
Cost and Commercial Viability: Additional Sensitivities

.....
Airports Commission

July 2015

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Important notice

This document has been prepared for the Airports Commission in accordance with the terms of the Provision of Consultancy for Commercial, Financial and Economic Option Appraisal and Analysis (DfT) framework and the Contract Reference RM 2750 (650) dated 12th February 2014 and solely for the purpose and on the terms agreed with the Airports Commission within the Project Inception Document reference 13.5 dated 19 January 2015. We accept no liability (including for negligence) to anyone else in connection with this document.

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Scope and context

The Airports Commission (AC), an independent commission, was established in 2012 by the UK Government to consider how the UK can maintain its status as an international hub for aviation in response to increasing concern over existing and future capacity requirements. Since September 2012, the AC has considered and evaluated a variety of options for meeting the UK's international connectivity needs, the results of which were outlined in the AC's Interim Report published in December 2013. The Interim Report outlined three firm short-listed options (one option for an additional runway at Gatwick and two options relating to an additional runway at Heathrow). In addition, the option for a new airport development located within the Inner Thames Estuary was considered further by the AC, with a decision made in September 2014 to not include this in the shortlist. The AC's public consultation on its assessment of the three short listed schemes opened in November 2014 and closed in February 2015.

The AC's consultation on its assessment of the three schemes opened in November 2014. As part of this assessment, the Cost and Commercial Viability workstream considered the Funding and Financing of the proposed schemes. At a high level, it considered the overall cost of the commercial propositions inclusive of financing and funding for the schemes.

A range of possible financial results across a variety of scenarios and sensitivities was used to inform the Cost and Commercial Viability assessment. This range reflects the inherent uncertainty in predicting a solution for a project expecting to be operational in the mid-2020s. This includes uncertainty over the underlying cost assumptions, financing structure and financial assumptions. For this reason, a range of possible results, has been explored as part of the analysis rather than a single solution.

This range has been explored further in this Cost and Commercial Viability: Additional Sensitivities ("the Additional Sensitivities report") by determining the impact on each of the three schemes of an additional array of sensitivities and scenarios. The results from these sensitivities and scenarios have been presented within this report in support of the wider Cost and Commercial viability workstream.

For each of the short listed schemes, the Scheme Promoters (SPs) produced forecasts of the costs and non-aeronautical revenues for their scheme. However, the AC has undertaken its own independent cost and revenue analysis as part of its assessment. This analysis includes provision for optimism bias, in accordance with HM Treasury guidance on investment appraisal. This has resulted in higher costs and hence higher levels of forecast finance being required. A number of the sensitivities herein examine the impact of changing the optimism bias assumptions.

Following consultation, the AC has determined a number of further sensitivities to be run to determine the impact on each of the three schemes of further variations in possible assumptions and scenarios. The results from these additional sensitivities have been presented within this report in support of the Cost and Commercial Viability assessment as set out in the final report and Financial and Commercial case.

This report is split into sections for each of the three schemes as follows:

- **Section 1:** Gatwick Airport Second Runway (LGW 2R);
- **Section 2:** Heathrow Airport Northwest Runway (LHR NWR); and
- **Section 3:** Heathrow Airport Extended Northern Runway (LHR ENR).

Each scheme section provides a table summarising the results for all sensitivities and scenarios for that scheme followed by key data for each. The assessment period for the analysis contained within this report is from 2014 to 2050 (inclusive calendar years) as instructed by the AC. Note that this report only includes sensitivities and scenarios run in addition to those incorporated in other reports (including, for example, Cost and Commercial Viability: Funding and Financing Update). A number of the sensitivities run reflect the different characteristics of each scheme. While the majority of additional sensitivities have been tested against the schemes, some reflect consultation responses on specific schemes.

1 Gatwick Airport Second Runway

1.1 Summary of results

Table 1 shows the impact of each sensitivity on the key outputs, namely the weighted average aeronautical charge (and the peak aeronautical charge for reference), the maximum increase and peak debt and the maximum increase and peak equity. A number of the sensitivities are based of the AoN-CC demand scenario. This is for ease of reference and for the avoidance of doubt, the AoN-CC demand scenario should not be considered as a central case.

Table 1: LGW 2R – Sensitivities summary

Section	Title	Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt	Peak debt outstanding	Maximum increase in equity (nominal)	Peak equity outstanding
1.2	LGW2R - AoN-CC	£15.96	£20.00	£10.0bn	£11.5bn	£2.4bn	£2.7bn
1.3	LGW2R - AoN-CC: 20% scheme optimism bias	£16.55	£20.82	£10.4bn	£11.9bn	£2.5bn	£2.8bn
1.4	LGW2R - AoN-CC: 0% optimism bias	£14.26	£17.63	£9.0bn	£10.5bn	£2.1bn	£2.5bn
1.5	LGW2R - AoN-CC: Reduced Scope	£15.85	£19.79	£9.8bn	£11.3bn	£2.3bn	£2.7bn
1.6	LGW2R - LCIK-CT: Reduced Scope	£13.90	£14.77	£10.2bn	£11.7bn	£3.2bn	£3.6bn
1.7	LGW2R - AoN-CC: Additional proposed £114m compensation	£16.26	£20.44	£10.0bn	£11.5bn	£2.4bn	£2.7bn
1.8	LGW2R - LCIK-CT: Revised PAX forecast and cost inputs	£14.16	£15.11	£10.4bn	£11.9bn	£3.2bn	£3.5bn
1.9	LGW2R - GAL: GAL PAX	£14.93	£16.91	£9.9bn	£11.4bn	£3.1bn	£3.4bn
1.10	LGW2R - AoN-CC: Underlying cost of debt @ 6.40%	£17.99	£22.77	£10.0bn	£11.6bn	£2.4bn	£2.7bn
1.11	LGW2R - AoN-CC: cost of equity @ 14.00%	£18.21	£23.07	£10.0bn	£11.6bn	£2.4bn	£2.7bn
1.12	LGW2R - AoN-CC: underlying cost of debt @ 6.40% and cost of equity @ 13.10%	£19.81	£25.25	£10.1bn	£11.6bn	£2.4bn	£2.7bn
1.13	LGW2R - AoN-CC: Pre-funding	£15.90	£19.85	£9.9bn	£11.4bn	£2.3bn	£2.7bn
1.14	LGW2R - AoN-CC: Operational funding	£18.38	£26.44	£9.3bn	£10.9bn	£4.9bn	£5.2bn

Sources: Financial models

The following sections provide more detailed information on the results from each sensitivity.

1.2 LGW 2R – AoN-CC

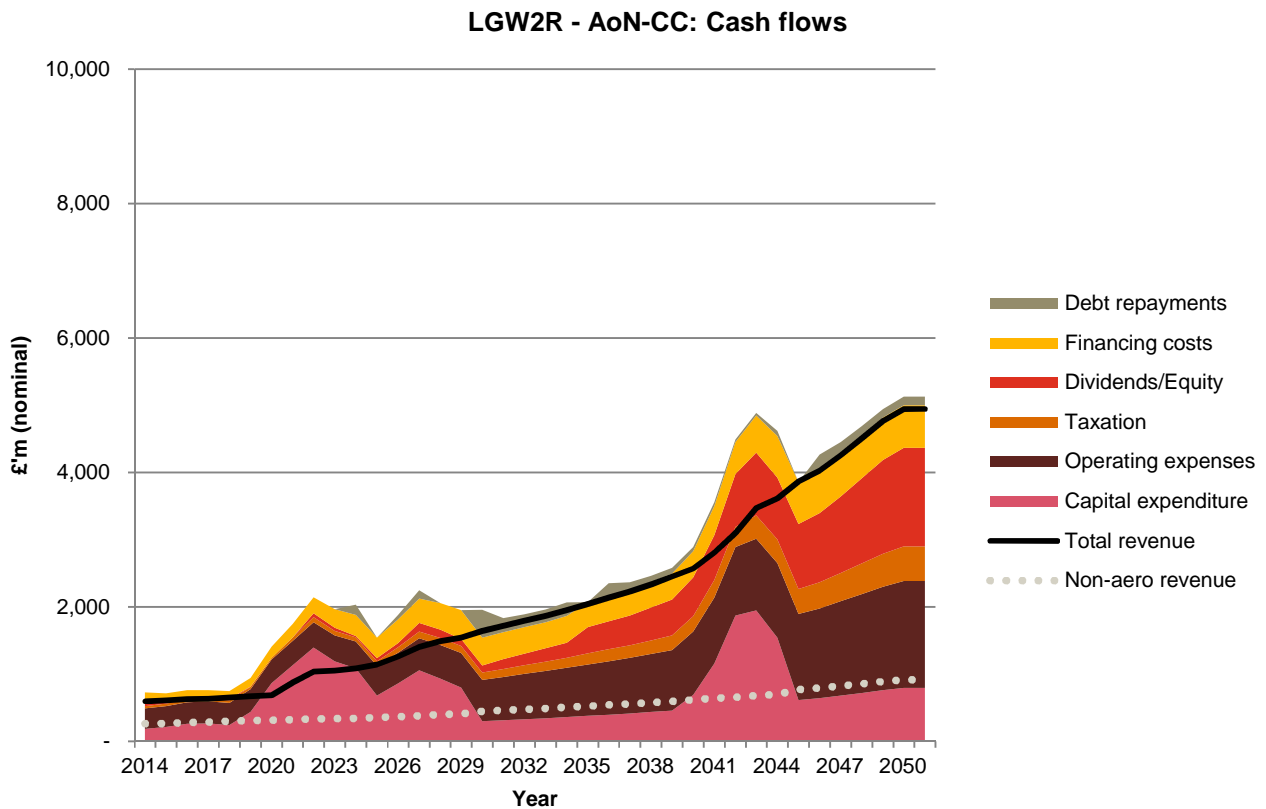
Summary: This is the LGW 2R AoN-CC scenario as set out in the Cost and Commercial Viability: Funding and Financing Update report.

This is a duplicated to give the reader a reference from which to reflect on the other sensitivities covered in this section.

Table 1: LGW 2R – AoN-CC: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£15.96	£20.00	£10.0bn	£11.5bn	£2.4bn	£2.7bn

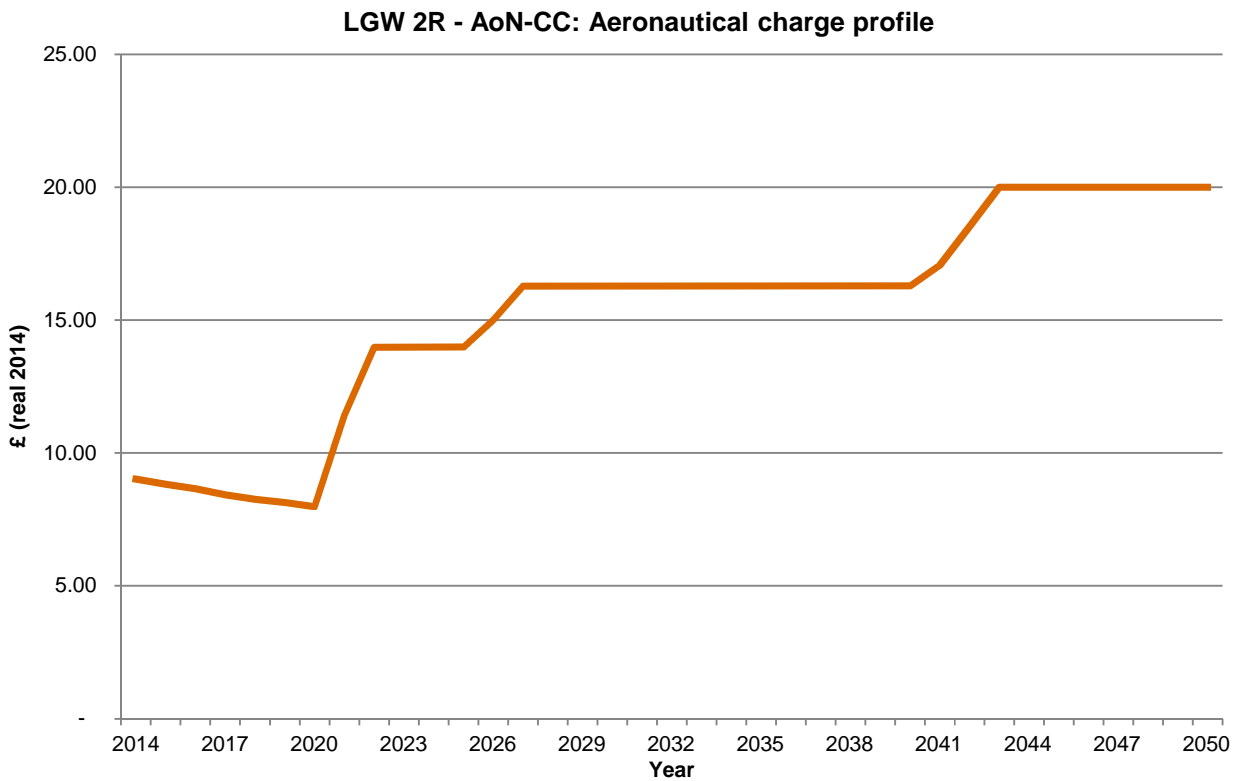
Chart 2: LGW 2R – AoN-CC: Cash flows



Sources: Financial models

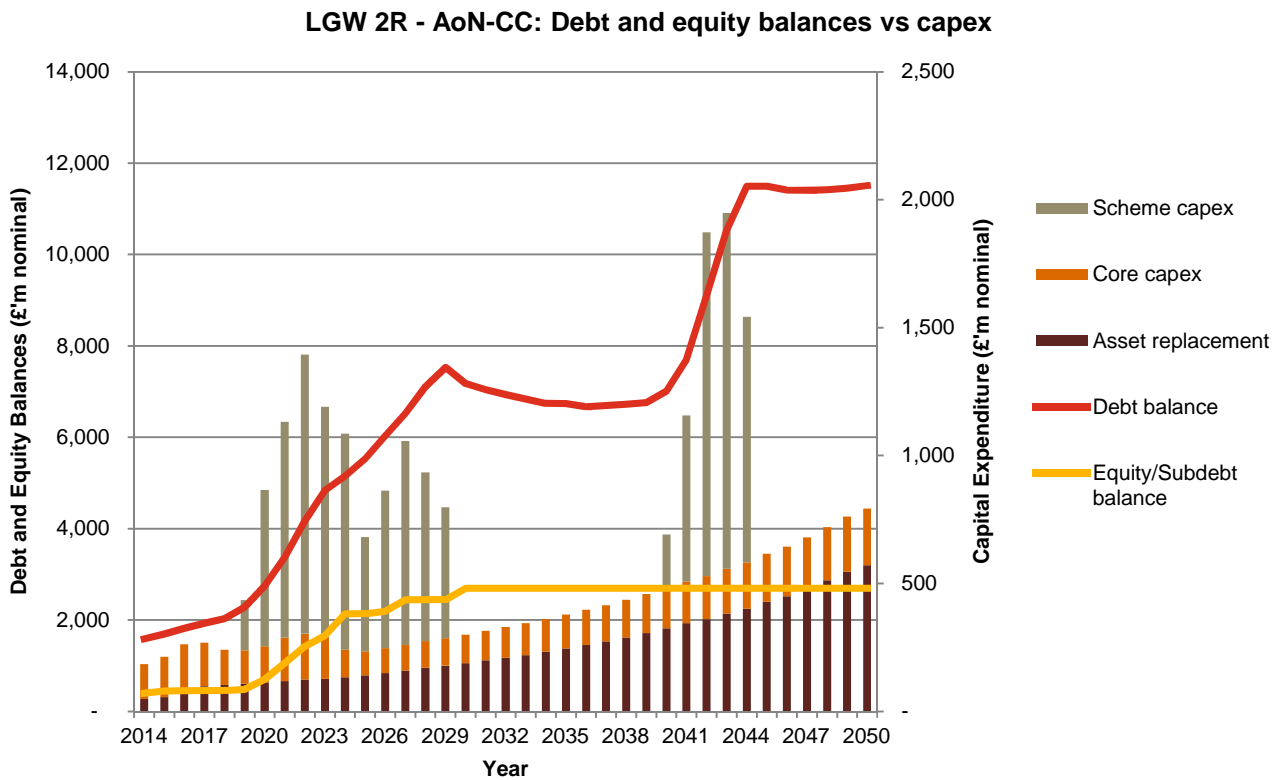
Cost and Commercial Viability: Additional Sensitivities

Chart 3: LGW 2R – AoN-CC: Aeronautical charge profile



Sources: Financial Models

Chart 4: LGW 2R – AoN-CC: Debt and equity balances vs capex



Sources: Financial Models

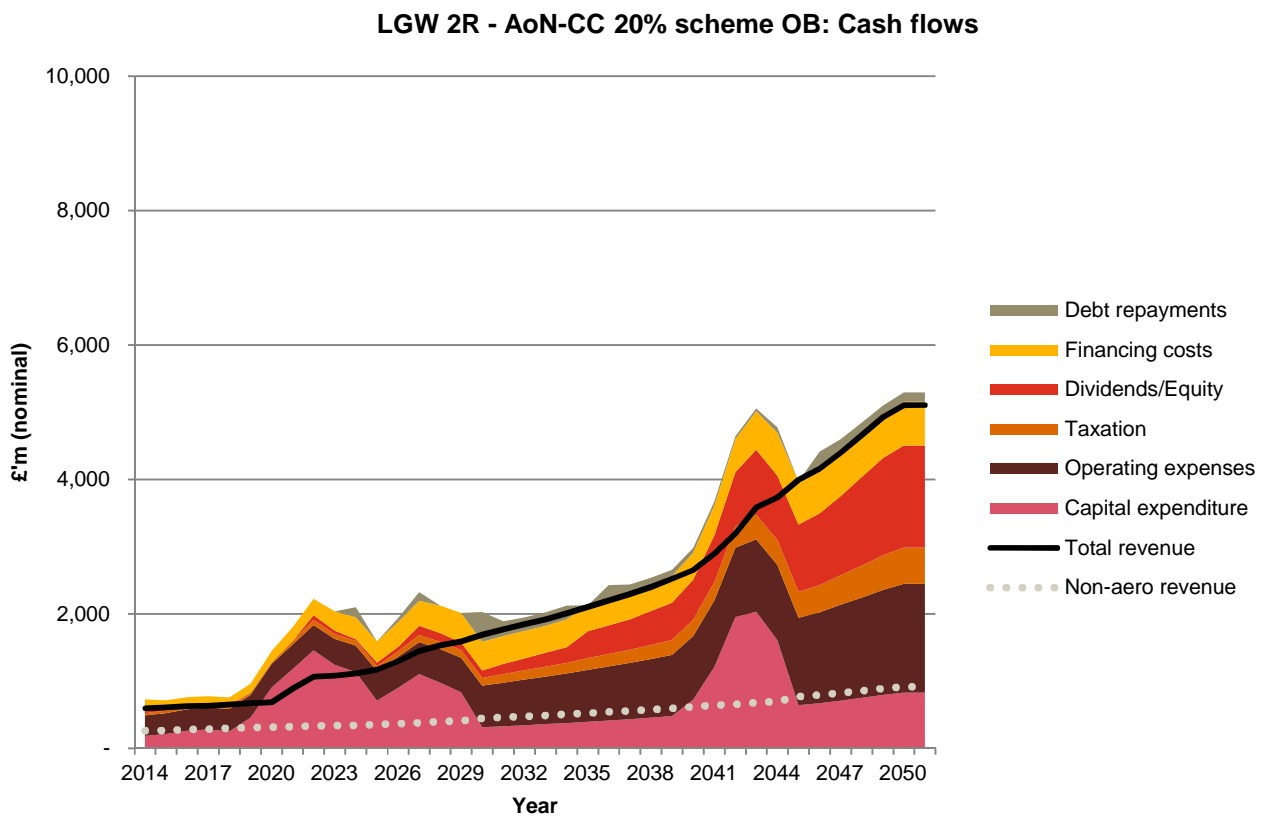
1.3 LGW 2R – AoN-CC: 20% scheme optimism bias

Summary: The sensitivity shows the financial analysis for the LGW 2R scheme under the same assumptions for optimism bias as were adopted at consultation stage. At consultation, 20% optimism bias was applied to scheme and asset replacement capex and opex. This was reduced to 15% for the final report with equivalent 5% reduction on core capex. Full details of the changes to optimism bias are set out in the Cost and Commercial Viability: Additional Analysis report, section 1.

Table 2: LGW 2R – AoN-CC 20% scheme OB: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£16.55	£20.82	£10.4bn	£11.9bn	£2.5bn	£2.8bn

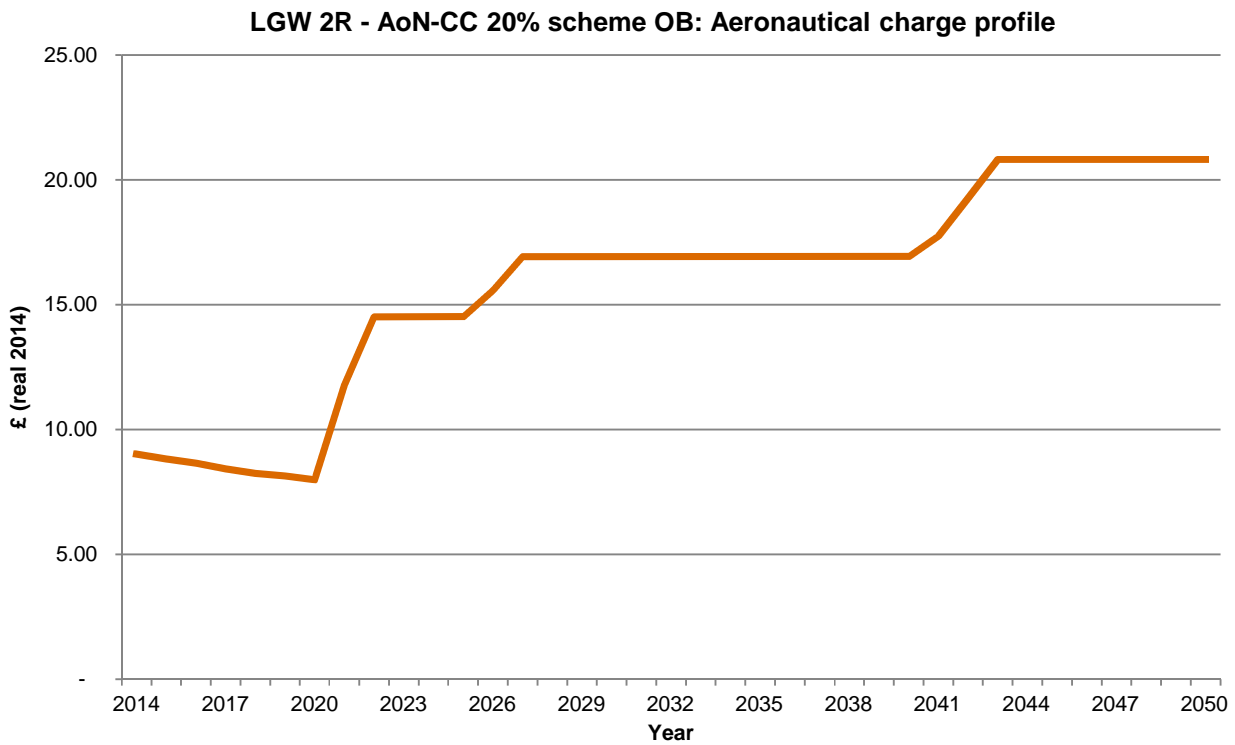
Chart 5: LGW 2R – AoN-CC 20% scheme OB: Cash flows



Sources: Financial models

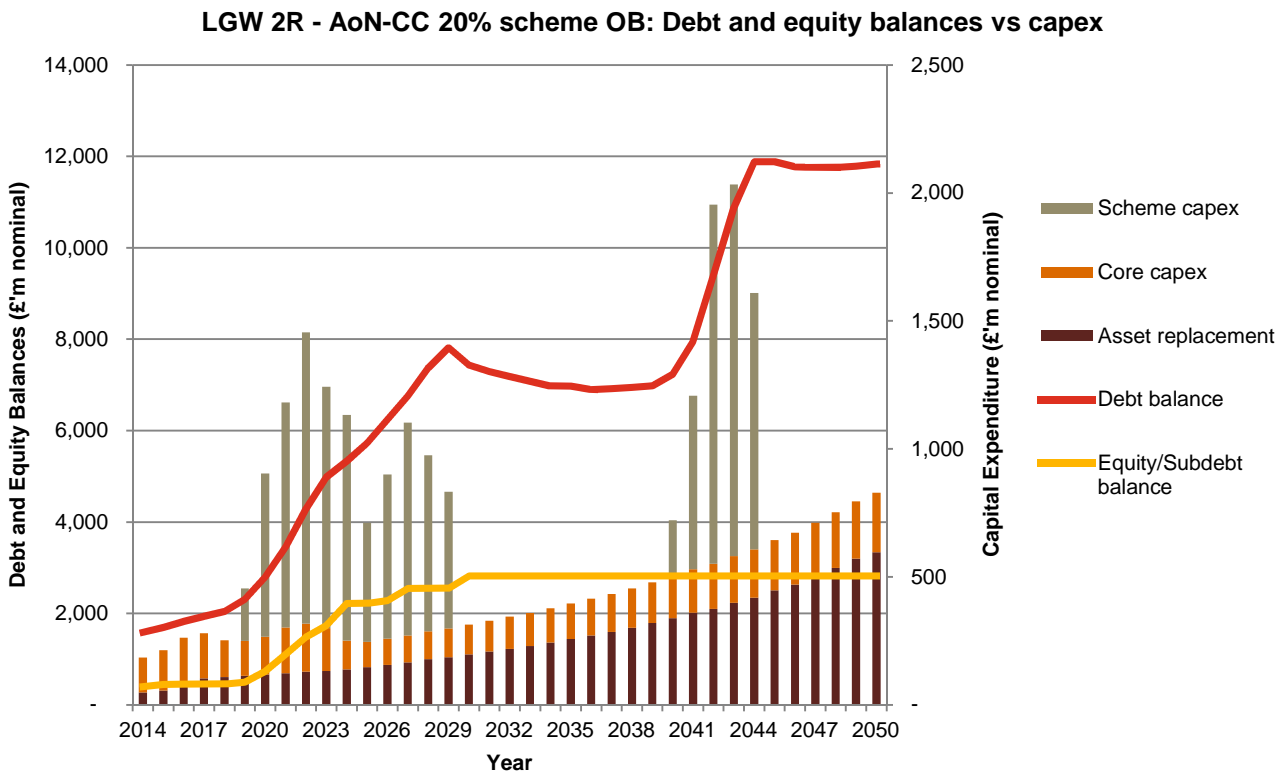
Cost and Commercial Viability: Additional Sensitivities

Chart 6: LGW 2R – AoN-CC 20% scheme OB: Aeronautical charge profile



Sources: Financial Models

Chart 7: LGW 2R – AoN-CC 20% scheme OB: Debt and equity balances vs capex



Sources: Financial Models

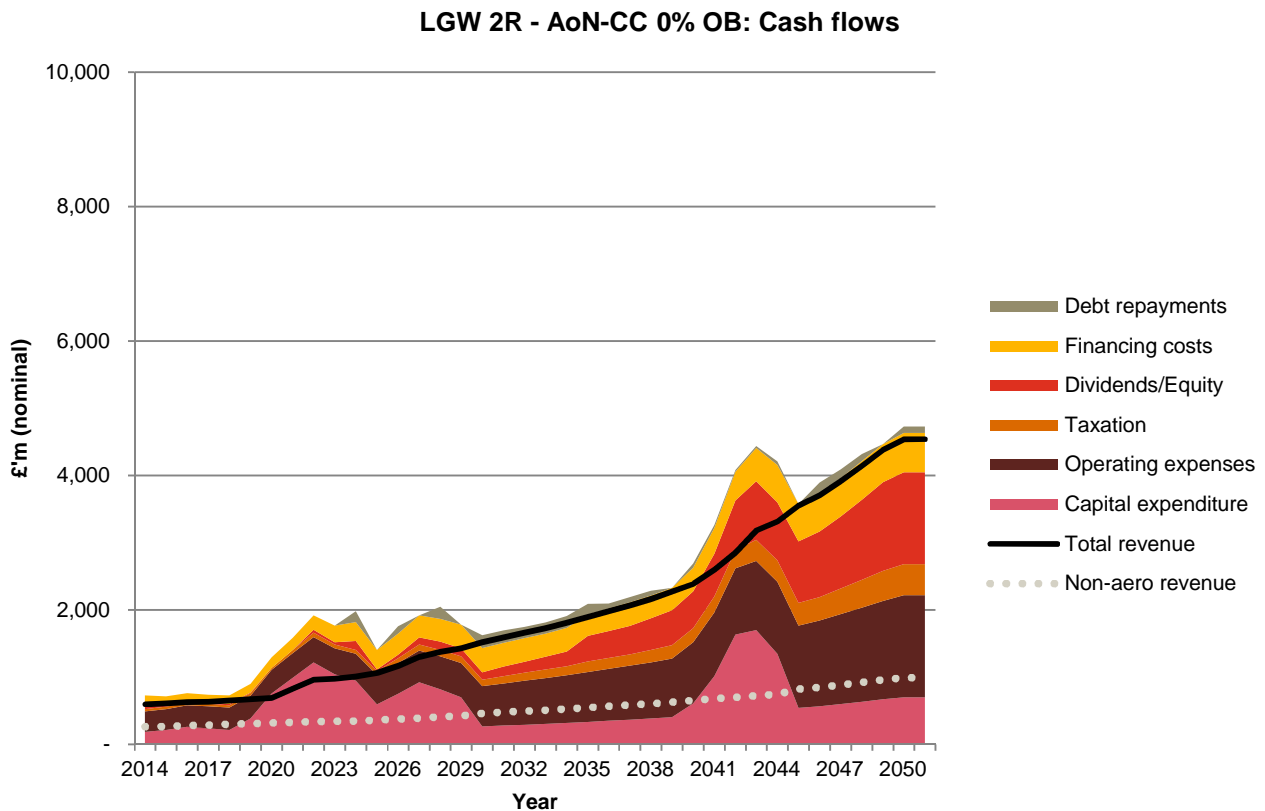
1.4 LGW 2R – AoN-CC: 0% optimism bias

Summary: This sensitivity shows the financial analysis for the LGW 2R scheme with optimism bias allowances removed completely for all capital expenditure, operating costs and non-aeronautical revenues. It is intended to show the potential costs in terms of aeronautical charges and financing requirements if the airport operator were to be able to achieve out turn cost without demonstrating a tendency to be optimistic in their assessment. It represents the low end of the range of cost outcomes the Commission has used in its Cost and Commercial Viability assessment.

Table 3: LGW 2R – AoN-CC 0% OB: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£14.26	£17.63	£9.0bn	£10.5bn	£2.1bn	£2.5bn

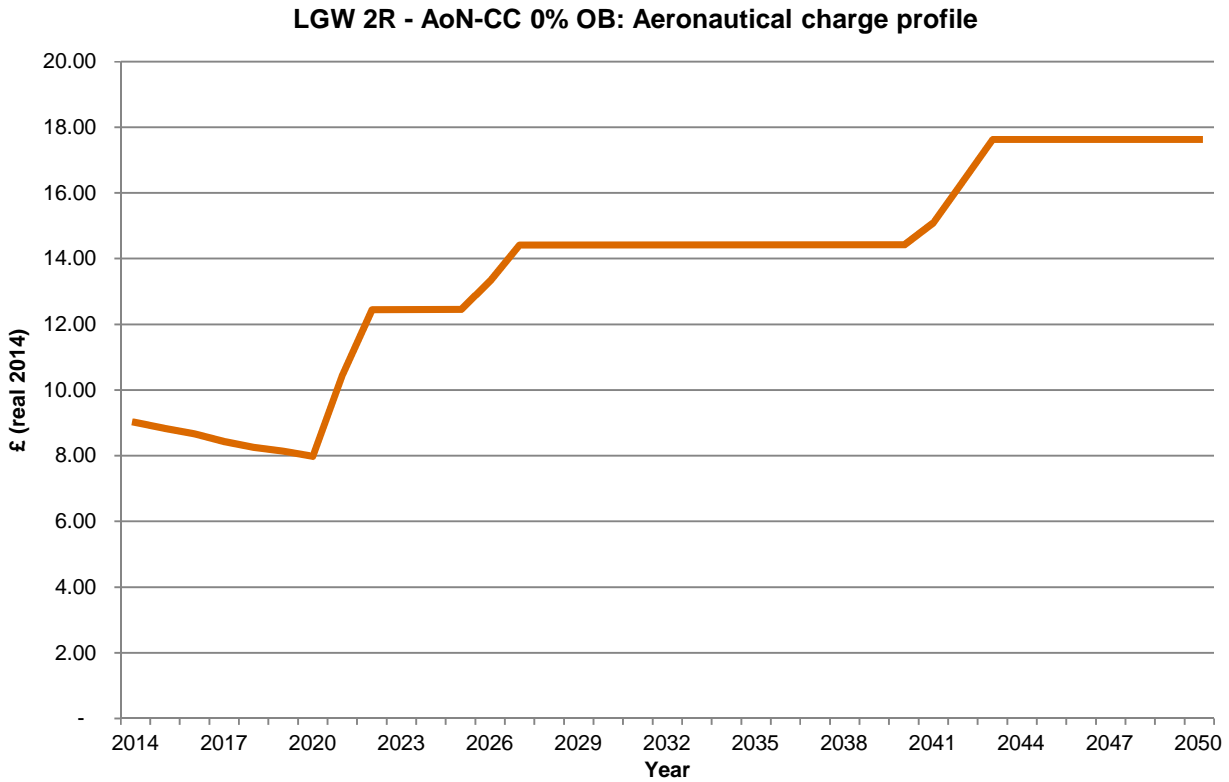
Chart 8: LGW 2R – AoN-CC 0% OB: Cash flows



Sources: Financial models

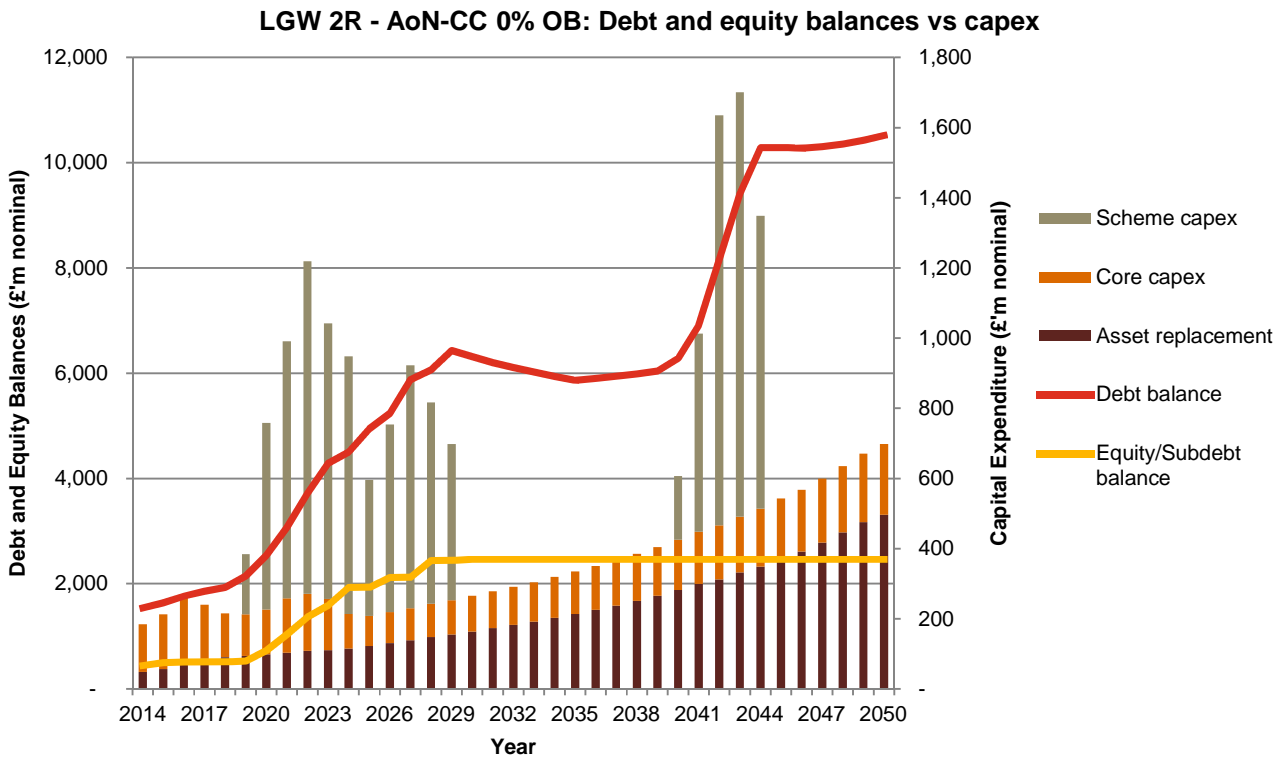
Cost and Commercial Viability: Additional Sensitivities

Chart 9: LGW 2R – AoN-CC 0% OB: Aeronautical charge profile



Sources: Financial Models

Chart 10: LGW 2R – AoN-CC 0% OB: Debt and equity balances vs capex



Sources: Financial Models

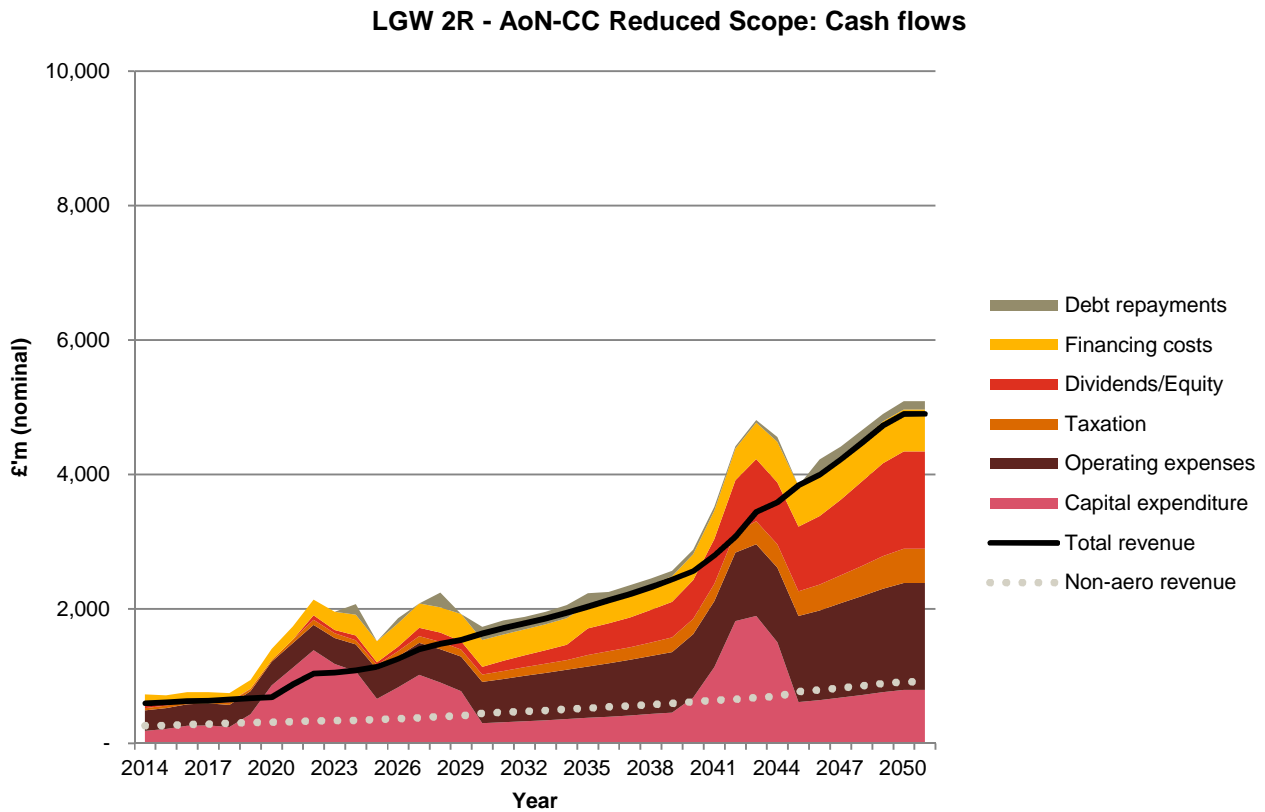
1.5 LGW 2R – AoN-CC: Reduced Scope

Summary: This sensitivity shows the LGW 2R AoN-CC scenario with reduced costs based on a de-scoped solution with the potential implications on passenger experience, as set out in the Cost and Commercial Viability: Reduced Scope Scenarios Costs report. The sensitivity considers the financing implications were this reduced scope option to be the basis of the scheme delivered.

Table 4: LGW 2R – AoN-CC Reduced Scope: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£15.85	£19.79	£9.8bn	£11.3bn	£2.3bn	£2.7bn

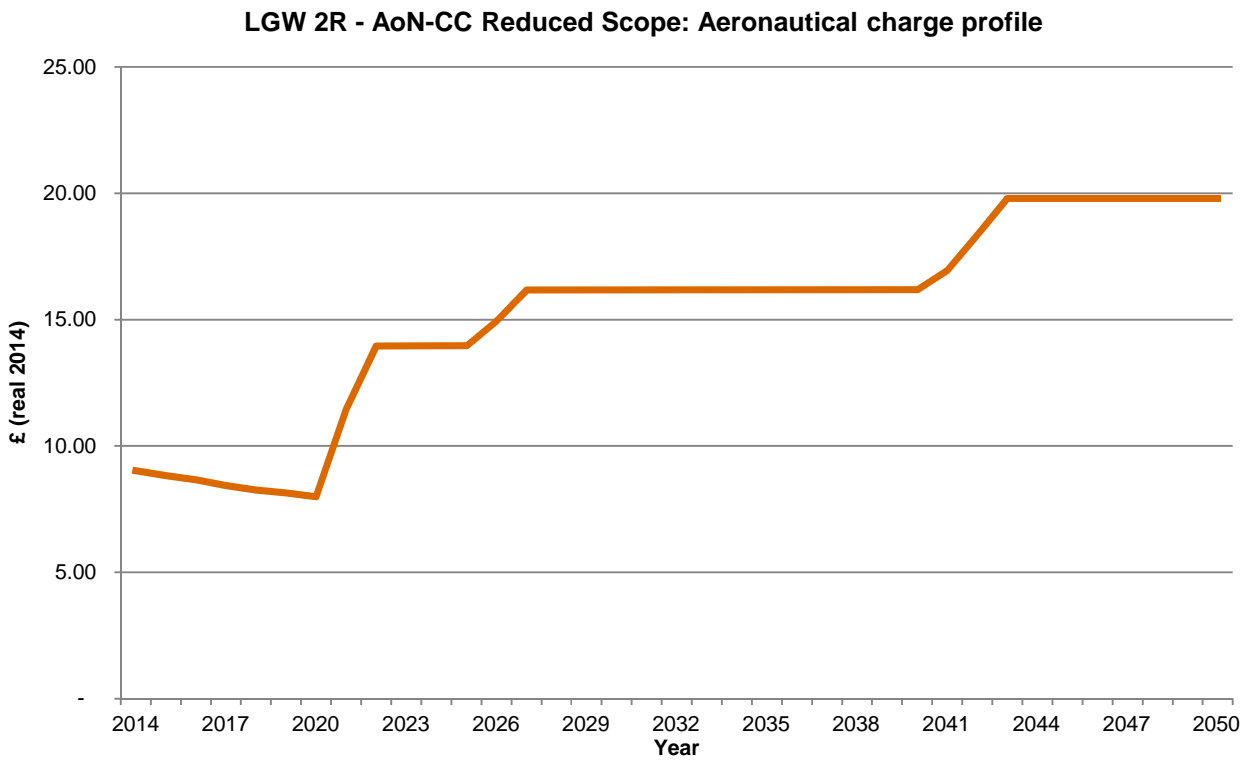
Chart 11: LGW 2R – AoN-CC Reduced Scope: Cash flows



Sources: Financial models

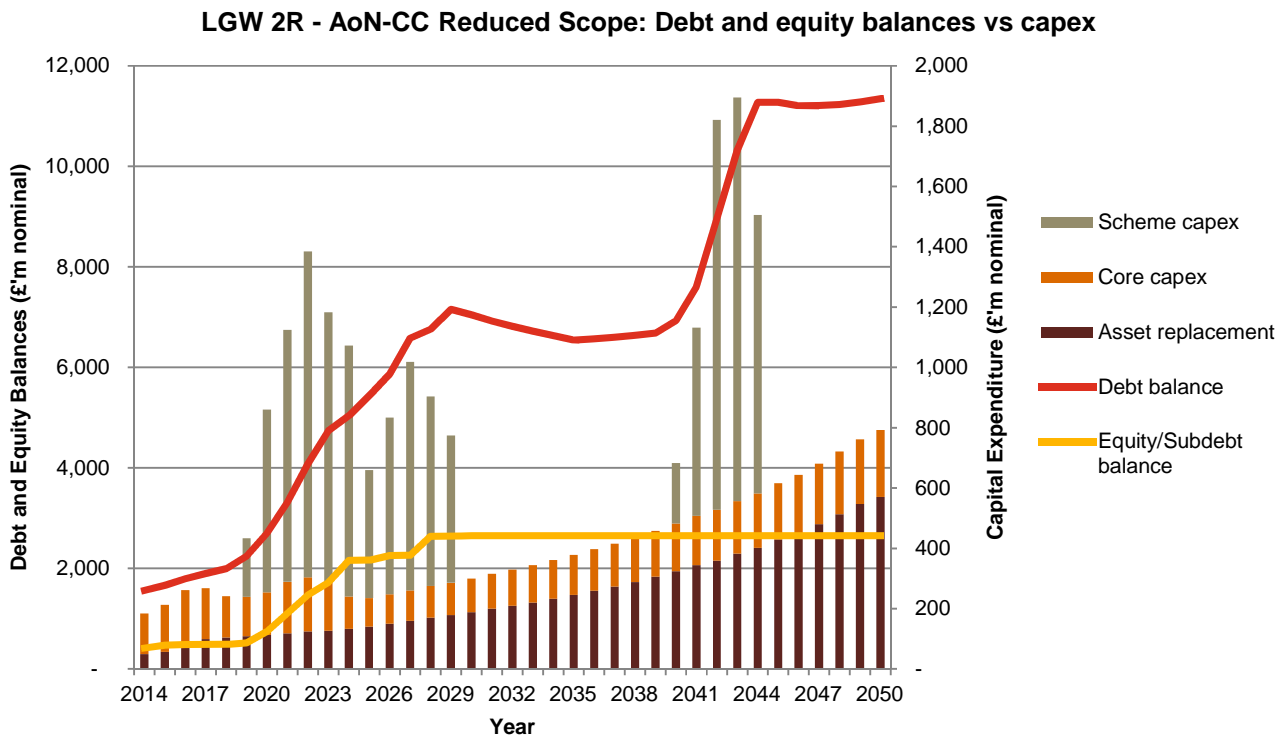
Cost and Commercial Viability: Additional Sensitivities

Chart 12: LGW 2R – AoN-CC Reduced Scope: Aeronautical charge profile



Sources: Financial Models

Chart 13: LGW 2R – AoN-CC Reduced Scope: Debt and equity balances vs capex



Sources: Financial Models

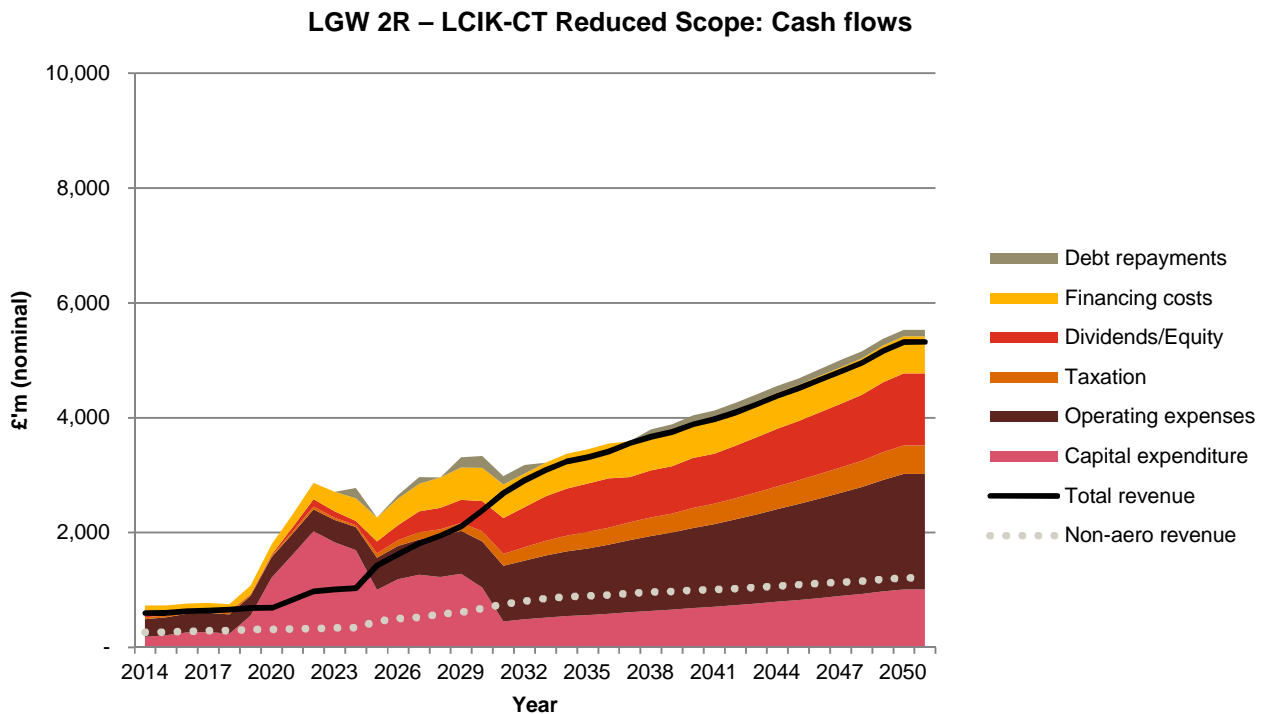
1.6 LGW 2R – LCIK-CT: Reduced Scope

Summary: This sensitivity shows the financial analysis for the LGW 2R scheme under the LCIK CT demand scenario where the full LGW 2R scheme is built, but using the reduced scheme capital expenditure as set out in the Cost and Commercial Viability: Reduced Scope Scenarios Costs report. The sensitivity considers the financing implications were this reduced scope option to be the basis of the scheme delivered.

