



Inner Thames Estuary Feasibility Study

*Response to Airports Commission Call for Evidence*

**The Mayor of London's Submission:  
Supporting technical documents**

**23 May 2014**

Title: Supplementary Report: Commercial and Financial Analysis of the loG option based on KPMG's analysis

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Purpose of paper: To identify the key assumptions used in the Airports Commission's / KPMG's analysis of the commercial viability of an Inner Thames Estuary hub airport, and adjust this analysis in light of market practice and precedents of regulated airports and other utilities.

**Key message:**

- The threefold increase in landing charges claimed by the Airports Commission is a significant overestimate, and based on flawed financial and commercial assumptions.

# Isle of Grain Hub Airport

Supplementary Report: Commercial and Financial  
Analysis of the IoG option based on KPMG's analysis

22 May 2014

Ernst & Young LLP



**EY**

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working world

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22 May 2014

Dear Sirs,

**A new Hub airport – the required increase in aeronautical charges**

In accordance with our appointment to provide services under the terms and conditions of our Framework Agreement with TfL (reference number TfL 90400), we have prepared this supporting document as per TfL's instructions to perform a high level financial analysis to identify the key assumptions used in AC/KPMG's analysis of the commercial viability of the IoG Hub. Then, based on market practice and precedents of regulated airports and other utilities, adjust AC/KPMG's analysis.

This paper includes supporting evidence from the Mayor's Submission and other advisors. We are not responsible for the scope of their work or the work undertaken by your other advisors and have not sought to verify the accuracy of the data, information or explanations provided by those advisors.

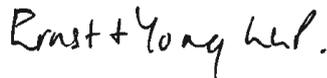
**Purpose of our paper and restrictions on its use**

The main paper consists of 32 pages, including the appendices. In preparing our paper, we have worked solely on TfL's instructions and for TfL's purposes.

Our paper may not have considered issues relevant to any third parties. Any use such third parties may choose to make of our paper is entirely at their own risk and we shall have no responsibility whatsoever in relation to any such use. Whilst TfL may use this paper in accordance with the terms and conditions set out in the Framework Agreement (reference number TfL 90400) we assume no responsibility or liability whatsoever to any third party in respect of the contents of our deliverables.

This paper is based on the evidence presented in the AC/KPMG paper. While this document is likely to be disclosed publically we do not accept third party reliance. Our work has been limited in scope and time and we stress that a more detailed review may reveal additional considerations that this review has not.

Yours sincerely



Ernst & Young LLP

## Abbreviations

<b>Abbreviation</b>	<b>Description</b>
AC	Airport Commission
CAA	Civil Aviation Authority
CARE	City Airport Rail Enterprise
DfT	Department for Transport
EBITDA	Earnings Before Interest Tax Depreciation and Amortisation
HAHL	Heathrow Airport Holdings Limited
IoG	Isle of Grain
mppa	Millions of passengers per annum
NERL	NATS (En Route) plc
RAB	Regulated Asset Base
TfL	Transport for London

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# 1. Executive Summary

## 1.1 Background

There is a general consensus that the UK requires additional aviation capacity to retain a competitive aviation position globally. In response, the Government has established the Airports Commission (“AC”) to examine the need for additional UK airport capacity and to make recommendations to Government on how this can be met in the short, medium and long term. The AC invited proposals from interested parties with their solutions on how to meet the needs of the UK’s aviation capacity.

EY was commissioned by Transport for London (“TfL”) to perform commercial and financial analysis for the delivery and financing of three site options, including the loG, for a new Hub Airport. This work was done on the basis of TfL directions and on the basis of the work done by TfL’s advisors. The results of EY’s work is summarised in our paper TfL’s proposal for a new Hub Airport, Commercial and Financial considerations, dated 30 September 2013.

In autumn 2013, AC commissioned KPMG to investigate the commercial viability of a number of potential airport schemes to inform the AC’s shortlisting process.

## 1.2 AC’s Process

On December 2013, the AC shortlisted three options for further evaluation that include building a new runway at Gatwick, expansion of the existing runway at Heathrow or building a new runway at Heathrow.

The AC has also undertaken to perform further work on the loG option with a view to determine whether to include it on the short list later this year. The AC has consulted on an appraisal framework that has specified a range of assessments, which will explore the economic, environmental and social costs and benefits of various options, as well as their operational, commercial and technical viability, and will go on to form the basis of the detailed business case and sustainability assessment for each option. This final report should be published no later than summer 2015 and will include AC’s recommendations for the optimum approach to meeting the current capacity and connectivity needs.

## 1.3 Summary of AC/KPMG analysis on the loG Hub Option

KPMG performed a preliminary, high level view of the viability of a range of potential schemes specified by the AC, focusing on funding and financing. The schemes analysed by KPMG were the London Heathrow Northwest and Southwest third runways; the Heathrow Hub north runway; the London Stansted second runway; the London Gatwick Second runway; the Stansted Five Runway new hub and the loG Hub.

KPMG reviewed funding and financing requirements of these options based on various factors such as the delivery and funding of large infrastructure projects in the UK, including:

- ▶ West Cost Main Line Modernisation;
- ▶ Channel Tunnel Rail Link/HS1; and
- ▶ London Olympics 2012.

These are given as examples of projects that have overrun existing budgets. We note that AC/KPMG’s analysis does not consider projects that are regarded as more successful examples of delivery such as Crossrail and the construction of Terminal 5 at Heathrow Airport.

