expansion, which could adversely affect consumers.
- 1.4 Nonetheless, if new information emerges that suggests a change in approach would be better for the interests of consumers, we will retain the flexibility to revisit the decisions set out in this chapter. In addition, it is open to Heathrow and airlines to discuss and reach agreement on these matters to inform further consideration by the CAA.

- 1.5 Our assessment of the scenarios should not be construed as setting a budget for early Category C costs, nor are we endorsing particular levels of expenditure or particular construction activities. The regulatory treatment of early costs is discussed in the next chapter.

Description of early Category C scenarios

Scenarios outlined in HAL's submission

- 1.6 HAL's submission included the following four scenarios:
- **Scenario 1** corresponded to HAL's projections at the time that the expansion programme exited the "M4" project gateway, including an estimate of £2.4 billion (in 2014 prices) for early Category C costs and a relatively early target date for runway opening date of the end of 2026;
 - **Scenario 2** would involve deferring HAL's target for runway opening by around a year, with lower levels of early Category C costs;
 - **Scenario 3** reflected HAL's estimate of the minimum amount of early Category C spending that would be necessary to deliver a successful application for development consent to permit expansion; and
 - **Scenario 4** was based on HAL immediately halting all activities (including halting preparation of its DCO application).
- 1.7 We consider that Scenario 4 (halting preparations for HAL's DCO application) would not be in the interests of consumers as we have consistently said that the timely delivery of more aviation capacity is required to prevent future consumers experiencing higher airfares, reduced choice and lower service quality. As such, this scenario is not considered further in this chapter.
- 1.8 HAL carried out a risk assessment on each scenario to reflect the impact of potential delays to key milestones. HAL's scenarios and "risk adjusted" envelope for the timetable to deliver the new runway are summarised in Figure 1.1.

Figure 1.1: Summary of HAL risk-adjusted scenarios (in 2018 prices)

Source: Based on HAL's Submission

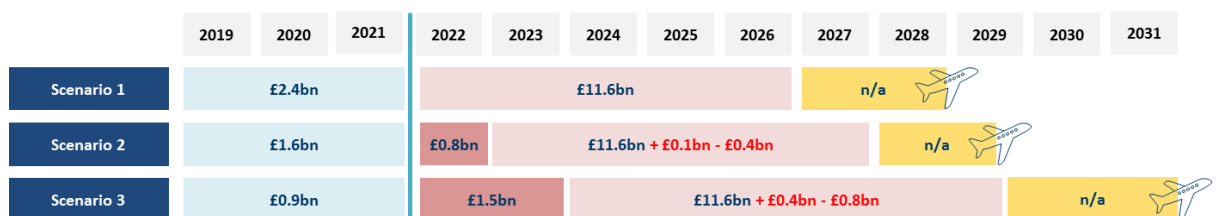
Key

Early Category C costs incurred prior to HAL obtaining a DCO
Early Category C costs deferred to after HAL has obtained a DCO
Other Category C costs incurred after HAL has obtained a DCO
Schedule risk allowance

- 1.9 HAL's risk analysis suggested that Scenario 3 could plausibly result in a runway opening date considerably later than the 2030 deadline specified in the NPS.

IFS assessment of scenarios presented in HAL's Submission

- 1.10 In a report dated 6th September 2019, the IFS provided a high level assessment of HAL's scenarios. The report commented on the reasonableness and internal consistency of the cost forecasts and timescales underpinning each scenario. The results of the IFS's assessment are shown in Figure 1.2.

Figure 1.2: Summary of IFS adjusted scenarios (in 2018 prices)^{19, 20}

Source: Based on IFS report, 6 September 2019

- 1.11 The principal adjustments made by the IFS related to Scenario 1. Specifically, the IFS recommended a greater risk adjustment to the Scenario 1 timescales with an opening date for the new runway between early 2027 and late 2028, and a reduction of around £400 million in the forecast early costs. The IFS also

¹⁹ Both HAL and the IFS used the same nominal cost information for each scenario. However, the IFS assumed slightly different forecast inflation than HAL, to convert the costs for each scenario to 2018 prices. This led to slightly higher forecast costs in some scenarios. The IFS is not, for example, proposing higher real early Category C costs in Scenario 3.