Table 5: LGW 2R – AoN-CC LCIK-CT Reduced Scope: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£13.90	£14.77	£10.2bn	£11.7bn	£3.2bn	£3.6bn

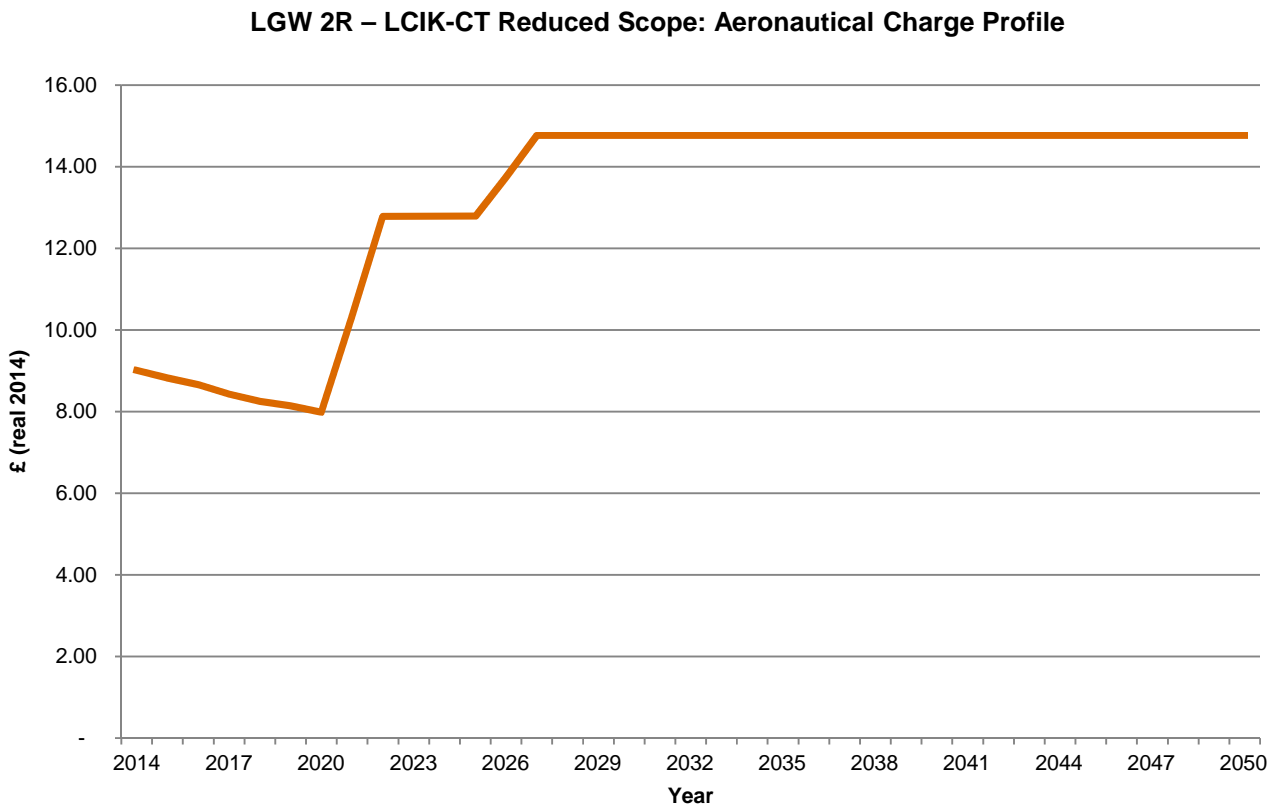
Chart 14: LGW 2R – LCIK-CT Reduced Scope: cash flows



Sources: Financial models

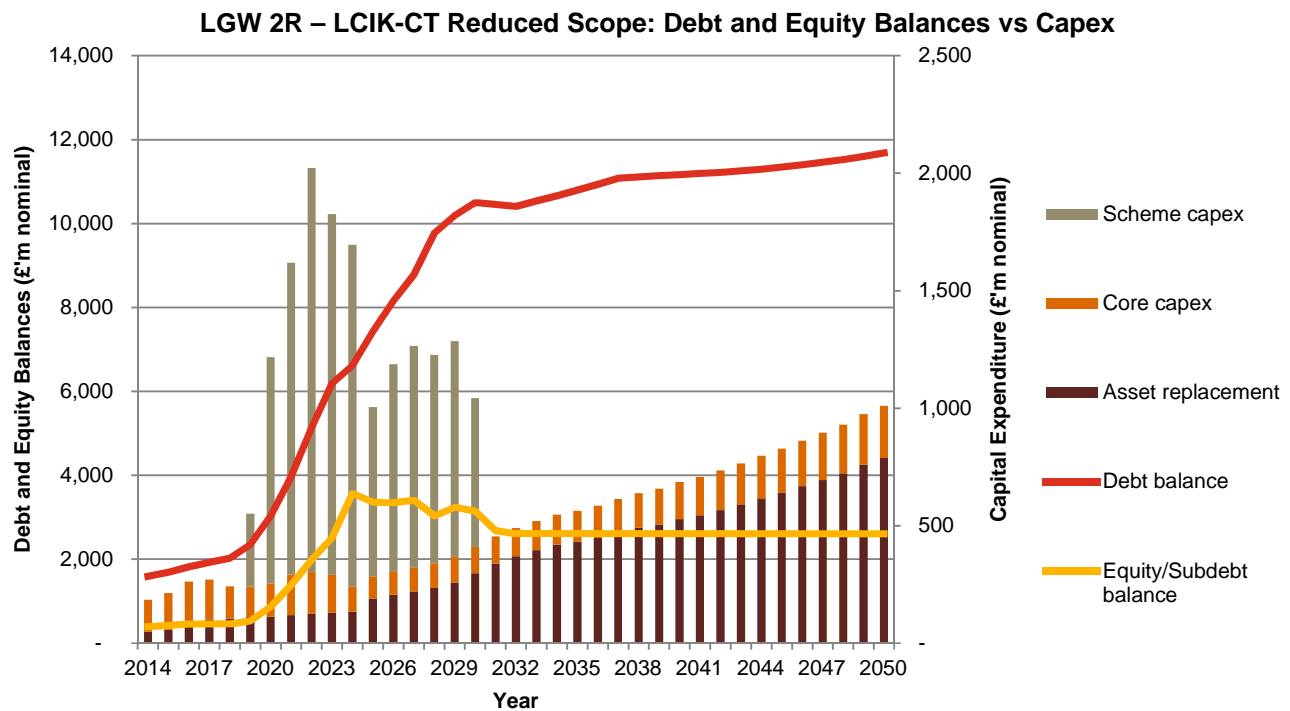
Cost and Commercial Viability: Additional Sensitivities

Chart 15: LGW 2R – LCIK-CT Reduced Scope: Aeronautical charge profile



Sources: Financial Models

Chart 16: LGW 2R – LCIK-CT Reduced Scope: Debt and equity balances vs capex



Sources: Financial Models

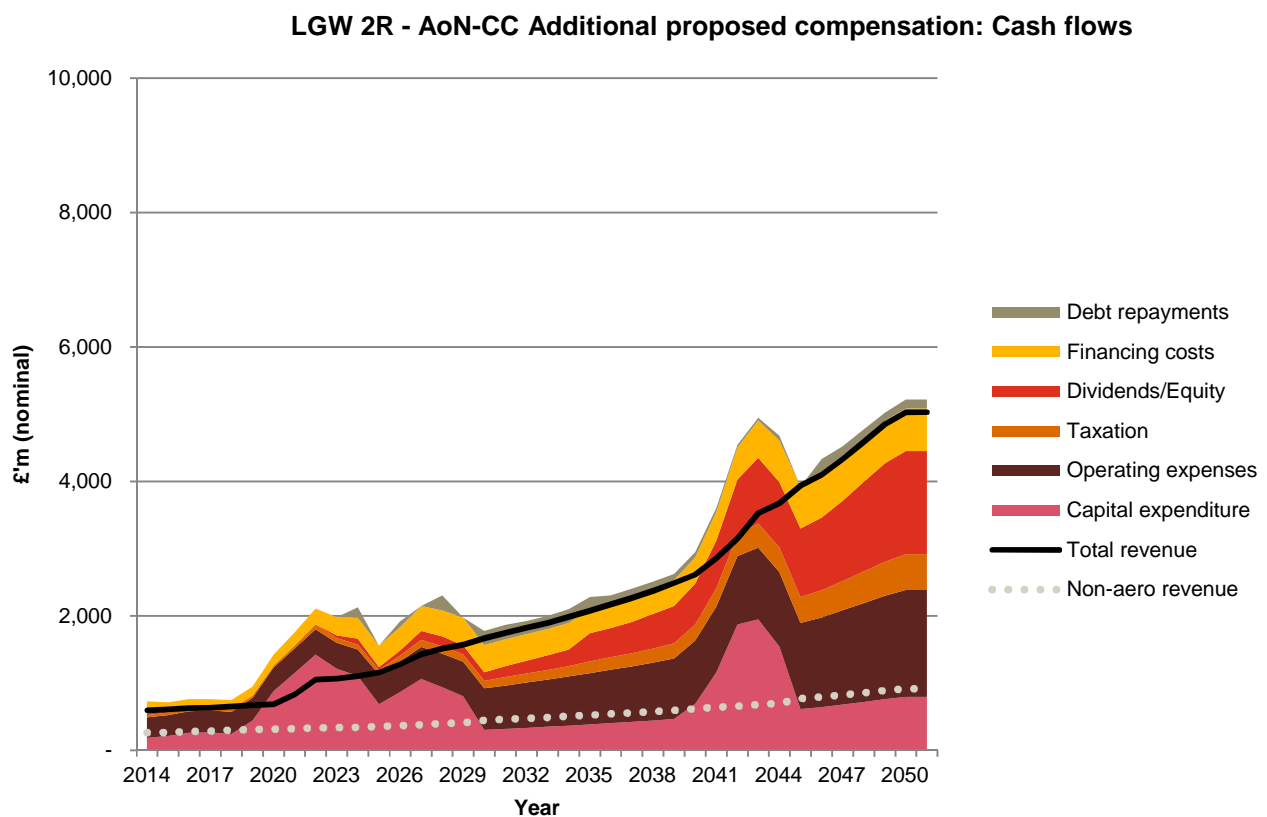
1.7 LGW 2R – AoN-CC: Additional proposed £114m compensation

Summary: This sensitivity shows the financial analysis for the LGW 2R scheme under a scenario for higher costs associated with community support and compensation, as set out in the Cost and Commercial Viability: Additional Analysis report, section 2.

Table 6: LGW 2R – AoN-CC Additional proposed £114m compensation: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£16.26	£20.44	£10.0bn	£11.5bn	£2.4bn	£2.7bn

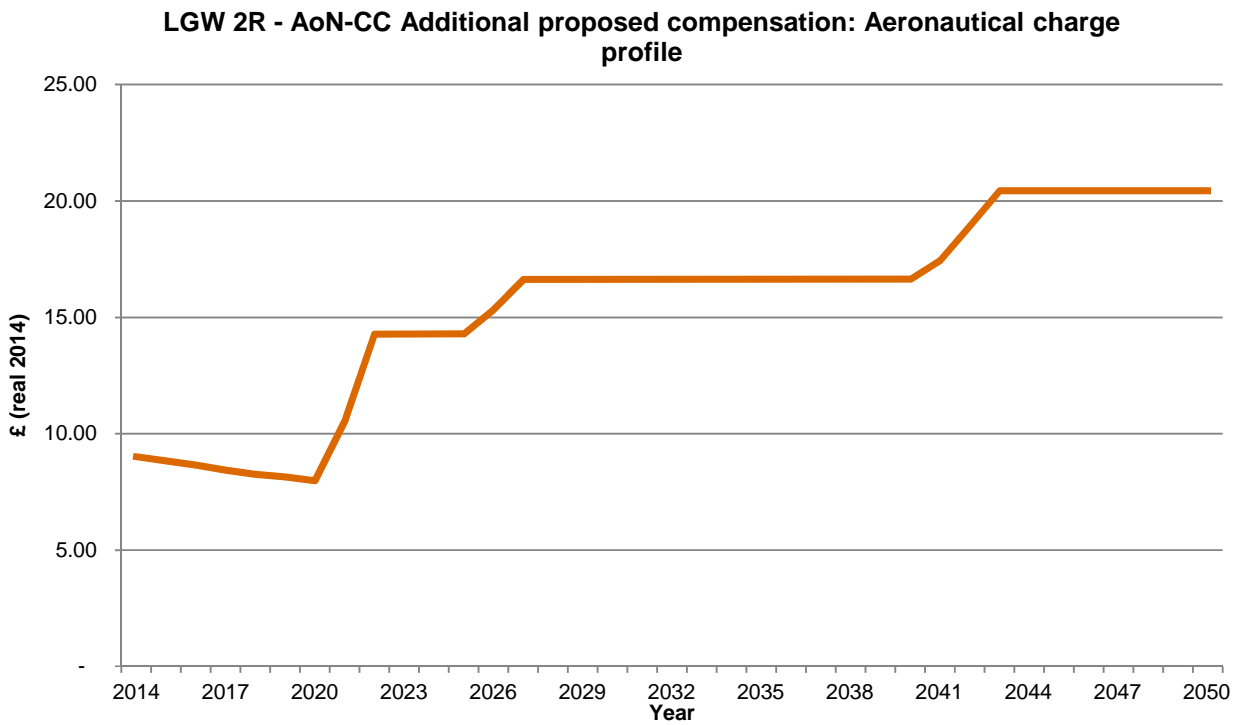
Chart 17: LGW 2R – AoN-CC Additional proposed compensation: Cash flows



Sources: Financial models

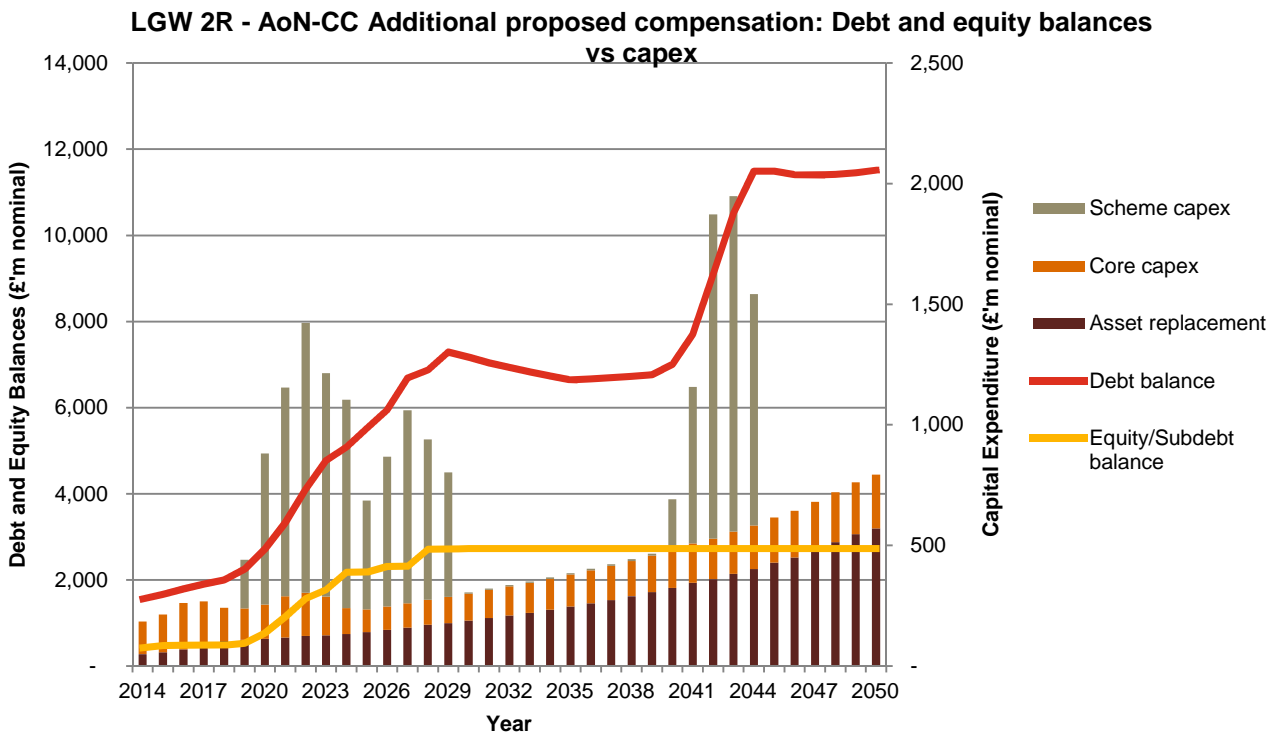
Cost and Commercial Viability: Additional Sensitivities

Chart 18: LGW 2R – AoN-CC Additional proposed compensation: Aeronautical charge profile



Sources: Financial Models

Chart 19: LGW 2R – AoN-CC Additional proposed compensation: Debt and equity balances vs capex



Sources: Financial Models

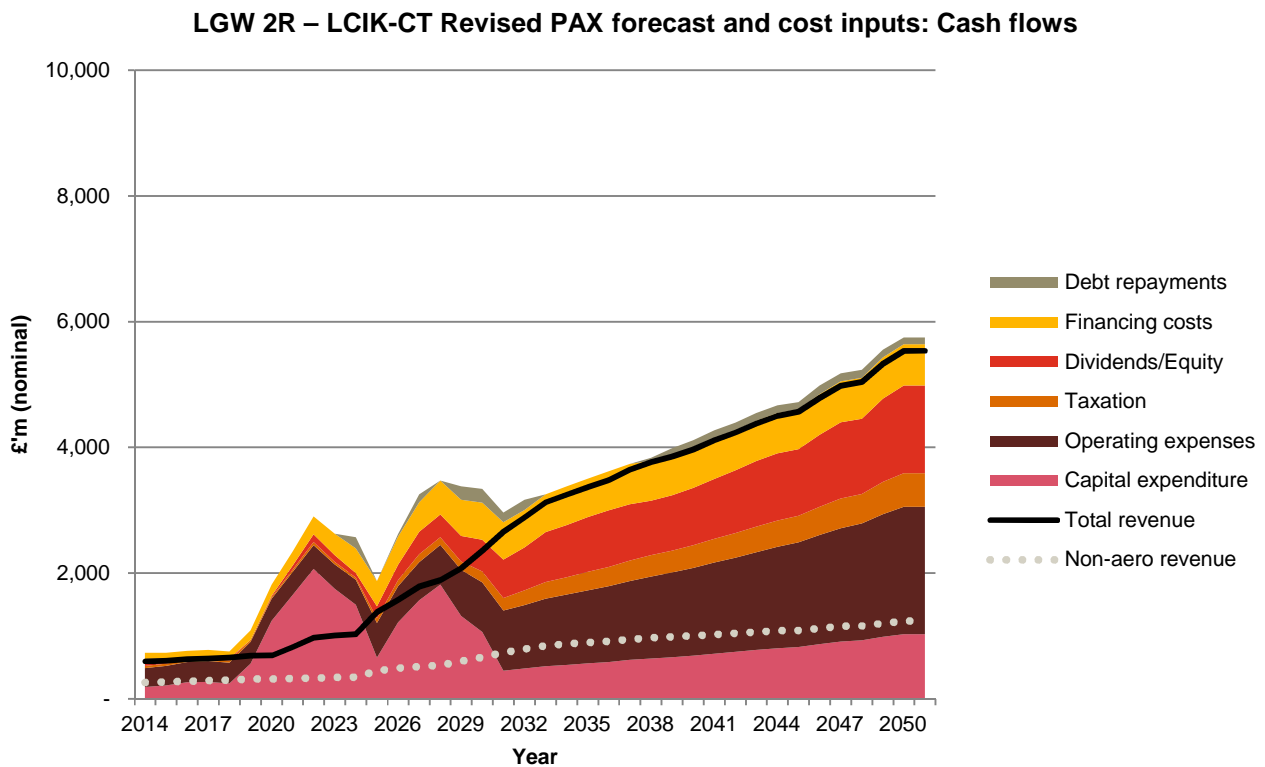
1.8 LGW 2R – LCIK-CT: Revised PAX forecast and cost inputs

Summary: This sensitivity shows the financial analysis for the LGW 2R LCIK-CT scenario with a revised passenger demand forecast. As the result of consultation, there have been minor changes to two of the demand scenarios considered by the Commission (Low Cost Is King (LCIK) and the Relative Decline of Europe). When looking at the key outputs set out in the Cost and Commercial Viability: Funding and Financing Update report, this results in an increase of £0.04 and £0.09 in the weighted average aeronautical charge and in the peak aeronautical charge, respectively. The maximum debt increases by £0.15bn whereas the maximum equity decreases by £0.12bn. For the purpose of the Cost and Commercial Viability assessment the updated assumptions used for the economic analysis do not materially affect financial outcomes and the conclusions remain the same.

Table 7: LGW 2R – LCIK-CT Revised PAX forecast and cost inputs: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£14.16	£15.11	£10.4bn	£11.9bn	£3.2bn	£3.5bn

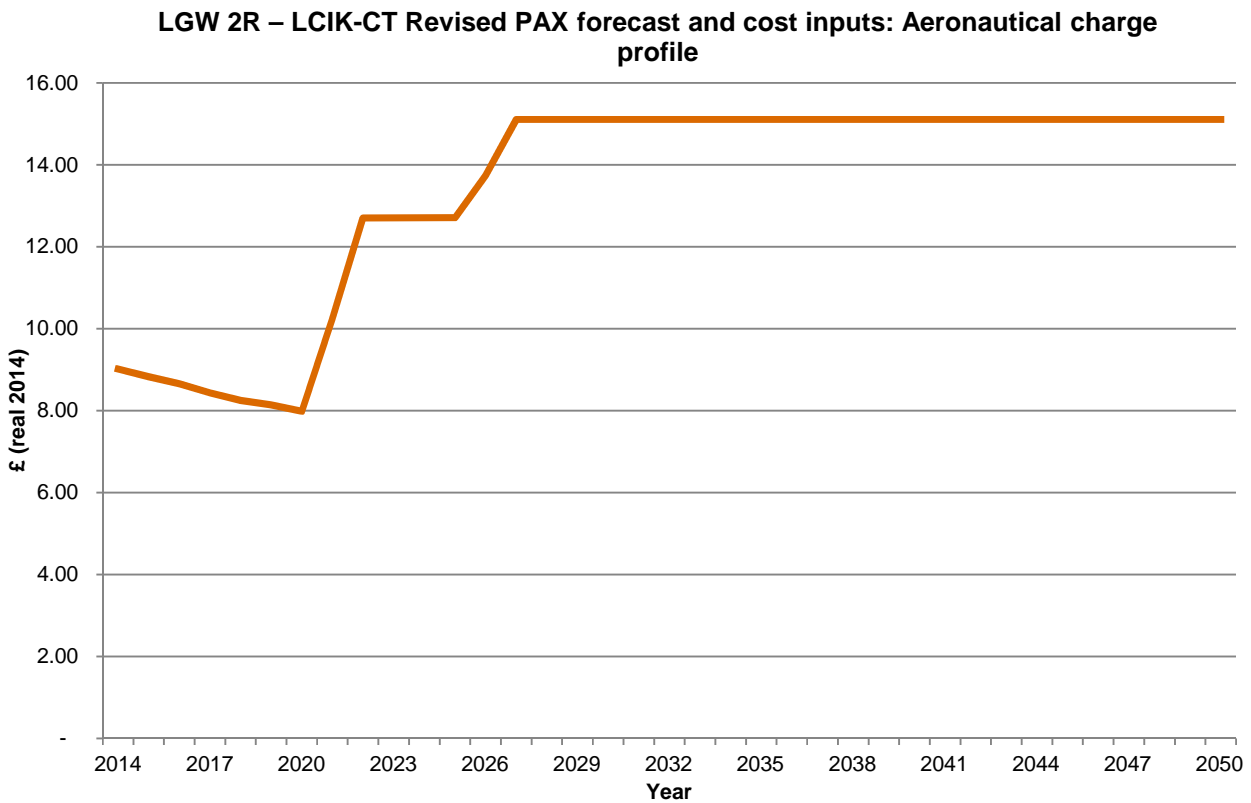
Chart 20: LGW 2R – LCIK-CT Revised PAX forecast and cost inputs: Cash flows



Sources: Financial models

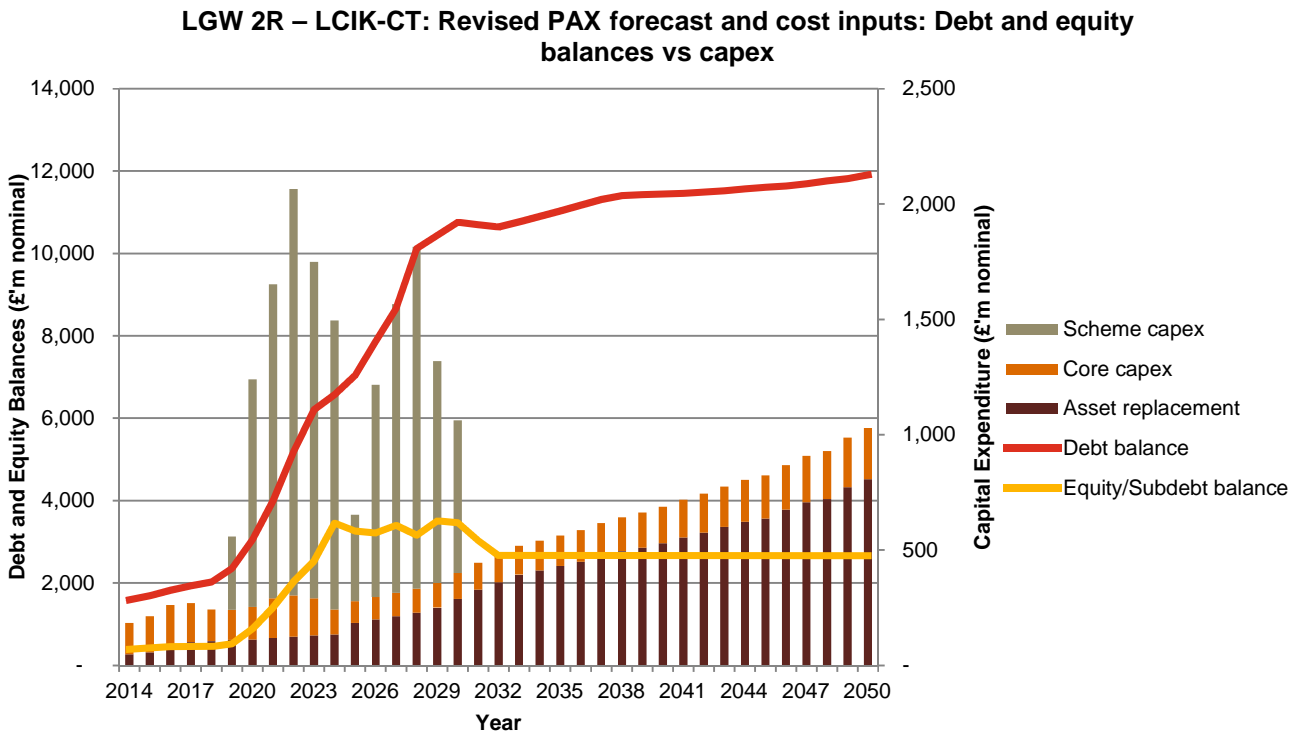
Cost and Commercial Viability: Additional Sensitivities

Chart 21: LGW 2R – LCIK-CT Revised PAX forecast and cost inputs: Aeronautical charge profile



Sources: Financial Models

Chart 22: LGW 2R – LCIK-CT Revised PAX forecast and cost inputs: Debt and equity balances vs capex



Sources: Financial Models

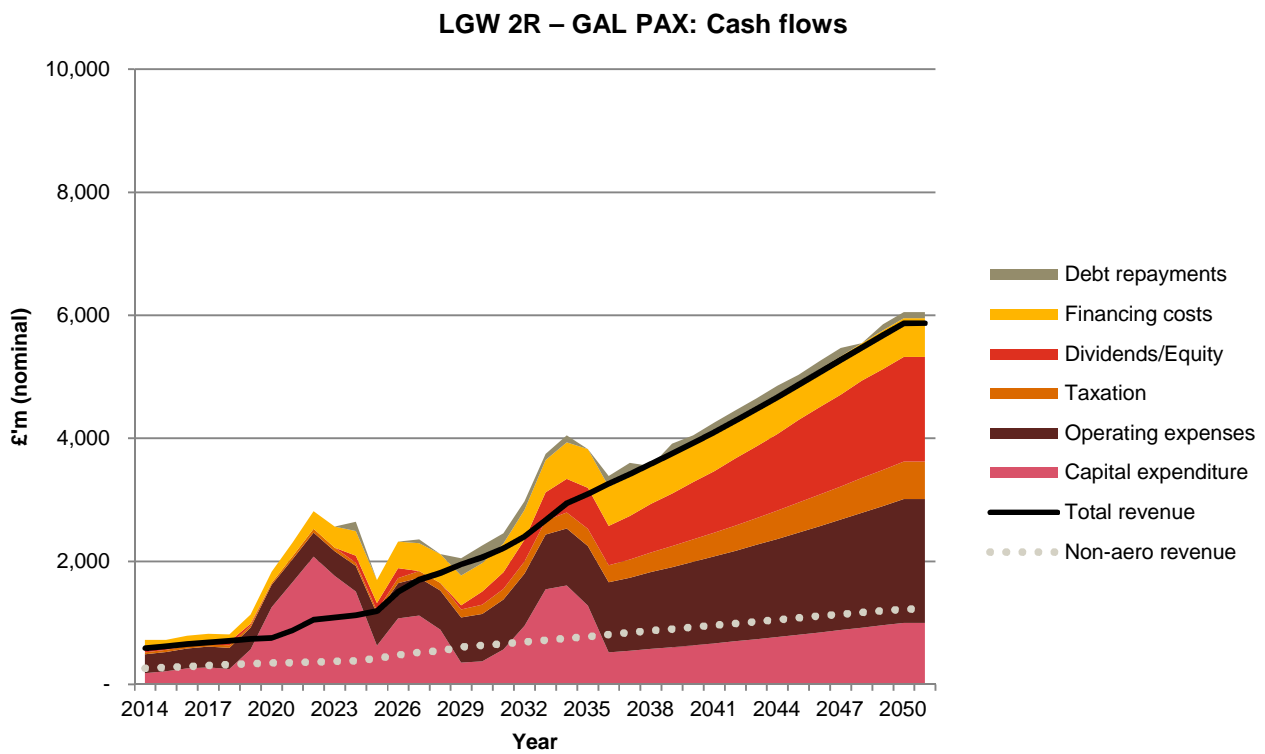
1.9 LGW 2R – GAL PAX

Summary: This sensitivity shows the financial analysis for the LGW 2R GAL scenario with AC's view of GAL costs based on GAL passenger forecast as set out in the Cost and Commercial Viability: Financial Modelling Input Costs Update report.

Table 8: LGW 2R – GAL PAX: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£14.93	£16.91	£9.9bn	£11.4bn	£3.1bn	£3.4bn

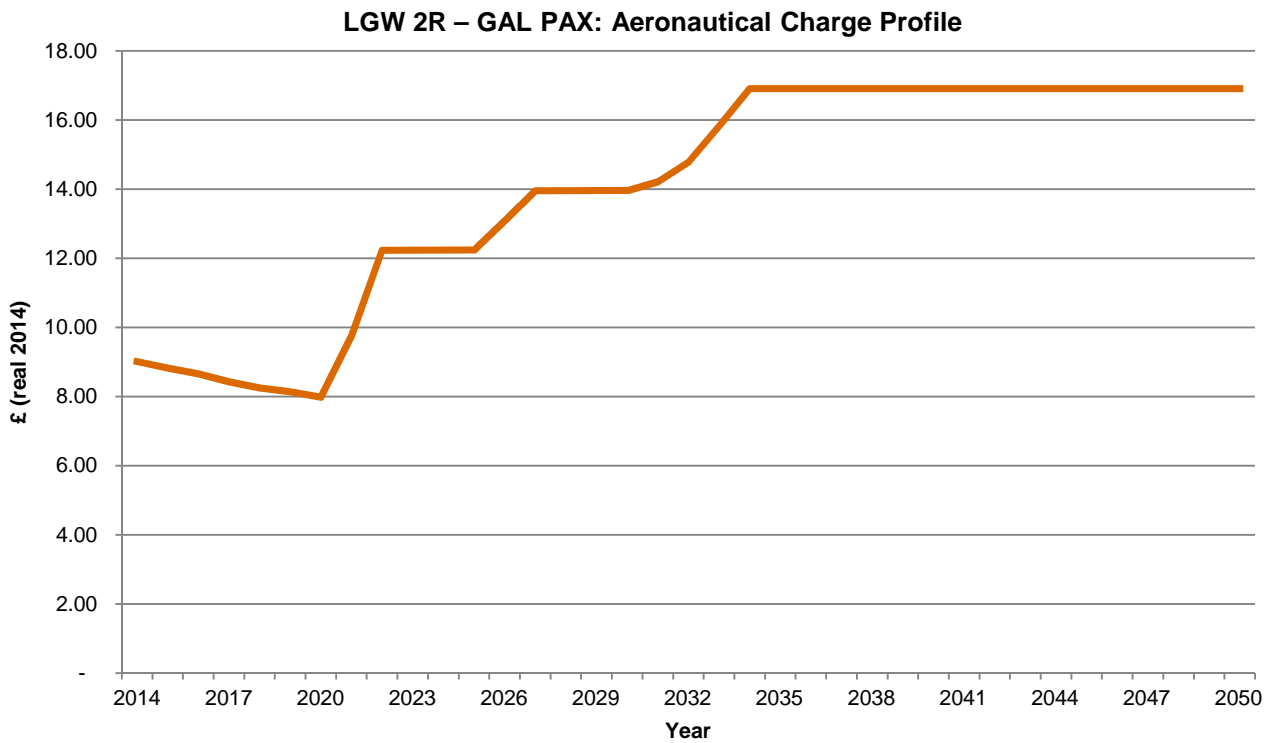
Chart 23: LGW 2R – GAL PAX: Cash flows



Sources: Financial models

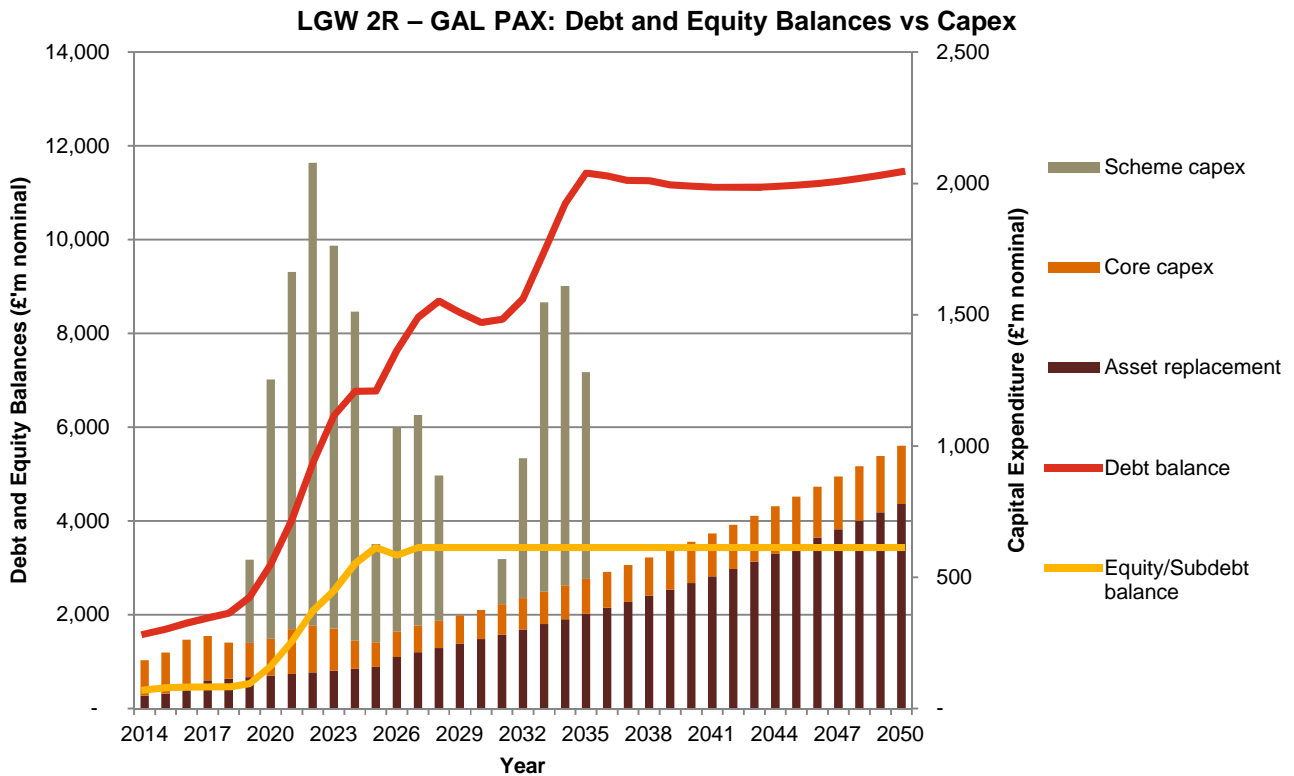
Cost and Commercial Viability: Additional Sensitivities

Chart 24: LGW 2R – GAL PAX: Aeronautical charge profile



Sources: Financial Models

Chart 25: LGW 2R – GAL PAX: Debt and equity balances vs capex



Sources: Financial Models

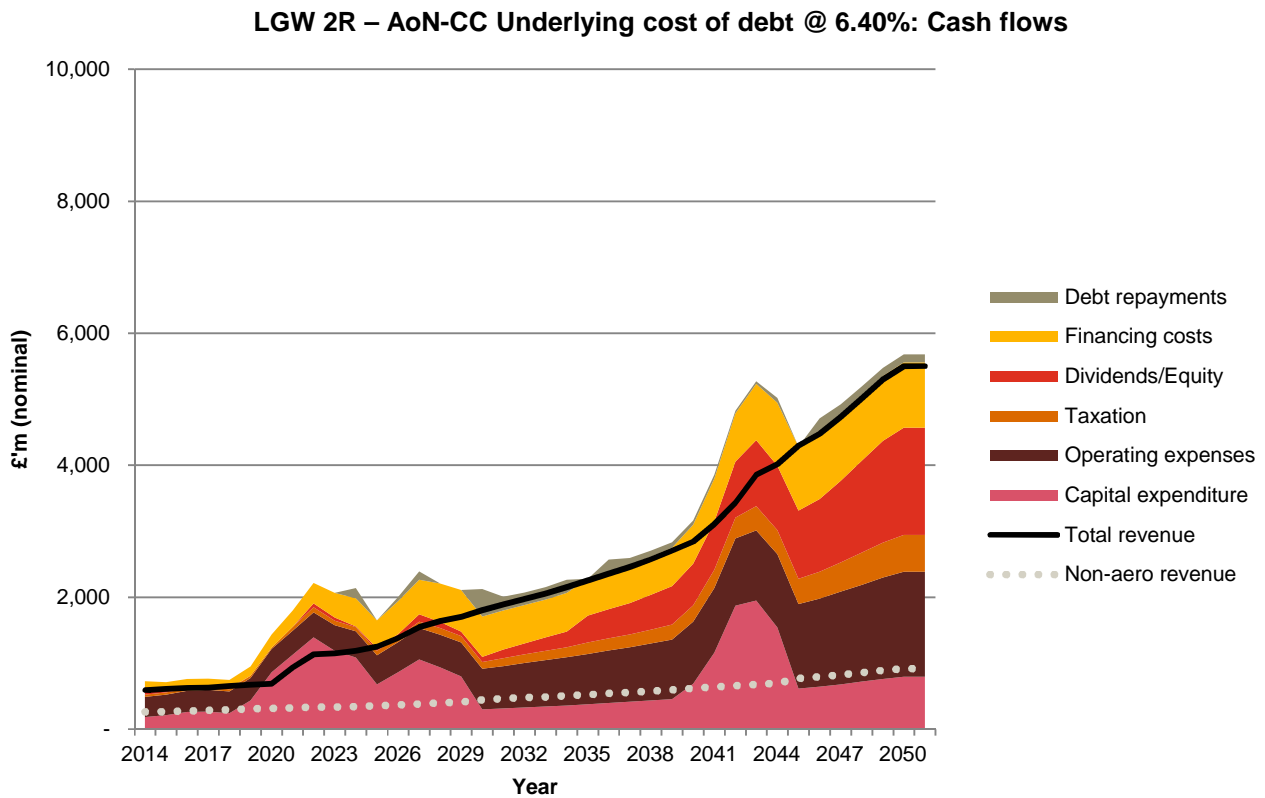
1.10 LGW 2R – AoN-CC: Underlying cost of debt @ 6.40%

Summary: This sensitivity shows the financial analysis for the LGW 2R AoN-CC scenario with the underlying cost of debt increased to 6.40%. This is the average yield for 10 year UK gilts over the past 30 years and represents an increase to the underlying cost of debt of approximately 3.10% over the assumption in Cost and Commercial Viability: Funding and Financing Update where the average of the assumed underlying cost of debt is 3.30%. This assumed cost of debt is shown in Appendix 1. The sensitivity shows the impact of a shift to general market conditions of more expensive debt. This was an issue raised in consultation (see Cost and Commercial Viability: Sources of Finance).