In AC/KPMG's analysis in respect of the IoG, aeronautical revenue would need to increase in excess of 105% from the first year of operations (i.e. a multiple of 2.05x) assuming indexation at 2.5% thereafter, to enable debt to be repaid by 2050. However, if Government funds surface access then a multiple of 1.06x would be required (assuming indexation at 2.5% thereafter to repay the debt fully by 2050. Similarly the AC Interim Report (based on KPMG's analysis) states that aeronautical charges will need to increase a 3.4x multiple if the airport is responsible for all of the surface access costs. The AC's Interim Report quotes this 3.4x multiple as the multiple including surface access, and with no indexation of aeronautical revenues in a number of places.

**Table 1: Multiple of the aeronautical charges under different scenarios**

Source: KPMG Interim Report dated 10 December 2013 / AC Interim Report

	Indexation of aeronautical charges	No indexation of aeronautical charges
Airport fully responsible for surface access	2.05x	3.4x <sup>1</sup>
Government responsible for surface access	1.06x	1.75x

## 1.4 Scope of work

In response to the call for evidence for the IoG Hub option TfL has commissioned EY to perform a high level financial analysis to identify the key assumptions used in AC/KPMG's analysis of the required increase in aeronautical charges. Then, based on the market practice and precedents of regulated airports and other utilities, adjust AC/KPMG's analysis to highlight the effect on aeronautical charges.

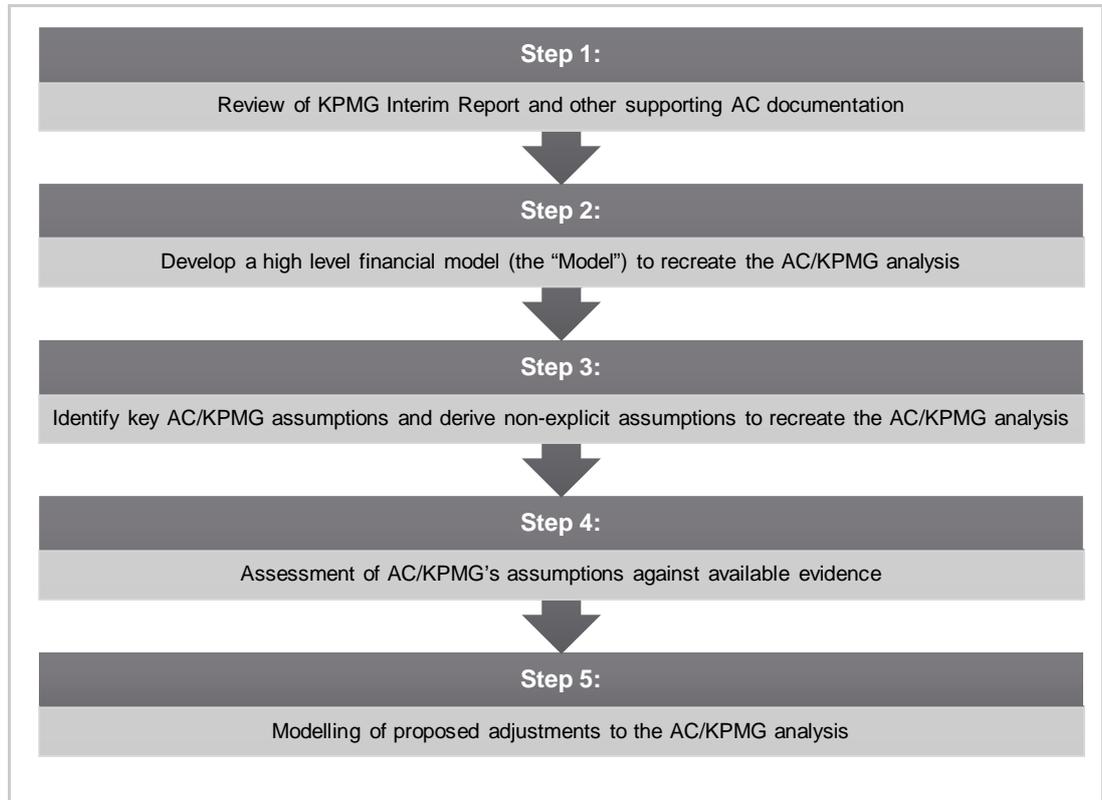
In particular, TfL has requested further analysis regarding the commercial assumptions and analysis adopted by KPMG to understand and explain why the AC's conclusions on aeronautical charges differ so prominently from the Mayor's Submission. EY's scope of work broadly comprised the following:

1. Recreate KPMG's analysis at a high level, and examine the assumptions used;
2. Provide an EY view of these assumptions based on analysis at a very high level and consider the evidence available; and
3. Show the impact of these assumptions on the aeronautical charge multiple of 3.4x (ie. an increase of 240%).

<sup>1</sup> AC Interim Report

## 1.5 Our Approach

Figure 1: Our approach



### Step 1: Review of KPMG Interim Report and other supporting AC documentation

EY has reviewed the following documents:

- ▶ The AC/KPMG Interim Report (10 December 2013) to understand the methodology behind the multiple on aeronautical charges of 3.4x at operations commencement of the loG Hub; and
- ▶ The AC's Interim Report.

### Step 2: Develop a high level financial model (the "Model") to recreate the AC/KPMG analysis

EY's scope of work included the development of the Model. The Model was designed to recreate KPMG's analysis at a high level and allow the flexibility to calculate the impact of a number of proposed adjustments to key AC/KPMG assumptions as a sensitivity analysis. This model does not take into account specific funding and delivery mechanisms that will be used for the loG option. These are covered in detail in EY's paper: TfL's proposal for a new Hub Airport, Commercial and Financial considerations, dated 30 September 2013.

Our model is on an indicative pre-tax cash flow basis only. There are no explicit accounting, working capital or taxation assumptions in our model.