²⁰ The reduction in the cost figures in the red boxes in Figure 1.2 compared to Figure 1.1 is due to the lower early cost estimates provided by the IFS under Scenario 1 compared to HAL's unadjusted early cost estimates.

characterised Scenario 1 as an “*aggressive schedule that requires the maximum activity prior to DCO Consent*”²¹ and has subsequently expressed concerns regarding the deliverability of runway opening in 2026. For example, the IFS stated that, “*Scenario 1 is, in all likelihood, too aggressive and, whilst useful as a target to drive progress and performance toward the earliest runway operational date, it is unlikely that all identified pre DCO phase planned activities can be achieved.*”²²

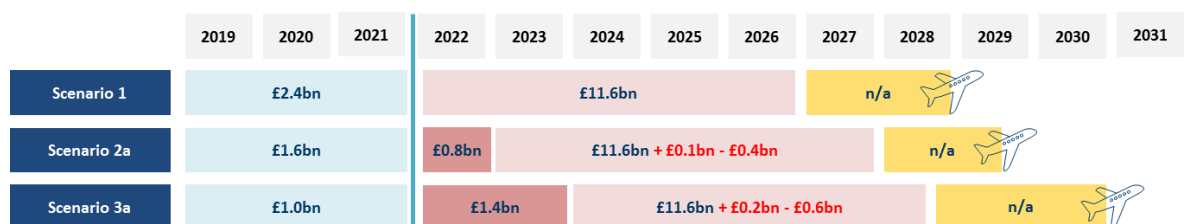
Additional HAL scenarios

1.12 After receiving feedback from airlines through its working groups with them, HAL developed two additional scenarios:

- **Scenario 2a**, reflecting an “optimised” version of Scenario 2, in which cost forecasts were brought in line with the IFS’s estimates and some changes made to the underlying activities (but with the retention of Scenario 2 timescales); and
- **Scenario 3a**, in which the forecasts of additional early Category C costs and total scheme costs have been adjusted to be consistent with runway opening by 2030 (the deadline specified in the NPS).

1.13 These are summarised in Figure 1.3.

Figure 1.3: HAL’s revised scenarios (in 2018 prices)



Source: Based on IFS report, 4 October 2019 and minutes prepared by HAL for its Costs and Benefits Working Group meeting with airlines on 26th September 2019

²¹ IFS (2019), “HAL Expansion – Pre-Consent Category C Spend and Schedule Scenarios”, Section 1.3.1.

²² IFS (2019), “HAL Expansion – Pre-Consent Category C Spend and Schedule Scenarios”, Section 1.4.

- 1.14 The IFS has provided an addendum to its earlier report, which provided its commentary and views on these additional scenarios.²³ The IFS did not propose amendments to the costs or timescales set out by HAL for the additional scenarios, although it noted that opportunities exist for further refinement of scenarios. Nonetheless, the IFS also noted that “*evaluation of these further scenarios is high level yet sufficient for strategic direction setting*”.

Stakeholder views

- 1.15 We have strongly encouraged HAL and airlines (collectively and individually) to discuss the scenarios put forward by HAL with a view to reaching a consensus on the best option for consumers. The feedback we have received to date suggests that the views of stakeholders diverge significantly.
- 1.16 HAL has consistently maintained that earlier delivery of capacity expansion is in consumers’ interests and provided a report by Frontier Economics that quantified the possible impact on consumers of delays to runway opening. By contrast, IAG has consistently supported an approach that minimises spending on early Category C costs, highlighting the risks that HAL’s DCO application might not be successful and that in these circumstances early Category C expenditure would have been wasted and would provide no benefits for consumers. Other airlines have emphasised the importance of cost effective delivery, but also acknowledged the importance of not unduly delaying capacity expansion.
- 1.17 In response to the July 2019 Consultation, Heathrow West said that the escalation in HAL’s forecast costs is deeply alarming and provided evidence that HAL will be unable to implement airport expansion efficiently and effectively. It therefore suggested that the CAA should put an immediate stop to any Category C expenditure by HAL.