Table 9: LGW 2R –AoN-CC Underlying cost of debt @ 6.40%: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£17.99	£22.77	£10.0bn	£11.6bn	£2.4bn	£2.7bn

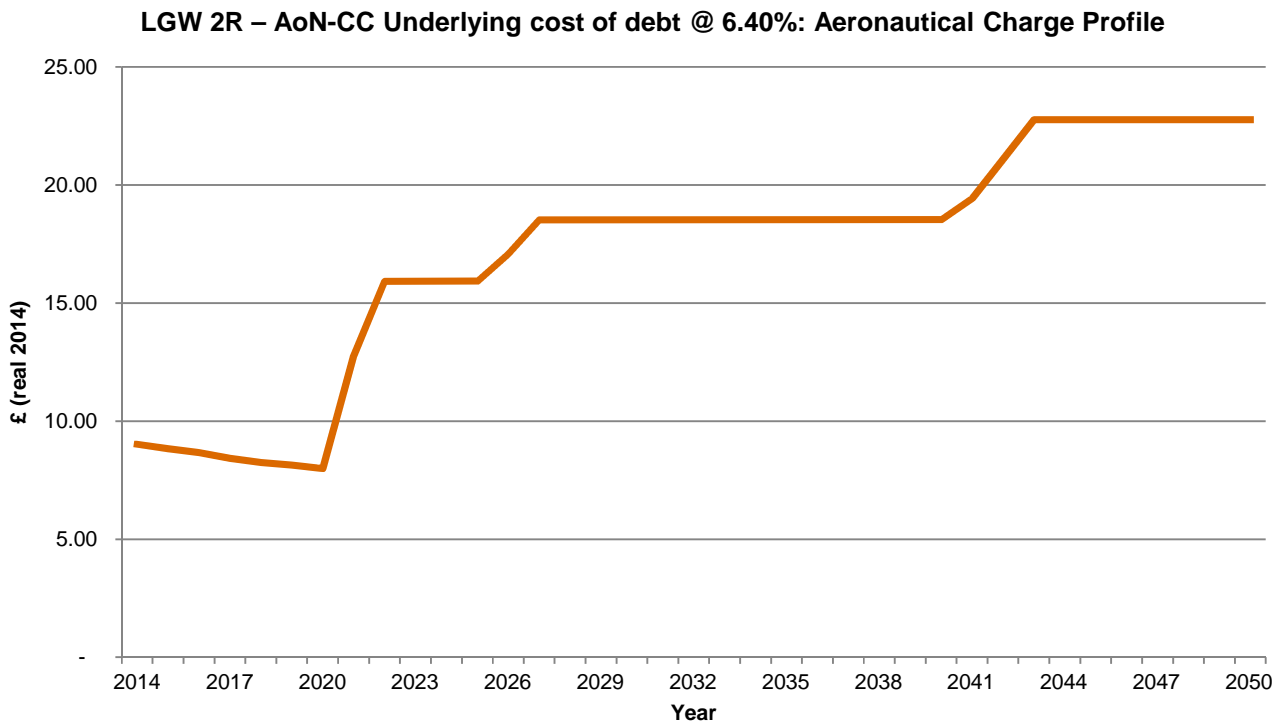
Chart 26: LGW 2R – AoN-CC Underlying cost of debt @ 6.40%: Cash flows



Sources: Financial models

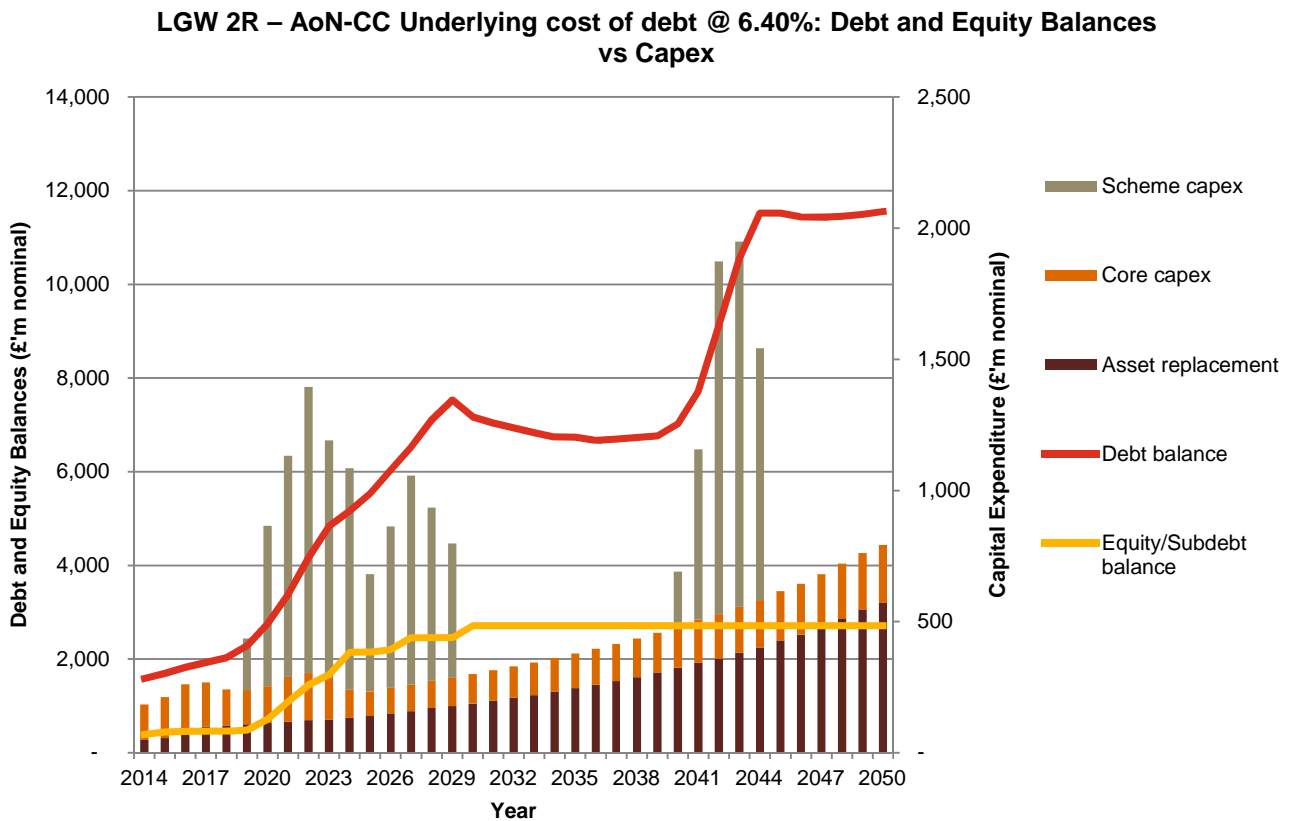
Cost and Commercial Viability: Additional Sensitivities

Chart 27: LGW 2R – AoN-CC Underlying cost of debt @ 6.40%: Aeronautical charge profile



Sources: Financial Models

Chart 28: LGW 2R – AoN-CC Underlying cost of debt @ 6.40%: Debt and equity balances vs capex



Sources: Financial Models

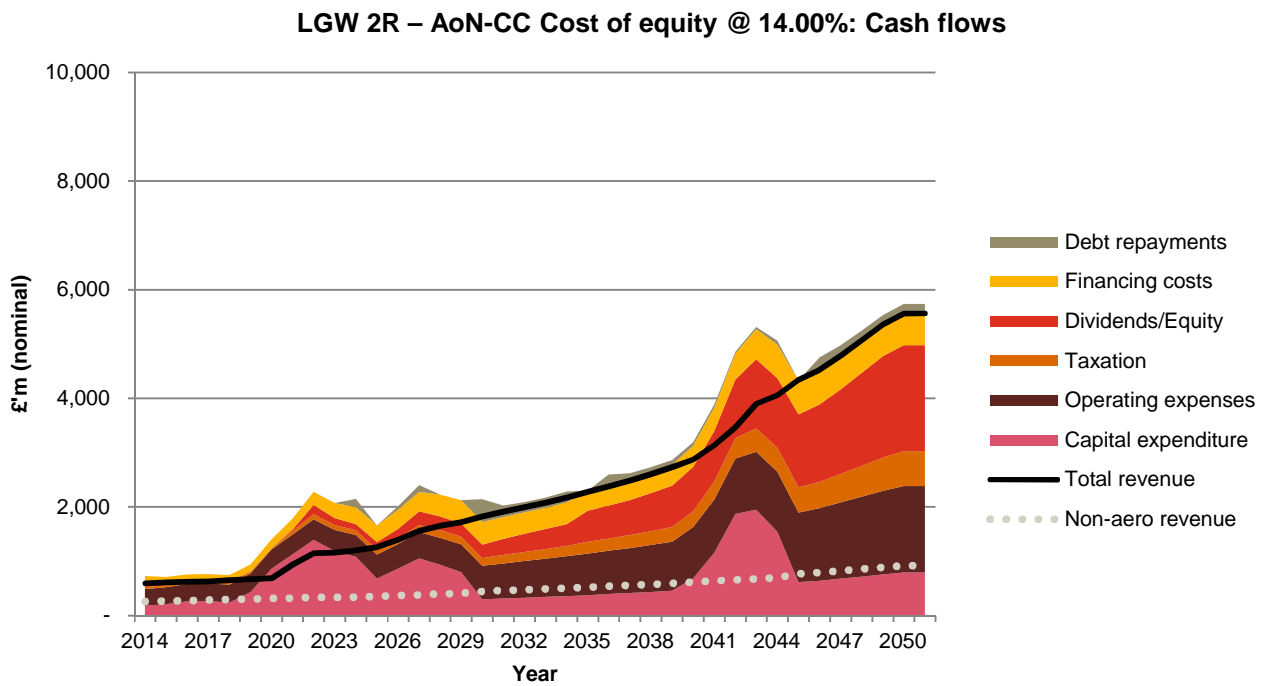
1.11 LGW 2R – AoN-CC: Cost of equity @ 14.00%

Summary: This sensitivity shows the financial analysis for the LGW 2R AoN-CC scenario with the required return to equity increased from 10.00% to 14.00%. A return requirement of 14.00% is more associated with project finance than corporate financing. This illustrates the sensitivity of higher equity requirements. This level of return is at the upper end of discussions held as part of the consultation process (see Cost and Commercial Viability: Sources of Finance).

Table 10: LGW 2R –AoN-CC Cost of equity @ 14.00%: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£18.21	£23.07	£10.0bn	£11.6bn	£2.4bn	£2.7bn

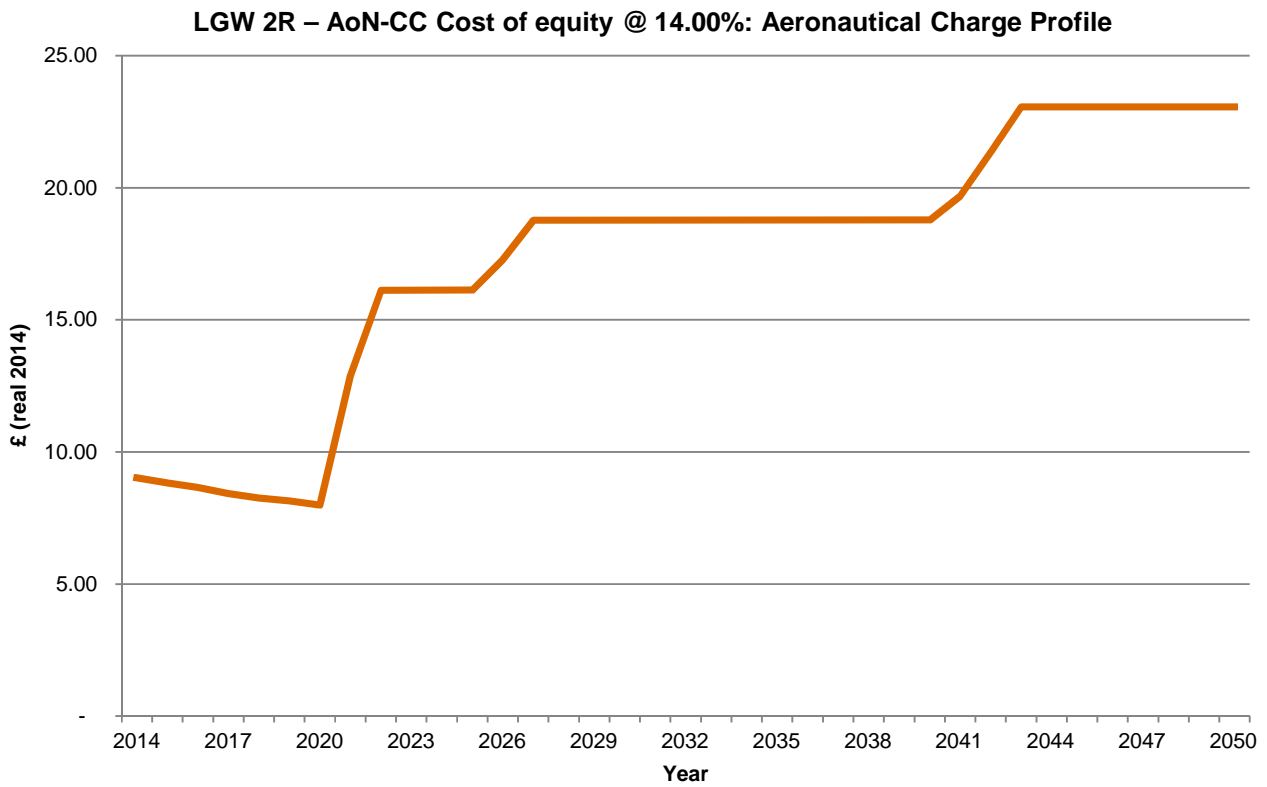
Chart 29: LGW 2R – AoN-CC Cost of equity @ 14.0%: Cash flows



Sources: Financial models

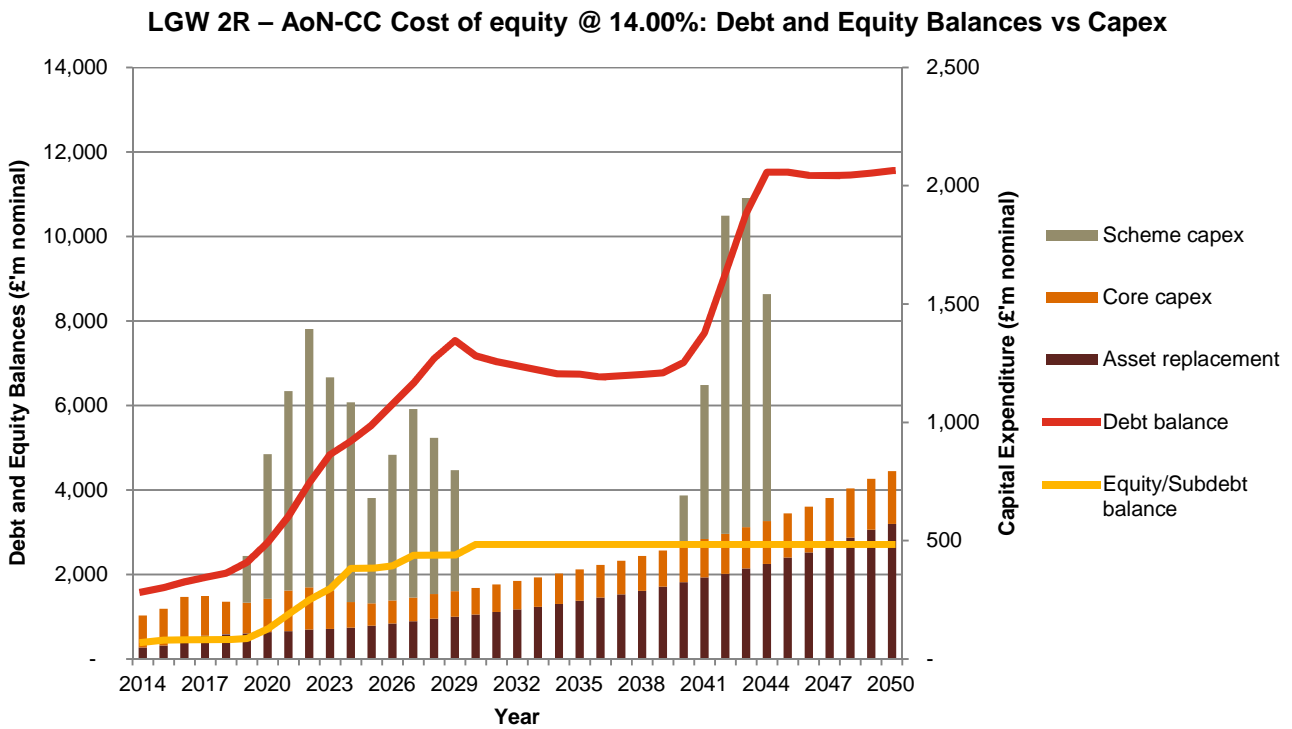
Cost and Commercial Viability: Additional Sensitivities

Chart 30: LGW 2R – AoN-CC Cost of equity @ 14.0%: Aeronautical charge profile



Sources: Financial Models

Chart 31: LGW 2R – AoN-CC Cost of equity @ 14.0%: Debt and equity balances vs capex



Sources: Financial Models

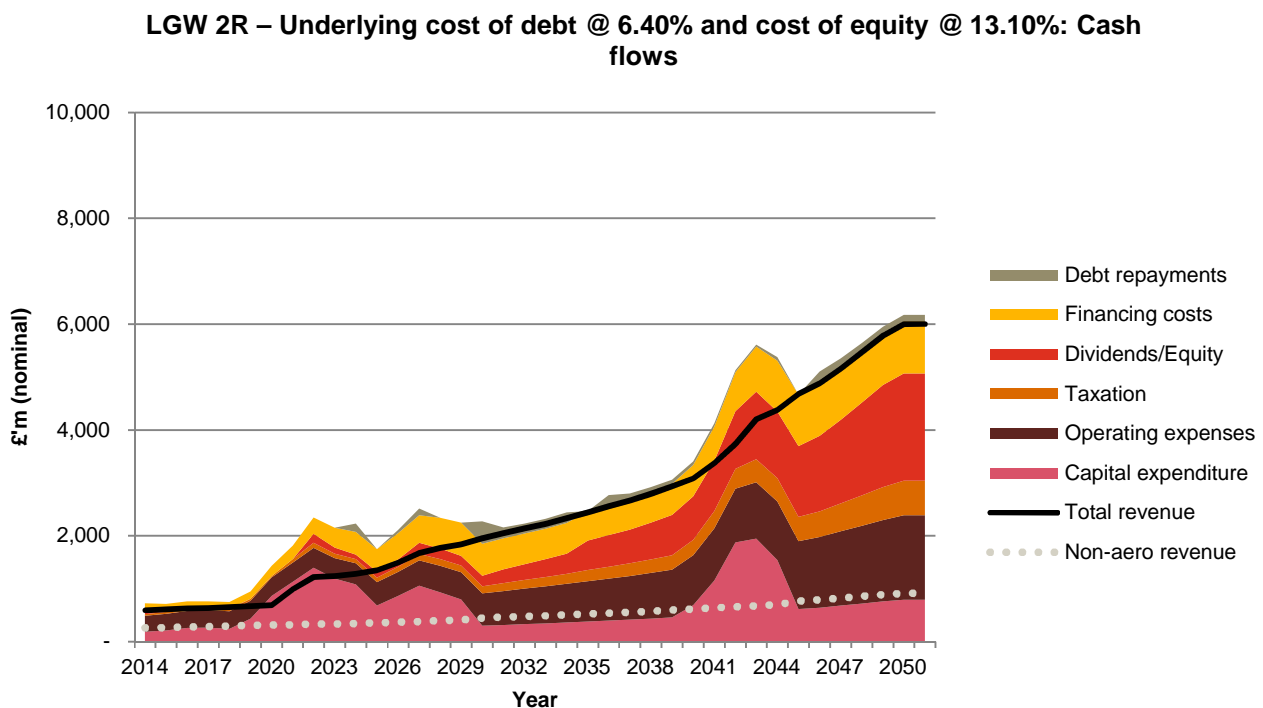
1.12 LGW 2R – Underlying cost of debt @ 6.40% and cost of equity @ 13.10%

Summary: This sensitivity shows the LGW 2R AoN-CC scenario with the underlying cost of debt increased to 6.40% and the required return to equity increased to 13.10%. In the scenario of higher cost of debt (see section 1.10), it is reasonable to assume that the cost of equity would be more expensive although it is difficult to assess this increase as it depends on several factors. As part of the Cost and Commercial Viability assessment, we assume an increase of 3.10% to maintain the debt to equity spread (see Cost and Commercial Viability: Sources of Finance).

Table 11: LGW 2R –AoN-CC Underlying cost of debt @ 6.40% and cost of equity @ 13.10%: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£19.81	£25.25	£10.1bn	£11.6bn	£2.4bn	£2.7bn

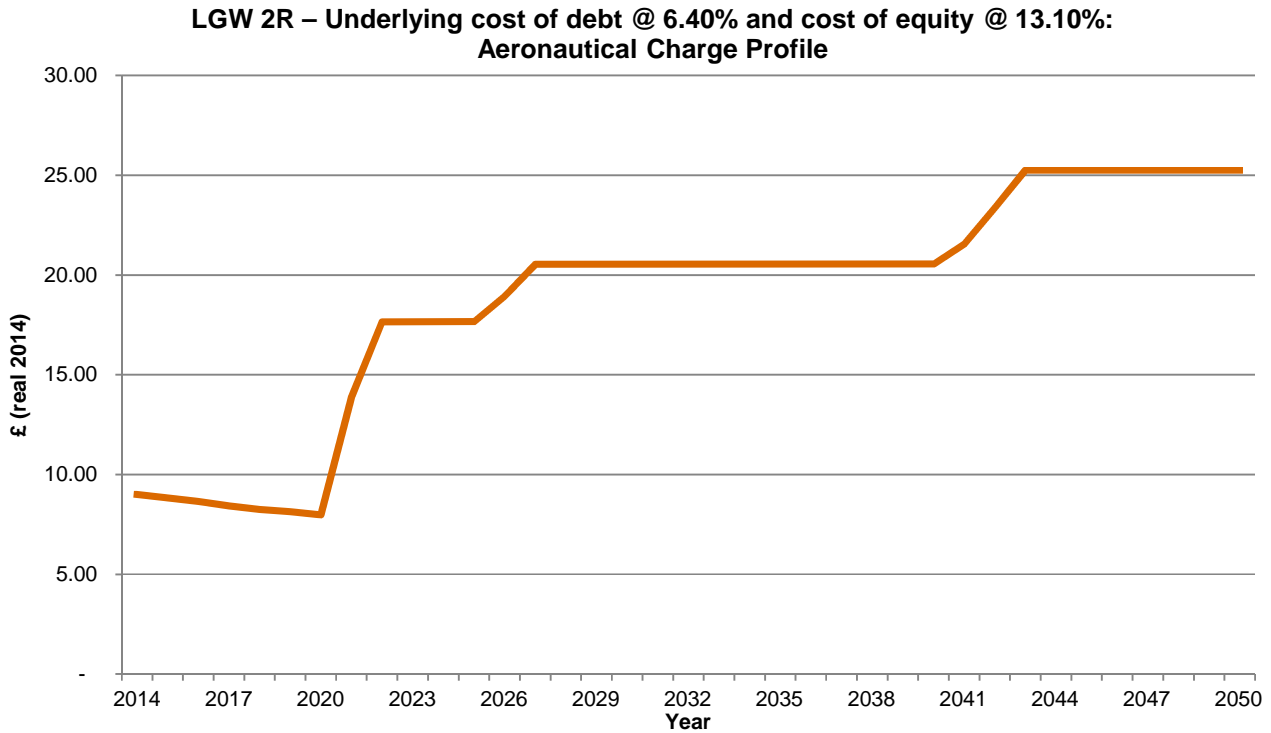
Chart 32: LGW 2R – Underlying cost of debt @ 6.40% and cost of equity @ 13.10%: Cash flows



Sources: Financial models

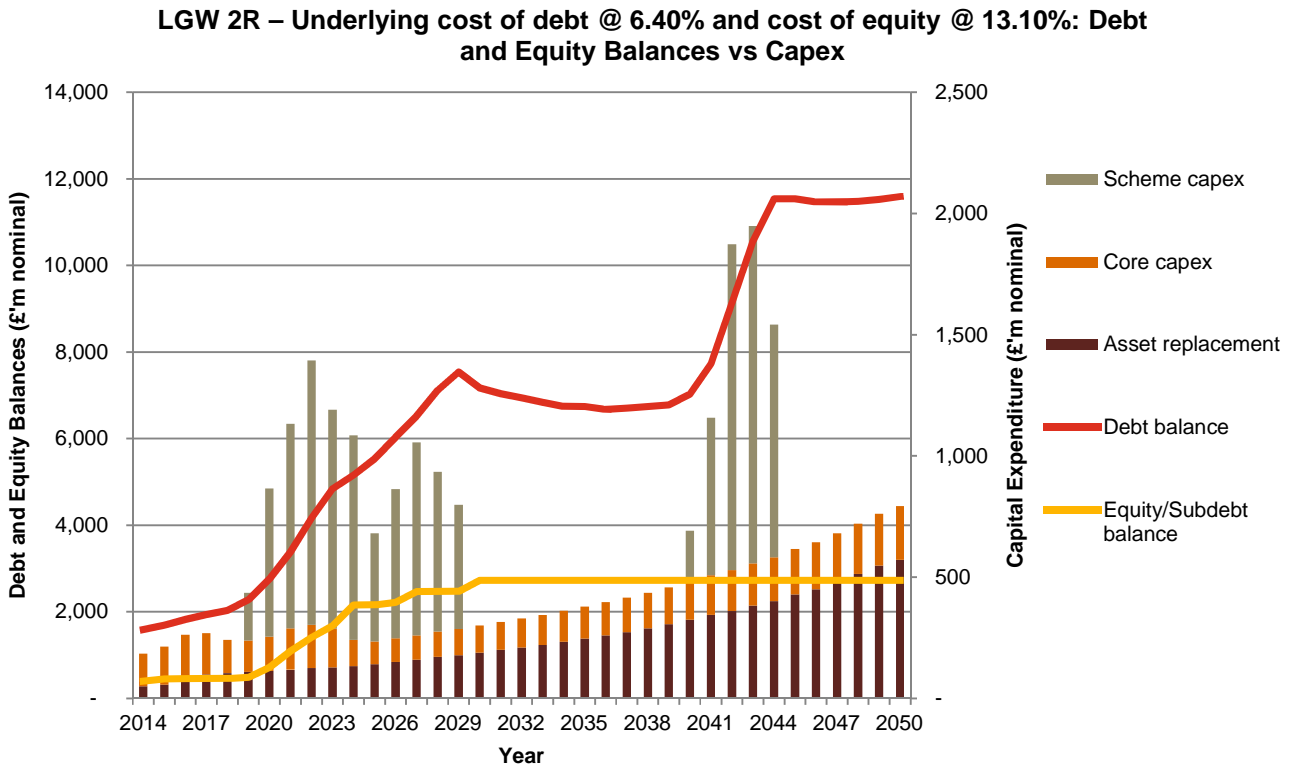
Cost and Commercial Viability: Additional Sensitivities

Chart 33: LGW 2R – Underlying cost of debt @ 6.40% and cost of equity @ 13.10%: Aeronautical charge profile



Sources: Financial Models

Chart 34: LGW 2R – Underlying cost of debt @ 6.40% and cost of equity @ 13.10%: Debt and equity balances vs capex



Sources: Financial Models

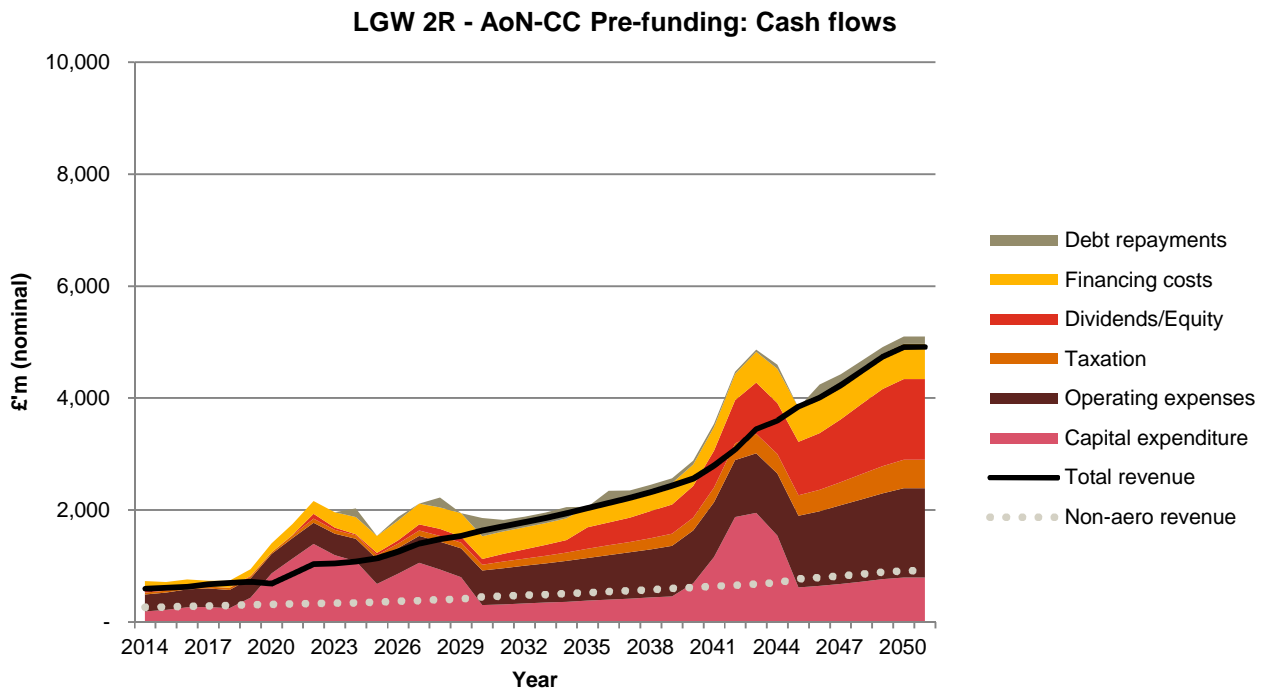
1.13 LGW 2R – AoN-CC: Pre-funding

Summary: This sensitivity shows the financial analysis for the LGW 2R AoN-CC scenario with an estimate for pre-funding through an increased aeronautical charge ahead of any capital expenditure. This increase to aeronautical charges is assumed to be £1.00 (real 2014 prices) per passenger during the two years preceding and the first year of scheme capex (2017-2019). However, the level of pre-funding that might be allowed will be determined by the regulator. This shows the impact of one approach to pre-funding on the funding and financing requirements.

Table 12: LGW 2R –AoN-CC Pre-funding: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£15.90	£19.85	£9.9bn	£11.4bn	£2.3bn	£2.7bn

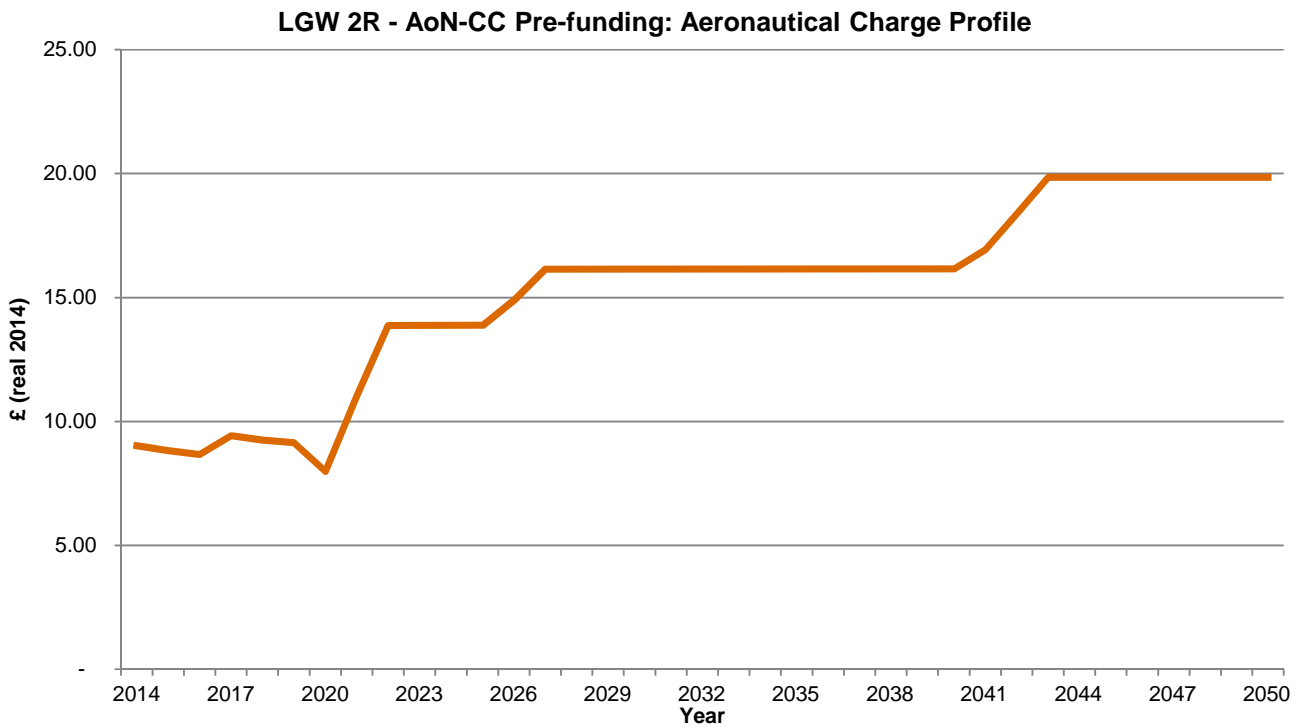
Chart 34: LGW 2R –AoN-CC Pre-funding: Cash flows



Sources: Financial Models

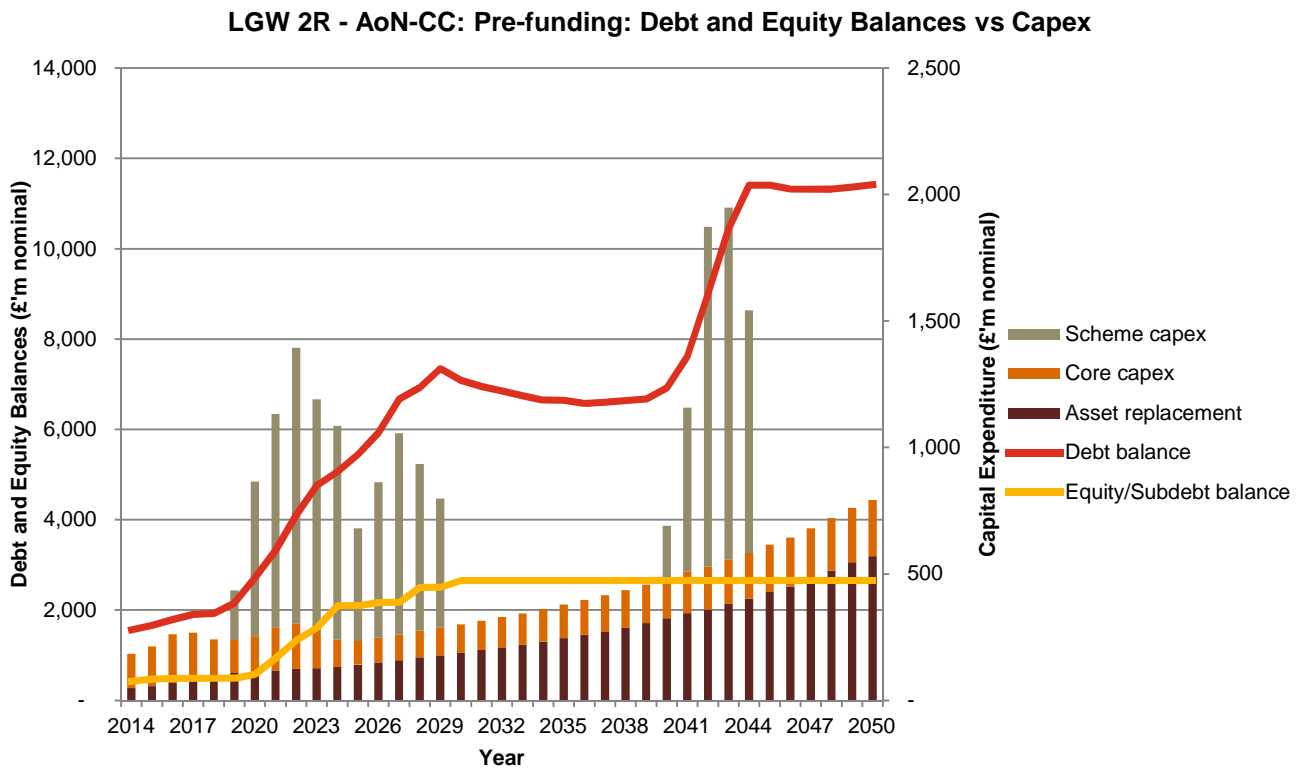
Cost and Commercial Viability: Additional Sensitivities

Chart 35: LGW 2R –AoN-CC Pre-funding: Aeronautical charge profile



Sources: Financial Models

Chart 36: LGW 2R –AoN-CC: Pre-funding: Debt and equity balances vs capex



Sources: Financial Models

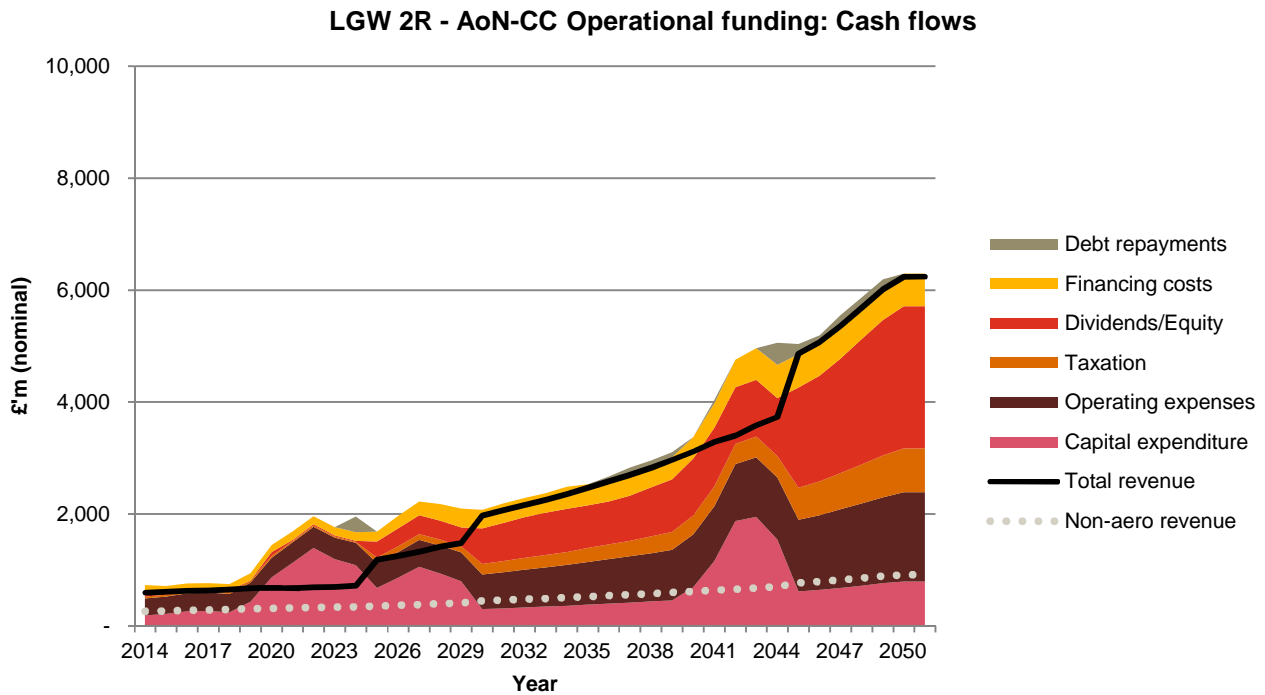
1.14 LGW 2R – AoN-CC: Operational funding

Summary: This sensitivity shows the financial analysis for the LGW 2R AoN-CC scenario on the basis of an estimate for operational funding (i.e. the airport operator is only able to pass on the costs relating to the new runway capacity through aeronautical charges at the point when this capacity becomes operational). In the Funding and Financing Update report, it is assumed that aeronautical charges are increased in the year in which capital expenditure is incurred. The treatment of when costs associated with the new capacity are able to be passed on through aeronautical charges will be a matter for the delivery body and the regulator.

Table 13: LGW 2R –AoN-CC Operational funding: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£18.38	£26.44	£9.3bn	£10.9bn	£4.9bn	£5.2bn

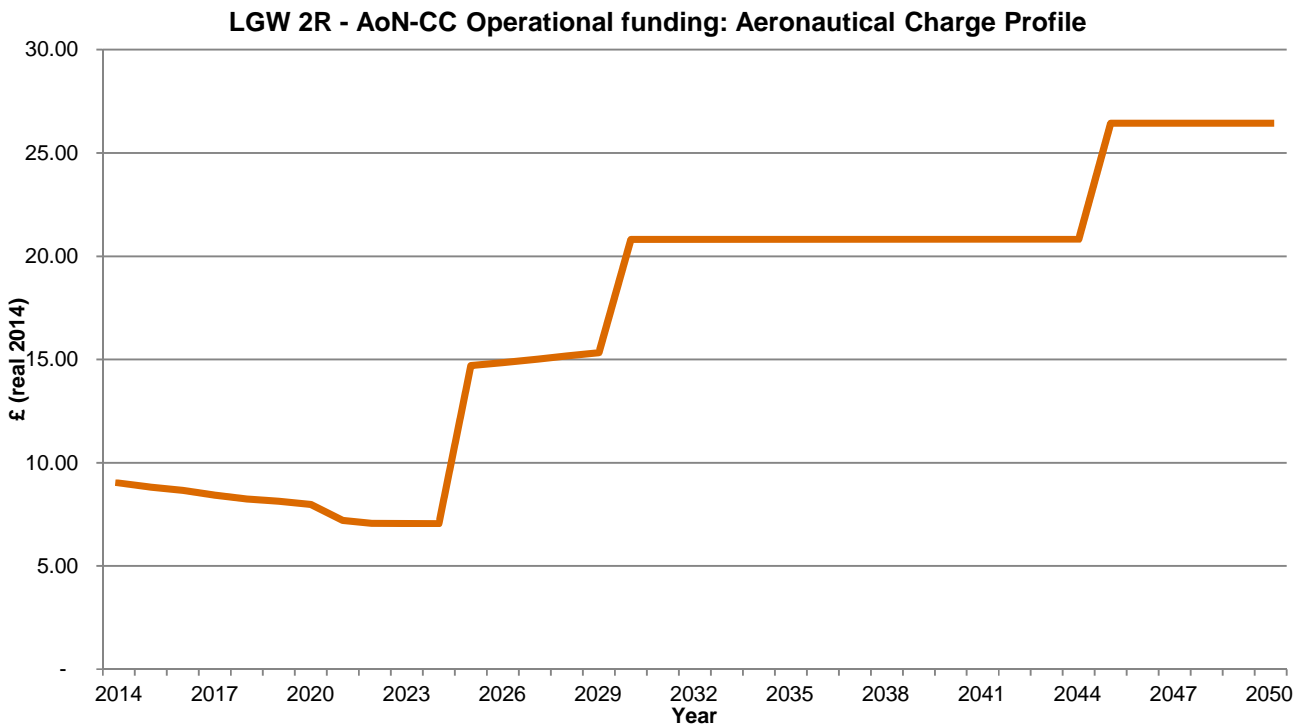
Chart 37: LGW 2R –AoN-CC Operational funding: Cash flows



Sources: Financial Models

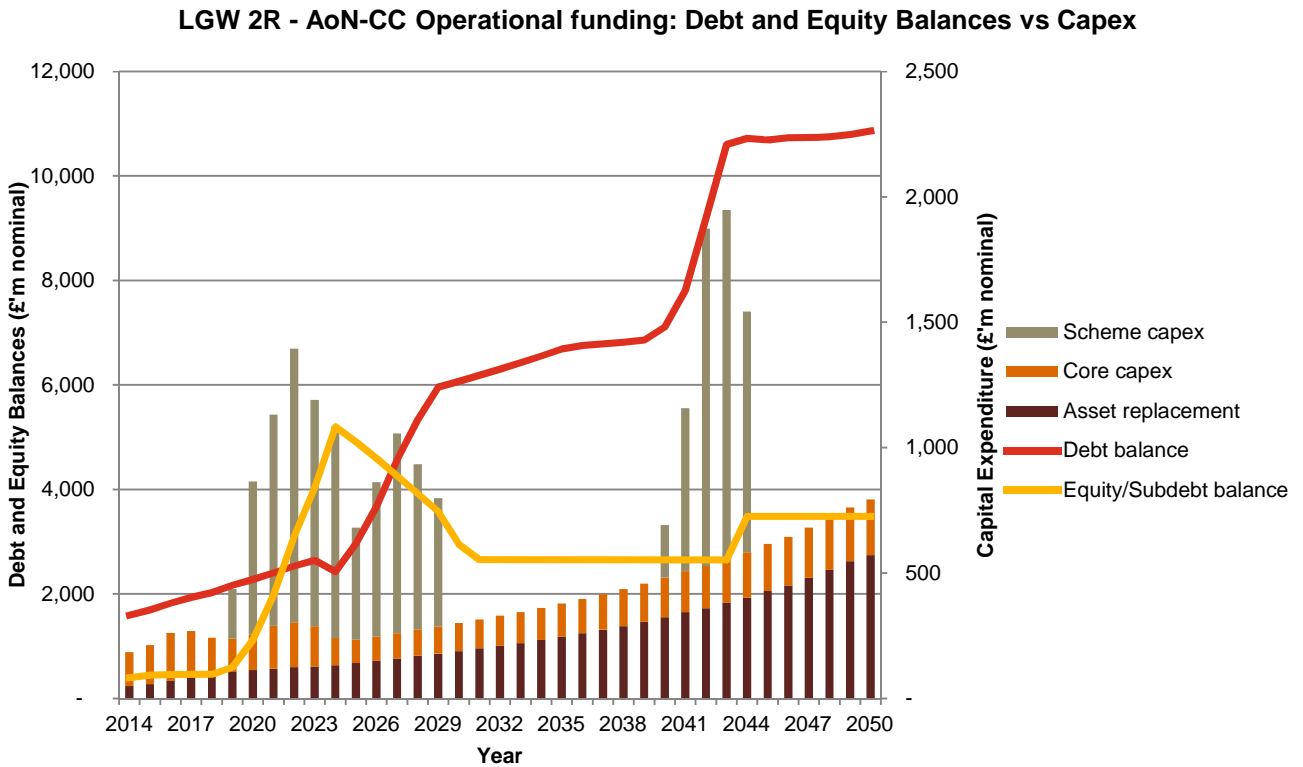
Cost and Commercial Viability: Additional Sensitivities

Chart 38: LGW 2R –AoN-CC Operational funding: Aeronautical charge profile



Sources: Financial Models

Chart 39: LGW 2R –AoN-CC Operational funding: Debt and equity balances vs capex



Sources: Financial Models

2 Heathrow Airport Northwest Runway

2.1 Summary of results

Table 14 shows the impact of each sensitivity on the key outputs, namely the weighted average aeronautical charge (and the peak aeronautical charge for reference), the maximum increase and peak debt and the maximum increase and peak equity. A number of the sensitivities are based of the AoN-CC demand scenario. This is for ease of reference and for the avoidance of doubt, the AoN-CC demand scenario should not be considered as a central case.

Table 14: LHR NWR – Sensitivities summary

Section	Title	Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt	Peak debt outstanding	Maximum increase in equity (nominal)	Peak equity outstanding
2.2	LHRNWR - AoN-CC	£28.93	£31.20	£22.1bn	£33.8bn	£5.5bn	£8.2bn
2.3	LHRNWR - AoN-CC: Heathrow do nothing, Gatwick do something	£24.55	£25.73	£8.1bn	£19.8bn	£2.0bn	£4.7bn
2.4	LHRNWR - AoN-CC: 20% scheme optimism bias	£29.75	£32.16	£23.4bn	£35.1bn	£5.8bn	£8.5bn
2.5	LHRNWR - AoN-CC: 0% optimism bias	£26.21	£27.87	£18.9bn	£30.7bn	£4.8bn	£7.4bn
2.6	LHRNWR - AoN-CC: Reduced Scope	£27.92	£30.05	£19.8bn	£31.5bn	£5.0bn	£7.6bn
2.7	LHRNWR - AoN-CC: Additional proposed £715m compensation	£29.37	£31.69	£22.4bn	£34.2bn	£5.5bn	£8.2bn
2.8	LHRNWR - AoN-CC: Higher additional proposed compensation	£29.42	£31.70	£22.5bn	£34.2bn	£5.5bn	£8.2bn
2.9	LHRNWR - AoN-CC: Underlying cost of debt @ 6.40%	£32.60	£35.60	£23.0bn	£34.7bn	£5.9bn	£8.5bn
2.10	LHRNWR - AoN-CC: Cost of equity @ 14.0%	£35.97	£39.61	£21.7bn	£33.5bn	£5.4bn	£8.1bn
2.11	LHRNWR - AoN-CC: Underlying cost of debt @ 6.40% and cost of equity @ 12.10%	£37.12	£41.09	£21.7bn	£33.5bn	£5.5bn	£8.1bn
2.12	LHRNWR - AoN-CC: Pre-funding	£28.90	£31.14	£21.9bn	£33.6bn	£5.5bn	£8.2bn
2.13	LHRNWR - AoN-CC: Operational funding	£30.79	£33.93	£18.9bn	£30.6bn	£18.0bn	£20.7bn

Sources: Financial models

The following sections provide more detailed information on the results from each sensitivity.

2.2 LHR NWR – AoN-CC

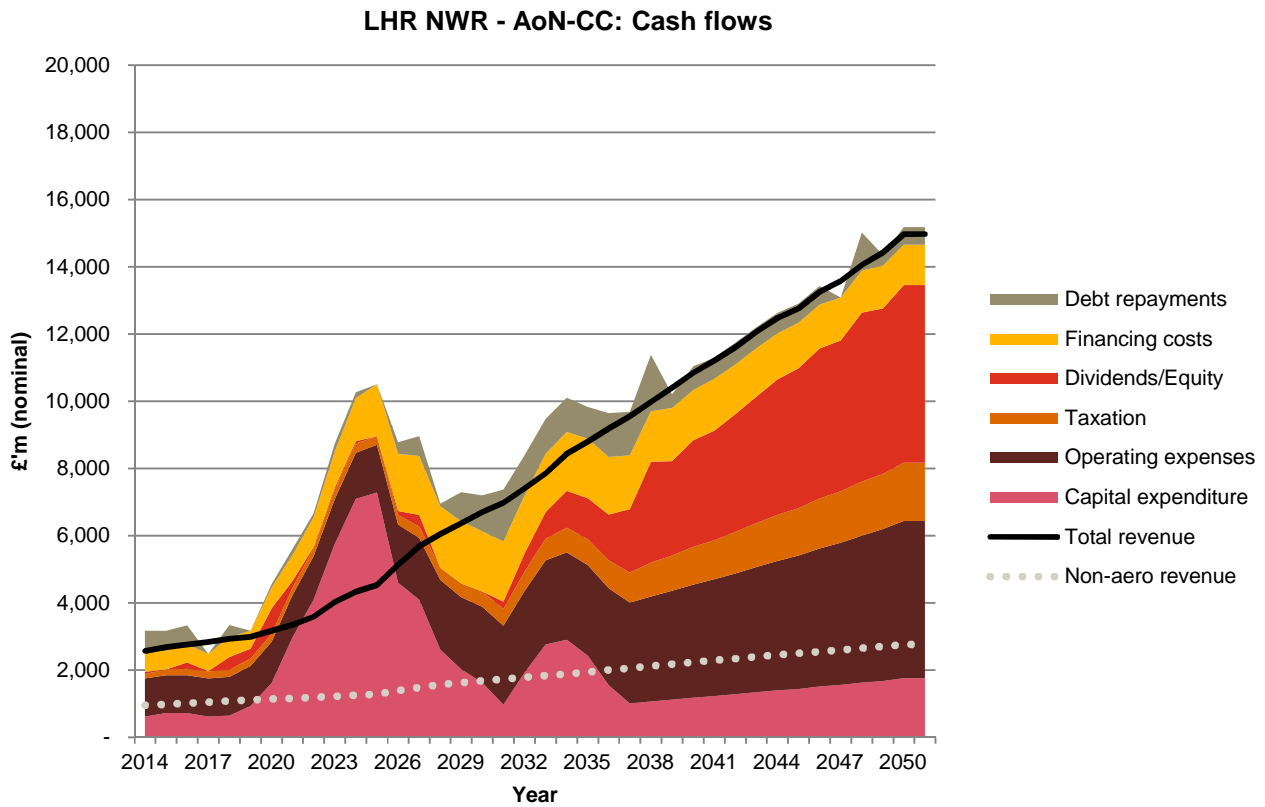
Summary: This is the LHR NWR AoN-CC scenario as set out in the Cost and Commercial Viability: Funding and Financing Update report.