### Step 3: Identify key AC/KPMG assumptions and derive non-explicit assumptions to recreate the AC/KPMG analysis

EY re-reviewed the KPMG Interim Report and other supporting AC documentation to extract key assumptions. Where assumptions were necessary for recreation of the analysis but not

explicit in the KPMG Interim Report or other documentation, EY used estimated assumptions which were discussed and agreed with TfL.

The table below sets out the AC/KPMG assumptions that were explicit in their report, together with the EY/TfL assumptions required to recreate the analysis.

**Table 2: Assumptions underpinning the AC/KPMG analysis**

Sources: AC/KPMG, Airports Commission Interim Report, 10 December 2013; TfL; EY analysis

Assumption	Explanation
<b>AC/KPMG explicit assumptions</b>	
Aeronautical charge increase	<ul style="list-style-type: none"> <li>▶ Assumed multiple of 3.4x over the 2018/19 CAA Q6 aeronautical charges for Heathrow (based on real prices);</li> <li>▶ There is no indexation to aeronautical charges subsequent to this increase.</li> </ul>
Passengers per annum	<ul style="list-style-type: none"> <li>▶ A cap of 150mppa is applied.</li> </ul>
Capital costs	<ul style="list-style-type: none"> <li>▶ Airport and land preparation expenditure is assumed to be £47bn (real terms);</li> <li>▶ Surface access capital expenditure is assumed to be £61bn (real terms);</li> <li>▶ There is a further £7bn (real terms) acquisition cost for Heathrow and a £1bn (real terms) compensation payment to London City, with no corresponding development income;</li> <li>▶ Total £115.5bn (real terms) to 2050.</li> </ul>
<b>Our assumptions for what KPMG's analysis assumes where AC/KPMG assumptions were not explicit</b>	
Aeronautical charge increase	<ul style="list-style-type: none"> <li>▶ Calculated on a real basis over the 2018/19 CAA Q6 price cap aeronautical yield per passenger;</li> <li>▶ Likely to be regulated on a RAB basis similar to Heathrow currently.</li> </ul>
Passengers per annum	<ul style="list-style-type: none"> <li>▶ The AC unconstrained profile has been used to 2050<sup>2</sup>;</li> <li>▶ Increased at 1% per annum thereafter.</li> </ul>
Capital costs	<ul style="list-style-type: none"> <li>▶ Airport, land and surface access capital costs are disbursed equally throughout the construction period. These nominal costs are funded through debt and equity;</li> <li>▶ Heathrow acquisition cost is assumed to be funded fully through equity and is incurred at the start of construction;</li> <li>▶ London City compensation is assumed to be funded fully through equity and is incurred at the end of construction.</li> </ul>
Debt coupon	<ul style="list-style-type: none"> <li>▶ Debt coupon of 5.0% is assumed.</li> </ul>
Equity return	<ul style="list-style-type: none"> <li>▶ Equity return of 10.5% is assumed.</li> </ul>

Applying the assumptions in the table above to the Model derives the same 3.4x multiple to aeronautical charges per passenger derived by the AC/KPMG analysis.

#### Step 4: Assessment of AC/KPMG's analysis against available evidence

During Step 4 we identified the key assumptions for which we have proposed adjustments based on available evidence, including:

- ▶ International and national examples for delivery of significant airport expansion;
- ▶ Historical performance and funding of Heathrow, Gatwick and other regulated companies; and

<sup>2</sup> Airports Commission: airport level passenger forecasts 2011 to 2050  
<https://www.gov.uk/government/publications/airports-commission-airport-level-passenger-forecasts-2011-to-2050>

- ▶ Precedents from other regulated sectors.

We note KPMG's Interim Report (10 December 2013) presents limited supporting evidence to justify their assumptions<sup>3</sup>.

## **Step 5: Modelling of proposed adjustments to the AC/KPMG analysis**

This report presents evidence supporting the proposed adjustments in Section 2.

### **▶ Maintain appropriate capital structure**

The AC/KPMG analysis assumes that the loG capital structure is debt free by 2050. The report is clear that given the asset life of the schemes under consideration, a longer time period could have been used. The 2050 date is assumed as an arbitrary choice consistently applied across schemes to allow comparison. The proposed adjustment is instead to retain an appropriate capital structure as is customary for regulated entities in the UK and in accordance with CAA guidelines.

### **▶ Assume an appropriate contribution to the surface access capital costs**

AC/KPMG assumes that full surface access capital expenditure is funded by the airport. The proposed adjustment based on airport precedents is to only fund the surface access specific to the airport. For this adjustment it is assumed that the loG Hub would only fund 5% – 15% of surface access capital costs, with Government funding the remainder. This is a high level assumption that needs further analysis of benefits.

### **▶ Adjustment of Heathrow acquisition cost to be based on market precedents**

The AC/KPMG analysis assumes Heathrow is acquired for £7bn (real terms). The proposed adjustment is to use a RAB based acquisition cost. 2018 RAB has been used from the CAA's Q6 regulatory settlement and a multiple of 1.0x – 1.3x has been applied. This adjustment works in the opposite direction from the other adjustments and adjusts a major assumption used in KPMG's analysis.

### **▶ Apply Indexation of the aeronautical charges post operations**

The AC/KPMG analysis assumes a one-time step up of aeronautical charges at the commencement of operations at the loG Hub but does not index these charges subsequently, which results in a very large upfront increase. We have assumed an indexation mechanism as typically used in regulated companies.