²³ IFS (2019), “Heathrow Expansion Programme Pre-DCO Category C Expenditure Scenarios: IFS Supplementary Paper – Scenarios 2a and 3a”, October 2019.

Scenario 1

- 1.18 HAL's Submission indicated that Scenario 1 would deliver the greatest consumer value. It has subsequently:
- acknowledged that Scenario 1 is a challenging schedule which requires notable pace and momentum; and
 - highlighted that this scenario has been developed to unlock the benefits of the scheme at the earliest opportunity.
- 1.19 Scenario 1 has been vigorously opposed by IAG, which has raised significant concerns around the scale of sunk costs under this scenario.

Scenarios 2 and 2a

- 1.20 HAL prefers Scenario 1 to Scenario 2 or 2a on the basis that Scenario 1 would deliver new capacity sooner. Airlines presented mixed views on Scenarios 2 and 2a. IAG said that Scenario 2 includes an unacceptable amount of early Category C spending. Other airlines said that Scenario 2a represented a realistic and achievable schedule. They considered this would deliver capacity expansion as soon as practicable, with a realistic programme schedule that does not distort decision making and expectations.

Scenarios 3 and 3a

- 1.21 HAL did not support Scenario 3 and noted that the risk adjusted delivery dates would jeopardise delivery by the end of 2030 and that this may not be consistent with the requirements of the NPS. Airlines also noted this and requested the development of Scenario 3a, which modified Scenario 3 by allowing higher levels of early Category C costs, consistent with allowing for delivery before the end of 2030.
- 1.22 IAG supported a scenario akin to Scenario 3a as it considered that this was the only approach proposed by HAL that minimised early Category C costs. IAG highlighted the risks and disadvantages associated with sunk costs. Nonetheless, it also said that Scenario 3a implied a rapid increase of activity later in the programme, which could entail additional risk. To address this concern, IAG suggested that a better approach might be to substantially revise

Scenario 2 and seek further efficiencies in early Category C spending, while maintaining a measured approach to construction activities and the timetable.

CAA analysis and assessment

- 1.23 We have been presented with a broad range of evidence and views from a range of stakeholders on the scenarios for early Category C costs. To help inform our judgment on which scenario would be best for consumers, we have developed an analytical framework to inform, along with other considerations, an assessment of the relative merits of the scenarios.
- 1.24 HAL's scenarios represent different trade-offs between higher early Category C costs on the one hand, and likely later delivery of the runway opening on the other. We have consistently said that the timely delivery of capacity expansion is required to prevent future consumers experiencing higher airfares, reduced choice and lower service quality. Later delivery of runway expansion would, therefore, imply that consumer benefits will be lower in the medium term as the benefits of expansion will not accrue to passengers until later. On the other hand, a greater level of spending on early Category C costs (which, other things being equal, would promote more timely delivery) risks there being substantial sunk costs if HAL is not able to obtain a DCO. HAL is seeking comfort that it can recover its early Category C costs through airport charges and airlines would seek to recover these costs from consumers in setting airfares, thereby creating a risk for consumers.
- 1.25 It would be more straightforward to assess the relative merits of the scenarios if we knew the probability of a successful DCO application. However, given wider uncertainties and the nature of the decision-making process, it is not practicable for us to develop a robust estimate of this probability. Therefore, rather than attempt to estimate an explicit probability that HAL's DCO application will be successful, we have estimated "break even" probabilities. These are the probability of a successful DCO application that would mean consumers would be (in terms of this stylised analysis) indifferent between the different scenarios for early Category C costs. We commissioned FTI Consulting to support us in developing this analysis.