This is a duplicated to give the reader a reference from which to reflect on the other sensitivities covered in this section.

Table 15: LHR NWR –AoN-CC: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£28.93	£31.20	£22.1bn	£33.8bn	£5.5bn	£8.2bn

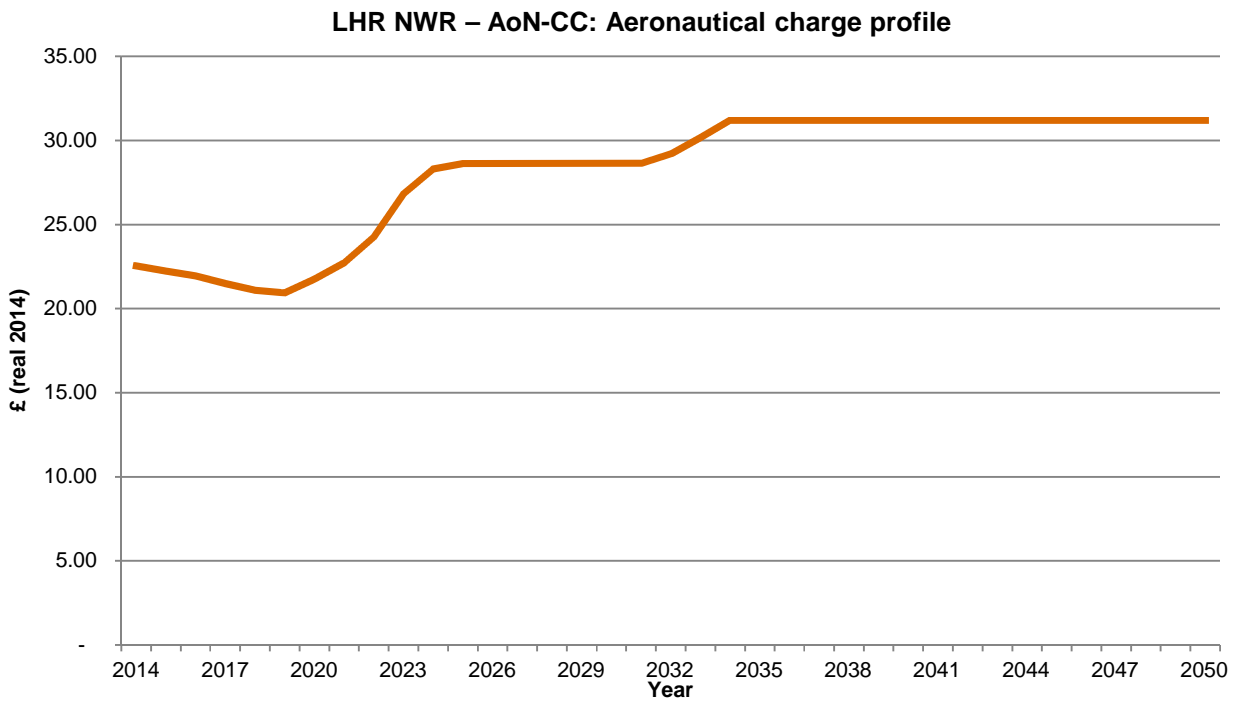
Chart 35: LHR NWR – AoN-CC: Cash flows



Sources: Financial models

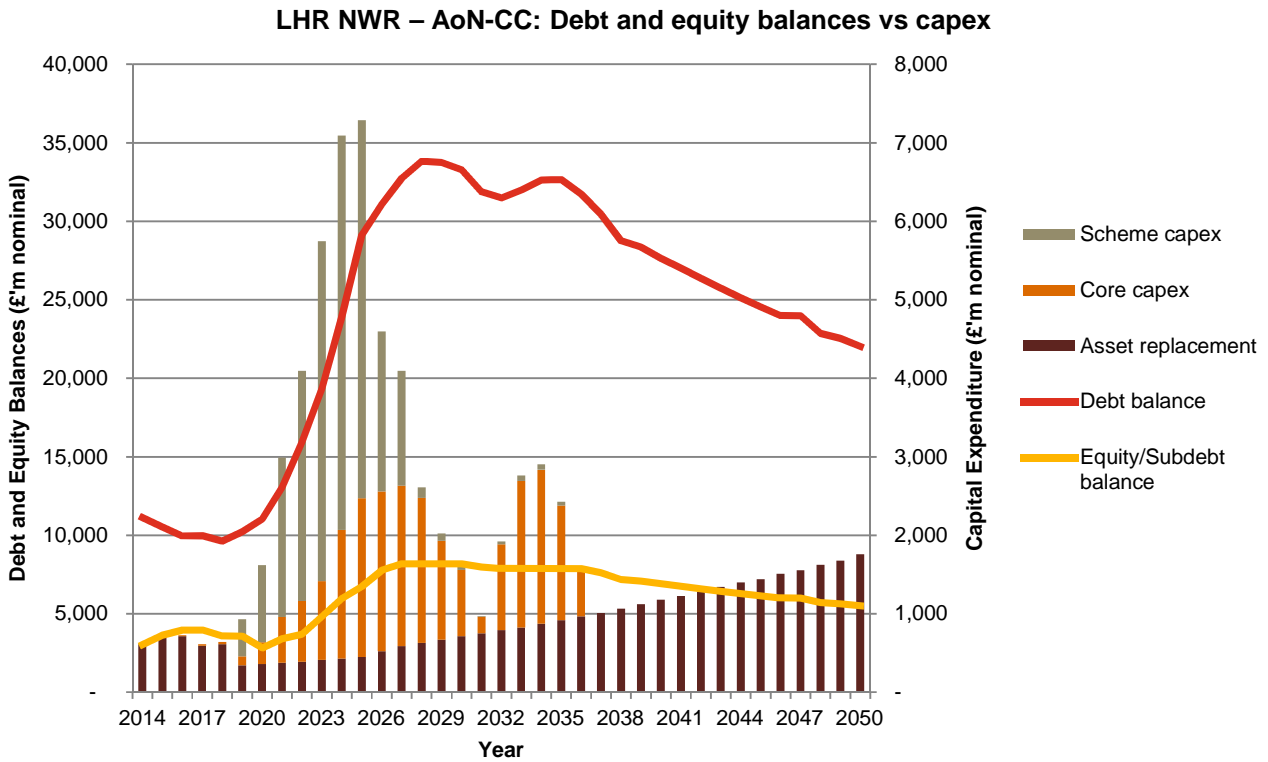
Cost and Commercial Viability: Additional Sensitivities

Chart 36: LHR NWR – AoN-CC: Aeronautical charge profile



Sources: Financial Models

Chart 37: LHR NWR – AoN-CC: Debt and equity balances vs capex



Sources: Financial Models

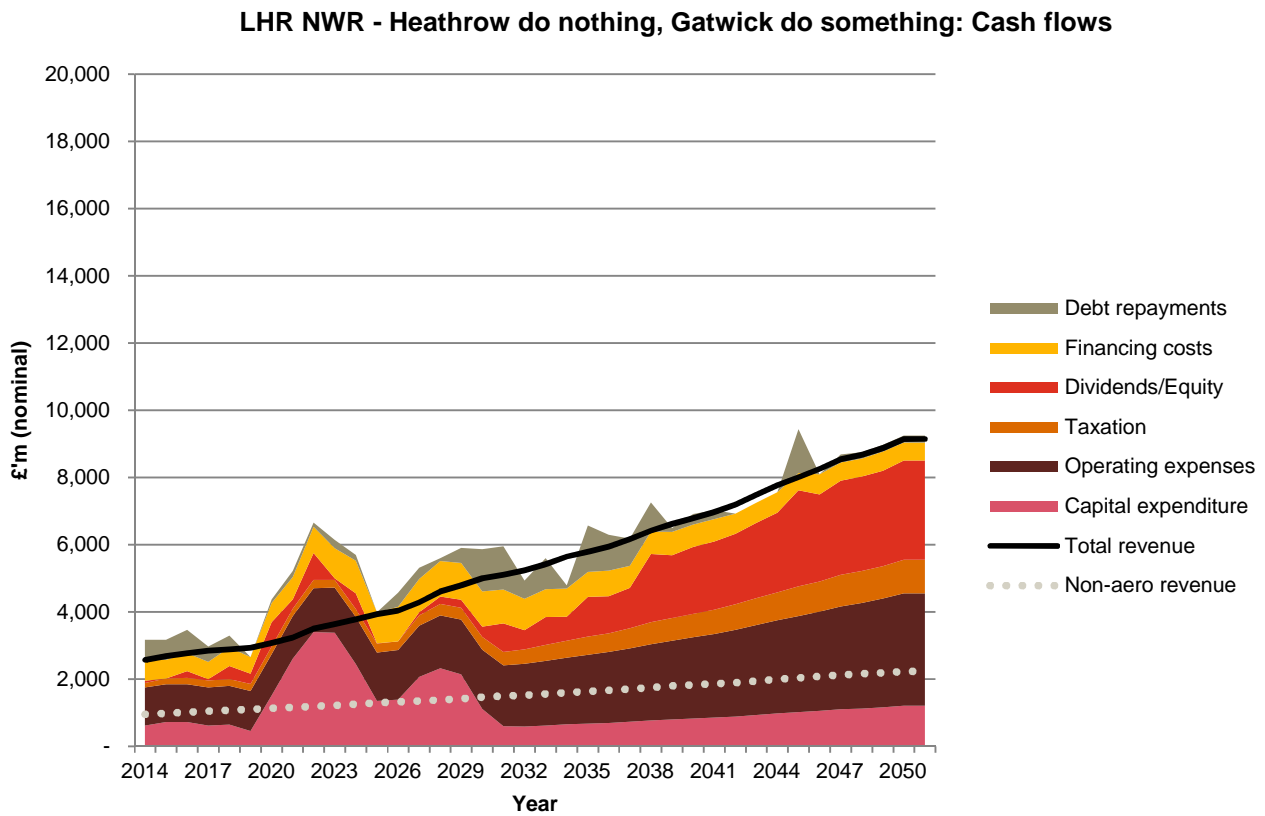
2.3 LHR NWR – Heathrow do nothing, Gatwick do something

Summary: In the LHR NWR 'Heathrow do nothing, Gatwick do something' sensitivity the funding and financing impact on Heathrow Airport is considered in the event that the LGW2R scheme is recommended and developed. This analysis looks at how demand would develop at Heathrow in the event of new runway capacity becoming available at Gatwick, with core capex being invested as required to meet this demand.

Table 16: LHR NWR – Heathrow do nothing, Gatwick do something: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£24.55	£25.73	£8.1bn	£19.8bn	£2.0bn	£4.7bn

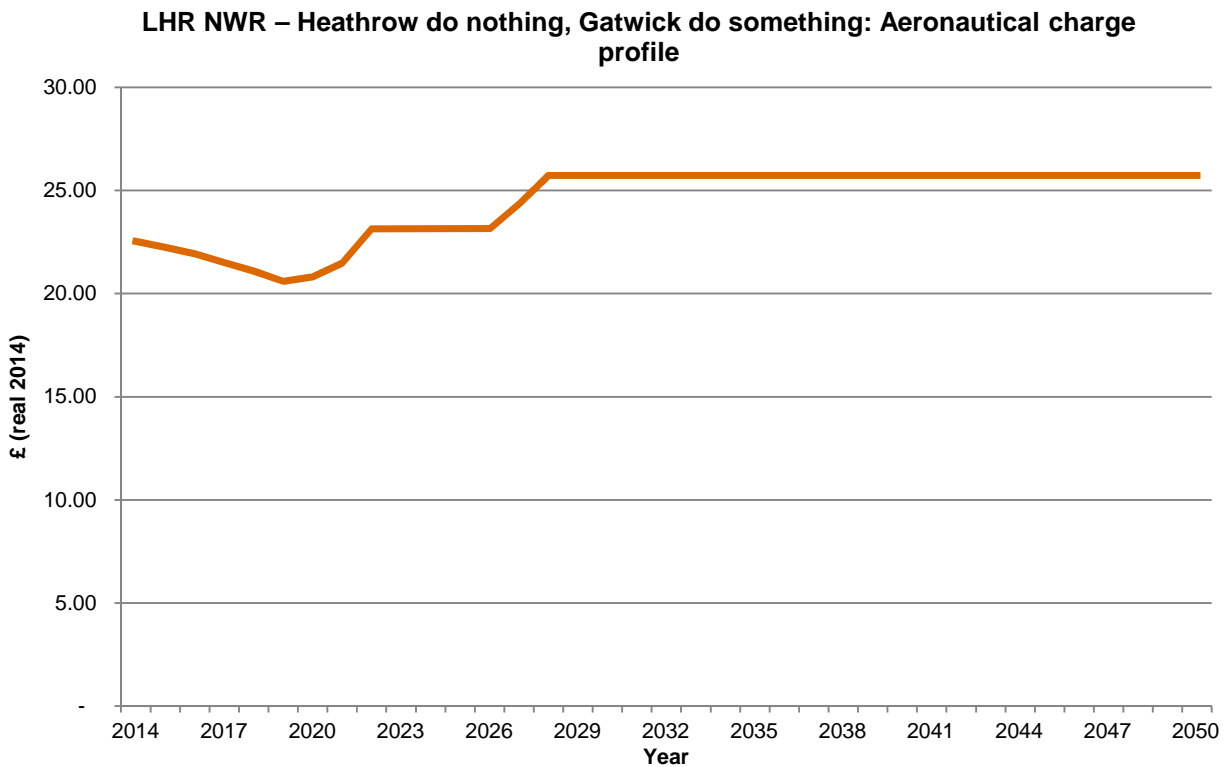
Chart 38: LHR NWR – Heathrow do nothing, Gatwick do something: Cash flows



Sources: Financial models

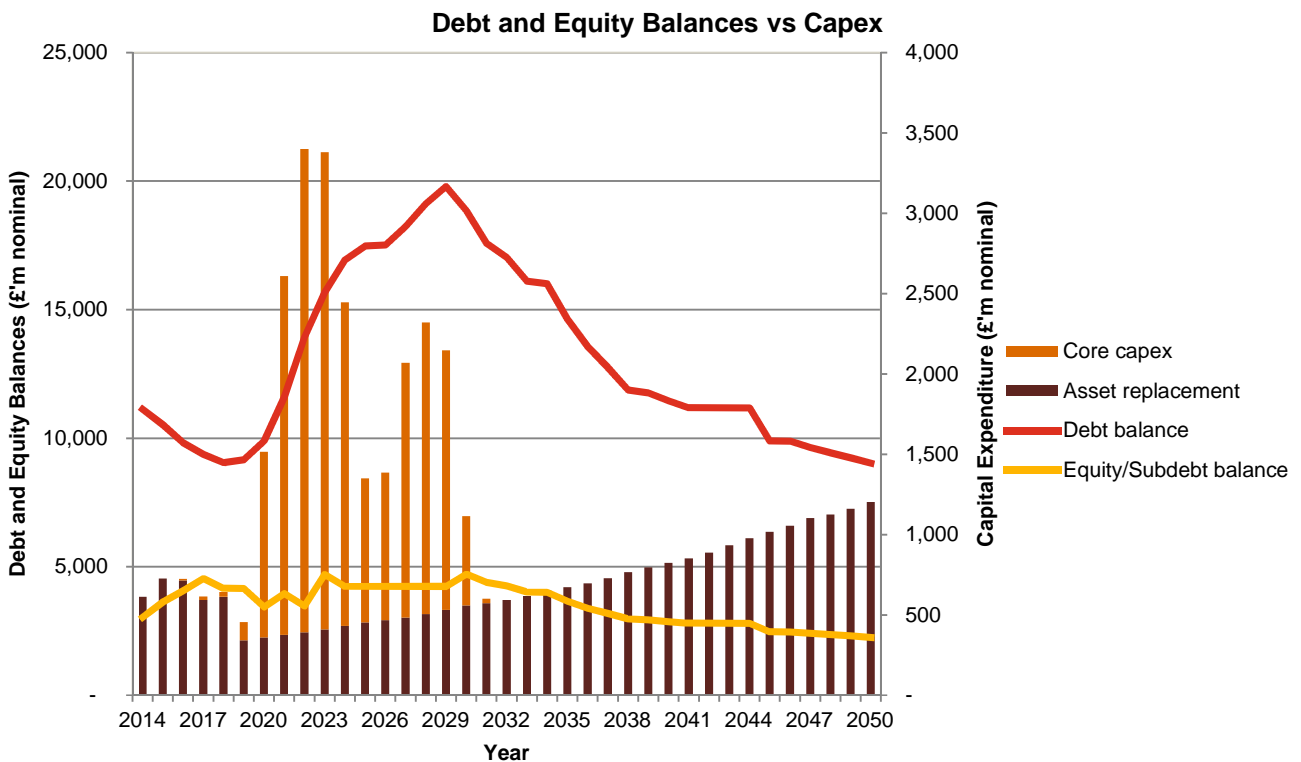
Cost and Commercial Viability: Additional Sensitivities

Chart 39: LHR NWR – Heathrow do nothing, Gatwick do something: Aeronautical charge profile



Sources: Financial Models

Chart 40: LHR NWR – Heathrow do nothing, Gatwick do something: Debt and equity balances vs capex



Sources: Financial Model

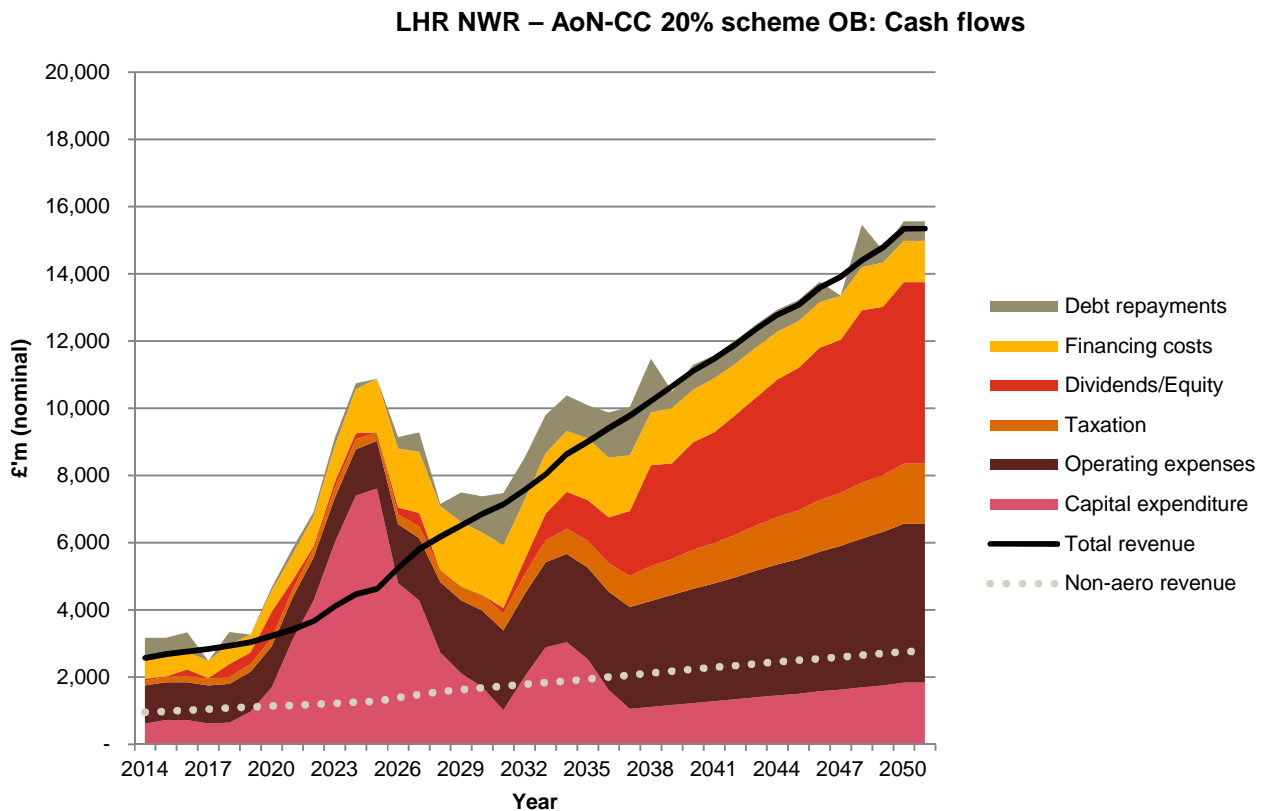
2.4 LHR NWR – AoN-CC: 20% scheme optimism bias

Summary: The sensitivity shows the financial analysis for the LHR NWR scheme under the same assumptions for optimism bias as were adopted at consultation stage. At consultation, 20% optimism bias was applied to scheme and asset replacement capex and opex. This was reduced to 15% for the final report with equivalent 5% reduction on core capex. Full details of the changes to optimism bias are set out in Cost and Commercial Viability: Additional Analysis report, section 1.

Table 17: LHR NWR –AoN-CC 20% scheme OB: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£29.75	£32.16	£23.4bn	£35.1bn	£5.8bn	£8.5bn

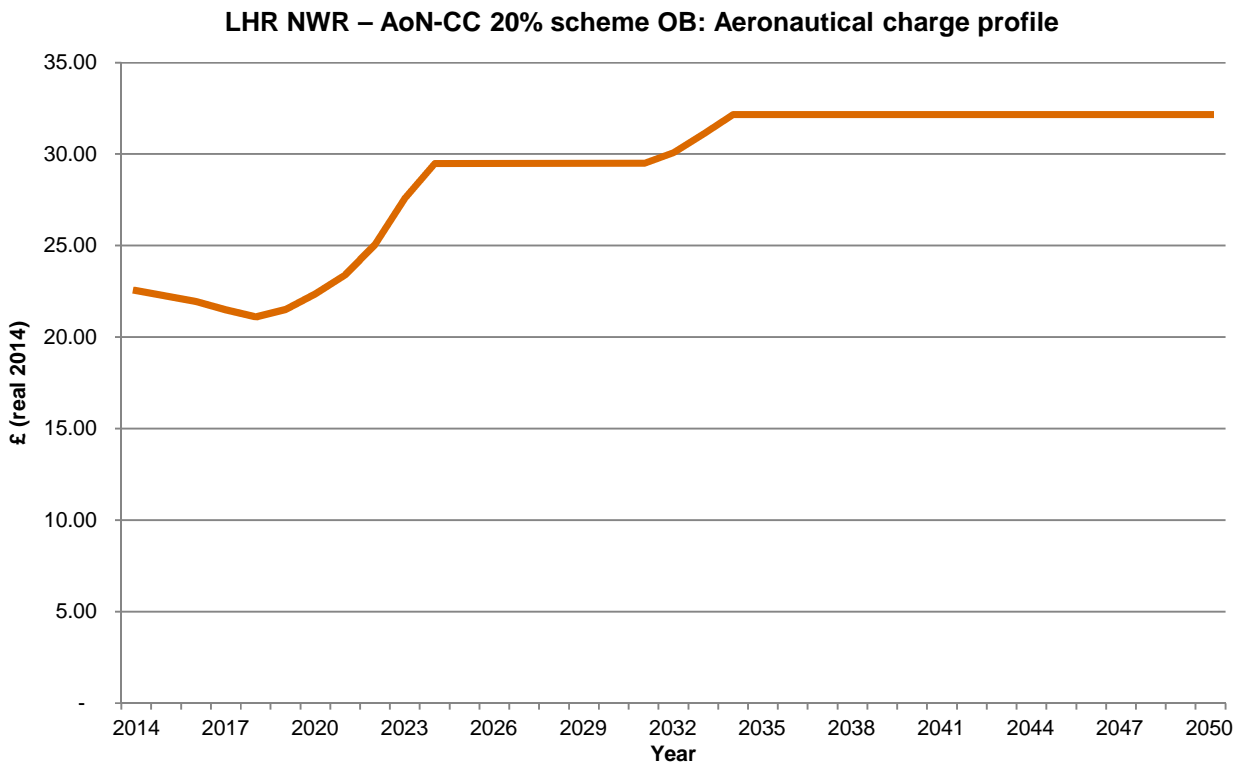
Chart 41: LHR NWR – AoN-CC 20% scheme OB: Cash flows



Sources: Financial models

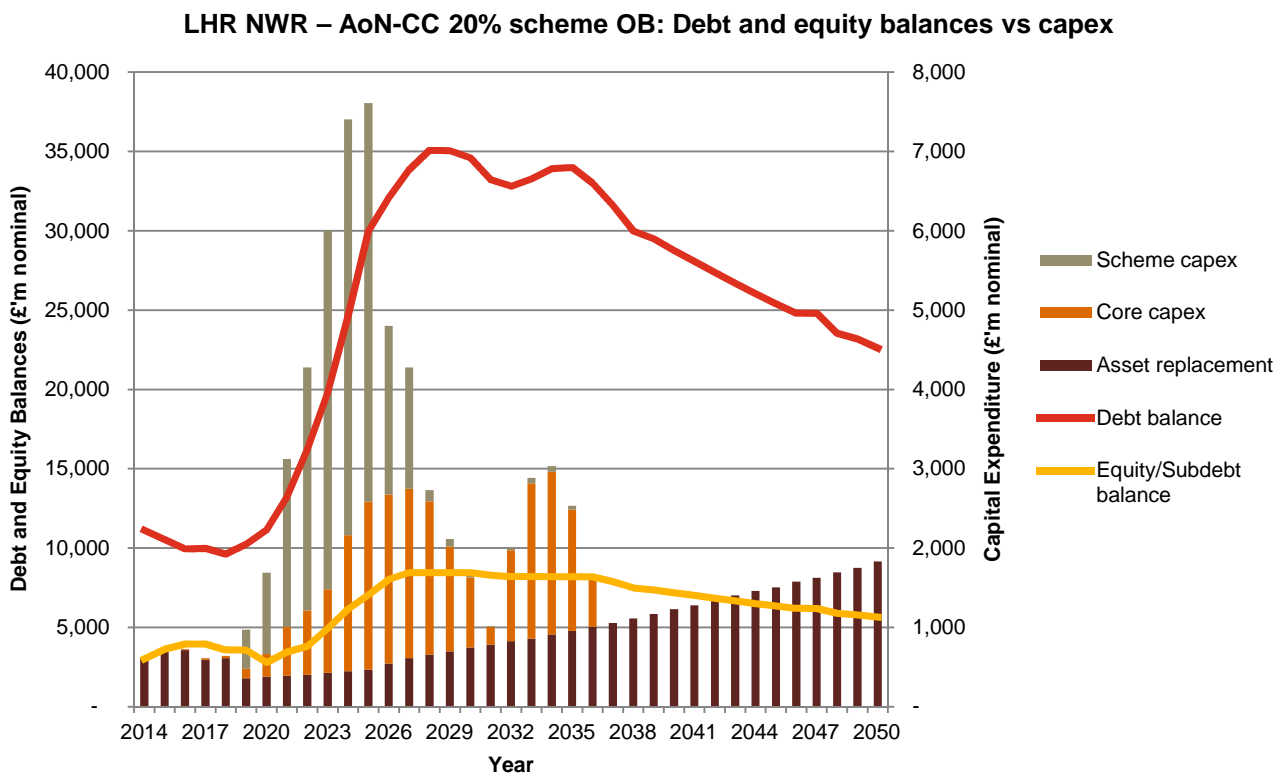
Cost and Commercial Viability: Additional Sensitivities

Chart 42: LHR NWR – AoN-CC 20% scheme OB: Aeronautical charge profile



Sources: Financial Models

Chart 43: LHR NWR – AoN-CC 20% scheme OB: Debt and equity balances vs capex



Sources: Financial Models

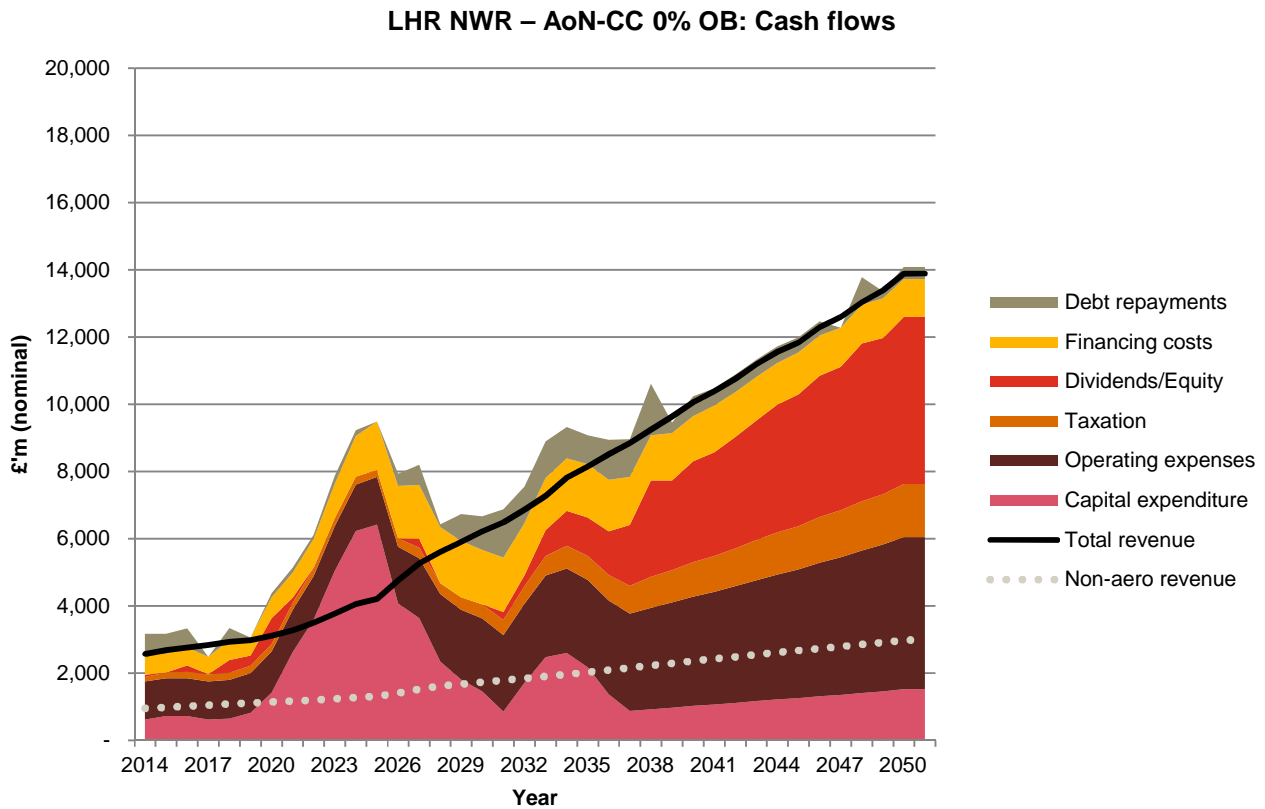
2.5 LHR NWR – AoN-CC: 0% optimism bias

Summary: The sensitivity shows the financial analysis for the LHR NWR scheme with optimism bias allowances removed completely for all capital expenditure, operating costs and non-aeronautical revenues. It is intended to show the potential costs in terms of aeronautical charges and financing requirements if the airport operator were to be able to achieve out turn cost without demonstrating a tendency to be optimistic in their assessment. It represents the low end of the range of cost outcomes the Commission has used in its Cost and Commercial Viability assessment.

Table 18: LHR NWR –AoN-CC 0% OB: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£26.21	£27.87	£18.9bn	£30.7bn	£4.8bn	£7.4bn

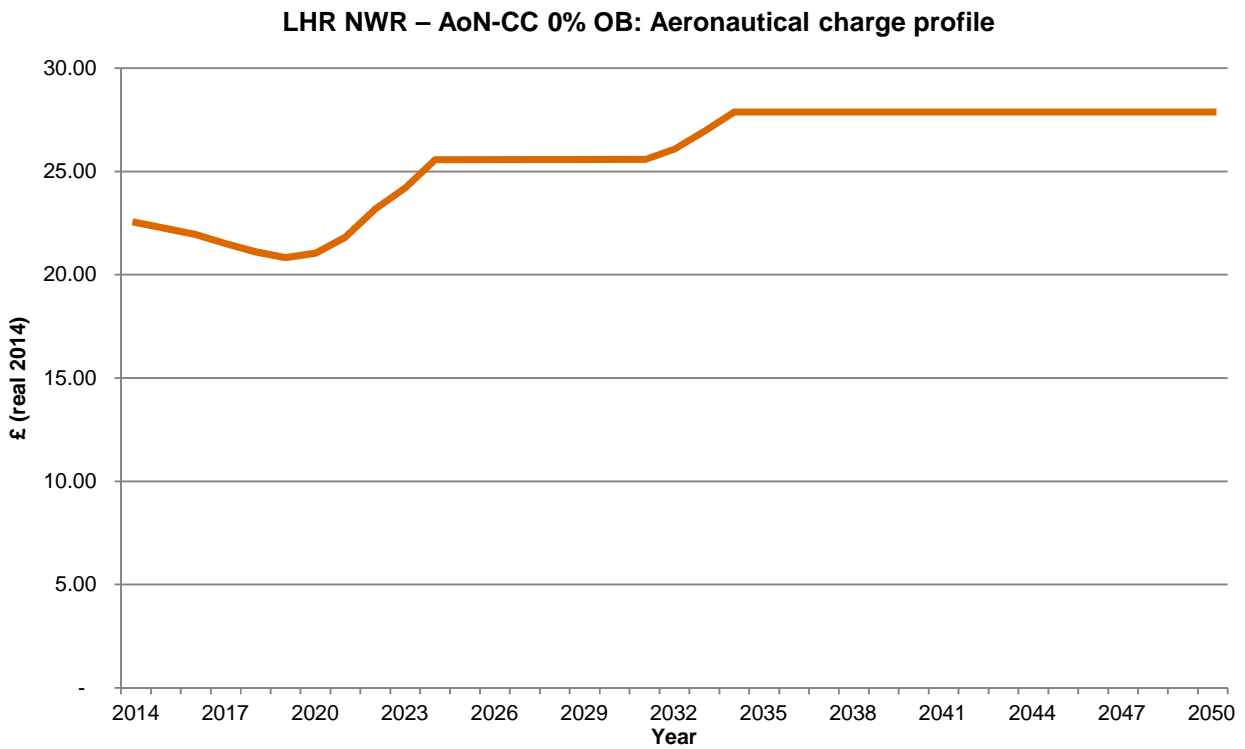
Chart 44: LHR NWR – AoN-CC 0% OB: Cash flows



Sources: Financial models

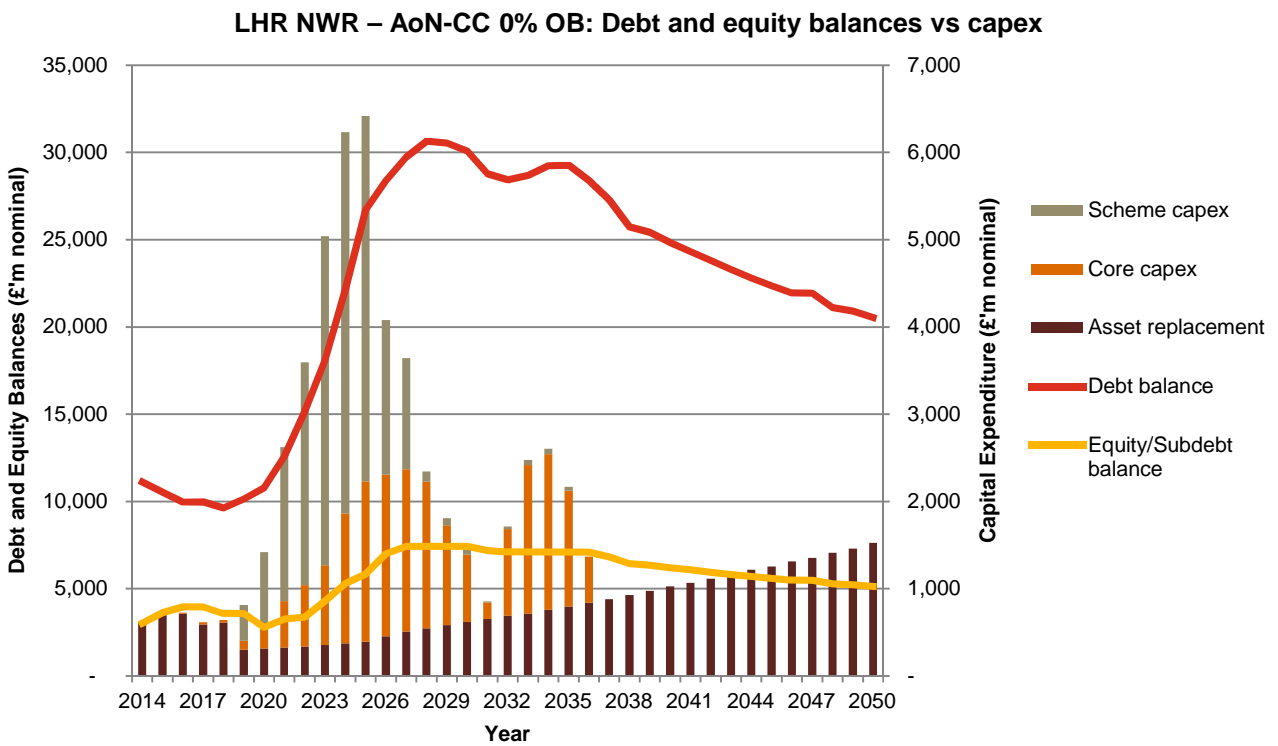
Cost and Commercial Viability: Additional Sensitivities

Chart 45: LHR NWR – AoN-CC 0% OB: Aeronautical charge profile



Sources: Financial Models

Chart 46: LHR NWR – AoN-CC 0% OB: Debt and equity balances vs capex



Sources: Financial Models

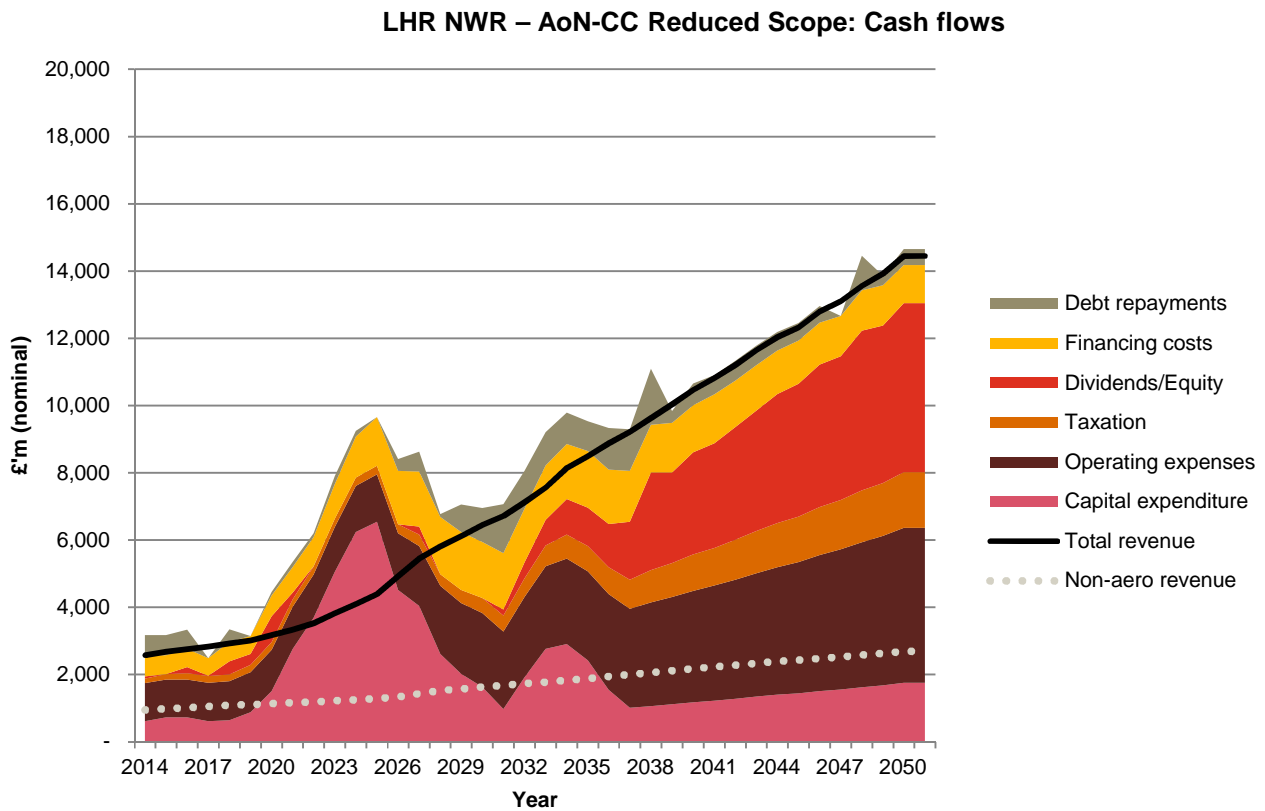
2.6 LHR NWR – AoN-CC: Reduced Scope

Summary: This sensitivity shows the LHR NWR AoN-CC scenario with reduced costs based on a de-scoped solution with the potential implications on passenger experience, as set out in the Cost and Commercial Viability: Reduced Scope Scenarios Costs report. The sensitivity considers the financing implications were this reduced scope option to be the basis of the scheme delivered.

Table 19: LHR NWR –AoN-CC Reduced Scope: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£27.92	£30.05	£19.8bn	£31.5bn	£5.0bn	£7.6bn

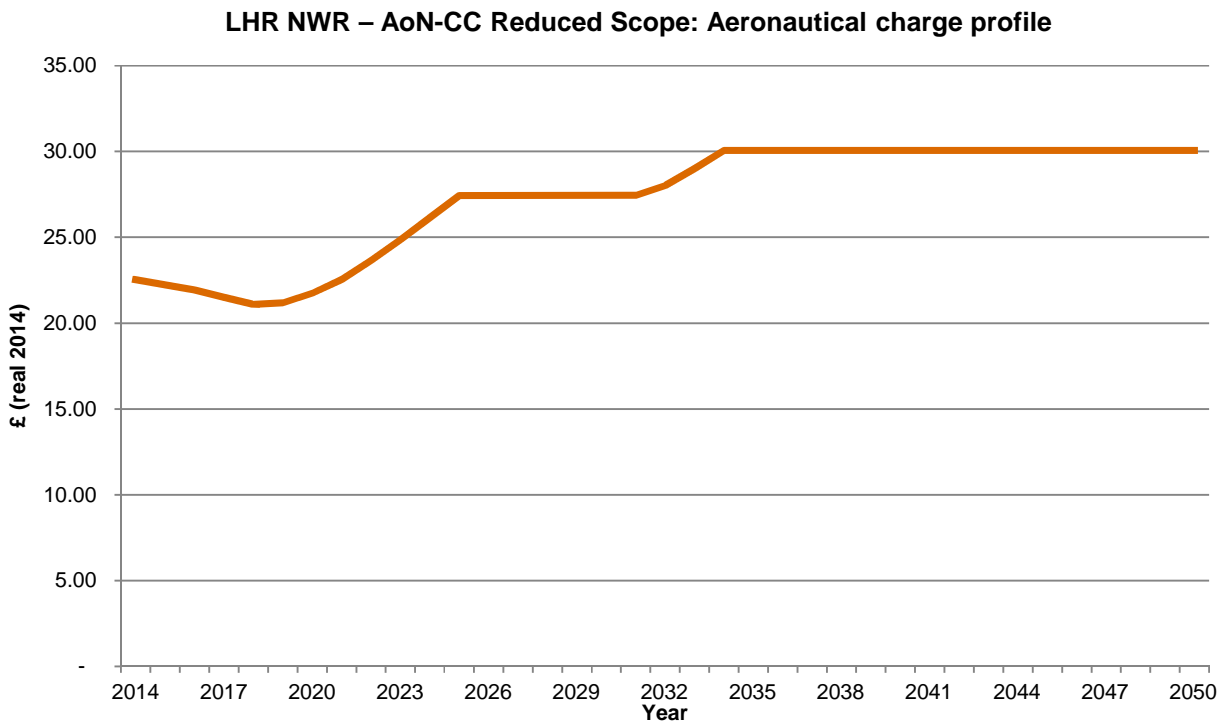
Chart 47: LHR NWR – AoN-CC Reduced Scope: Cash flows



Sources: Financial models

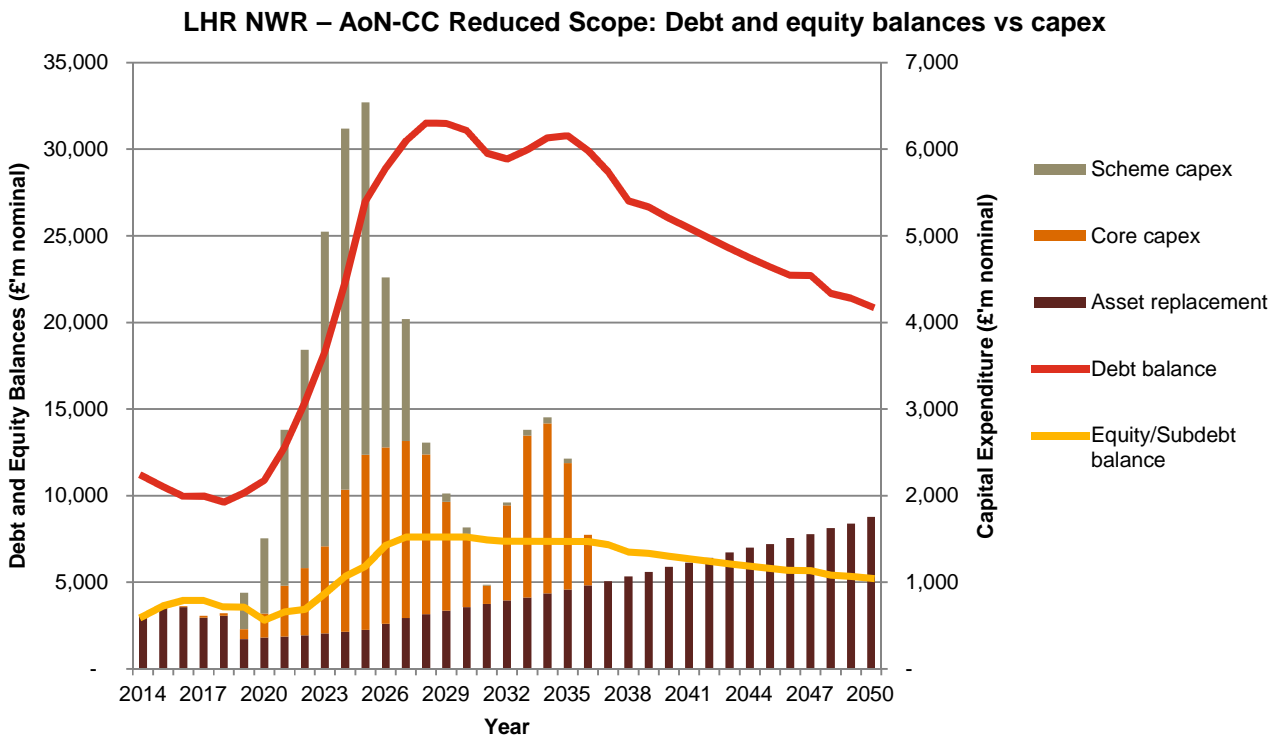
Cost and Commercial Viability: Additional Sensitivities

Chart 48: LHR NWR – AoN-CC Reduced Scope: Aeronautical charge profile



Sources: Financial Models

Chart 49: LHR NWR – AoN-CC Reduced Scope: Debt and equity balances vs capex



Sources: Financial Models

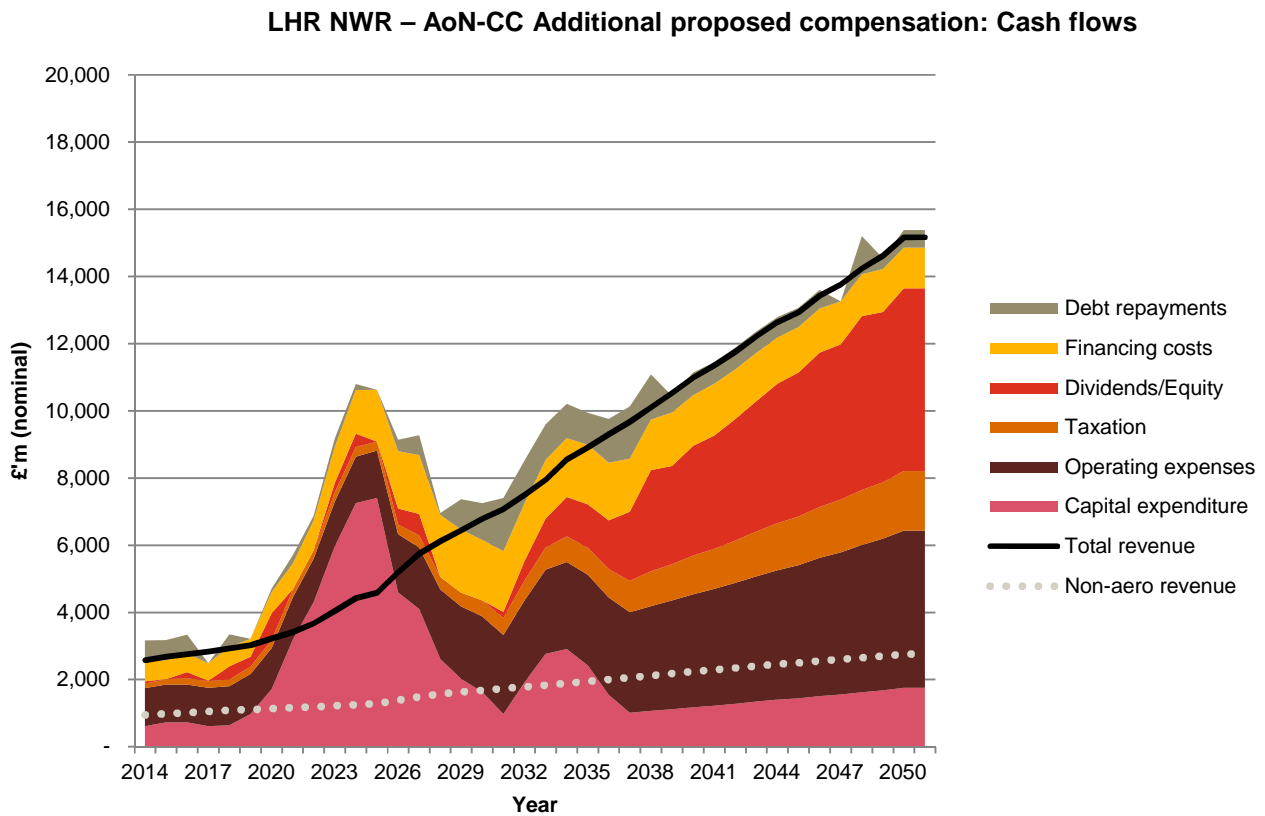
2.7 LHR NWR – AoN-CC: Additional proposed £715m compensation

Summary: This sensitivity shows the financial analysis for the LHR NWR scheme under a scenario for higher costs associated with community support and compensation, as set out in the Cost and Commercial Viability: Additional Analysis report, section 2.