## **1.6 Limitations**

Our analysis covered in this paper comprises high level financial modelling using simplistic assumptions to recreate the AC and KPMG's analysis of the level of aeronautical charges required to make the various schemes viable. Our work focuses only on the loG Hub. Our analysis makes certain assumptions as described below:

- ▶ Our analysis is at a similarly high level as AC and KPMG's analysis. There are significant limitations to KPMG's work in determining the commercial viability of the loG Hub option. Our work which replicates their analysis does not attempt to recreate the assumptions under which the loG Hub would be commercially viable. Our analysis also does not take into account any potential delivery and funding mechanisms to deliver the scheme;
- ▶ We have not had sight of KPMG's model used to determine the conclusions in the KPMG Interim Report to the AC dated 10 December 2013. We have therefore not

<sup>3</sup> "Airport Commission, Interim Report" by KPMG, page 8, section 3.1, paragraphs 2 & 3.

attempted to interrogate the methodology used or every assumption underlying their analysis;

- ▶ This work does not include an analysis and impact of State Aid regulation to the funding and delivery of the IoG Hub (this was concluded in detail at the time of TfL's submission to the AC in July 2013; and
- ▶ All analysis performed is on an indicative pre-tax cash flow basis only. Hence we have not explicitly considered any specific accounting, working capital or taxation assumptions in our analysis.

## 1.7 Key findings

The key findings evidencing each of our adjustments are presented below:

**Adjustment A: Debt repayment** – Regulated companies typically target a level of gearing and retain the cheaper financing in their capital structures. The CAA also states that retaining debt allows passenger charges to be kept at lower levels due to an optimal capital structure using and retaining debt.

**Adjustment B: Surface access** – Typically, in the UK and abroad, airports only fund the proportion of surface access used for dedicated airport access which is then recovered from airport users in the form of aeronautical charges. Recent CAA determinations in the UK support this. As a result, airports rarely fund 100% of surface access capital costs, with Government and other parties funding the remainder.

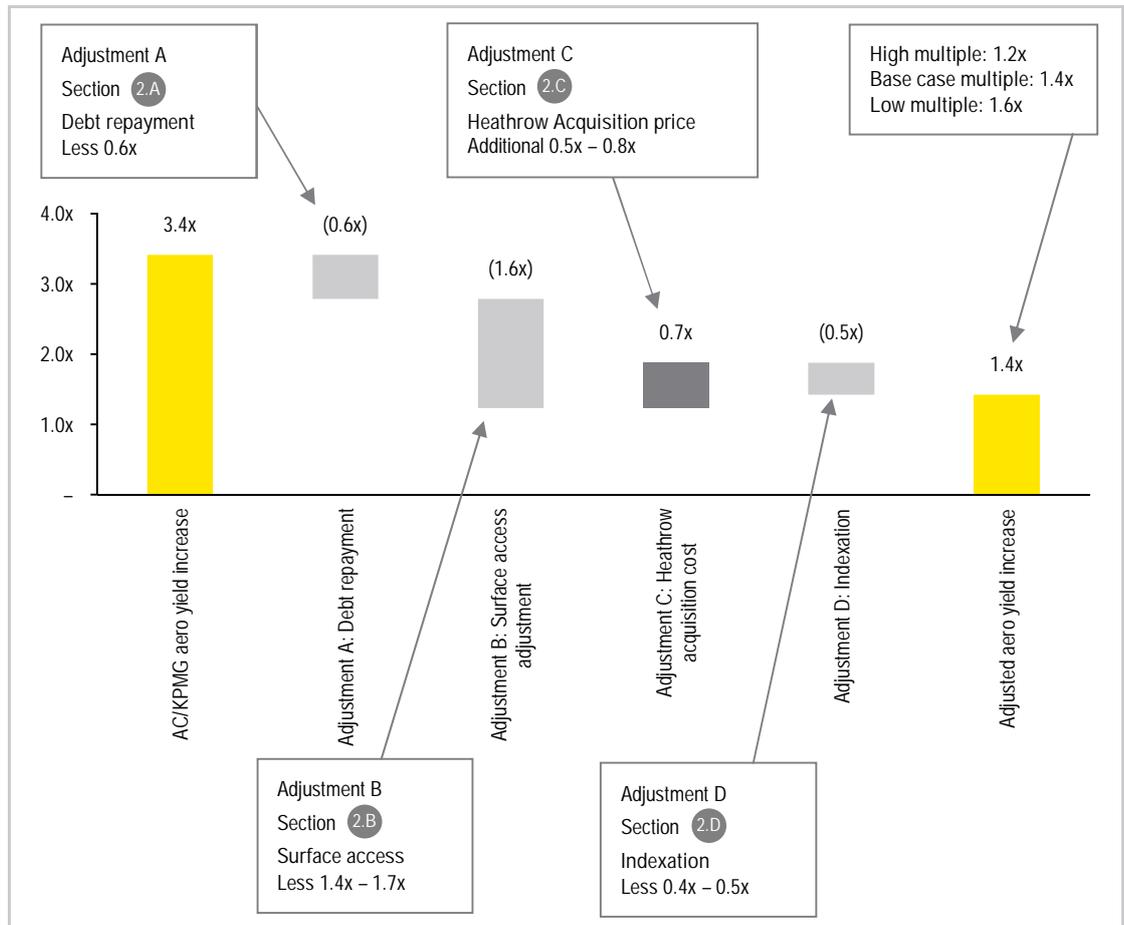
**Adjustment C: Heathrow acquisition cost** – Companies which have regulatory regimes have typically been valued at a premium over RAB of between 1.0x and 1.3x over recent years.

**Adjustment D: Indexation** – Typically, regulated companies gradually increase charges to recover their investment in capital expenditure and also in line with inflationary pressure on operating and maintenance costs. This is usually taken into account by the regulatory bodies when determining price caps.

The following chart presents a summary of the adjustments detailed in this section.