Consumer benefits associated with expansion

- 1.26 A key input to this assessment is the consumer benefits associated with expansion. We acknowledge the inherent difficulty in precisely quantifying the value of consumer benefits. Nonetheless, a number of potential reference points exist (as summarised in Appendix C) and our assessment of this information has led us to conclude that, although the magnitude of benefits is uncertain, they are likely to be significant.
- 1.27 Bearing in mind the uncertainty of these estimates (and the desirability of avoiding sunk costs), we have focused on lower quartile estimates of consumer benefits. Nonetheless, this still implies estimates of consumer benefit in the range £0.9 billion to £2.5 billion per year (2018 prices). We consider that these represent relatively conservative estimates given the range of plausible estimates that have been put forward.

Analytical framework to inform our assessment

- 1.28 For the purposes of this stylised analysis we have used Scenario 1 as a baseline and expressed “break even” probabilities by reference to this scenario. This break even probability represents the probability of a successful DCO application that would make consumers indifferent between the choice of Scenario 1 and the scenario under consideration. With all other things being equal, a lower break even probability implies that Scenario 1 is more attractive.
- 1.29 The breakeven probability for a particular scenario, p^* , is estimated using the following formula:

$$\frac{-\Delta C_1}{\Delta(C_1 + C_2) + \Delta B}$$

Where:

$-\Delta C_1$ is the difference in early Category C costs between this scenario and Scenario 1;

$\Delta(C_1 + C_2)$ is the difference in total Category C costs between this scenario and Scenario 1; and

ΔB is the difference in consumer benefits associated with expansion between this scenario and Scenario 1.

1.30 While this analysis takes account of both the benefits to consumers of early delivery and the possibility of sunk costs, it has a number of very significant limitations. These include:

- it assumes all sunk costs are passed to consumers, even if in practice some of these costs might be absorbed by airlines;
- it assumes that the timetable for delivery of the runway under each scenario is broadly equally likely to be achieved, while there is some evidence to suggest already that there are very significant challenges associated with meeting the timetable under some scenarios;
- it assumes that the costs incurred under each scenario would be efficiently incurred. However, scenarios implying a much quicker increase in spending may be more likely to raise concerns about the efficiency of the expenditure;
- it does not take account of the value of being able to take account of new information that may emerge between now and the decision on HAL's DCO application. In particular, if information were to emerge increasing confidence in the overall programme, it would be appropriate to consider whether early spending should be increased or, if information emerged reducing confidence in overall programme, spending could be curtailed (beyond what has already been incurred) or halted;
- as noted above, it provides no additional information on the probability that HAL will be granted a DCO and will proceed with the expansion programme.

1.31 Nonetheless, the analysis suggests the following breakeven probabilities set out in Table 1.1.

Table 1.1: Summary of the breakeven probabilities for different estimates of foregone consumer benefit per annum: IFS adjusted scenarios

	Early Category C costs	Risk adjusted opening date	Scenario preferred to S1 at P*			
			Foregone consumer benefit p.a. = £0.9bn		Foregone consumer benefit p.a. = £2.5bn	
			Min	Max	Min	Max
S1: base	£2.4bn	Dec-28				
S2a: base + 1yr	£1.6bn	Aug-29	32%	52%	16%	33%
S3a: 2030	£1.0bn	Aug-30	0%	32%	0%	16%

Source: CAA analysis

- 1.32 This analysis implies that, under reasonable assumptions for consumer benefits, Scenario 1 (high early spend) would be preferred by consumers, where the probability of success is greater than the range 33%-52%, but subject to the limitations discussed above.
- 1.33 Table 1.2 below summarises the CAA's assessment of the advantages and disadvantages of each scenario in terms of the stylized analysis discussed above.

Table 1.2: CAA assessment of scenarios

	Advantages	Disadvantages
Scenario 1	Estimated to deliver the highest consumer net benefits where the probability of a successful DCO application exceeds 33%-52%.	Concerns raised by the IFS regarding deliverability of 2026 target date. Presents significant challenges regarding efficiency assessment of relatively large quantum of early Category C costs.
Scenario 2a	The IFS notes that this scenario supports a reduced risk to the schedule for the delivery of	Preferred by consumers only when there is significant uncertainty with respect to HAL's DCO application.