Table 20: LHR NWR –AoN-CC Additional proposed £715m compensation: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£29.37	£31.69	£22.4bn	£34.2bn	£5.5bn	£8.2bn

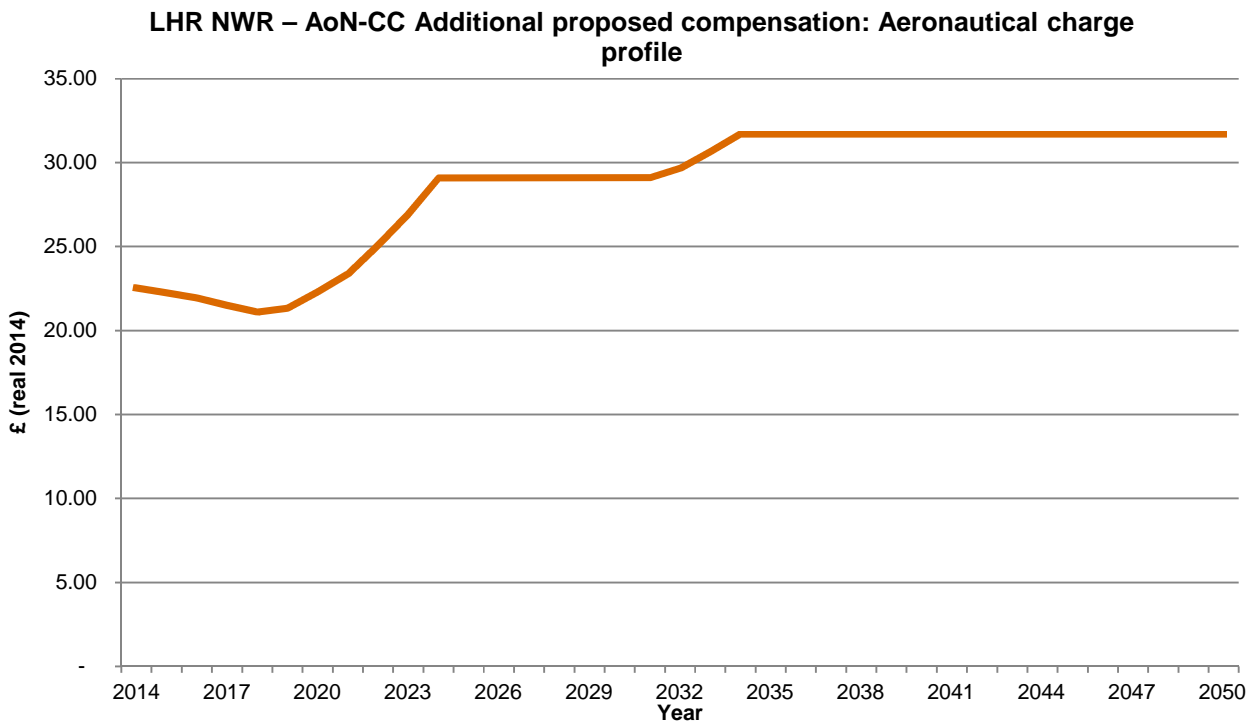
Chart 50: LHR NWR – AoN-CC Additional proposed compensation: Cash flows



Sources: Financial models

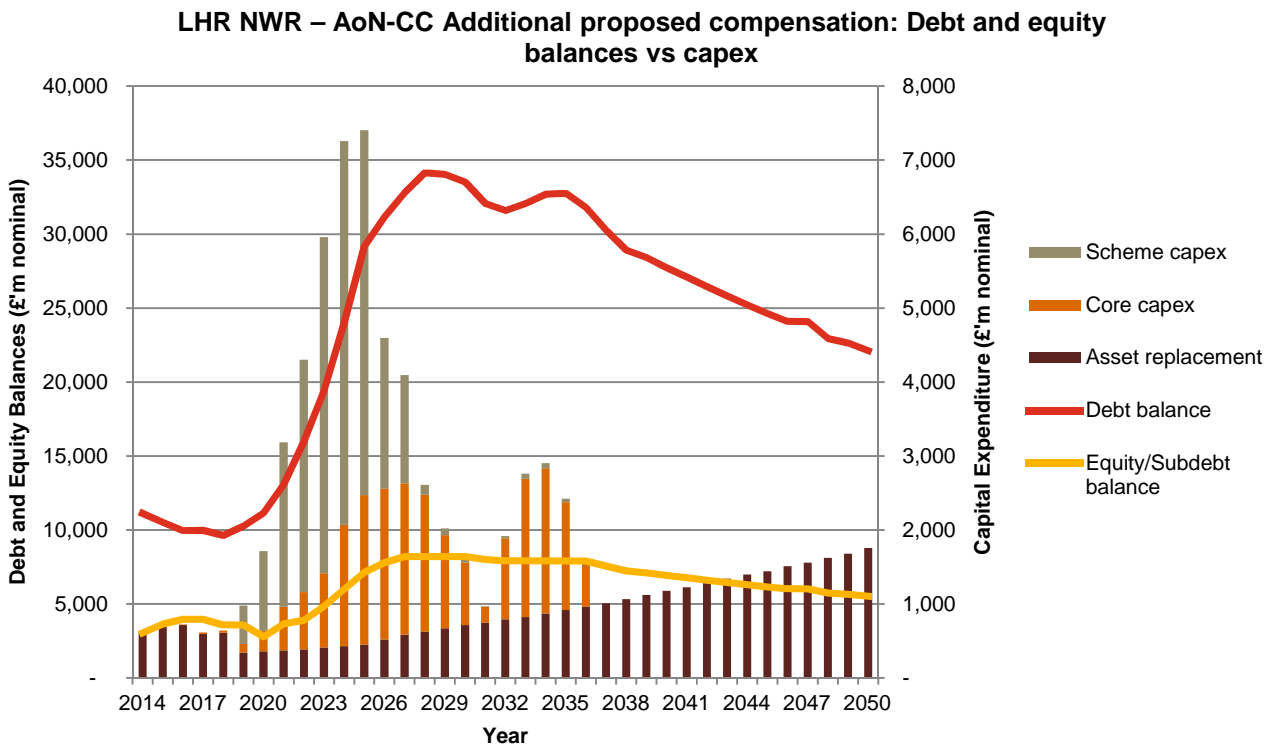
Cost and Commercial Viability: Additional Sensitivities

Chart 51: LHR NWR – AoN-CC Additional proposed compensation: Aeronautical charge profile



Sources: Financial Models

Chart 52: LHR NWR – AoN-CC Additional proposed compensation: Debt and equity balances vs capex



Sources: Financial Models

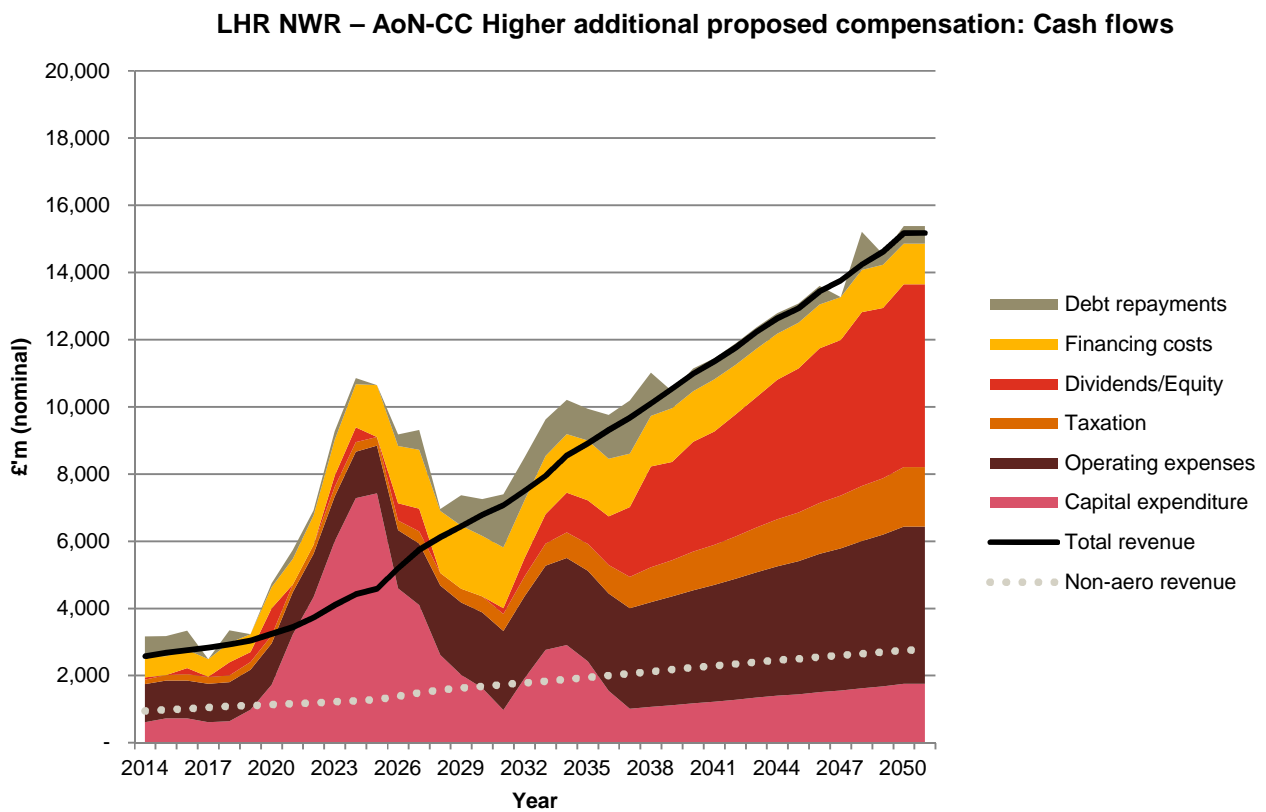
2.8 LHR NWR – AoN-CC: Higher additional proposed compensation

Summary: The sensitivity shows the financial analysis for the LHR NWR scheme under a scenario with higher costs associated with compensation to local residents as set out the in Cost and Commercial Viability: Additional Analysis report, section 2 (£851m).

Table 21: LHR NWR –AoN-CC Higher additional proposed compensation: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£29.42	£31.70	£22.5bn	£34.2bn	£5.5bn	£8.2bn

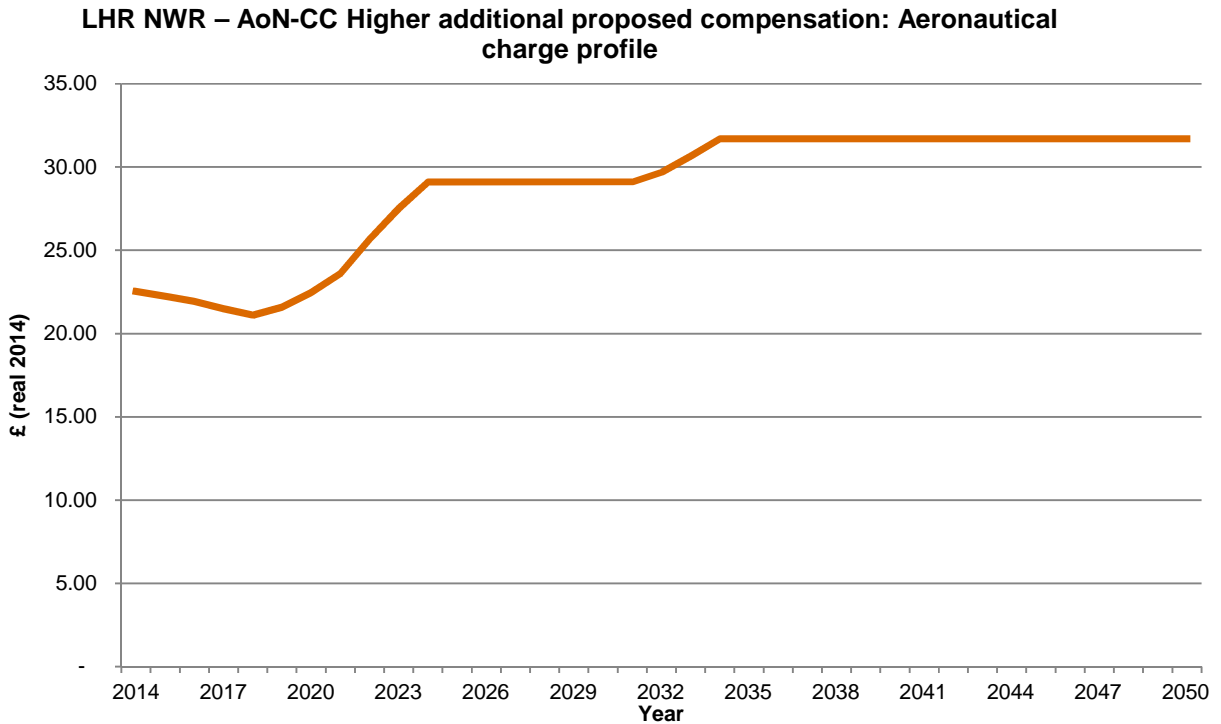
Chart 53: LHR NWR – AoN-CC Higher additional proposed compensation: Cash flows



Sources: Financial models

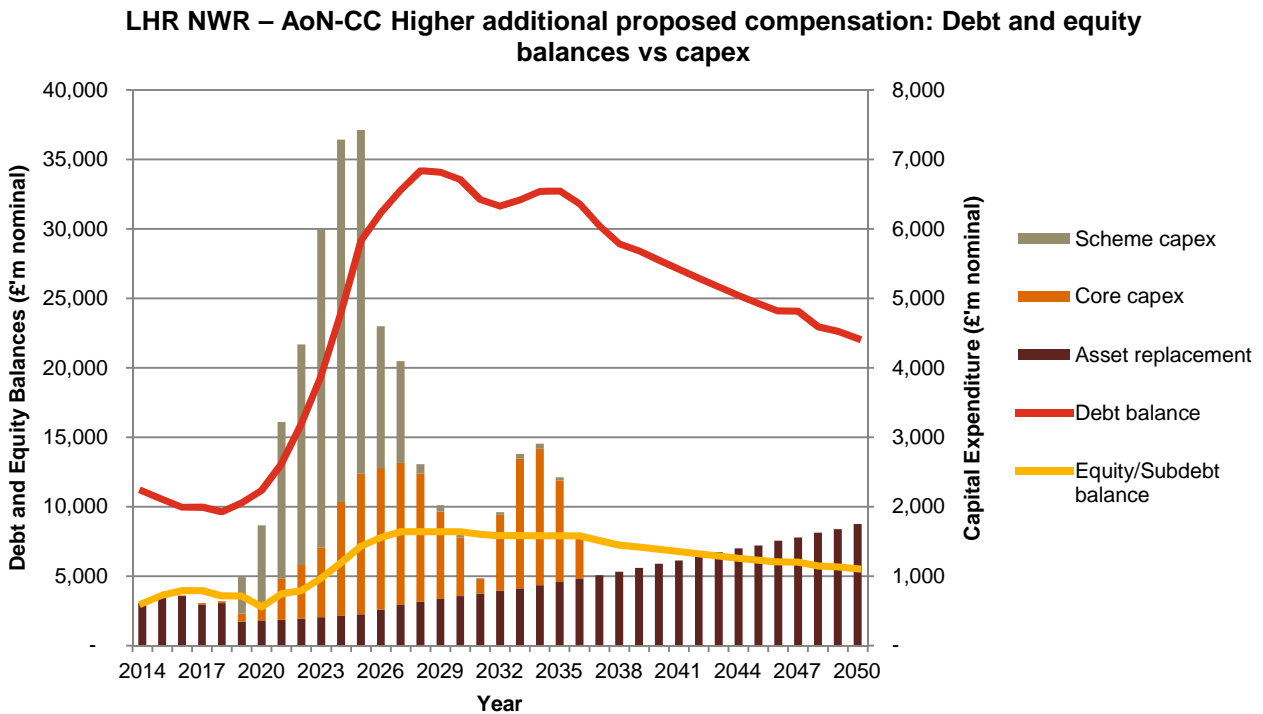
Cost and Commercial Viability: Additional Sensitivities

Chart 54: LHR NWR – AoN-CC Higher additional proposed compensation: Aeronautical charge profile



Sources: Financial Models

Chart 55: LHR NWR – AoN-CC Higher additional proposed compensation: Debt and equity balances vs capex



Sources: Financial Models

2.9 LHR NWR – AoN-CC: Underlying cost of debt @ 6.40%

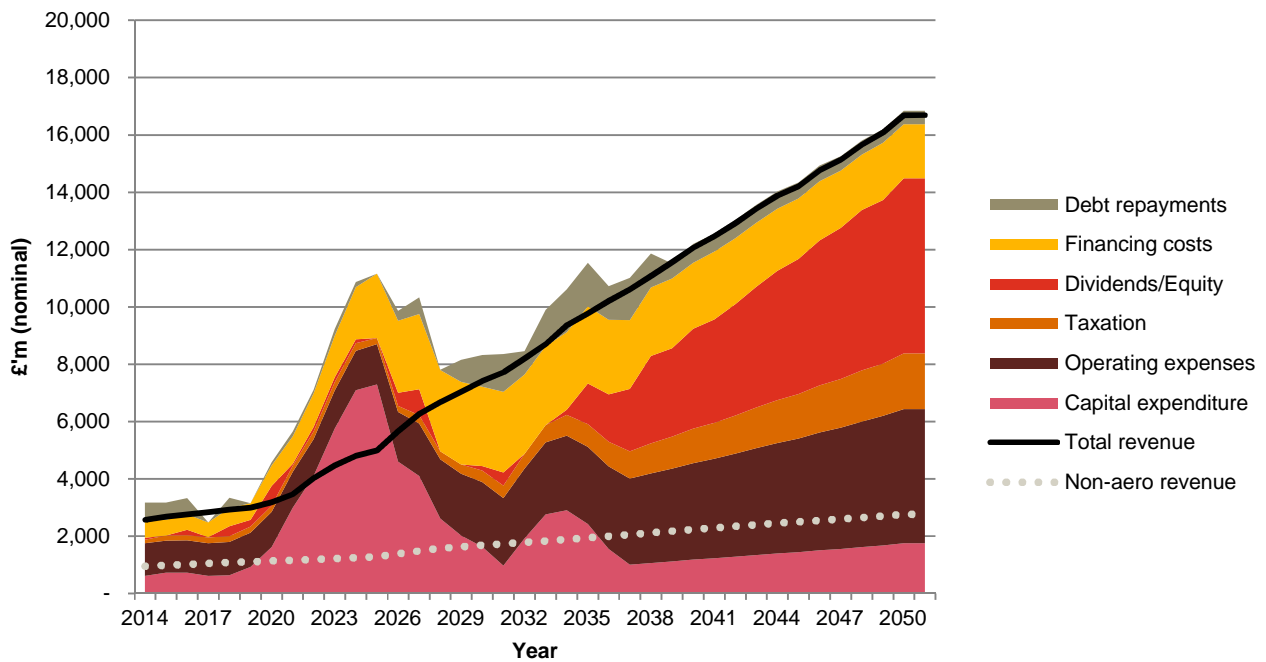
Summary: This sensitivity shows the financial analysis for the LHR NWR AoN-CC scenario with the underlying cost of debt increased to 6.40%. This is the average yield for 10 year UK gilts over the past 30 years. It represents an increase to the underlying cost of debt of approximately 3.10% over the assumption in Cost and Commercial Viability: Funding and Financing Update where the average of the assumed underlying cost of debt is 3.30%. This assumed cost of debt is shown in Appendix 1. The sensitivity shows the impact of a shift to general market conditions of more expensive debt. This was an issue raised in consultation (see Cost and Commercial Viability: Sources of Finance).

Table 22: LHR NWR –AoN-CC Underlying cost of debt @ 6.40%: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£32.60	£35.60	£23.0bn	£34.7bn	£5.9bn	£8.5bn

Chart 56: LHR NWR – AoN-CC Underlying cost of debt @ 6.40%: Cash flows

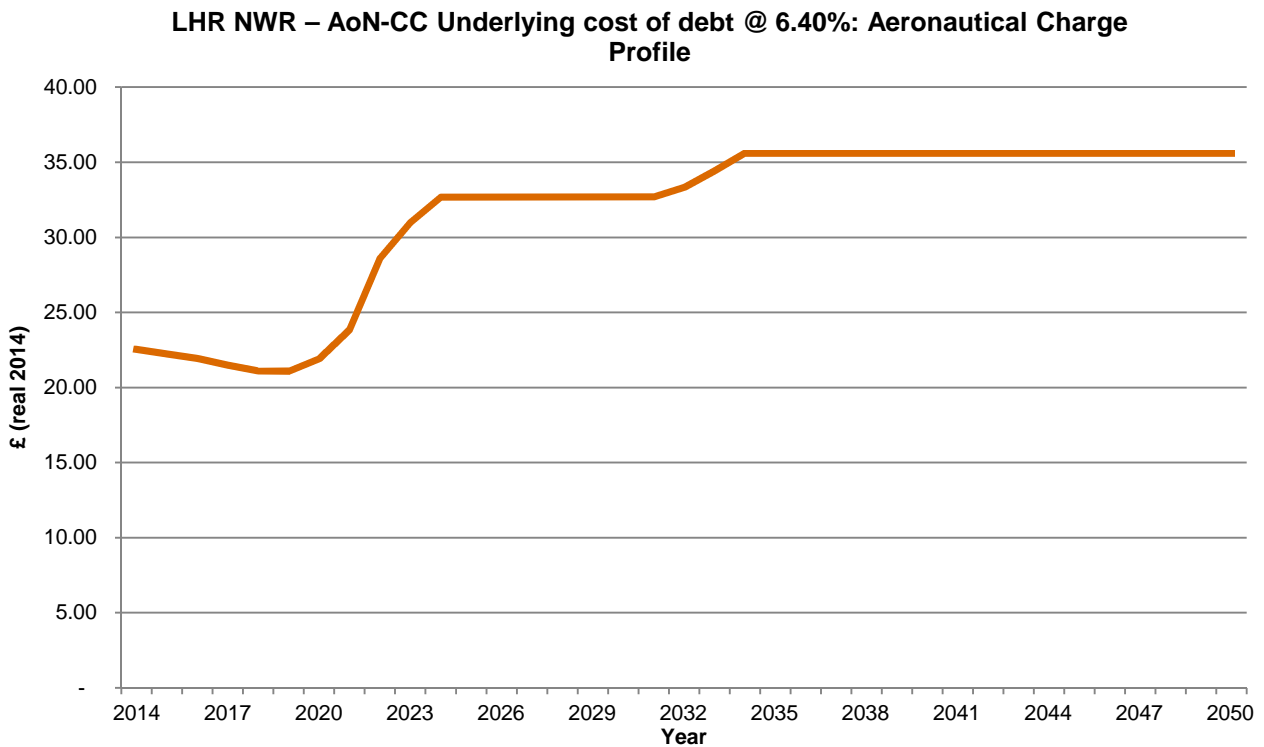
LHR NWR – AoN-CC Underlying cost of debt @ 6.40%: Cash flows



Sources: Financial models

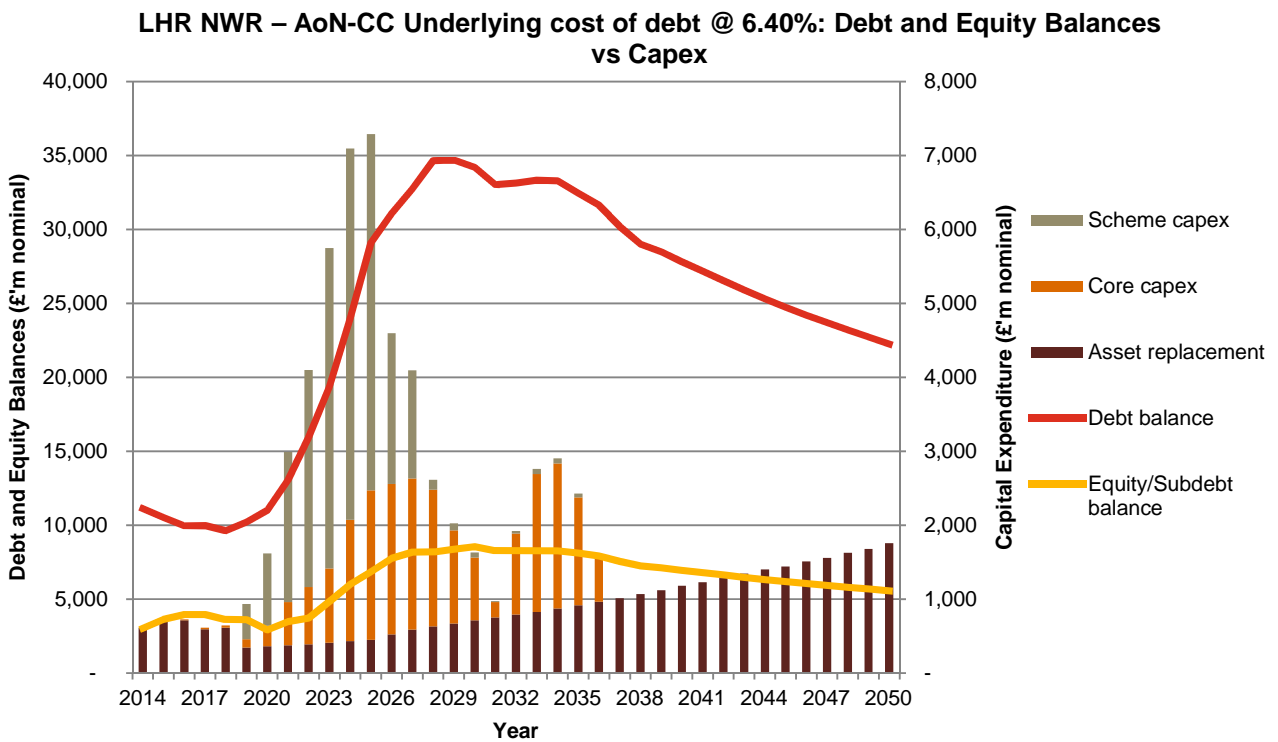
Cost and Commercial Viability: Additional Sensitivities

Chart 57: LHR NWR – AoN-CC Underlying cost of debt @ 6.40%: Aeronautical charge profile



Sources: Financial Models

Chart 58: LHR NWR – AoN-CC Underlying cost of debt @ 6.40%: Debt and equity balances vs capex



Sources: Financial Models

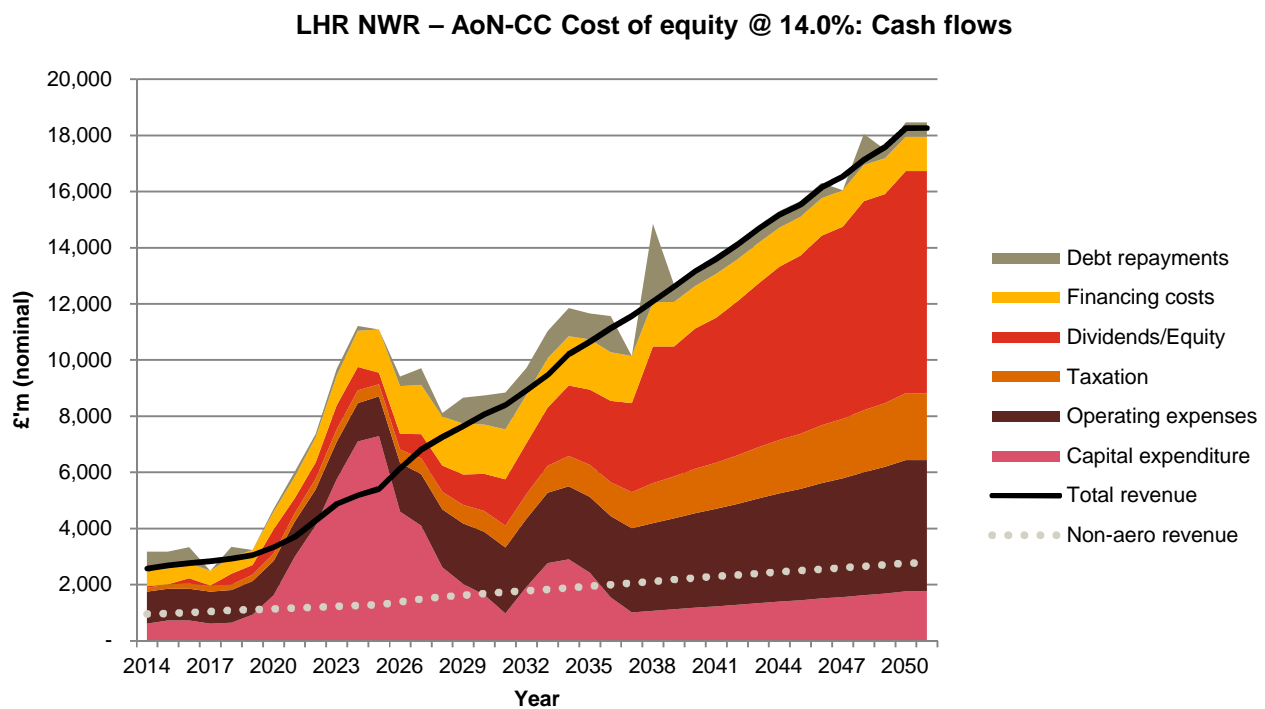
2.10 LHR NWR – AoN-CC: Cost of equity @ 14.00%

Summary: This sensitivity shows the financial analysis for the LHR NWR AoN-CC scenario with the required return to equity increased from 9.00% to 14.00%. A return requirement of 14.00% is more associated with project finance than corporate financing. This illustrates the sensitivity of higher equity requirements. This level of return is at the upper end of discussions held as part of the consultation process (see Cost and Commercial Viability: Sources of Finance).

Table 23: LHR NWR –AoN-CC Cost of equity @ 14.00%: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£35.97	£39.61	£21.7bn	£33.5bn	£5.4bn	£8.1bn

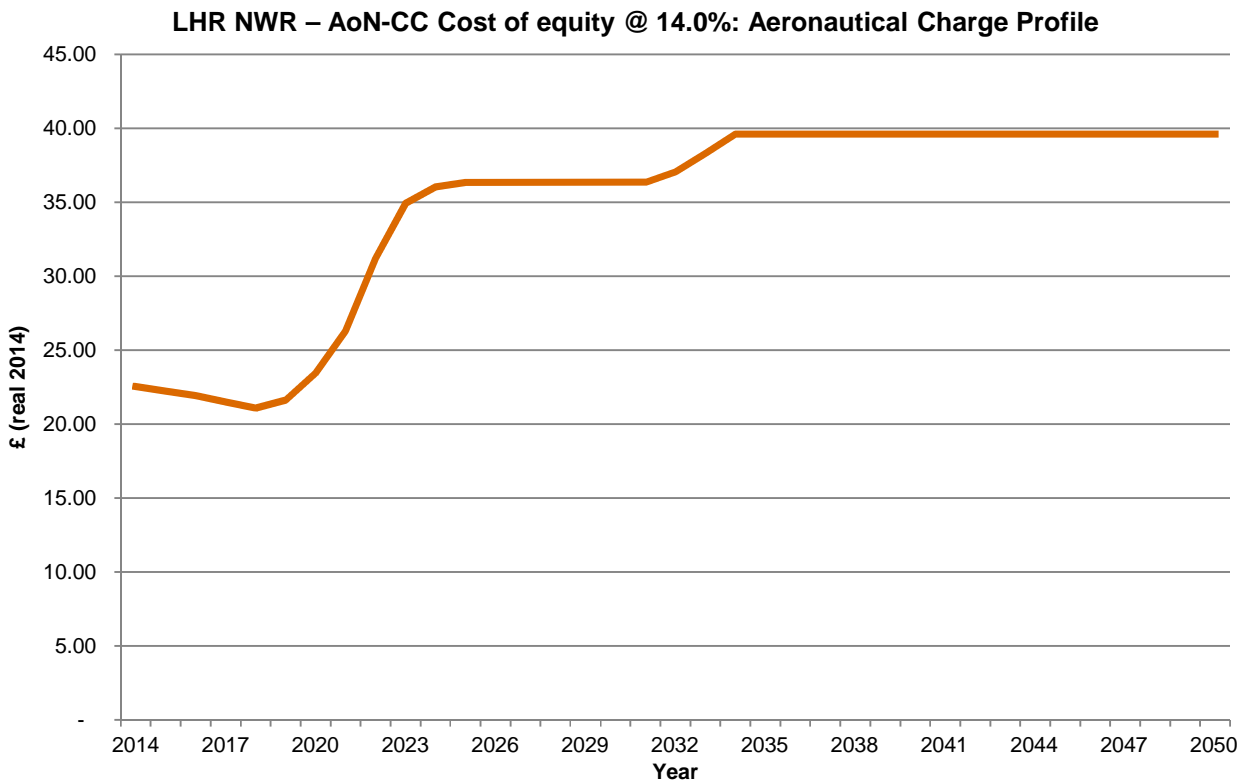
Chart 59: LHR NWR – AoN-CC Cost of equity @ 14.0%: Cash flows



Sources: Financial models

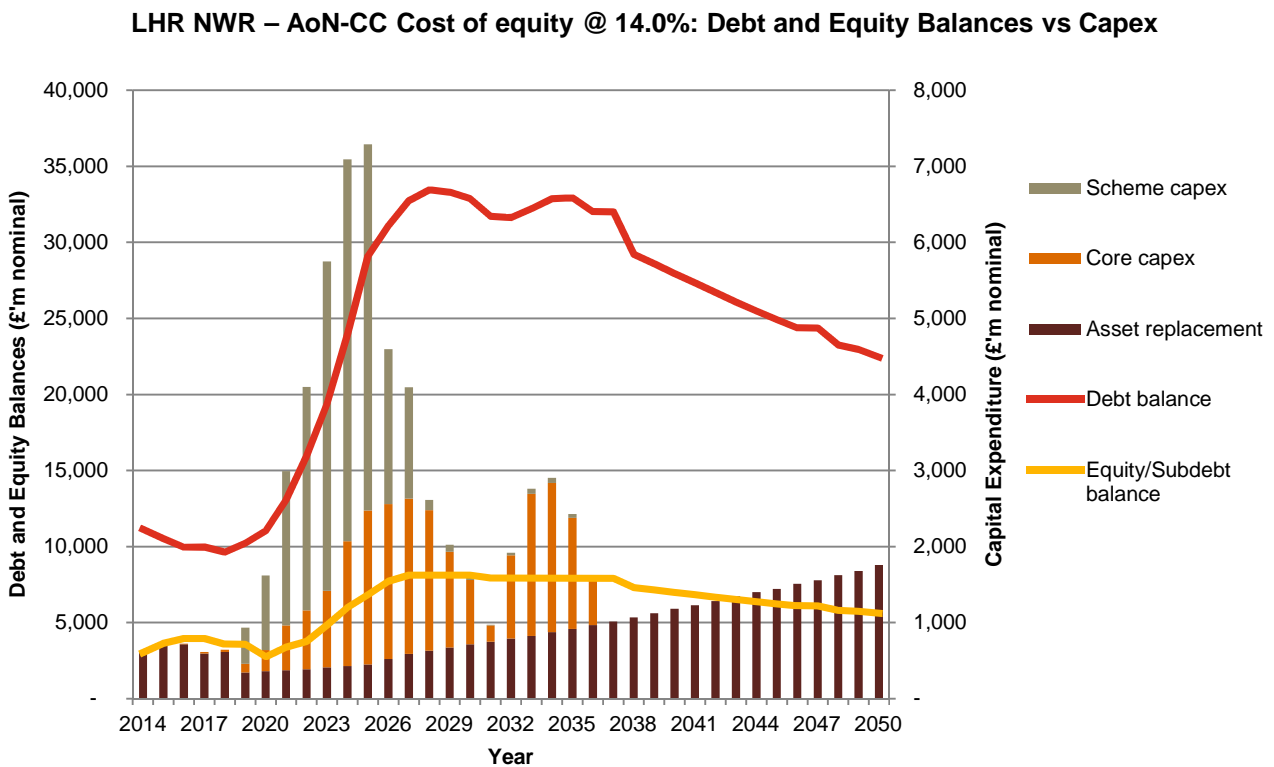
Cost and Commercial Viability: Additional Sensitivities

Chart 60: LHR NWR – AoN-CC Cost of equity @ 14.0%: Aeronautical charge profile



Sources: Financial Models

Chart 61: LHR NWR – AoN-CC Cost of equity @ 14.0%: Debt and equity balances vs capex



Sources: Financial Models

2.11 LHR NWR – AoN-CC: Underlying cost of debt @ 6.40% and cost of equity @ 12.10%

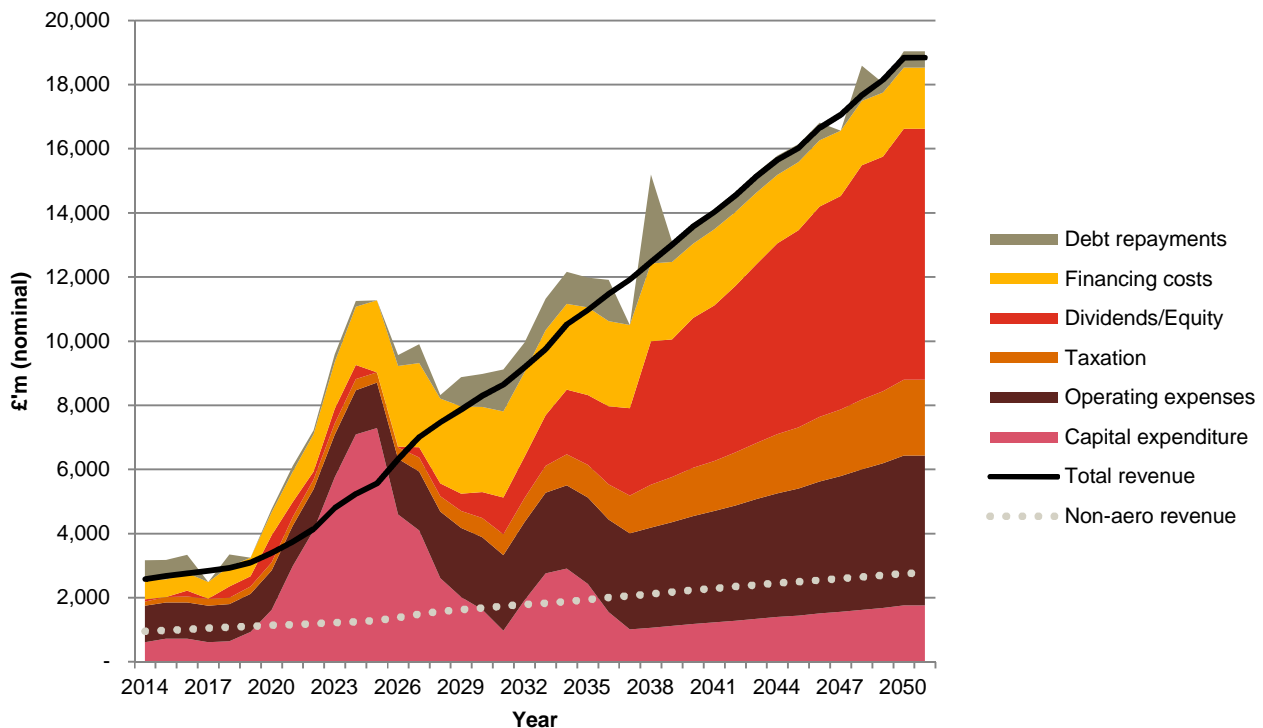
Summary: This sensitivity shows the LHR NWR AoN-CC scenario with the underlying cost of debt increased to 6.40% and the required return to equity increased to 12.10%. In the scenario of higher cost of debt (see section 1.10), it is reasonable to assume that the cost of equity would be more expensive although it is difficult to assess this increase as it depends on several factors. As part of the Cost and Commercial Viability assessment, we assume an increase of 3.10% to maintain the debt to equity spread (see Cost and Commercial Viability: Sources of Finance).

Table 24: LHR NWR –AoN-CC Underlying cost of debt @ 6.40% and cost of equity @ 12.10%: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£37.12	£41.09	£21.7bn	£33.5bn	£5.5bn	£8.1bn

Chart 62: LHR NWR – AoN-CC Underlying cost of debt @ 6.40% and cost of equity @ 12.10%: Cash flows

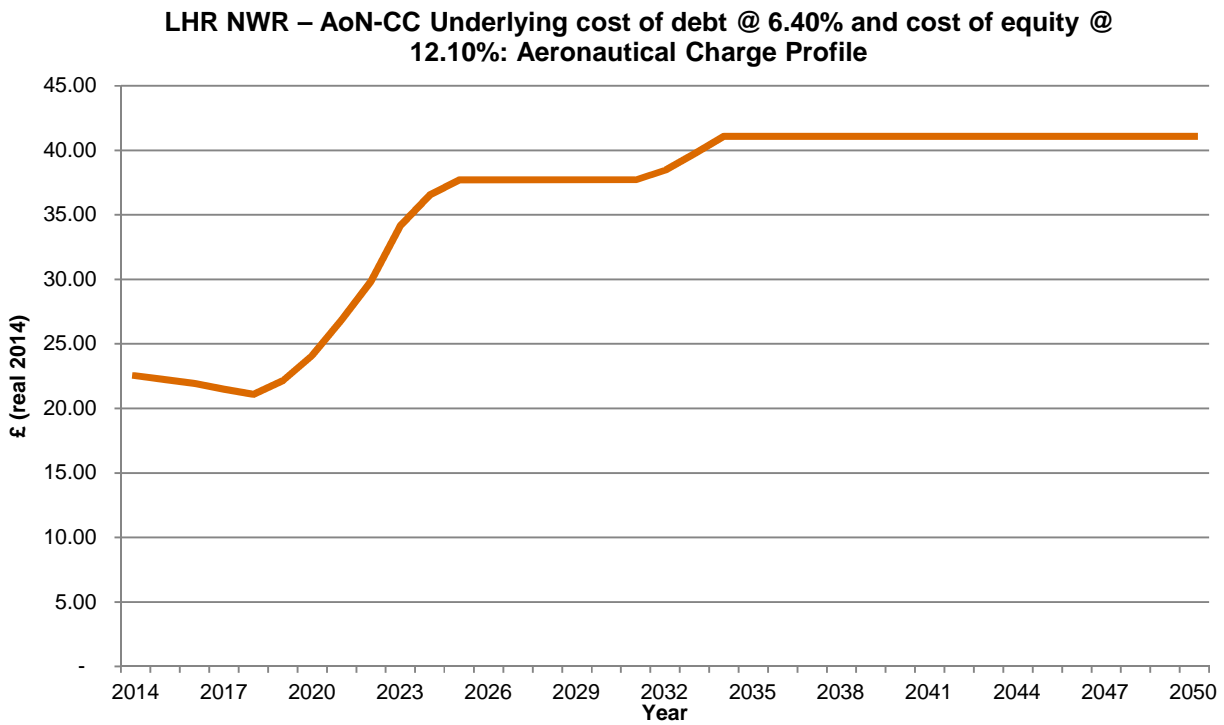
LHR NWR – AoN-CC Underlying cost of debt @ 6.40% and cost of equity @ 12.10%: Cash flows



Sources: Financial models

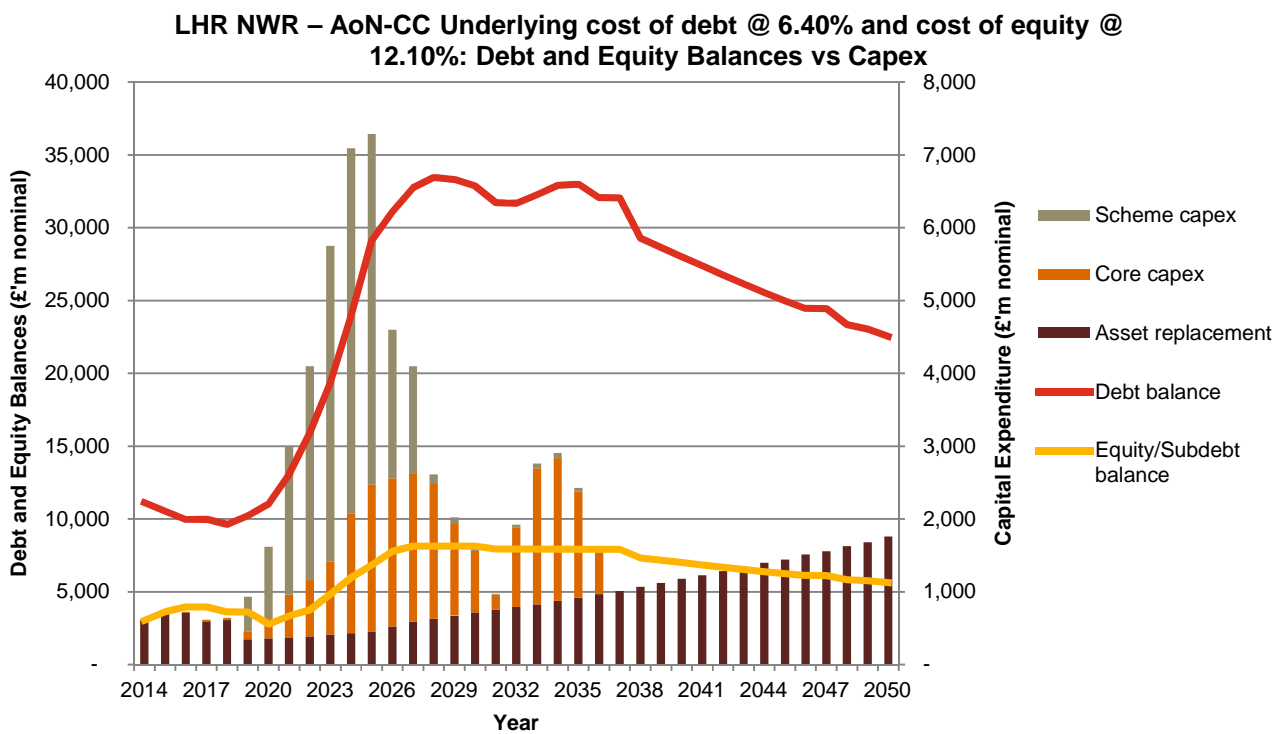
Cost and Commercial Viability: Additional Sensitivities

Chart 63: LHR NWR – AoN-CC Underlying cost of debt @ 6.40% and cost of equity @ 12.10%: Aeronautical charge profile



Sources: Financial Models

Chart 64: LHR NWR – AoN-CC Underlying cost of debt @ 6.40% and cost of equity @ 12.10%: Debt and equity balances vs capex



Sources: Financial Models

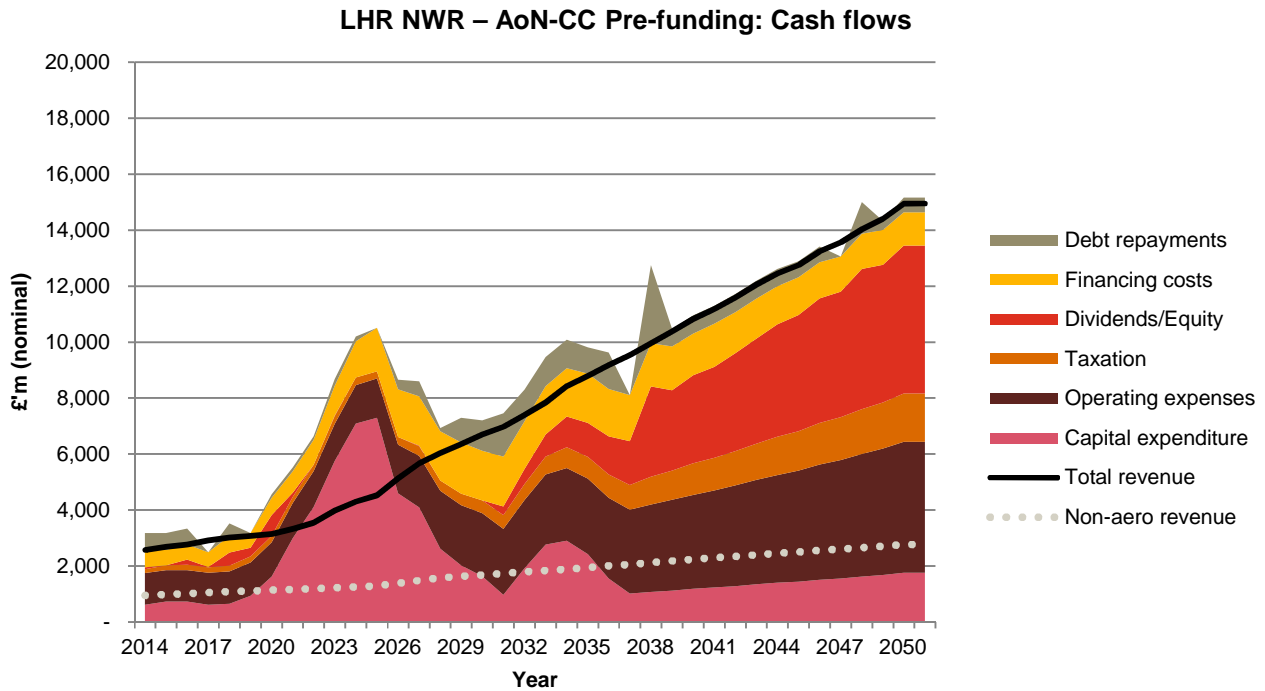
2.12 LHR NWR – AoN-CC: Pre-funding

Summary: This sensitivity shows the financial analysis for the LHR NWR AoN-CC scenario with an estimate for pre-funding through an increased aeronautical charge ahead of any capital expenditure. This increase to aeronautical charges is assumed to be £1.00 (real 2014 prices) per passenger during the two years preceding first scheme capex and the first year of scheme capex (2017-2019). However, the level of pre-funding that might be allowed will be determined by the regulator. This shows the impact of one approach to pre-funding on the funding and financing requirements.