**Figure 2: Aeronautical charge bridge – base case**

Source: EY analysis



This high level analysis shows that, on the basis of certain assumptions differing from those assumed by AC/KPMG as discussed in this report, a multiple of aeronautical charges in 2030 of 1.2x – 1.6x on Heathrow (CAA Q6) aeronautical charges is enough to fund construction of a new Hub airport. It should be noted that other AC/KPMG assumptions, notably on cost and risk/optimism bias, have not been amended in the above analysis.

## 1.8 How is this report set up

Our report has the following format:

Title	Section	Description
<b>Aeronautical charge adjustment</b>	<b>2</b>	<b>This section presents a breakdown of how and why each adjustment was made to the AC/KPMG analysis.</b>
Adjustment A: Debt repayment	2.A	Analysis of EY’s adjustment on retaining leverage in the capital structure of the IoG Hub.
Adjustment B: Surface access	2.B	Analysis of EY’s adjustment on surface access to reduce the level of capital expenditure that is financed by the airport.
Adjustment C: Heathrow acquisition cost	2.C	Analysis of EY’s adjustment of the acquisition cost of Heathrow to a RAB based multiple.

Adjustment D: Indexation	2.D	Analysis of EY's adjustment applying RPI indexation on the post operations aeronautical charge per passenger of the loG Hub.
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<b>Summary and conclusion</b>	<b>2.2</b>	<b>Summary and Conclusion of the findings.</b>
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## 2. Our analysis

This section presents a breakdown of how and why each proposed adjustment in Section 1.7 (Key findings) was made to the AC/KPMG analysis. Each argument underpinning each adjustment is structured as follows:

1. **Introduction:** This subsection details what AC/KPMG did to derive a 3.4x increase in aeronautical charge per passenger.
2. **Proposed adjustment:** This subsection introduces the proposed adjustment and presents the reasoning for each proposed adjustment.
3. **Evidence support:** These subsections use general industry standards, similar regulated companies to airports and other data to provide justification for the proposed adjustment.
4. **Conclusion:** This subsection presents the adjusted aeronautical charge per passenger (inclusive of preceding adjustments).

The proposed adjustments are presented in a range defined as follows:

- ▶ **High case:** These adjustments result in the lowest multiple to aeronautical charges at commencement of IoG Hub operations.
- ▶ **Low case:** These adjustments result in the highest multiple to aeronautical charges at commencement of IoG Hub operations.
- ▶ **Base case:** These adjustments result in a multiple between the high and low cases to aeronautical charges at commencement of IoG Hub operations.

### 2.A Adjustment A: Debt repayment

#### 2.A.1 Introduction

In its analysis of aeronautical charges AC/KPMG assume that debt has been amortised to 2050<sup>4</sup>. Therefore, by 2050, there will be no outstanding debt in the IoG Hub's capital structure.

#### 2.A.2 Proposed adjustment

The proposed Adjustment A: Debt repayment is to ensure that the IoG Hub retains an appropriate level of debt at all times. Under the AC/KPMG analysis, the IoG Hub becomes a debt free entity in 2050. The evidence presented in Section 2.A.3 however suggests that regulated airports and other utilities retain an appropriate level of debt within their capital structures.

An alternative is to retain a targeted level of debt within the capital structure of the IoG Hub.

#### 2.A.3 Evidence support

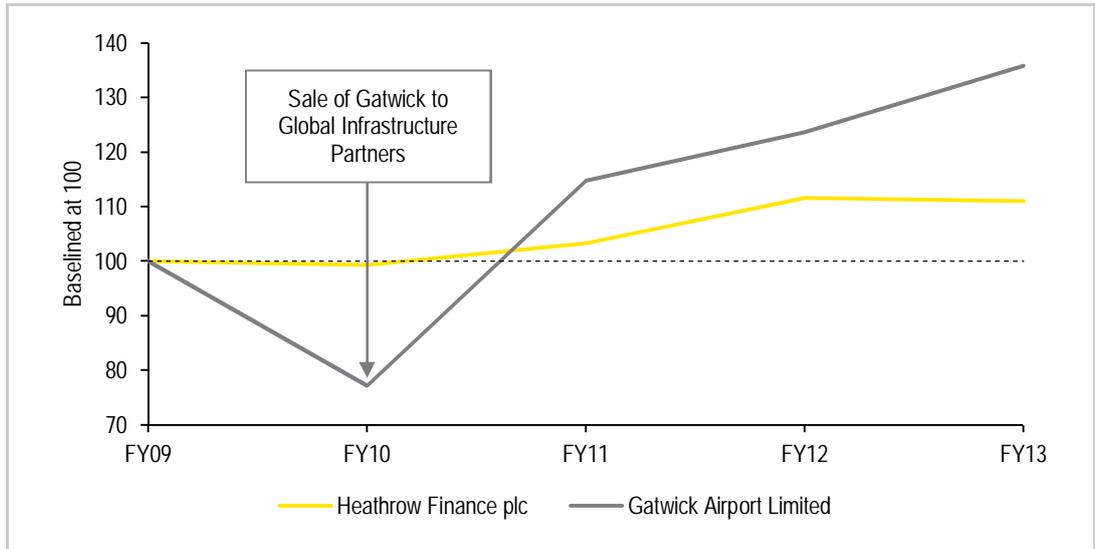
##### UK regulated airports

Heathrow and Gatwick maintain an appropriate amount of debt in proportion to their respective Regulated Asset Base ("RAB"). This means that while individual tranches of debt could be repaid or amortised over time, they are replaced by new tranches of debt, hence the company's gearing remains at steady levels.