	Advantages	Disadvantages
	expansion compared to other scenarios. May be a more proportionate approach than Scenario 1 given efficiency challenges.	
Scenario 3	Lowest risk of consumers being exposed to sunk costs among all the scenarios considered.	Does not comply with the NPS 2030 deadline once the risk to the schedule for the delivery of expansion is considered and so not clear it is in the interests of consumers.
Scenario 3a	Improves on Scenario 3 by ensuring compliance with NPS 2030 deadline. Lower risk of consumers being exposed to sunk costs than all scenarios other than Scenario 3.	Would only be consistent with the interests of consumers if the probability of a successful DCO application were very low.

Source: CAA analysis

CAA conclusions on the preferred scenario

1.34 Bearing in mind the limitations on our analysis discussed above, it is appropriate to consider all the information that is available to inform our decision on which scenario that would be best in the interests of consumers. Also, given that:

- we cannot at this stage know the probability of HAL making a successful DCO application;
- the current level of uncertainty generally; and
- the ability to adjust the chosen scenario in due course

it is also appropriate to retain significant flexibility for the future. So, any scenario that we choose at this stage is a choice designed to guide the programme over the coming months rather than an attempt artificially to constrain the appropriate approach to capacity expansion over the next two years.

1.35 While there are advantages in an approach that seeks to maximise momentum in the programme for the delivery of expansion, there are a number of factors

that suggest a more balanced approach taking account of other factors would be appropriate. These include:

- while Scenario 1 is preferred to Scenario 2a if the probability of a successful DCO application is relatively high, there remains uncertainty with respect to these matters;
- if there is greater certainty about the programme later (for instance after the next programme gateway (“M5”)), issues of timing and spending can be revisited;
- HAL has not been able to secure airline support for Scenario 1 and airlines have expressed concerns about the difficulties with Scenario 1 identified by the IFS. By contrast, there is some support for Scenario 2a from airline stakeholders (although IAG would prefer Scenario 3a);
- while HAL has said that Scenario 1 will lead to the lowest overall costs, it is not clear that this suggestion is consistent with IFS concerns about the sharp increase in activity that is associated with Scenario 1. A more measured approach to spending may promote more efficient outcomes;
- Scenario 2a is expected to deliver capacity expansion only eight months later than Scenario 1, in return for an expected reduction in early Category C costs, and associated risk, of about £800 million; and
- given the inherent challenges associated with assessing the efficiency of early Category C costs discussed in detail in Chapter 2, Scenario 2a may be a more proportionate approach than Scenario 1.

1.36 Our analytical approach indicates that Scenario 2a would also currently be preferred by consumers to each of Scenario 3 and Scenario 3a unless the probability of HAL being granted a DCO were to be very low. On balance, we consider that Scenarios 3/3a are unlikely to be in the interests of consumers given the additional delay to the delivery of capacity expansion implied by them.

1.37 We also note (as shown in Table 1.3) that HAL’s spending projections under Scenario 2 for the first half of 2020 (the period including the M5 programme gateway) only represent a relatively modest increase over the projections of spending for Scenario 3. While HAL has not provided the corresponding data for

Scenarios 2a and 3a, we do not expect that the pattern of spending would be substantially different during the first half of 2020. A programme of early costs corresponding to Scenario 2a should therefore result in only modest additional expenditure during the first half of 2020, during which new information should emerge from HAL's next main programme gateway (M5).

Table 1.3: Summary of HAL's projections of spending in 2020

		Q1 2020	Q2 2020	Q3 2020	Q4 2020
S1 HAL	Costs	90	125	240	250
	Contingency	225			
	Total	930			
S2 HAL	Costs	35	40	55	60
	Contingency	60			
	Total	250			
S3 HAL	Costs	30	30	30	30
	Contingency	45			
	Total	165			

Source: Information provided by HAL.

- 1.38 Taken in the round, the assessment and analysis above suggests that Scenario 2a is currently the best approach in the interest of consumers. Nonetheless, setting this initial direction for the envelope of early Category C costs does not preclude us from revising this view as further information becomes available. Our policy proposals in chapter 2 outline our plans for governance arrangements that will allow us to take account of any significant new information that emerges, where this indicates that a change in the broad approach to early costs would be in the interests of consumers.