Table 25: LHR NWR –AoN-CC Pre-funding: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£28.90	£31.14	£21.9bn	£33.6bn	£5.5bn	£8.2bn

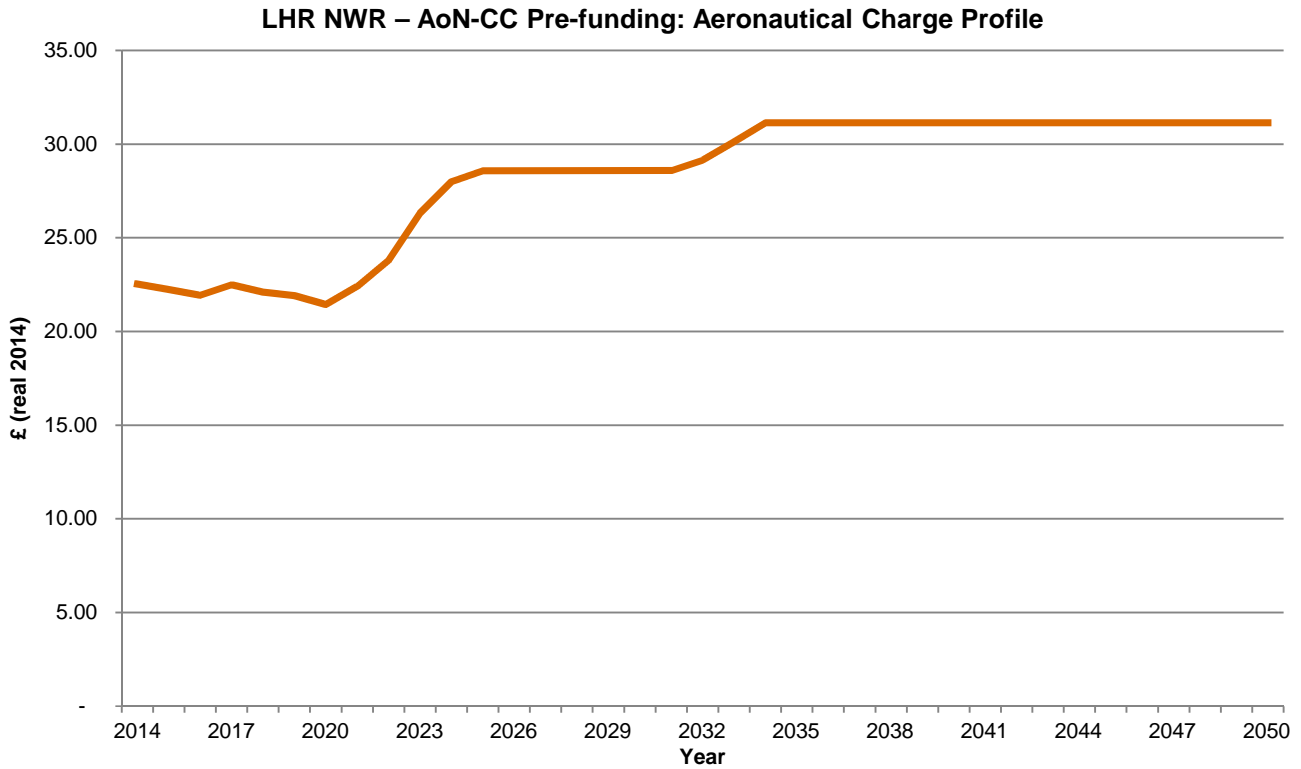
Chart 55: LHR NWR – AoN-CC Pre-funding: Cash flows



Sources: Financial models

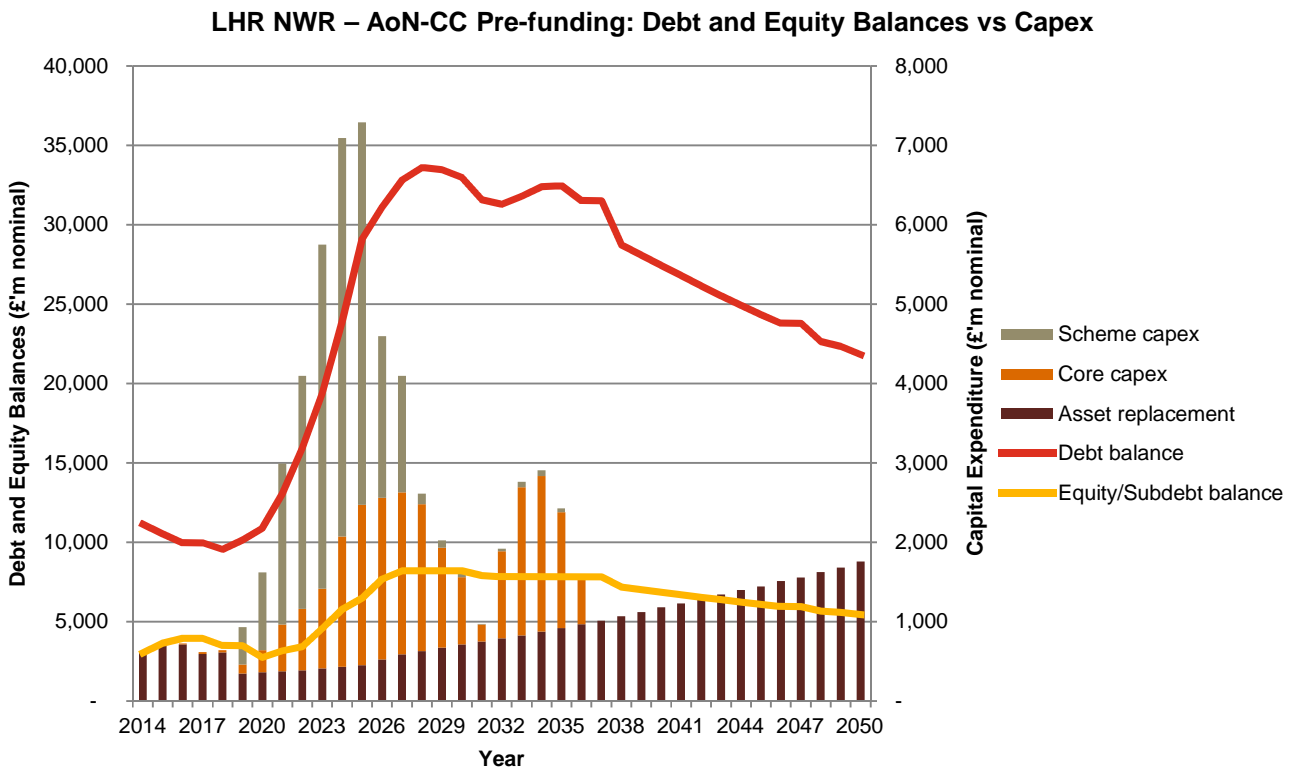
Cost and Commercial Viability: Additional Sensitivities

Chart 56: LHR NWR – AoN-CC Pre-funding: Aeronautical charge profile



Sources: Financial Models

Chart 57: LHR NWR – AoN-CC Pre-funding: Debt and equity balances vs capex



Sources: Financial Models

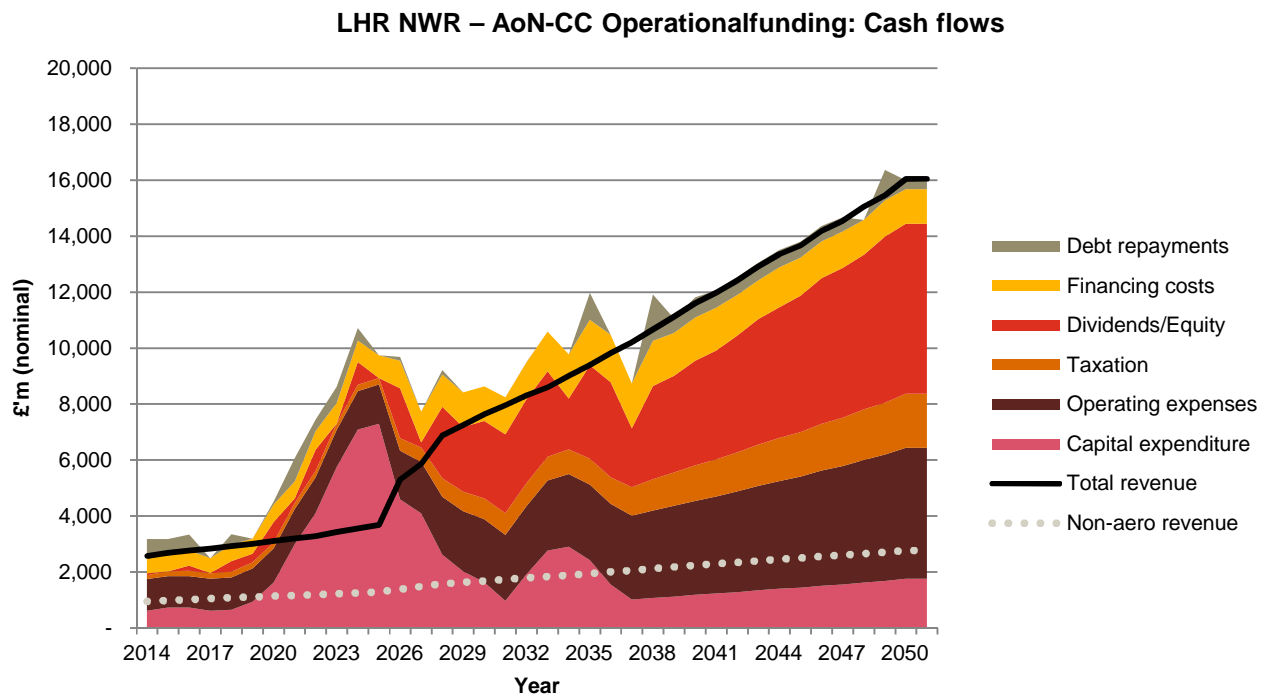
2.13 LHR NWR – AoN-CC: Operational funding

Summary: This sensitivity shows the financial analysis for the LHR NWR AoN-CC scenario on the basis of an estimate for operational funding (i.e. the airport operator is only able to pass on the costs relating to the new runway capacity through aeronautical charges at the point when this capacity becomes operational). In the Funding and Financing Update report, it is assumed that aeronautical charges are increased in the year in which capital expenditure is incurred. The treatment of when costs associated with the new capacity are able to be passed on through aeronautical charges will be a matter for the delivery body and the regulator.

Table 26: LHR NWR –AoN-CC Operational funding: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£30.79	£33.93	£18.9bn	£30.6bn	£18.0bn	£20.7bn

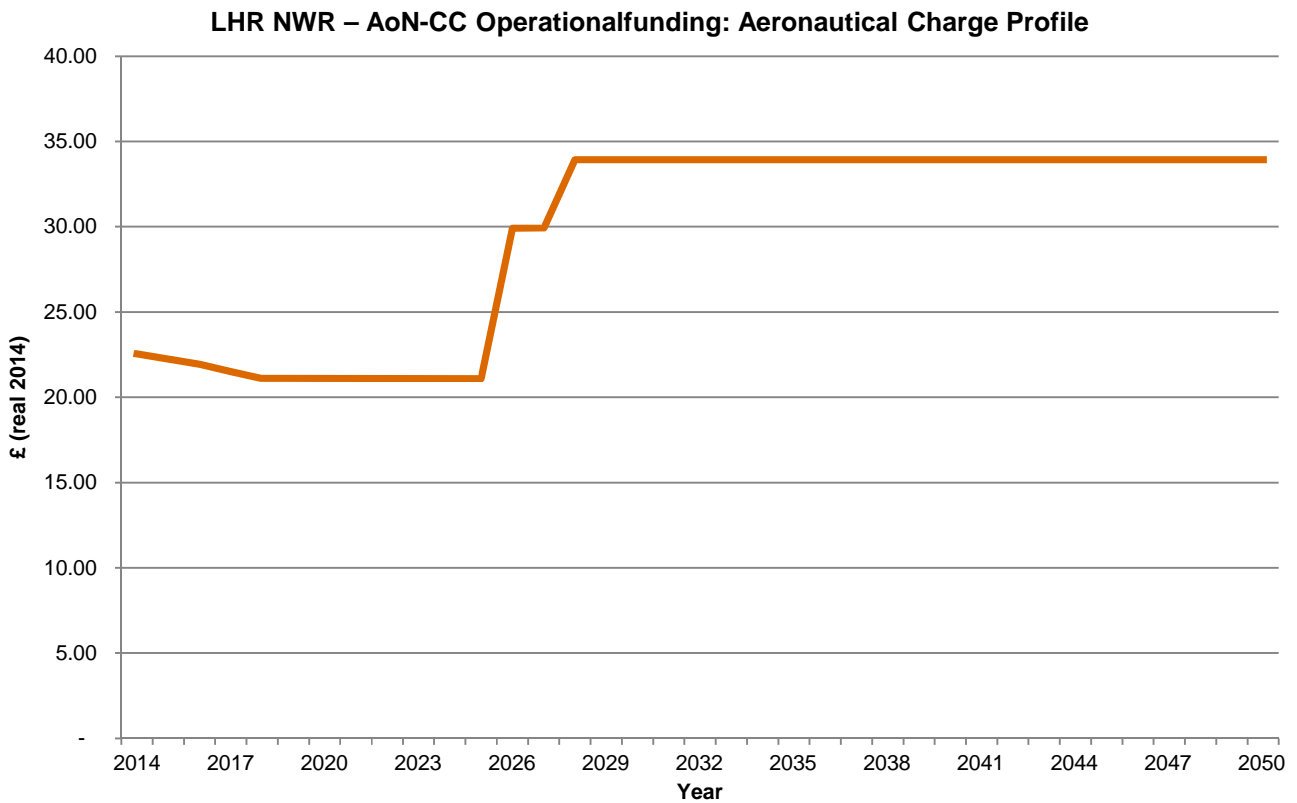
Chart 58: LHR NWR – AoN-CC Operational funding: Cash flows



Sources: Financial models

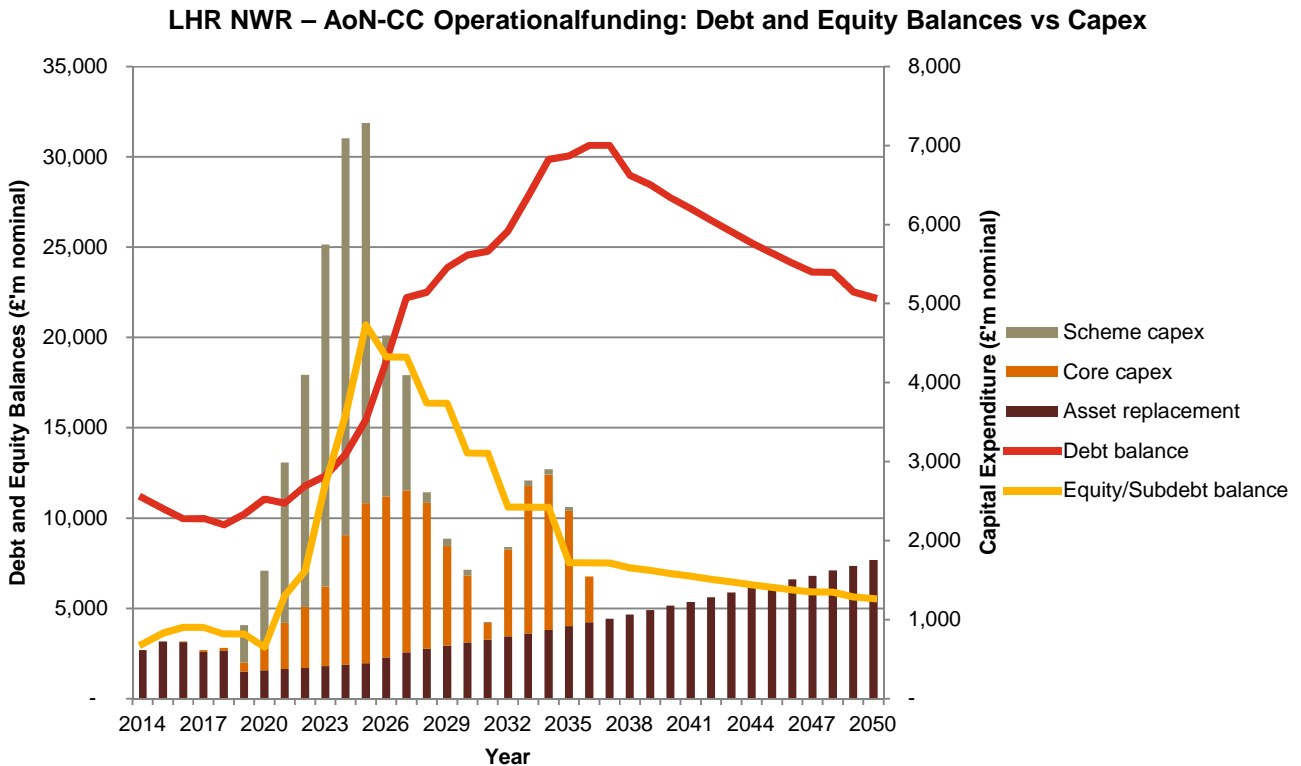
Cost and Commercial Viability: Additional Sensitivities

Chart 59: LHR NWR – AoN-CC Operationalfunding: Aeronautical charge profile



Sources: Financial Models

Chart 60: LHR NWR – AoN-CC Operationalfunding: Debt and equity balances vs capex



Sources: Financial Models

3 *Heathrow Airport Extended Northern Runway*

3.1 Summary of results

Table 27 shows the impact of each sensitivity on the key outputs, namely the weighted average aeronautical charge (and the peak aeronautical charge for reference), the maximum increase and peak debt and the maximum increase and peak equity. A number of the sensitivities are based of the AoN-CC demand scenario. This is for ease of reference and for the avoidance of doubt, the AoN-CC demand scenario should not be considered as a central case.

Table 27: LHR ENR – Sensitivities summary

Section	Title	Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt	Peak debt outstanding	Maximum increase in equity (nominal)	Peak equity outstanding
3.2	LHREN - AoN-CC	£27.65	£29.42	£18.7bn	£30.4bn	£4.7bn	£7.3bn
3.3	LHREN - AoN-CC: 20% scheme OB	£28.49	£30.51	£19.8bn	£31.5bn	£4.9bn	£7.6bn
3.4	LHREN - AoN-CC: 0% OB	£25.34	£27.01	£16.1bn	£27.8bn	£4.0bn	£6.7bn
3.5	LHREN - AoN-CC: Reduced Scope	£27.01	£29.08	£17.3bn	£29.1bn	£4.3bn	£7.0bn
3.6	LHREN - AoN-CC: Additional proposed £7 15m compensation	£28.31	£30.65	£19.2bn	£30.9bn	£4.7bn	£7.3bn
3.7	LHREN - AoN-CC: Higher additional proposed compensation	£28.40	£30.73	£19.4bn	£31.1bn	£4.7bn	£7.3bn
3.8	LHREN - AoN-CC: Underlying cost of debt @ 6.40%	£31.04	£33.63	£19.5bn	£31.2bn	£4.7bn	£7.4bn
3.9	LHREN - AoN-CC: cost of equity @ 14.00%	£34.19	£37.21	£18.6bn	£30.3bn	£4.7bn	£7.3bn
3.10	LHREN - AoN-CC: Underlying cost of debt @ 6.40% and cost of equity @ 12.10%	£35.05	£38.33	£18.6bn	£30.3bn	£4.7bn	£7.3bn
3.11	LHREN - AoN-CC: Pre-funding	£27.62	£29.35	£18.4bn	£30.2bn	£4.7bn	£7.3bn
3.12	LHREN - AoN-CC: Operational funding	£29.04	£31.69	£18.1bn	£29.8bn	£14.2bn	£16.9bn

Sources: Financial models

The following sections provide more detailed information on the results from each sensitivity.

3.2 LHR ENR – AoN-CC

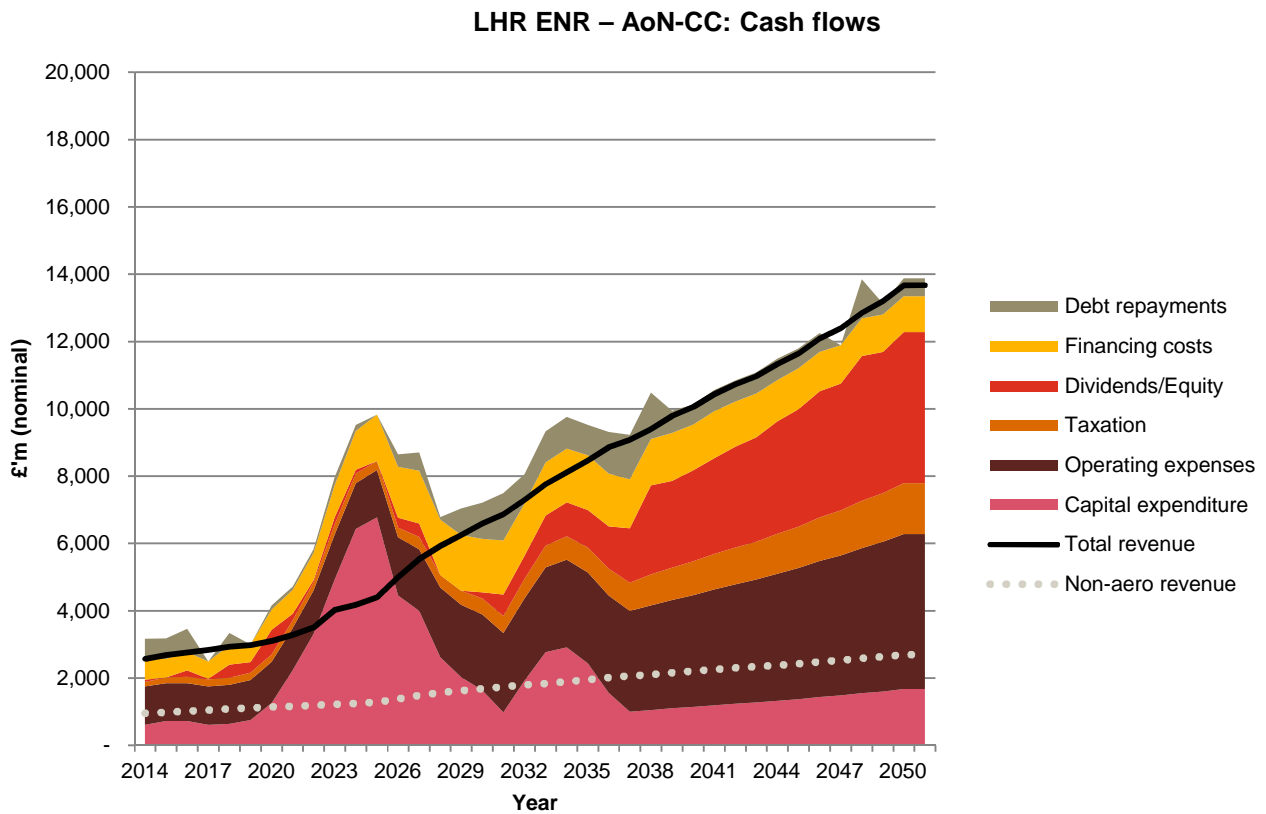
Summary: This is the LHR ENR AoN-CC scenario as set out in the Cost and Commercial Viability: Funding and Financing Update report.

This is a duplicated to give the reader a reference from which to reflect on the other sensitivities covered in this section.

Table 28: LHR ENR –AoN-CC: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£27.65	£29.42	£18.7bn	£30.4bn	£4.7bn	£7.3bn

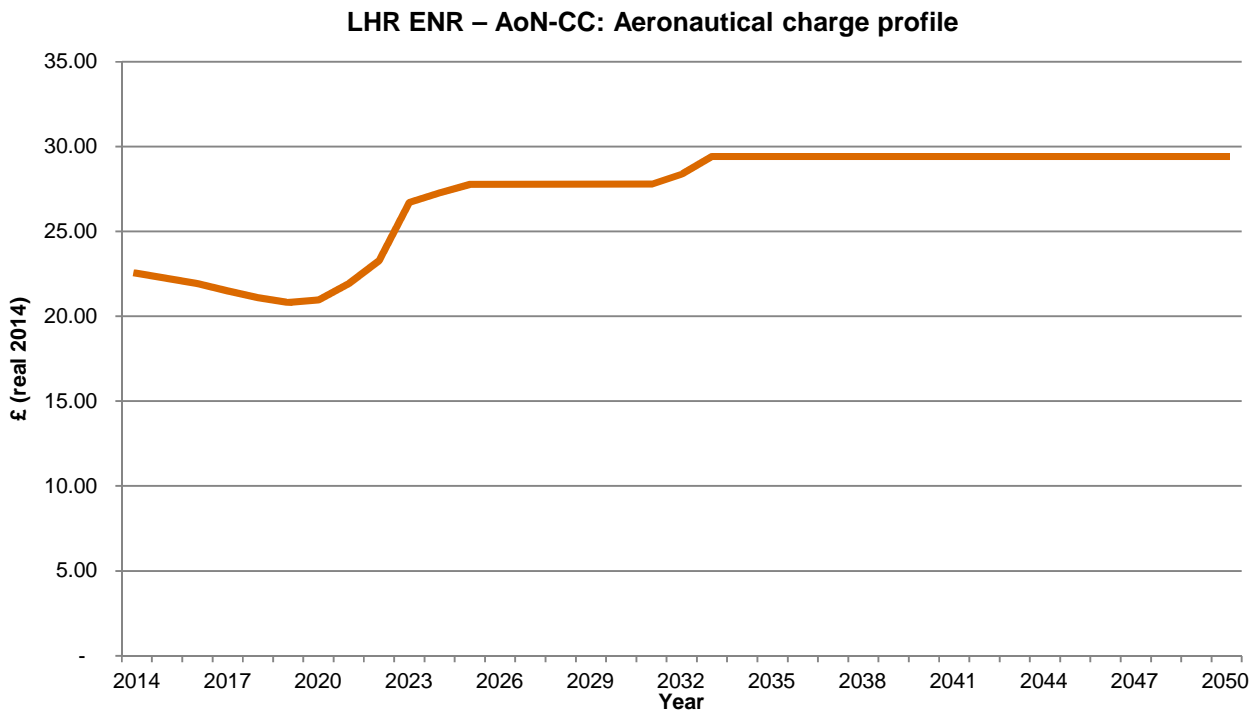
Chart 65: LHR ENR – AoN-CC: Cash flows



Sources: Financial models

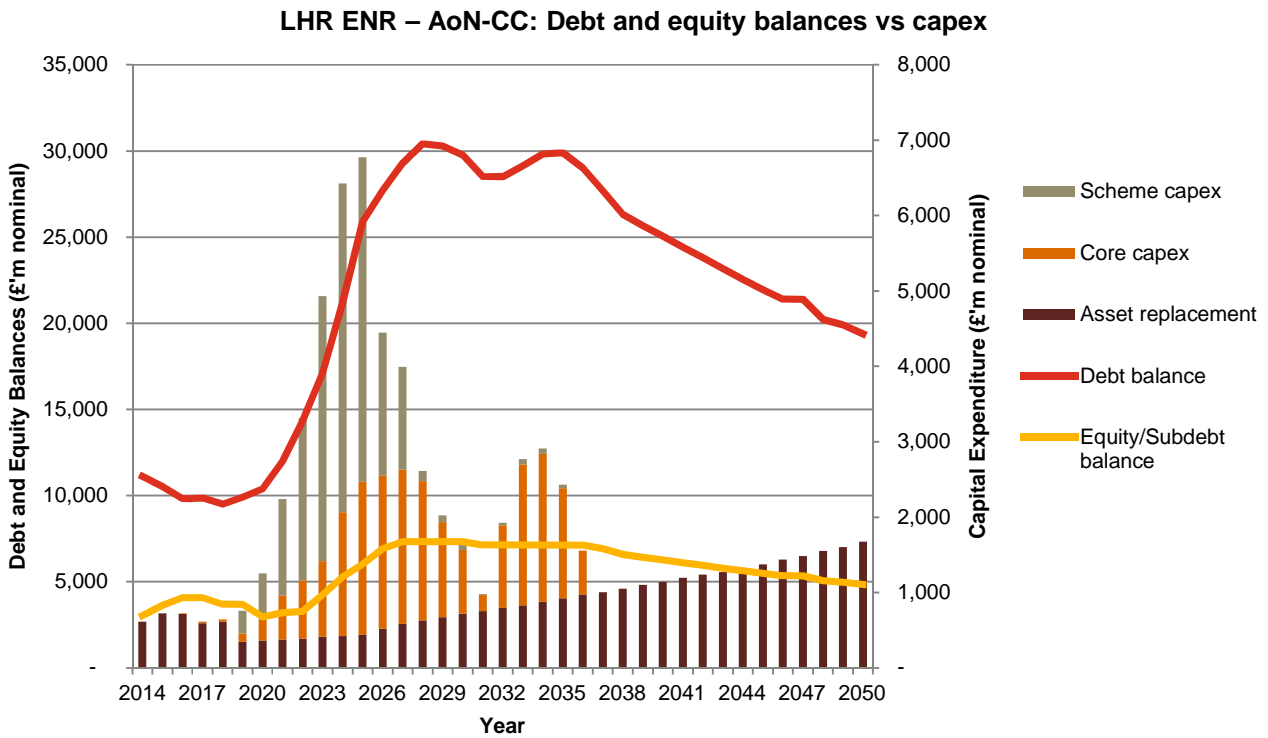
Cost and Commercial Viability: Additional Sensitivities

Chart 66: LHR ENR – AoN-CC: Aeronautical charge profile



Sources: Financial Models

Chart 67: LHR ENR – AoN-CC: Debt and equity balances vs capex



Sources: Financial Models

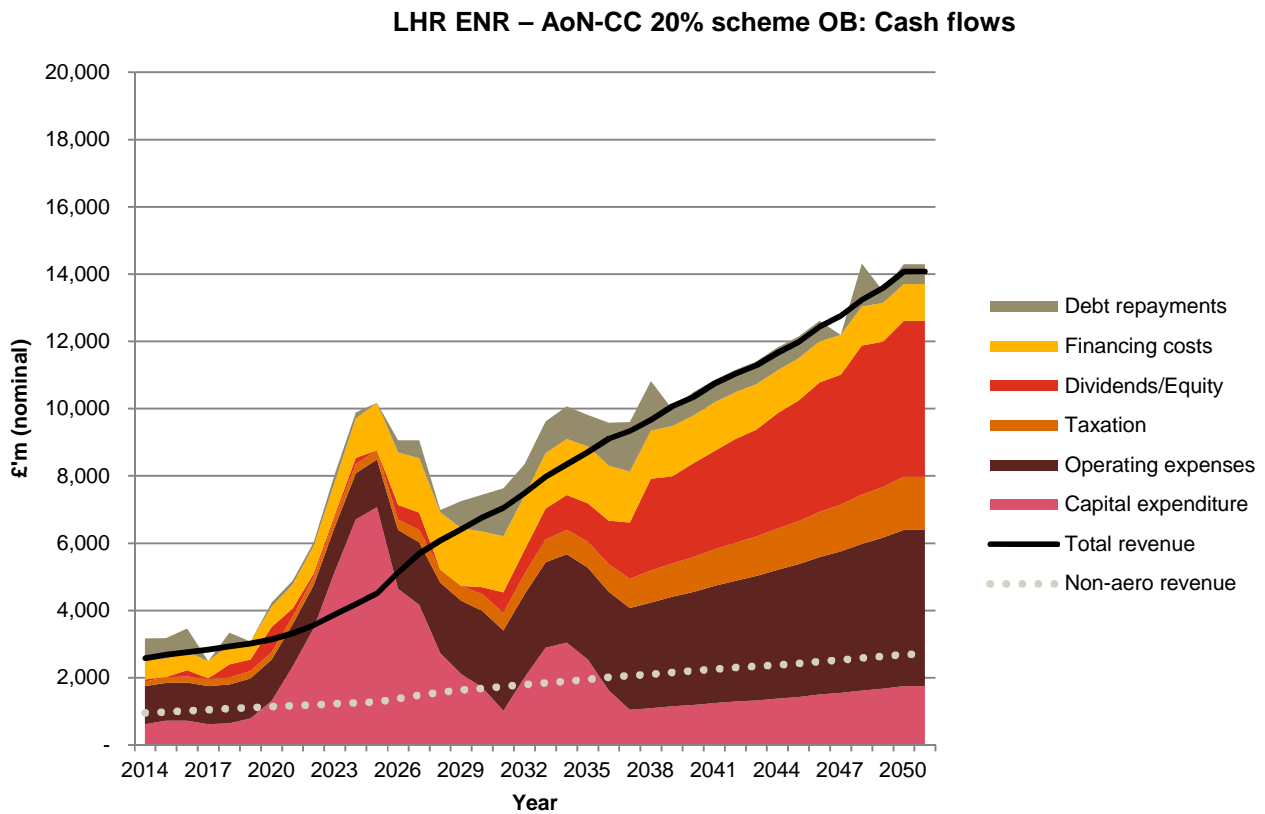
3.3 LHR ENR – AoN-CC: 20% scheme optimism bias

Summary: The sensitivity shows the financial analysis for the LHR ENR scheme under the same assumptions for optimism bias as were adopted at consultation stage. At consultation, 20% optimism bias was applied to scheme and asset replacement capex and opex. This was reduced to 15% for the final report with equivalent 5% reduction on core capex. Full details of the changes to optimism bias are set out in Cost and Commercial Viability: Additional Analysis report, section 1.

Table 29: LHR ENR –AoN-CC 20% scheme OB: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£28.49	£30.51	£19.8bn	£31.5bn	£4.9bn	£7.6bn

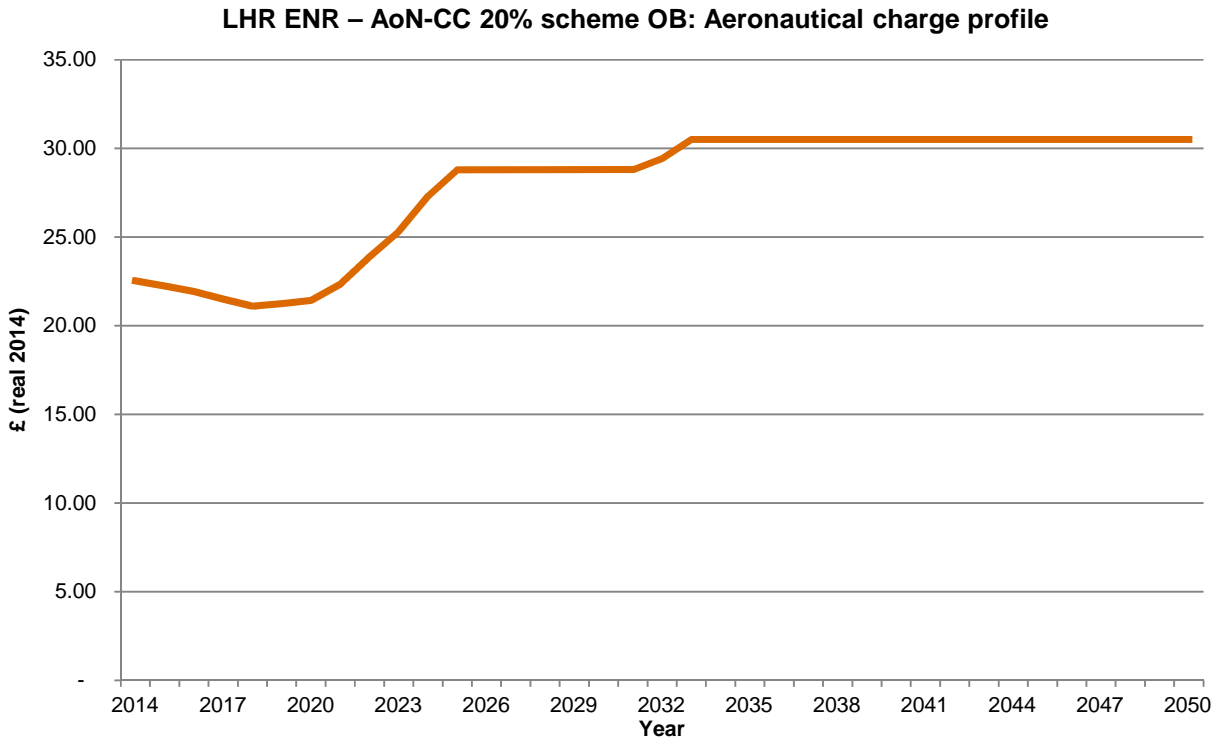
Chart 68: LHR ENR – AoN-CC 20% scheme OB: Cash flows



Sources: Financial models

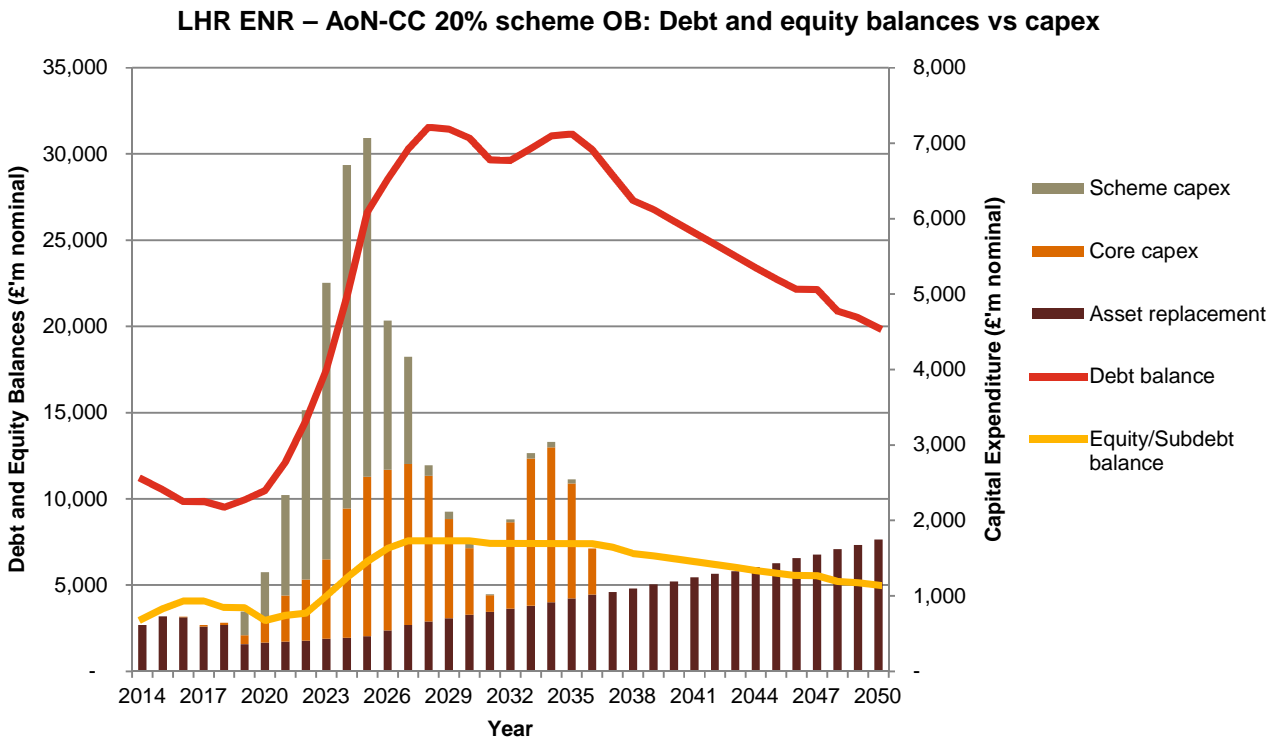
Cost and Commercial Viability: Additional Sensitivities

Chart 69: LHR ENR – AoN-CC 20% scheme OB: Aeronautical charge profile



Sources: Financial Models

Chart 70: LHR ENR – AoN-CC 20% scheme OB: Debt and equity balances vs capex



Sources: Financial Models

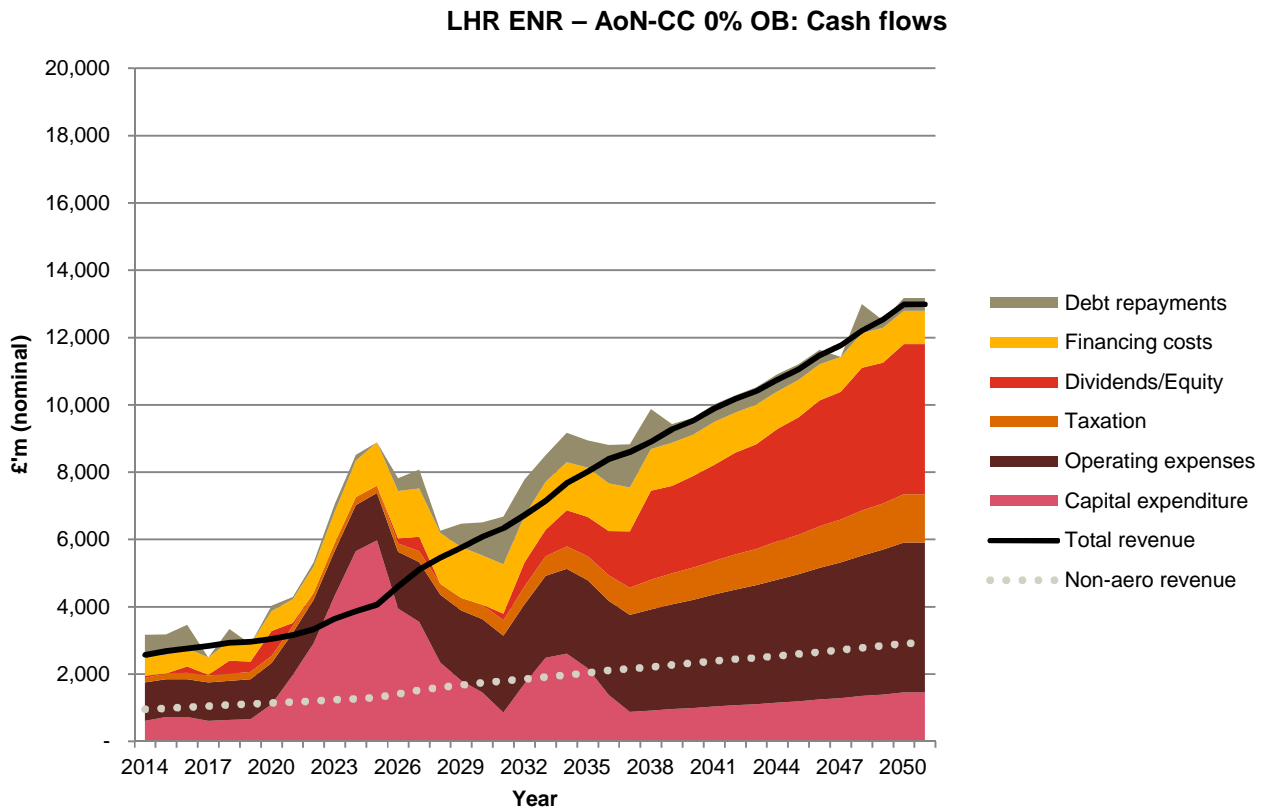
3.4 LHR ENR – AoN-CC: 0% optimism bias

Summary: The sensitivity shows the financial analysis for the LHR ENR scheme with optimism bias allowances removed completely for all capital expenditure, operating costs and non-aeronautical revenues. It is intended to show the potential costs in terms of aero charges and financing requirements if the airport operator were to be able to achieve out turn cost without demonstrating a tendency to be optimistic in their assessment. It represents the low end of the range of cost outcomes the Commission has used in its Cost and Commercial Viability assessment.