<sup>4</sup> Airports Commission, Interim Report, KPMG LLP, 10 December 2013, section 3.1., paragraph 3

**Figure 3: Total debt held by benchmark companies**

Source: Annual accounts



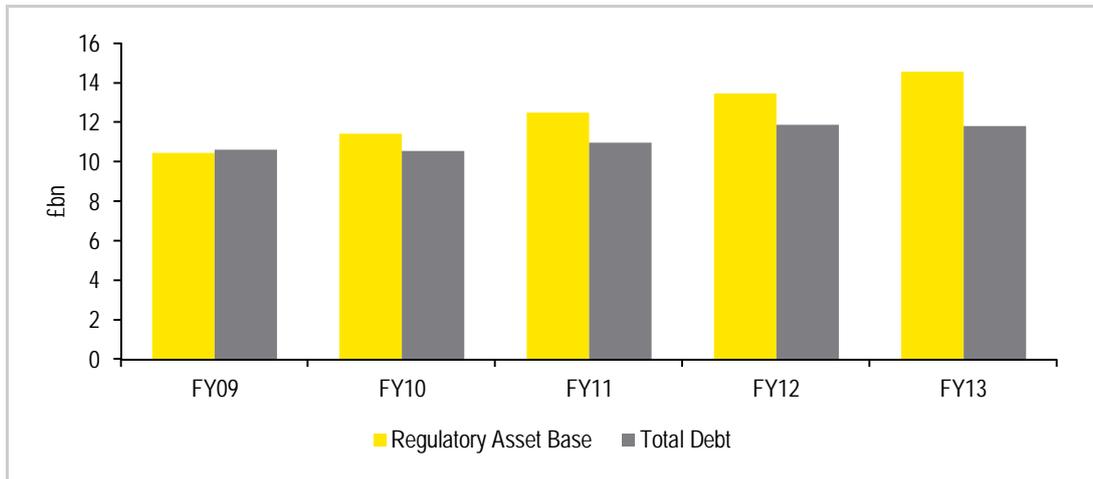
Heathrow and Gatwick have increased their levels of total debt by 11% and 36% respectively over the five year profiled period. These two airports are analysed in further detail for the remainder of this subsection.

**Heathrow Finance plc**

As a percentage of RAB, Heathrow Finance plc total debt has fallen from 102% to 81% over the period of analysis. We note that this is still highly leveraged compared to other regulated companies, as well as higher than the target debt to RAB used by the CAA (60% in Q6).

**Figure 4: Heathrow Finance plc total debt and RAB**

Source: Annual accounts



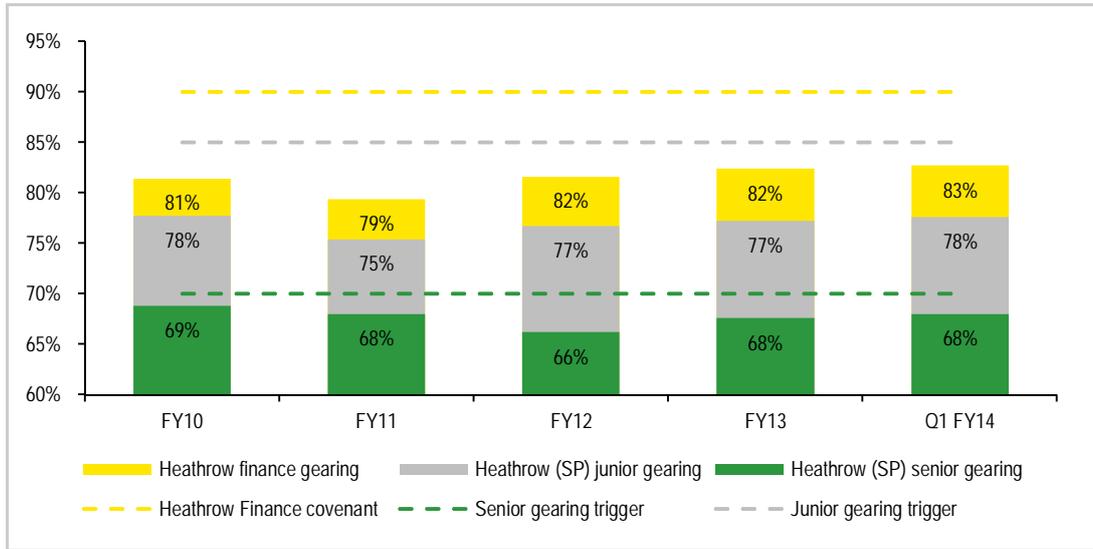
Regulated companies utilise a combination of bank and bond finance to retain an appropriate leverage. While proceeds from the sale of Stansted were used to repay a portion of Heathrow debt (the ADI facility), the net position in Heathrow Finance was an increase in total debt from a refinancing to meet this repayment.

The following chart presents Heathrow gearing<sup>5</sup> across the business. This illustrates that Heathrow retains its debt levels at a proportion of RAB, rather than reducing debt.

<sup>5</sup> Gearing here is calculated as net debt / RAB

**Figure 5: Heathrow gearing (net debt to RAB)**

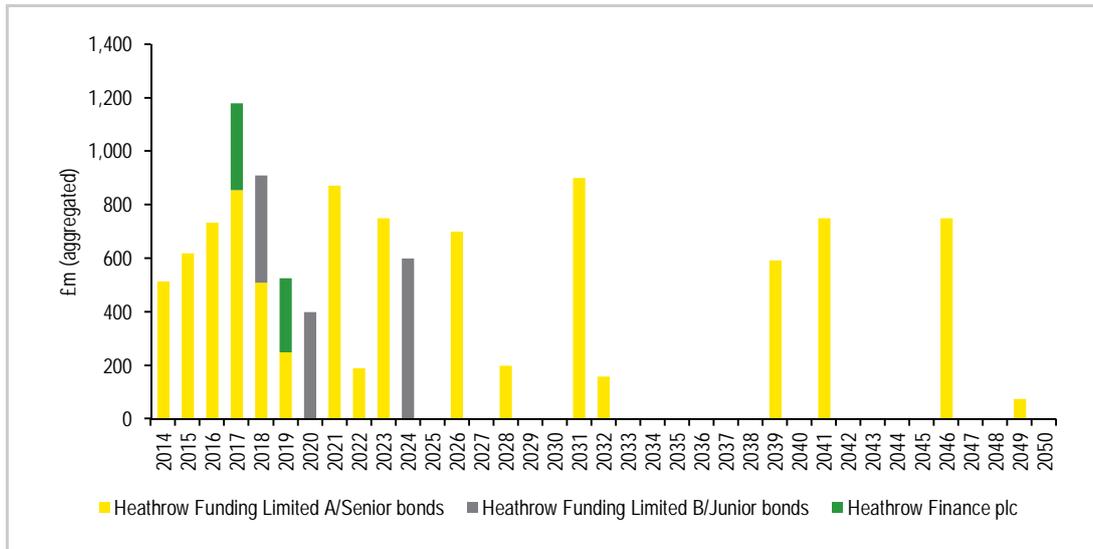
Source: Heathrow (SP) Limited, results for three months ended 31 March 2014



The following chart illustrates that Heathrow issues long term bond debt and refinances on a regular basis.

**Figure 6: Heathrow bond maturities**

Source: Heathrow Airport



The bond maturity profile at Heathrow above illustrates Heathrow uses a number of funding sources (Heathrow also uses bank debt), maturities and debt coupons to maintain debt as a percentage of RAB. The chart above also illustrates that Heathrow issues some long term debt with maturity in excess of 30 years. This therefore allows the airport to maintain an efficient cost of capital.

**Gatwick Airport**

As a percentage of RAB, Gatwick’s total debt declined from 66% to 46% between FY09 and FY10. The airport subsequently increased total debt to 59% of RAB in FY13. This is close to CAA’s target leverage assumption of 55% in Q6.

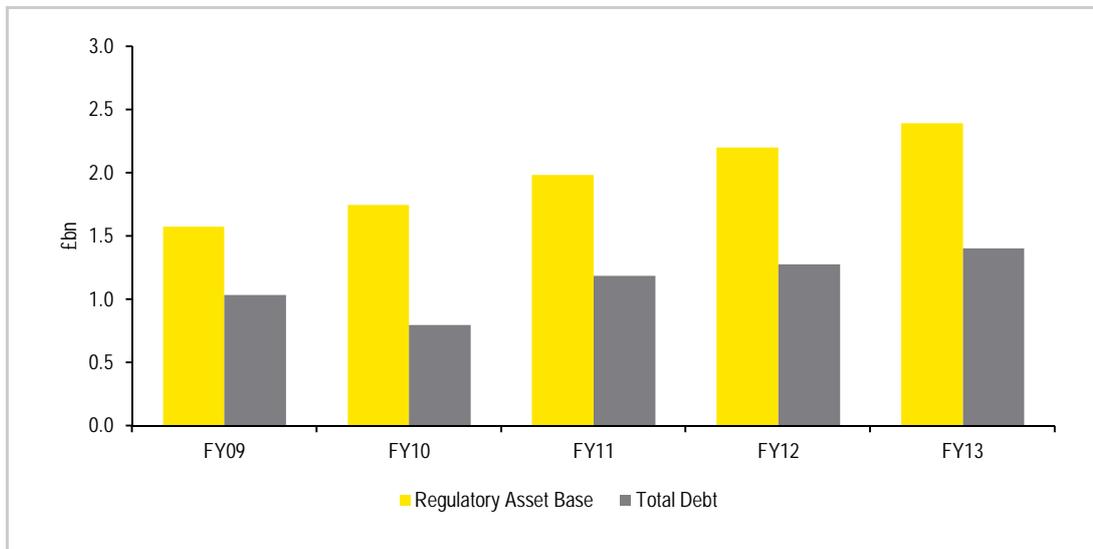
Similar to Heathrow, Gatwick also has a bond issuance programme. While its term loan facility (of £620m) only had an outstanding balance of £106m in FY13, Gatwick's subsidiary, Gatwick Funding Limited issued the following bonds to refinance <sup>6</sup>:

- ▶ Two £300m issues pre 31 March 2012;
- ▶ One £600m issue on 20 January 2012; and
- ▶ One £600m issue on 2 March 2011.

Furthermore, Gatwick recently renewed a five year £300m revolving credit facility and £100m liquidity facility <sup>7</sup>.