Table 30: LHR ENR –AoN-CC 0% OB: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£25.34	£27.01	£16.1bn	£27.8bn	£4.0bn	£6.7bn

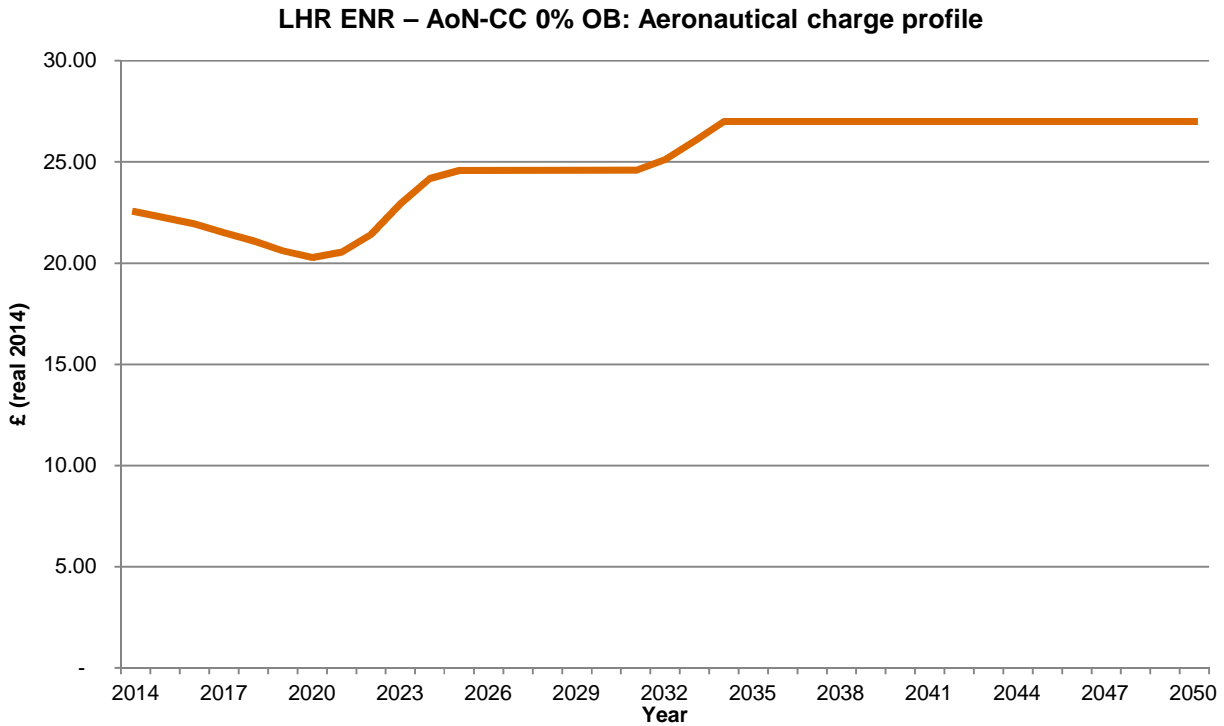
Chart 71: LHR ENR – AoN-CC 0% OB: Cash flows



Sources: Financial models

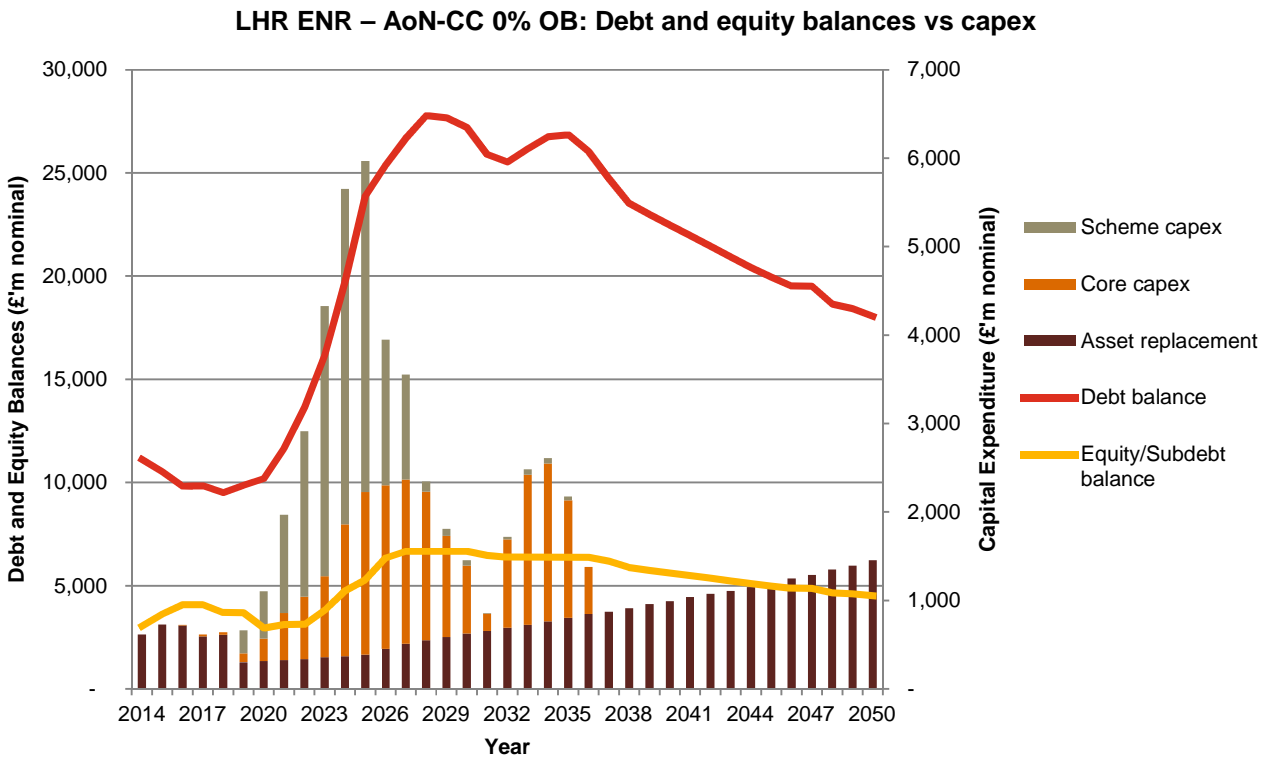
Cost and Commercial Viability: Additional Sensitivities

Chart 72: LHR ENR – AoN-CC 0% OB: Aeronautical charge profile



Sources: Financial Models

Chart 73: LHR ENR – AoN-CC 0% OB: Debt and equity balances vs capex



Sources: Financial Models

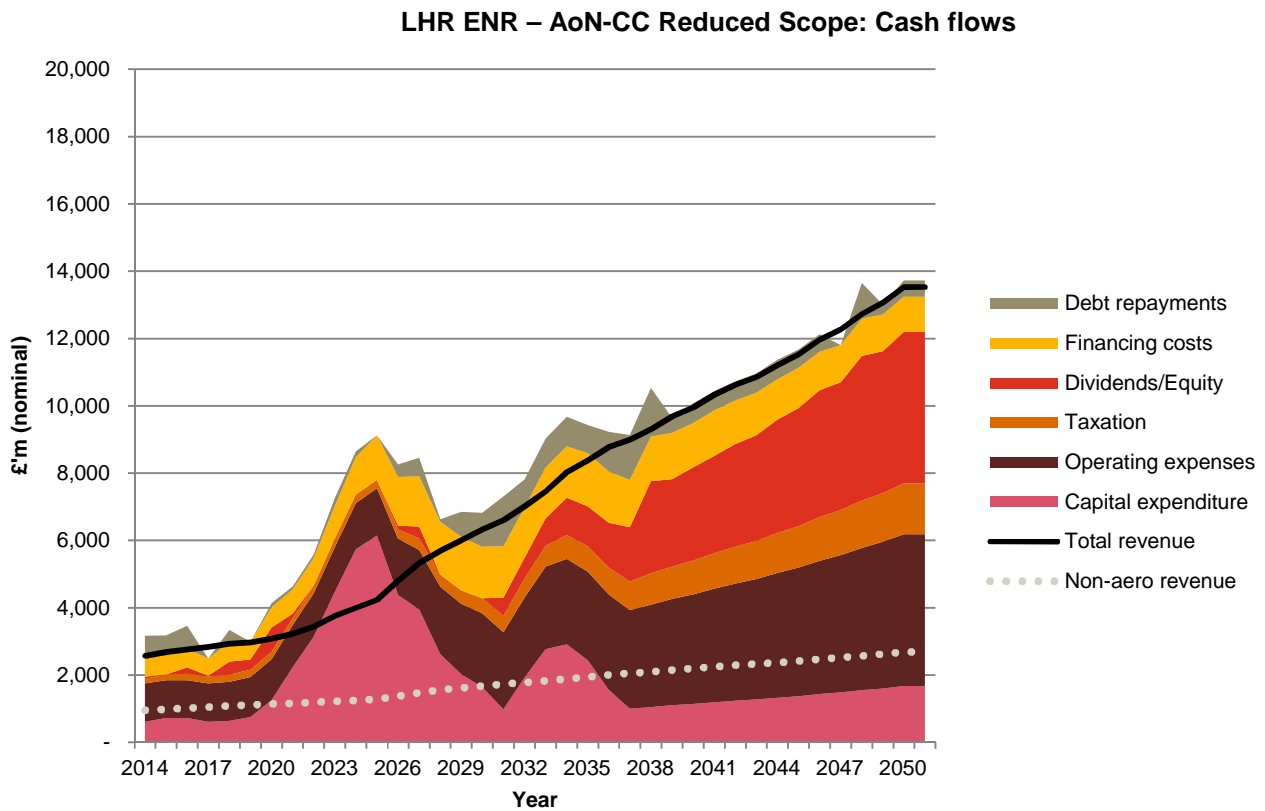
3.5 LHR ENR – AoN-CC: Reduced Scope

Summary: This sensitivity shows the LHR ENR AoN-CC scenario with reduced costs based on a de-scoped solution with the potential implications on passenger experience, as set out in the Cost and Commercial Viability: Reduced Scope Scenarios Costs report. The sensitivity considers the financing implications were this reduced scope option to be the basis of the scheme delivered.

Table 31: LHR ENR –AoN-CC Reduced Scope: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£27.01	£29.08	£17.3bn	£29.1bn	£4.3bn	£7.0bn

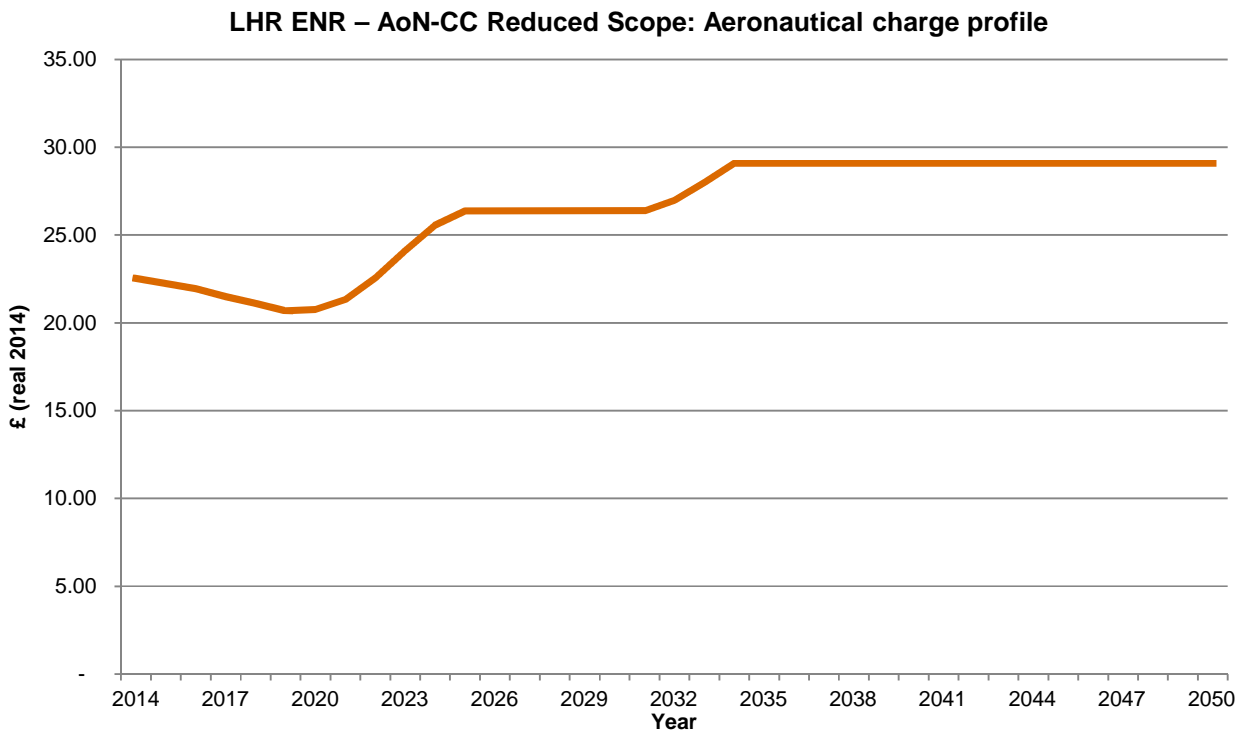
Chart 74: LHR ENR – AoN-CC Reduced Scope: Cash flows



Sources: Financial models

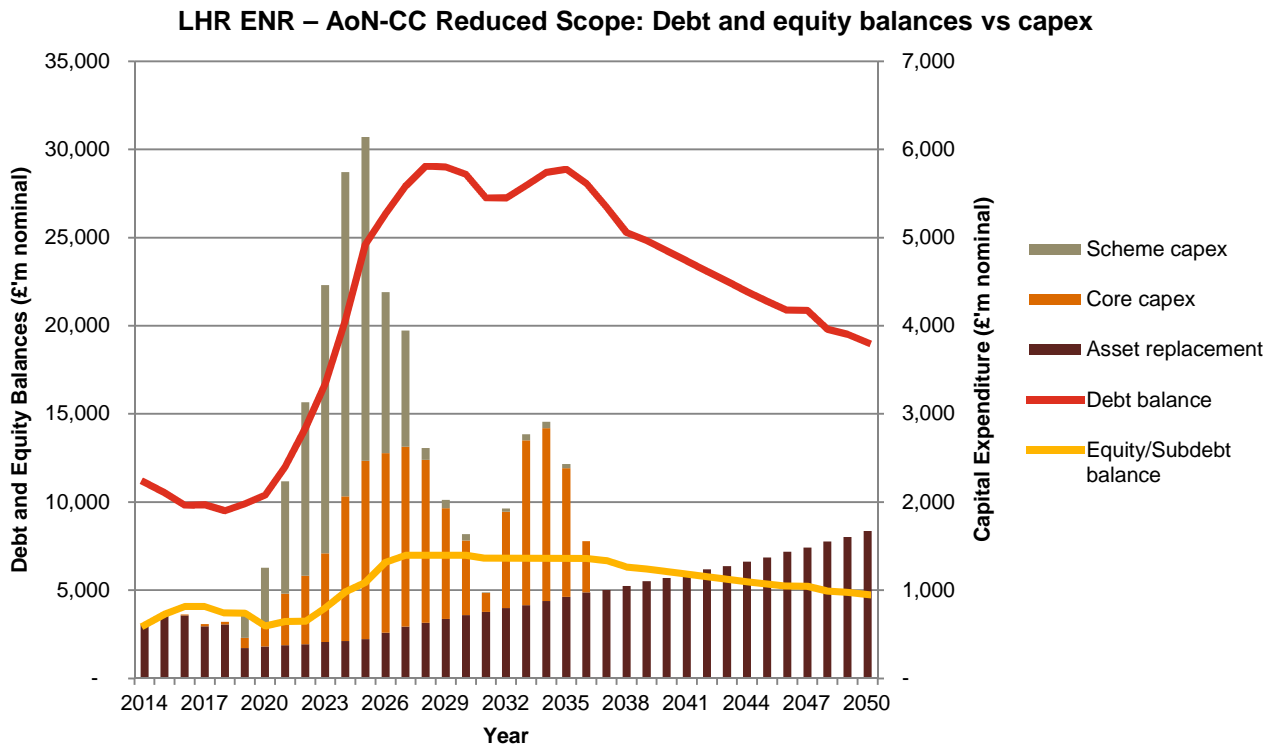
Cost and Commercial Viability: Additional Sensitivities

Chart 75: LHR ENR – AoN-CC Reduced Scope: Aeronautical charge profile



Sources: Financial Models

Chart 76: LHR ENR – AoN-CC Reduced Scope: Debt and equity balances vs capex



Sources: Financial Models

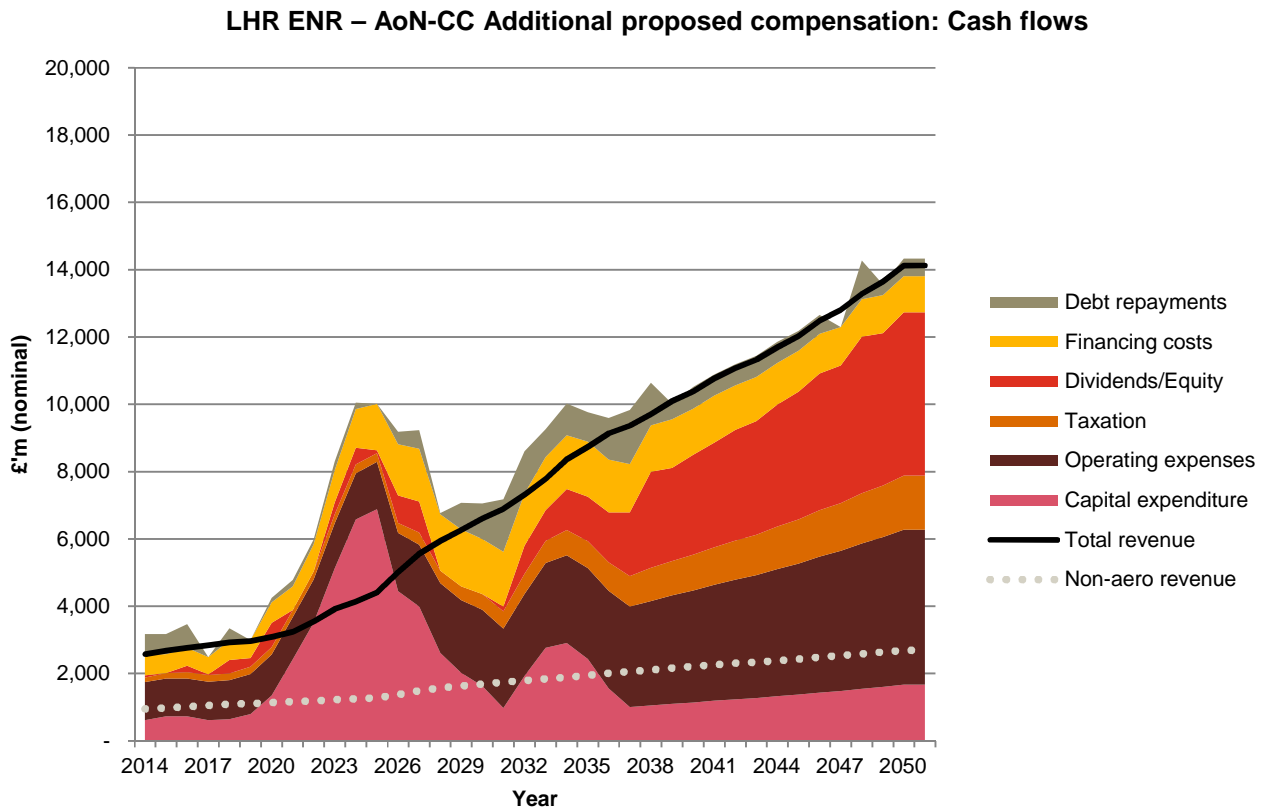
3.6 LHR ENR – AoN-CC: Additional proposed £715m compensation

Summary: The sensitivity shows the financial analysis for the LHR ENR scheme under a scenario for higher costs associated with community support and compensation, as set out in the Cost and Commercial Viability: Additional Analysis report, section 2.

Table 32: LHR ENR –AoN-CC Additional proposed compensation: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£28.31	£30.65	£19.2bn	£30.9bn	£4.7bn	£7.3bn

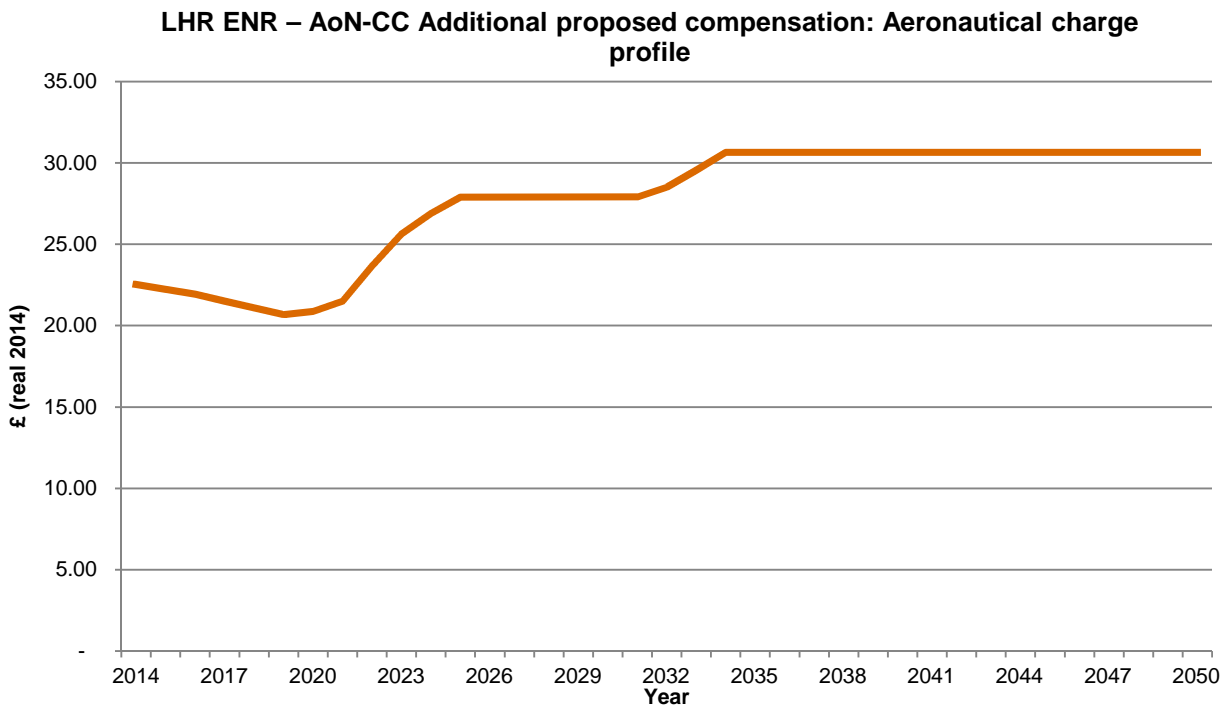
Chart 77: LHR ENR – AoN-CC Additional proposed compensation: Cash flows



Sources: Financial models

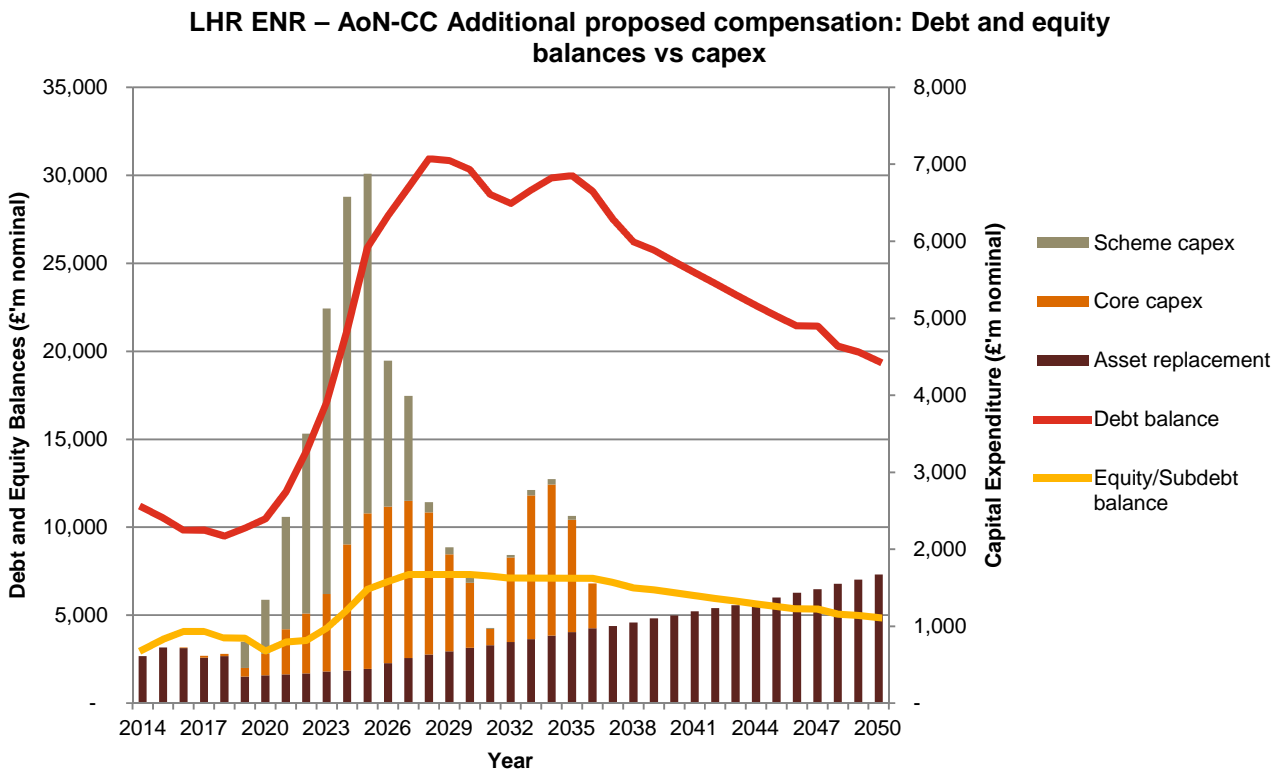
Cost and Commercial Viability: Additional Sensitivities

Chart 78: LHR ENR – AoN-CC Additional proposed compensation: Aeronautical charge profile



Sources: Financial Models

Chart 79: LHR ENR – AoN-CC Additional proposed compensation: Debt and equity balances vs capex



Sources: Financial Models

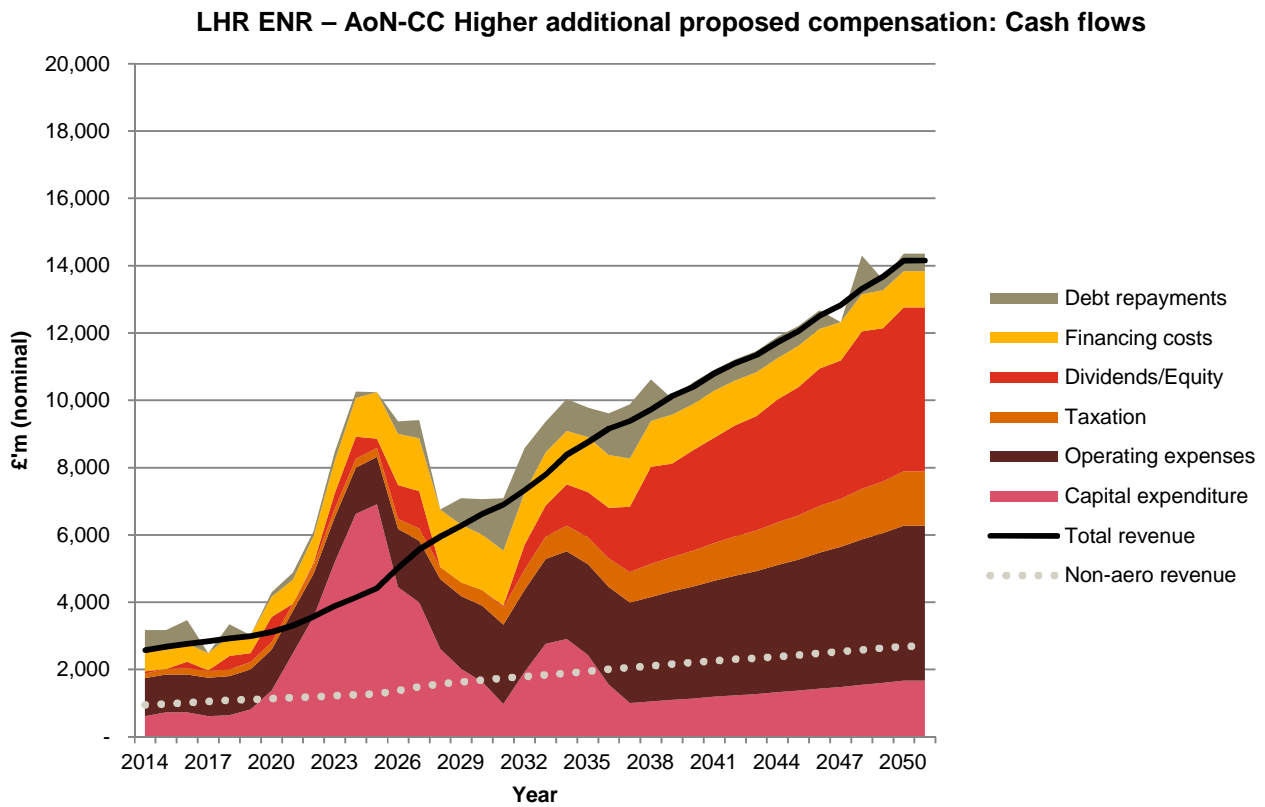
3.7 LHR ENR – AoN-CC: Higher additional proposed compensation

Summary: The sensitivity shows the financial analysis for the LHR ENR scheme under a scenario with higher costs associated with compensation to local residents as set out the in Cost and Commercial Viability: Additional Analysis report, section 2 (£937m).

Table 33: LHR ENR –AoN-CC Higher additional proposed compensation: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£28.40	£30.73	£19.4bn	£31.1bn	£4.7bn	£7.3bn

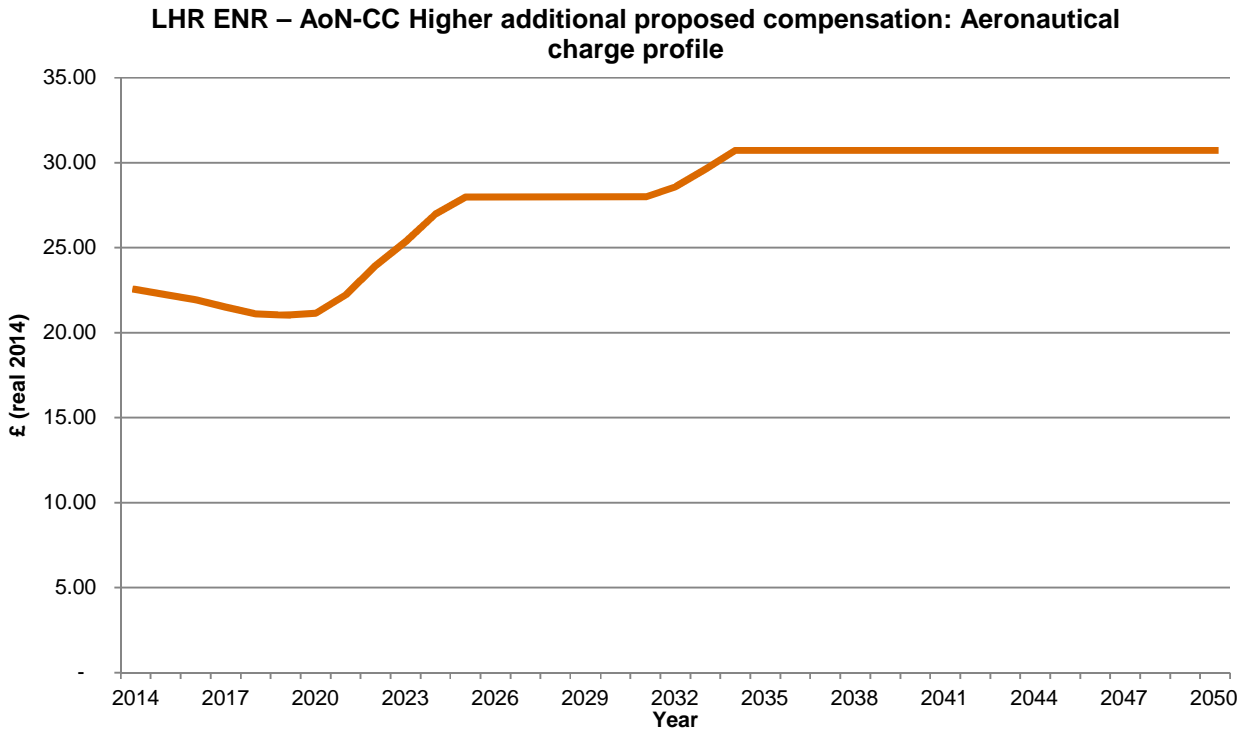
Chart 80: LHR ENR – AoN-CC Higher additional proposed compensation: Cash flows



Sources: Financial models

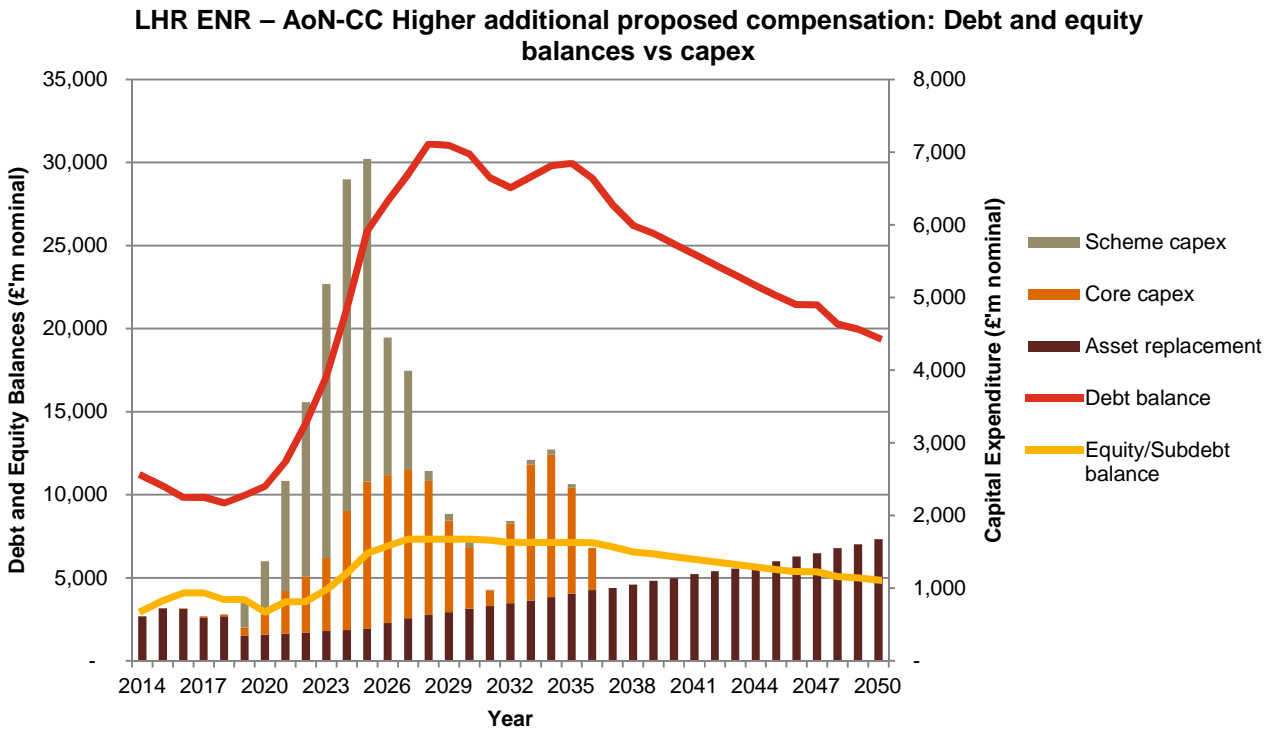
Cost and Commercial Viability: Additional Sensitivities

Chart 81: LHR ENR – AoN-CC Higher additional proposed compensation: Aeronautical charge profile



Sources: Financial Models

Chart 82: LHR ENR – AoN-CC Higher additional proposed compensation: Debt and equity balances vs capex



Sources: Financial Models

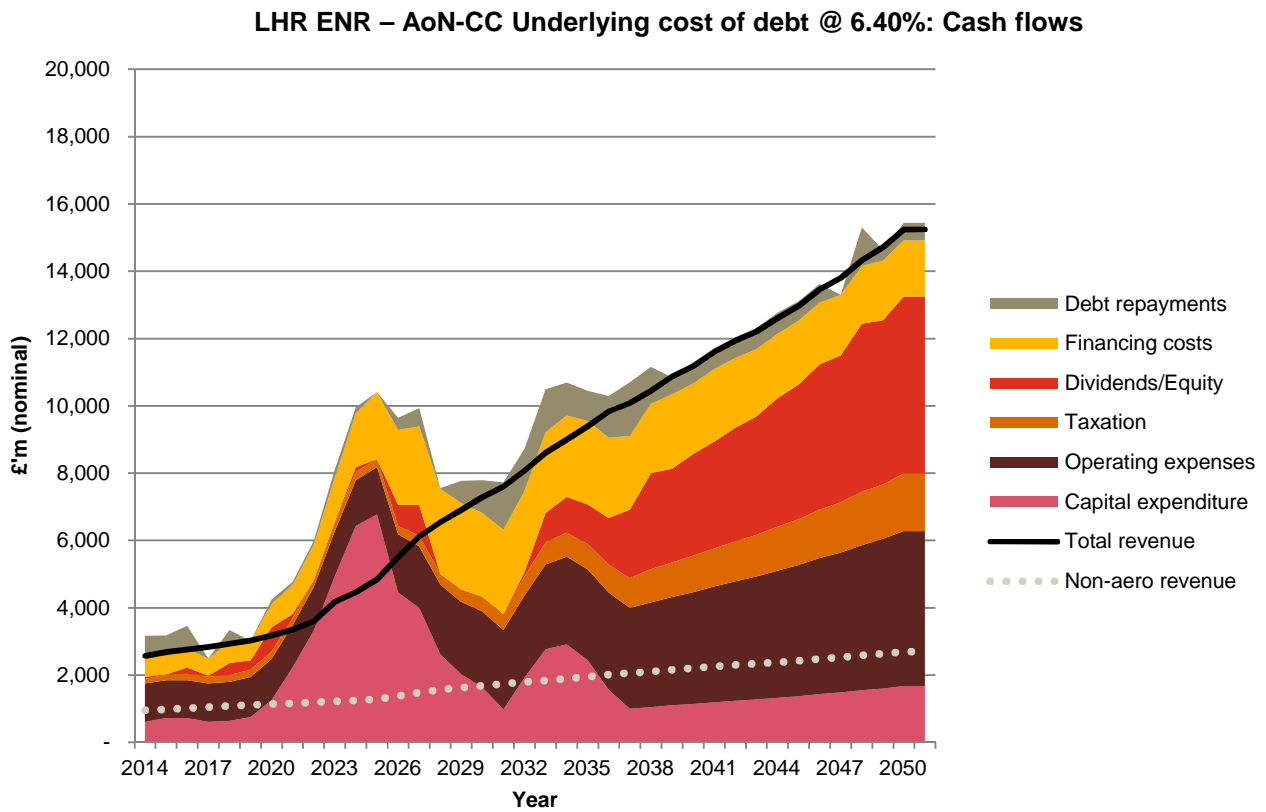
3.8 LHR ENR – AoN-CC: Underlying cost of debt @ 6.40%

Summary: This sensitivity shows the financial analysis for the LHR ENR AoN-CC scenario with the underlying cost of debt increased to 6.40%. This is the average yield for 10 year UK gilts over the past 30 years. It represents an increase to the underlying cost of debt of approximately 3.10% over the assumption in Cost and Commercial Viability: Funding and Financing Update where the average of the assumed underlying cost of debt is 3.30%. This assumed cost of debt is shown in Appendix 1. The sensitivity shows the impact of a shift to general market conditions of more expensive debt. This was an issue raised in consultation (see Cost and Commercial Viability: Sources of Finance).

Table 34: LHR ENR –AoN-CC Underlying cost of debt @ 6.40%: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£31.04	£33.63	£19.5bn	£31.2bn	£4.7bn	£7.4bn

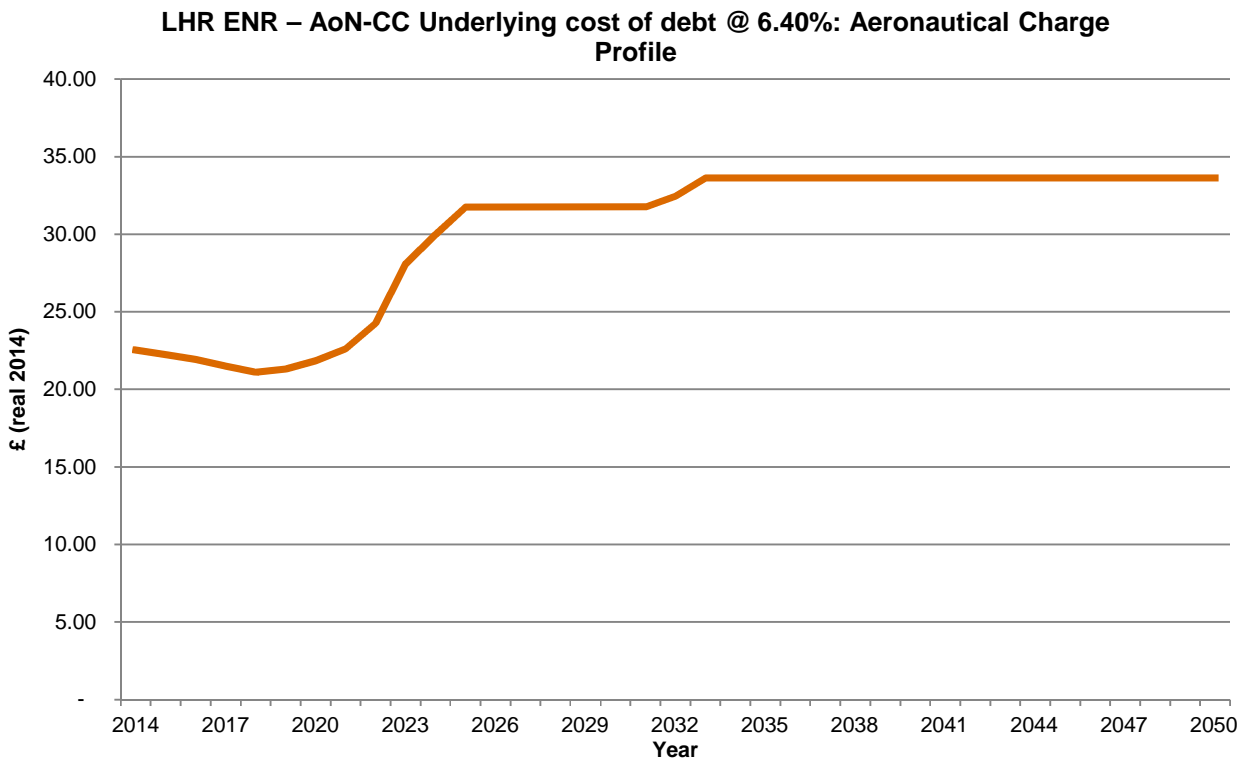
Chart 83: LHR ENR – AoN-CC Underlying cost of debt @ 6.40%: Cash flows



Sources: Financial models

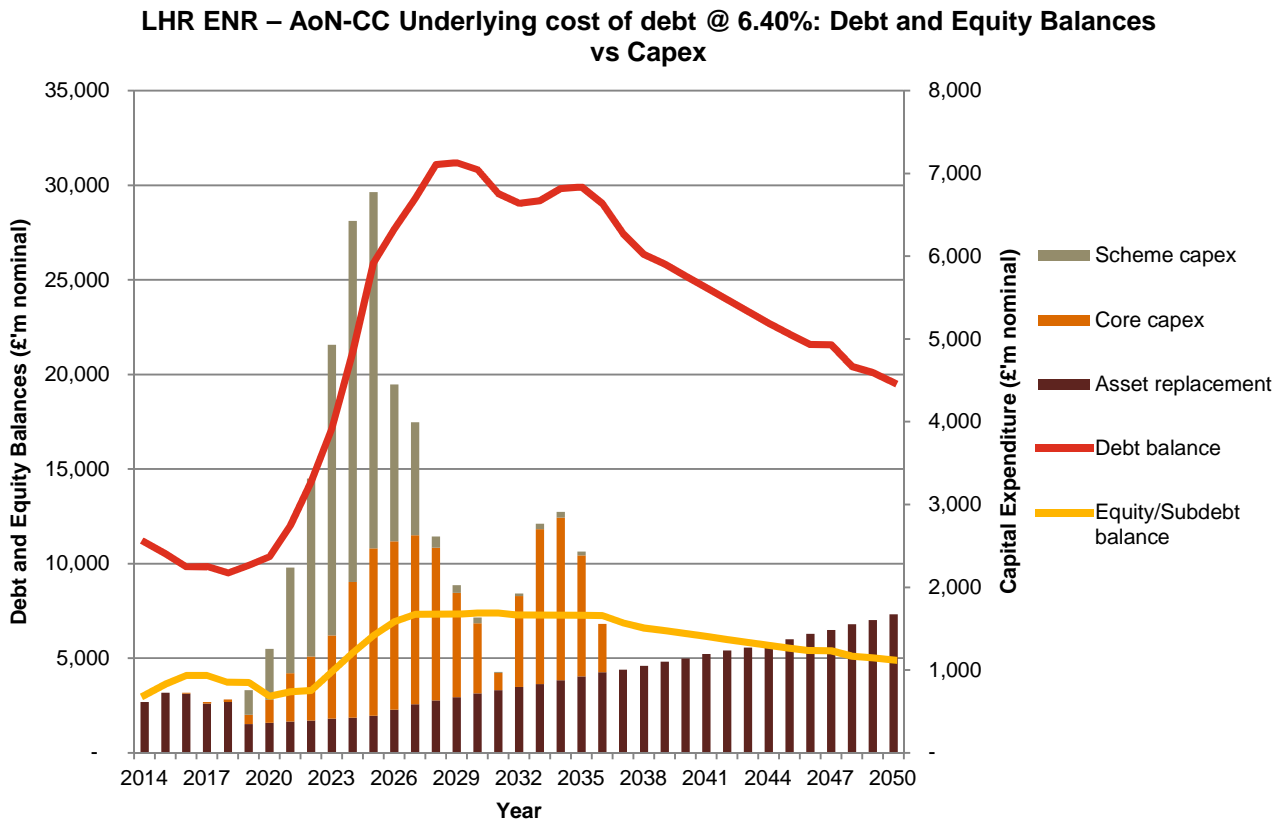
Cost and Commercial Viability: Additional Sensitivities

Chart 84: LHR ENR – AoN-CC Underlying cost of debt @ 6.40%: Aeronautical charge profile



Sources: Financial Models

Chart 85: LHR ENR – AoN-CC Underlying cost of debt @ 6.40%: Debt and equity balances vs capex



Sources: Financial Models

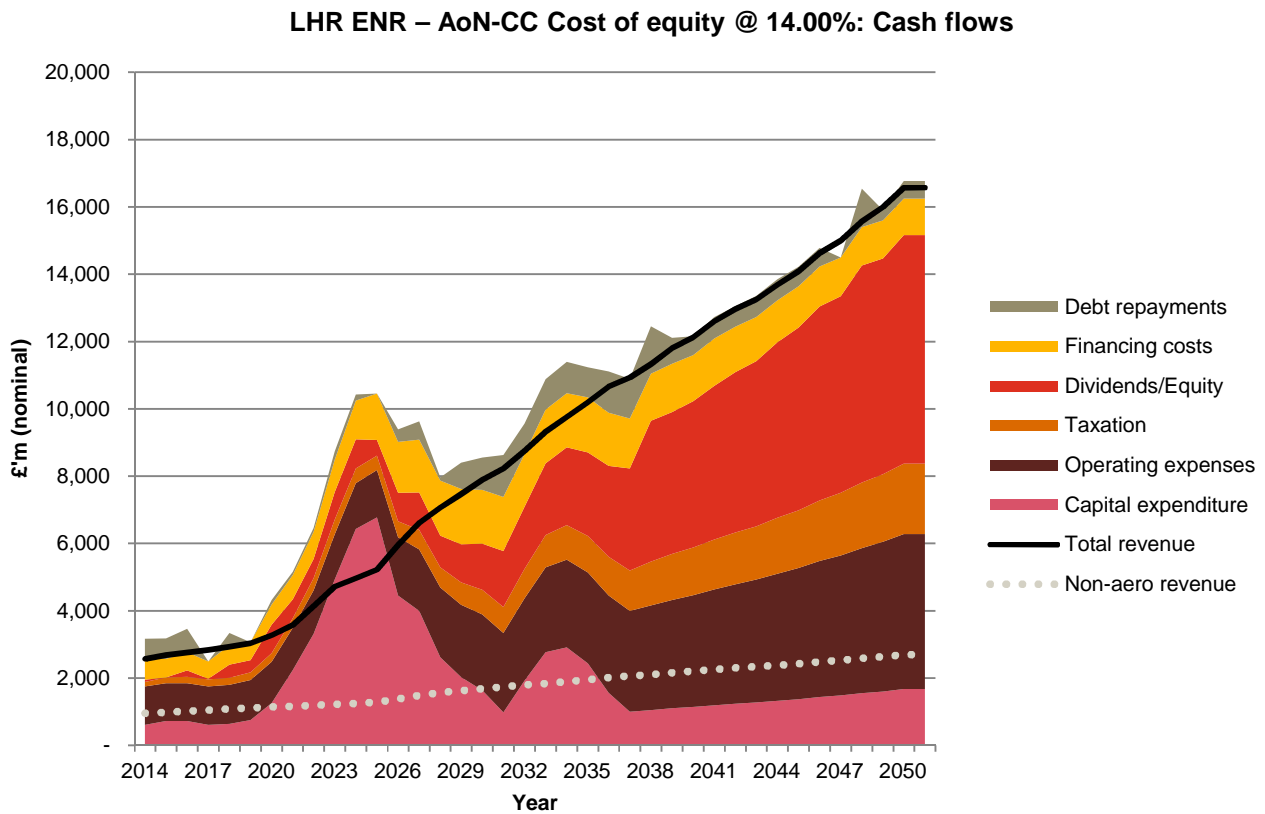
3.9 LHR ENR – AoN-CC: Cost of equity @ 14.00%

Summary: This sensitivity shows the financial analysis for the LHR ENR AoN-CC scenario with the required return to equity increased from 9.00% to 14.00%. A return requirement of 14.00% is more associated with project finance than corporate financing. This illustrates the sensitivity of higher equity requirements. This level of return is at the upper end of discussions held as part of the consultation process (see Cost and Commercial Viability: Sources of Finance).

Table 35: LHR ENR –AoN-CC Cost of equity @ 14.00%: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£34.19	£37.21	£18.6bn	£30.3bn	£4.7bn	£7.3bn

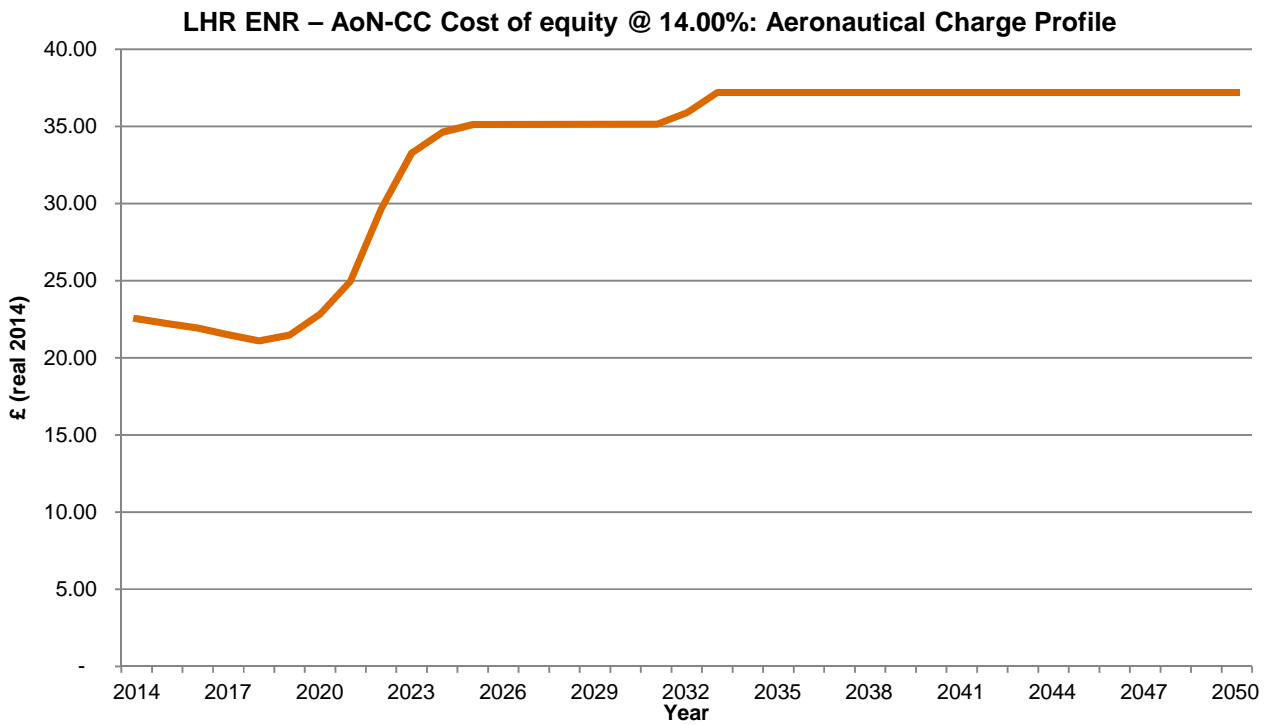
Chart 86: LHR ENR – AoN-CC Cost of equity @ 14.00%: Cash flows



Sources: Financial models

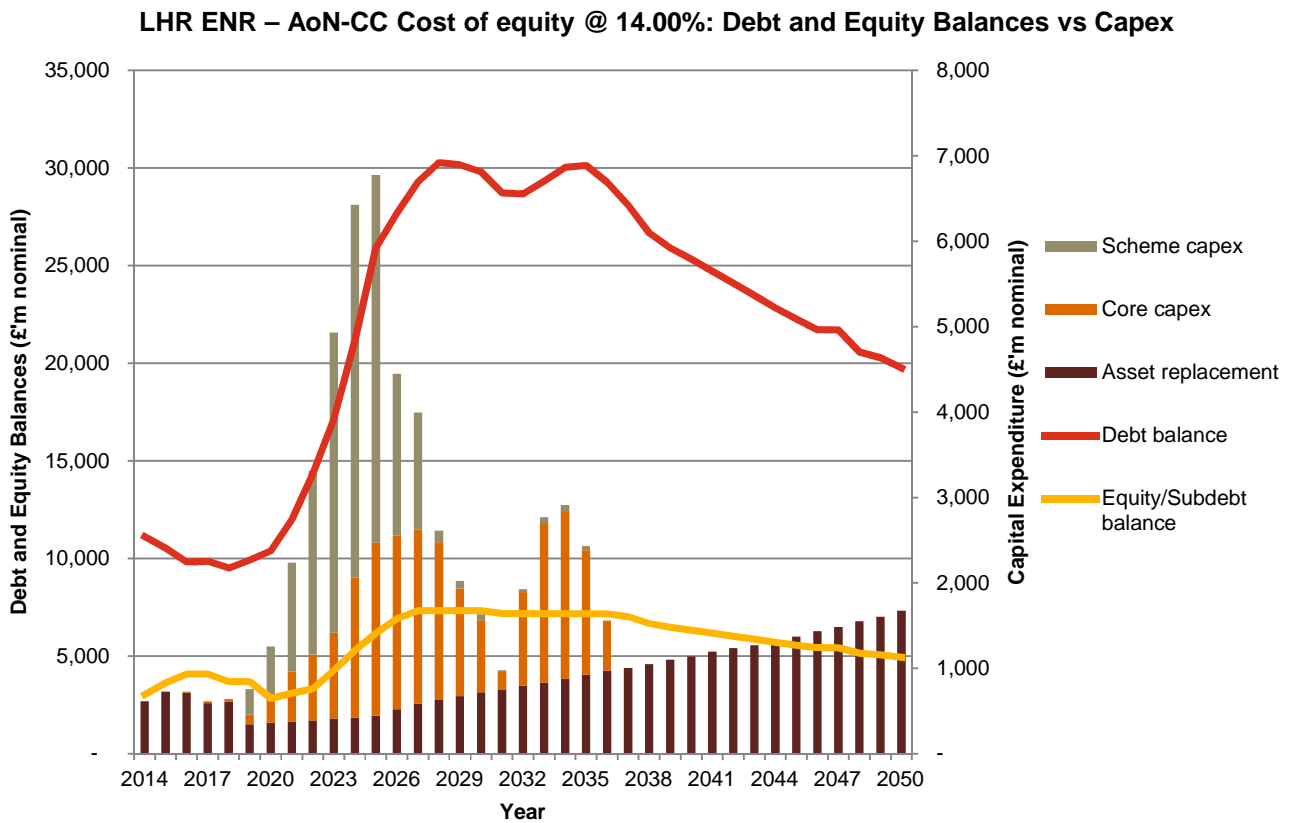
Cost and Commercial Viability: Additional Sensitivities

Chart 87: LHR ENR – AoN-CC Cost of equity @ 14.00%: Aeronautical charge profile



Sources: Financial Models

Chart 88: LHR ENR – AoN-CC Cost of equity @ 14.00%: Debt and equity balances vs capex



Sources: Financial Models

3.10 LHR ENR – AoN-CC: Underlying cost of debt @ 6.40% and cost of equity @ 12.10%

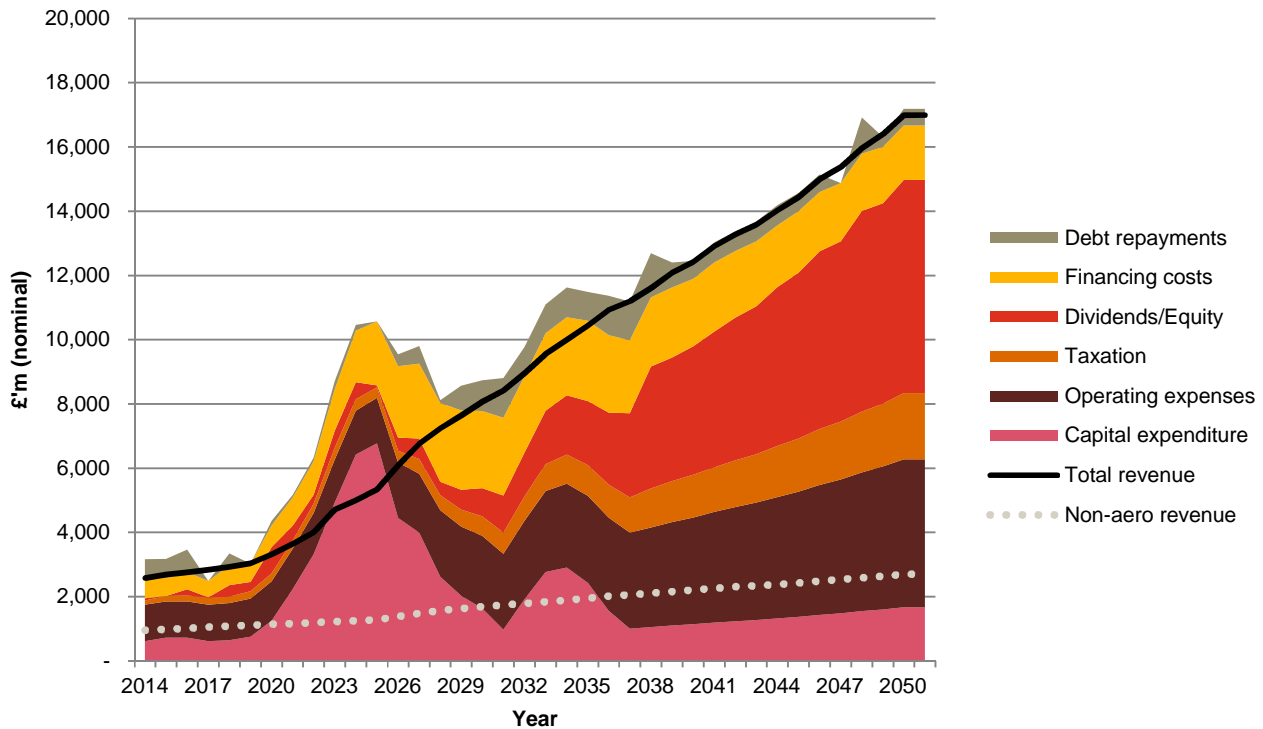
Summary: This sensitivity shows the LHR ENR AoN-CC scenario with the underlying cost of debt increased to 6.40% and the required return to equity increased to 12.10%. In the scenario of higher cost of debt (see section 1.10), it is reasonable to assume that the cost of equity would be more expensive although it is difficult to assess this increase as it depends on several factors. As part of the Cost and Commercial Viability assessment, we assume an increase of 3.10% to maintain the debt to equity spread (see Cost and Commercial Viability: Sources of Finance).

Table 36: LHR ENR –AoN-CC Underlying cost of debt @ 6.40% and cost of equity @ 12.10%: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£35.05	£38.33	£18.6bn	£30.3bn	£4.7bn	£7.3bn

Chart 89: LHR ENR – AoN-CC Underlying cost of debt @6.40% and cost of equity @ 12.10%: Cash flows

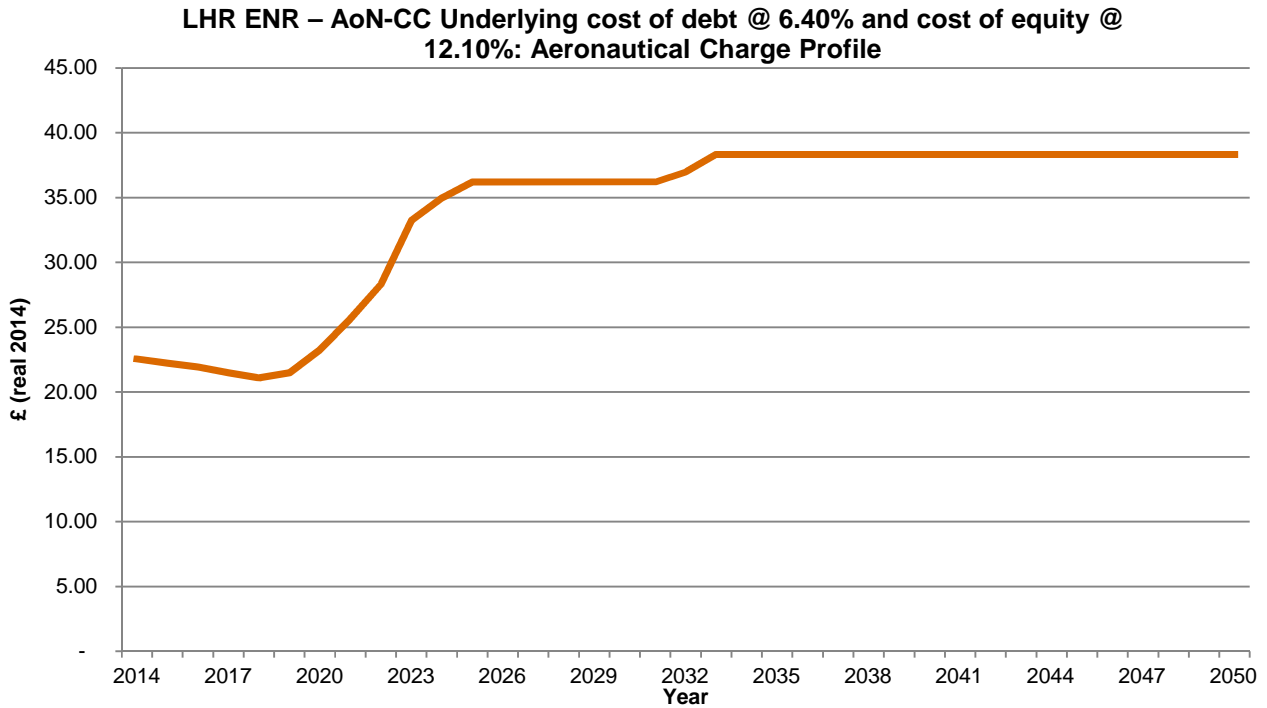
LHR ENR – AoN-CC Underlying cost of debt @ 6.40% and cost of equity @ 12.10%: Cash flows



Sources: Financial models

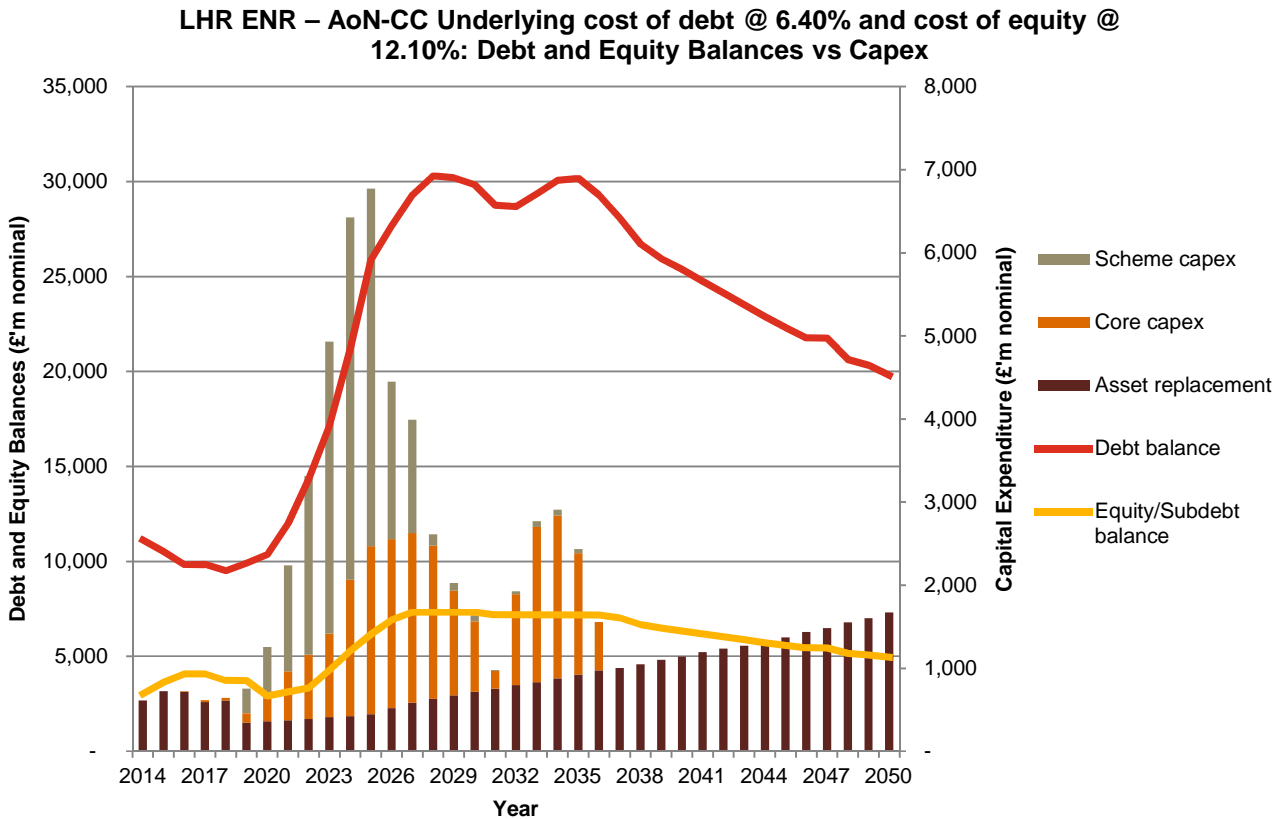
Cost and Commercial Viability: Additional Sensitivities

Chart 90: LHR ENR – AoN-CC Underlying cost of debt @6.40% and cost of equity @ 12.10%: Aeronautical charge profile



Sources: Financial Models

Chart 91: LHR ENR – AoN-CC Underlying cost of debt @ 6.40% and cost of equity @ 12.10%: Debt and equity balances vs capex



Sources: Financial Models

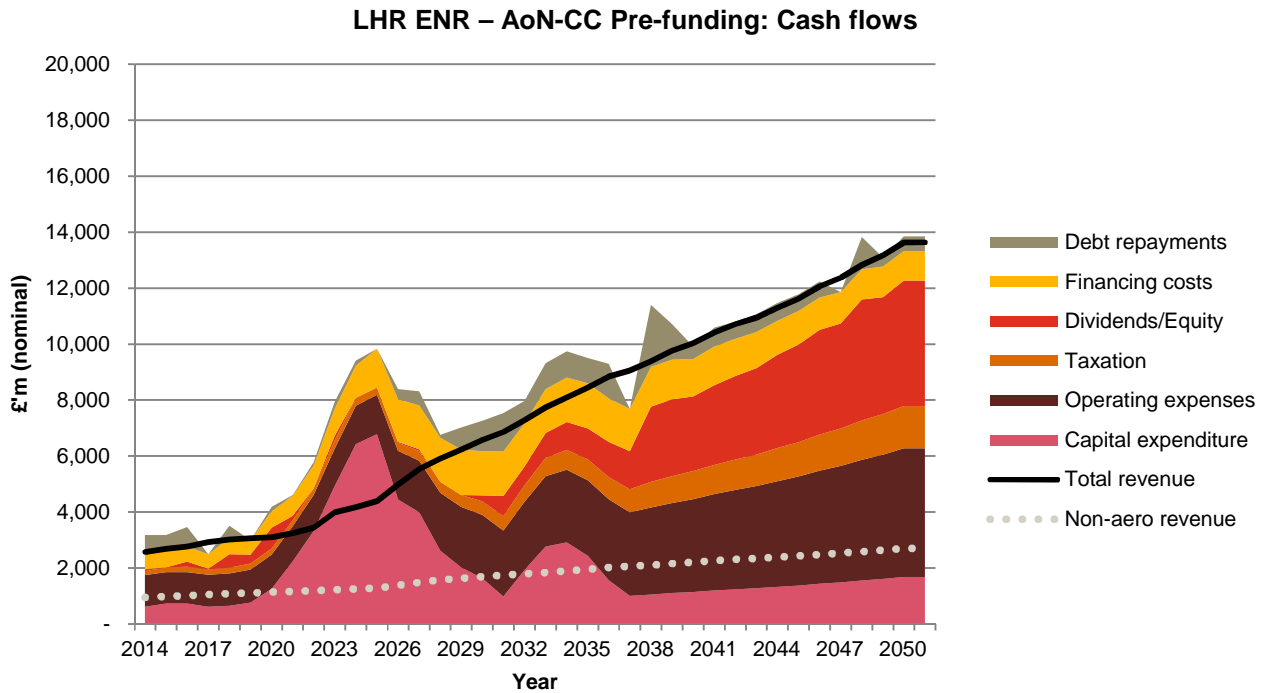
3.11 LHR ENR – AoN-CC: Pre-funding

Summary: This sensitivity shows the financial analysis for the LHR ENR AoN-CC scenario with an estimate for pre-funding through an increased aeronautical charge ahead of any capital expenditure. This increase to aeronautical charges is assumed to be £1.00 (real 2014 prices) per passenger during the two years preceding first scheme capex and the first year of scheme capex (2017-2019). However, the level of pre-funding that might be allowed will be determined by the regulator. This shows the impact of one approach to pre-funding on the funding and financing requirements.

Table 37: LHR ENR –AoN-CC Pre-funding: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£27.62	£29.35	£18.4bn	£30.2bn	£4.7bn	£7.3bn

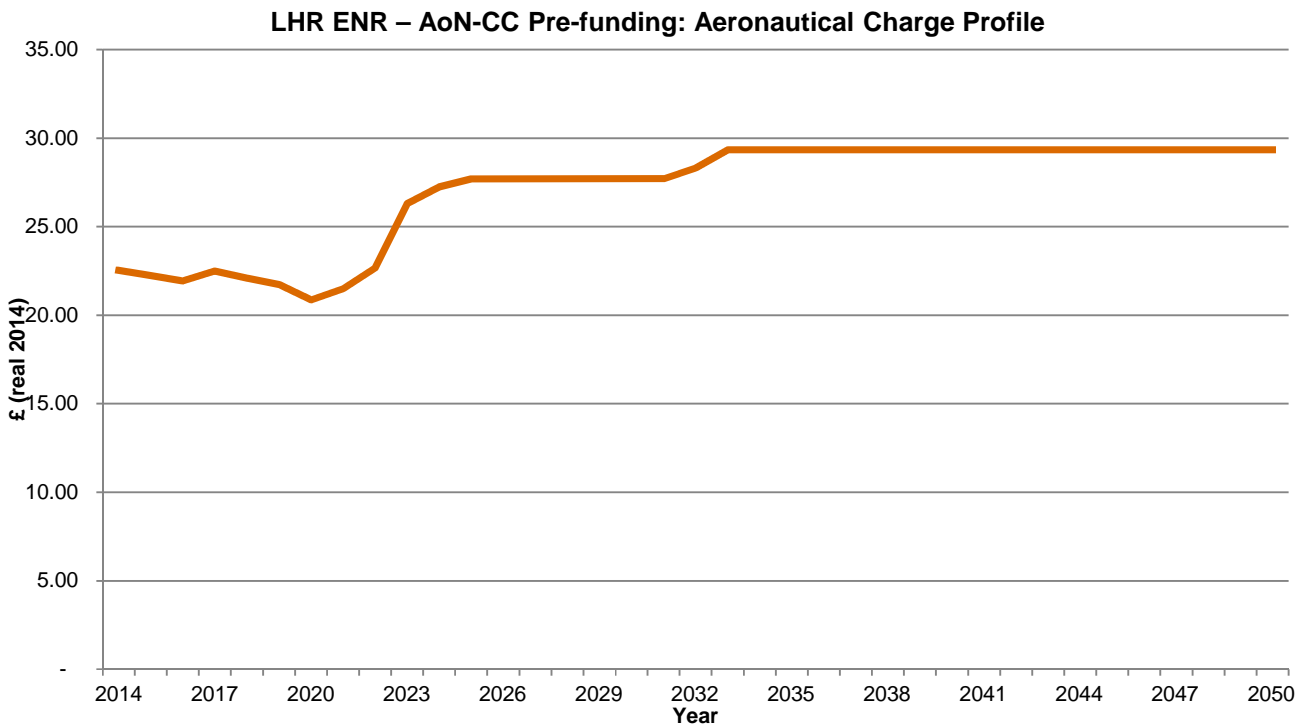
Chart 73: LHR ENR – AoN-CC Pre-funding: Cash flows



Sources: Financial models

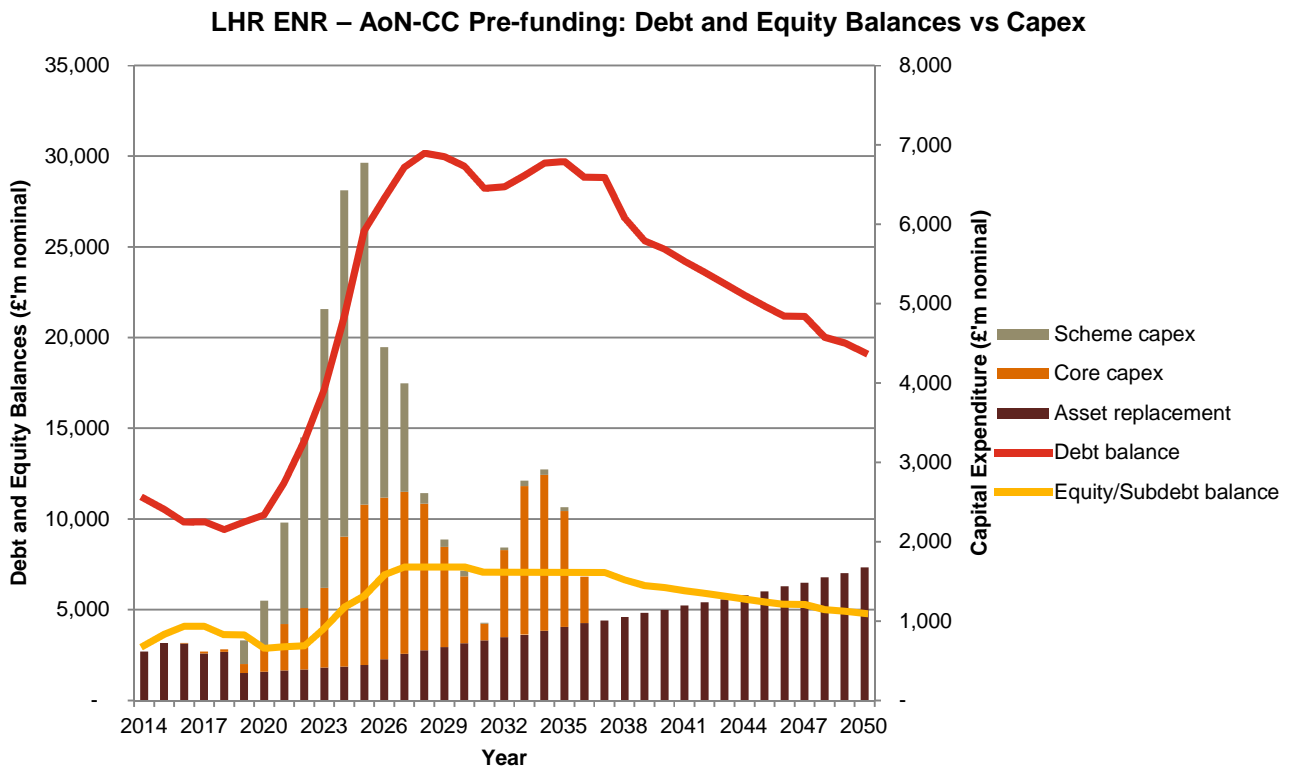
Cost and Commercial Viability: Additional Sensitivities

Chart 74: LHR ENR – AoN-CC Pre-funding: Aeronautical charge profile



Sources: Financial Models

Chart 75: LHR ENR – AoN-CC Pre-funding: Debt and equity balances vs capex



Sources: Financial Models

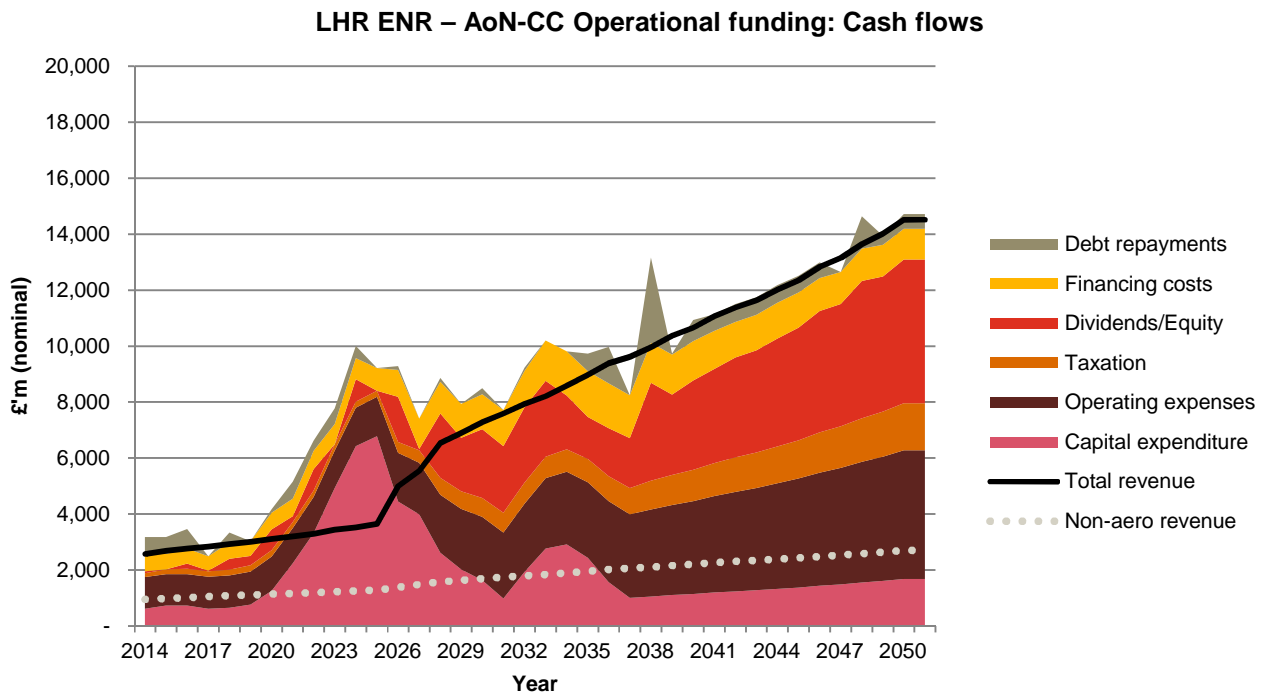
3.12 LHR ENR – AoN-CC: Operational funding

Summary: This sensitivity shows the financial analysis for the LHR ENR AoN-CC scenario on the basis of an estimate for operational funding (i.e. the airport operator is only able to pass on the costs relating to the new runway capacity through aeronautical charges at the point when this capacity becomes operational). In the Funding and Financing Update report, it is assumed that aeronautical charges are increased in the year in which capital expenditure is incurred. The treatment of when costs associated with the new capacity are able to be passed on through aeronautical charges will be a matter for the delivery body and the regulator.

Table 38: LHR ENR –AoN-CC Operational funding: Aeronautical Charge Sensitivities

Weighted average aeronautical charge (£ real 2014)	Peak aeronautical charge (£ real 2014)	Maximum increase in debt (nominal)	Peak debt outstanding (nominal)	Maximum increase in equity (nominal)	Peak equity outstanding (nominal)
£29.04	£31.69	£18.1bn	£29.8bn	£14.2bn	£16.9bn

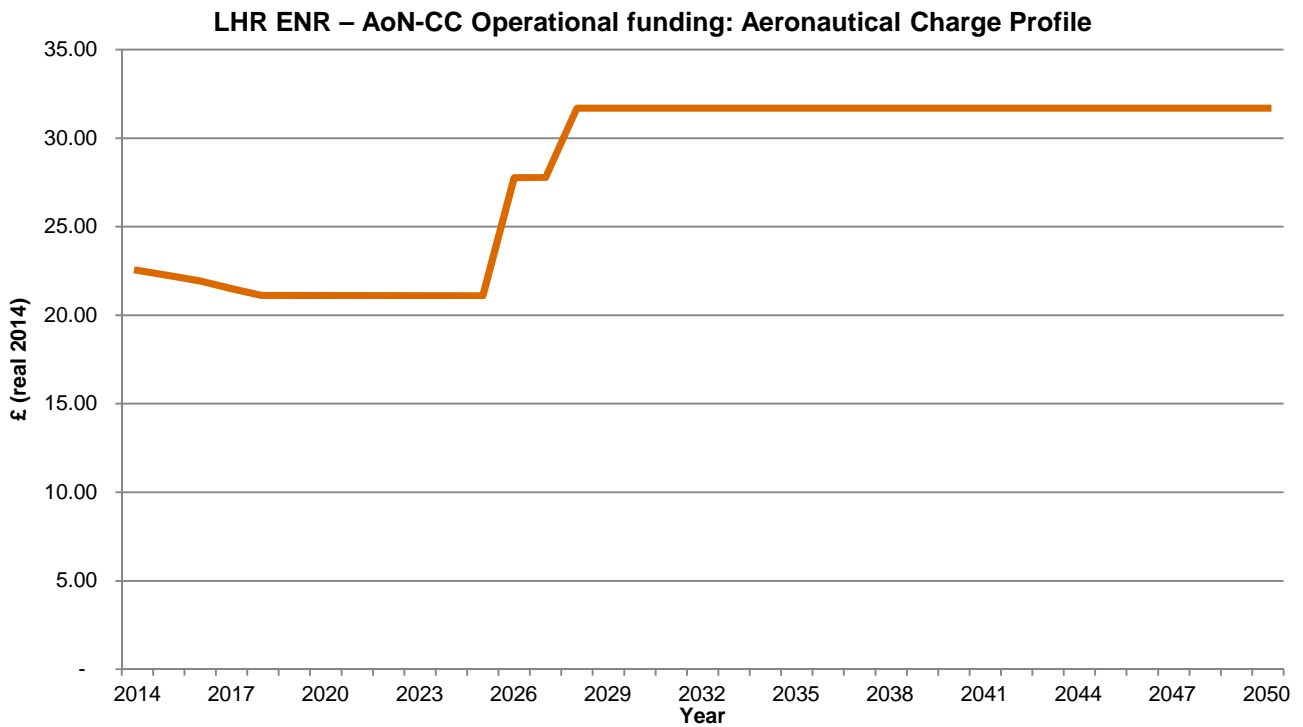
Chart 76: LHR ENR – AoN-CC Operational funding: Cash flows



Sources: Financial models

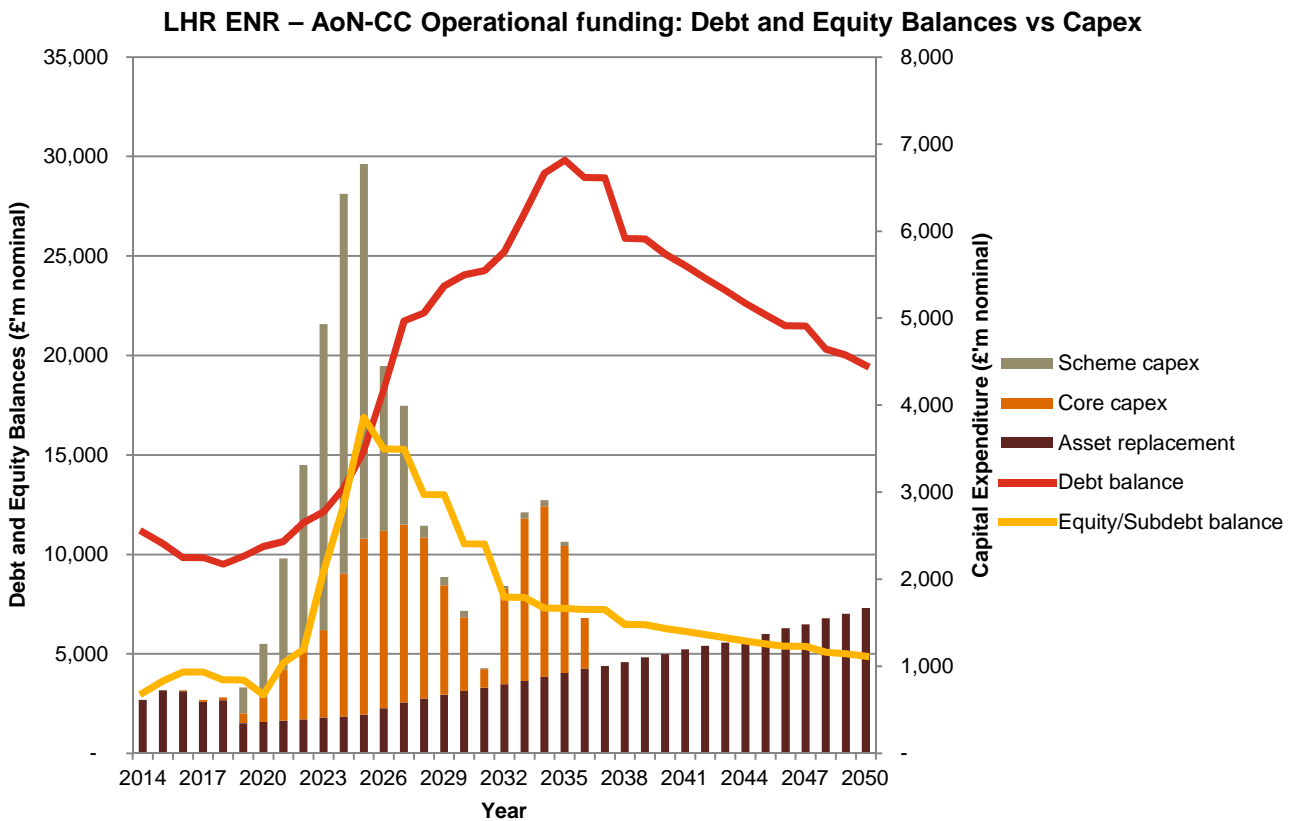
Cost and Commercial Viability: Additional Sensitivities

Chart 77: LHR ENR – AoN-CC Operational funding: Aeronautical charge profile



Sources: Financial Models

Chart 78: LHR ENR – AoN-CC Operational funding: Debt and equity balances vs capex



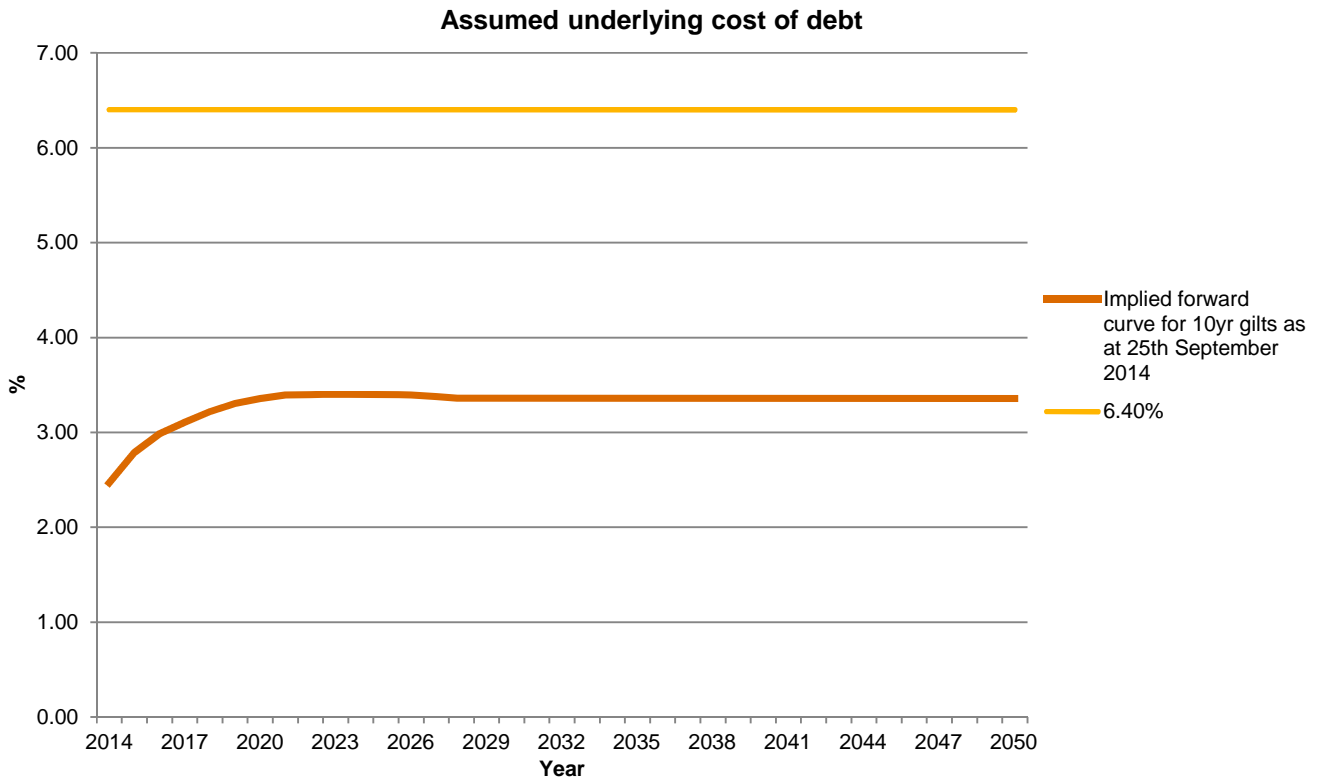
Sources: Financial Model

Appendix 1

Appendix 1: Underlying cost of debt assumptions

Chart 79 compares the underlying cost of debt assumed in the financial modelling work using the implied forward curve for 10 year gilt rates based on market data and the underlying cost of debt assumed in the 6.40% sensitivity (see sections 1.10, 2.9 and 3.8) derived from the Bank of England 10 year gilt rate as explained below. The 30 year average represents an increase to the underlying cost of debt of approximately 3.10% over the assumption in the Cost and Commercial Viability: Funding and Financing Update report where the average of the assumed underlying cost of debt is 3.30%.

Chart 79: Assumed underlying cost of debt

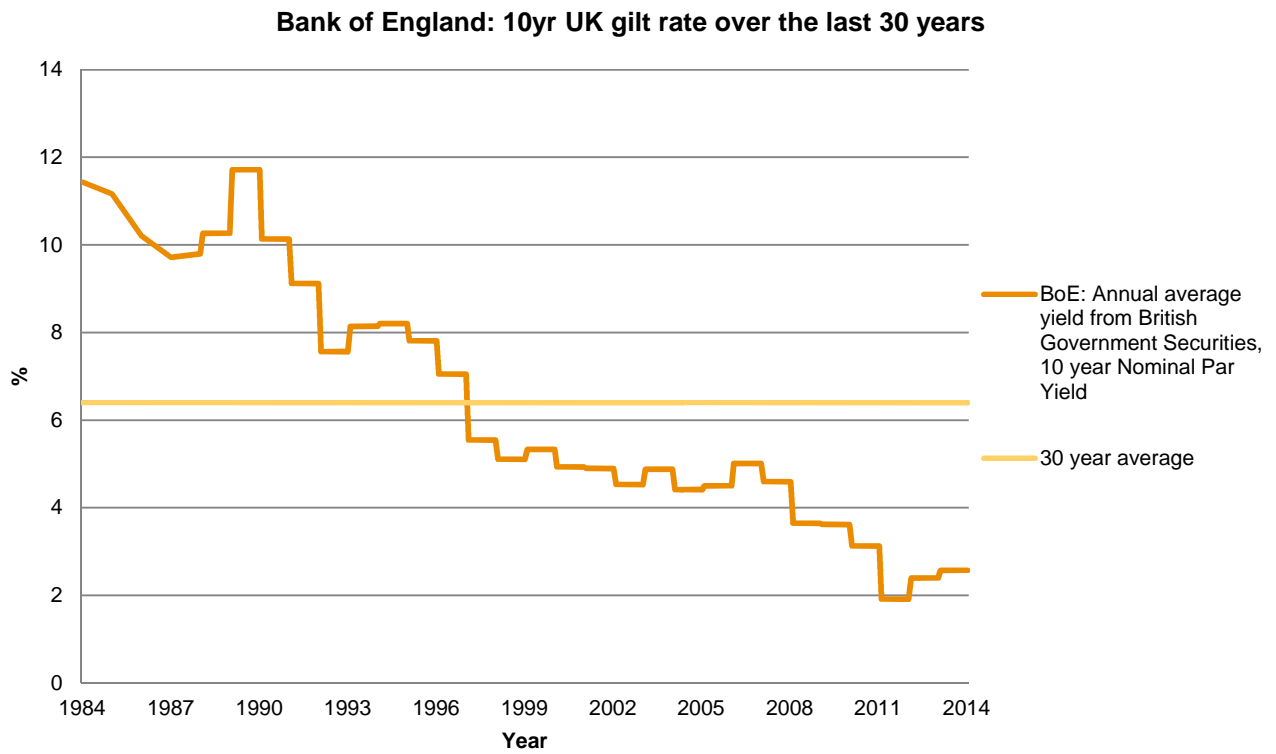


Sources: Reuters

The assumed cost of debt of 6.40% is the average yield for 10 year UK gilts over the past 30 years as per data sourced from the Bank of England (see chart 80).

Cost and Commercial Viability: Additional Sensitivities

Chart 80: Bank of England: 10 year UK gilt rate over the last 30 years



Sources: Bank of England

Cost and Commercial Viability: Additional Sensitivities



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