**Figure 7: Gatwick total debt and RAB**

Source: Annual accounts



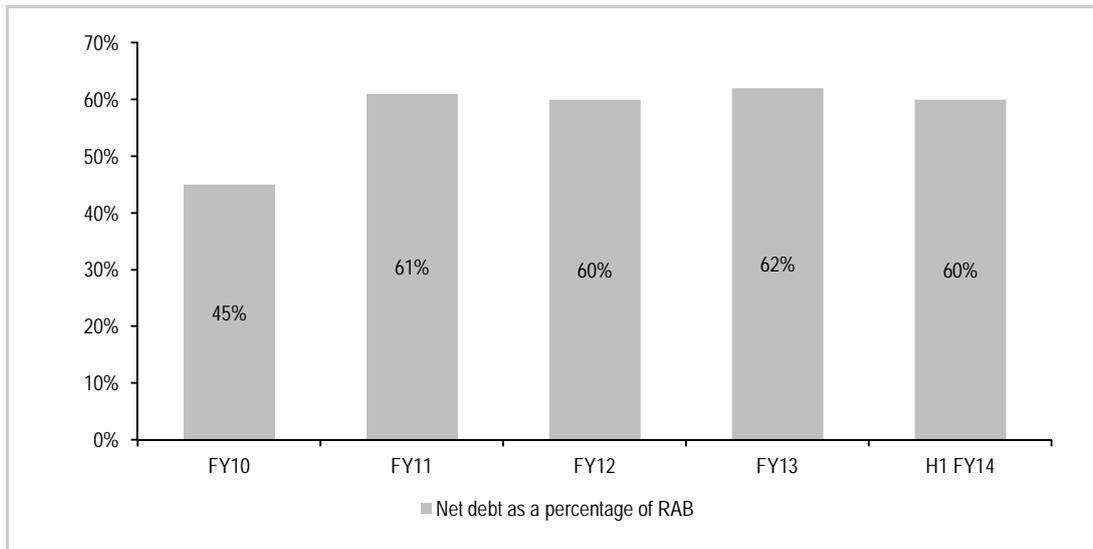
Gatwick's published net debt to RAB ratio also remains relatively steady at around 60%, close to its regulatory settlement.

<sup>6</sup> Gatwick Funding Limited, Annual accounts, Year ended 31 March 2013

<sup>7</sup> Gatwick Airport Limited, Investor Presentation, March 2014

**Figure 8: Gatwick net debt/RAB**

Source: Annual accounts



**Key finding**

On the basis of the CAA's view of retaining a reasonable gearing within the capital structure, Heathrow and Gatwick target a level of gearing (net debt to RAB), that results in them retaining a relatively steady level of total debt to RAB. Furthermore, as revenues at the loG airport grow with higher passenger numbers, the debt capacity of loG will increase.

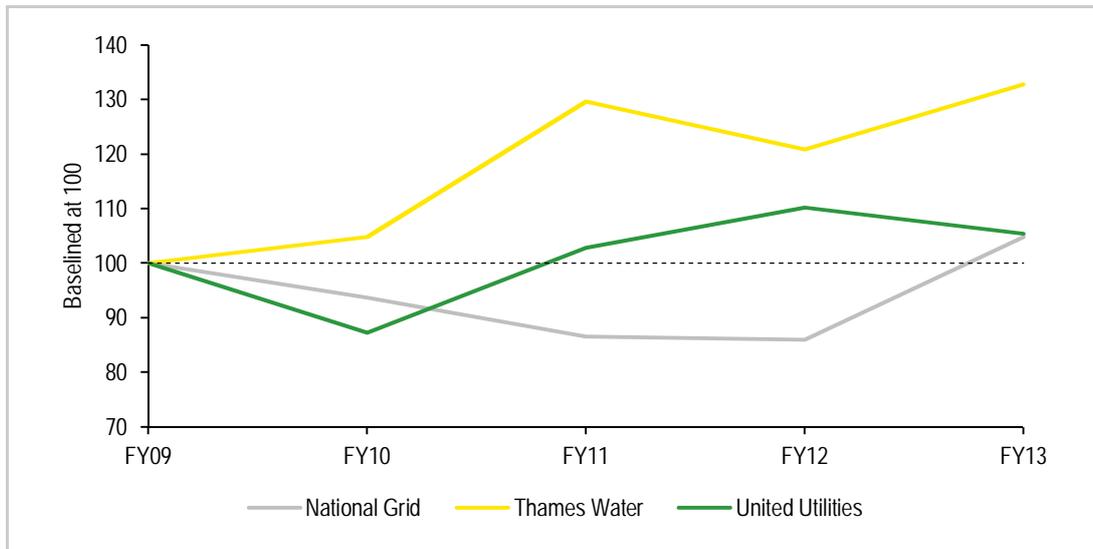
Regulated airports use a mixture of bank and bond financing with varying maturities to ensure debt remains at a percentage of RAB. This allows them to achieve an optimal cost of capital.

**Other regulated companies**

Similar to regulated airports in the UK, other regulated companies target a level of net debt to RAB.

**Figure 9: Total debt held by benchmark companies**

Source: Annual accounts



While the level of total debt held by each company is reasonably volatile, there has been an increase over the five year period FY09 to FY13, in line with increases to RAB.

The remainder of this subsection presents a summary of the analysis carried out on each of these other regulated companies. The full analysis is presented in Appendix A.

### **National Grid**

National Grid is a regulated utility in the UK. As a percentage of RAB, National Grid has retained total debt at an average level of 84% between FY09 (total debt of £27bn) and FY13 (total debt of £28bn). This percentage decreased from 96% in FY09 to 74% in FY12 before recovering slightly to 83% in FY13.

It should be noted that fluctuations in total debt for National Grid are likely to result from the company's strategy to target an interest cover of between 3.0x and 3.5x (3.9x in FY13) as well as timing of capital expenditure programmes which have an impact on RAB.

### **Thames Water**

Thames Water is amongst the largest water suppliers in the UK. As a percentage of RAB, total debt has remained relatively constant over the five year period FY09 (total debt of £6bn) to FY13 (total debt of £8bn), ranging between 86% (FY11) and 79% (FY10).

Thames Water targets net debt as a percentage of RAB at 85%<sup>8</sup>, however this ratio was 77% in FY13.

### **United Utilities**

United Utilities is amongst the largest listed water businesses in the UK. While total debt as a proportion of RAB fell from 80% in FY09 to 67% in FY10, it has since remained relatively steady. Net debt as a percentage of RAB has also remained relatively steady, ranging between 59% and 66% between FY09 (total debt of £7bn) and FY13 (total debt of £9bn).

<sup>8</sup> Thames Water annual accounts to 31 March 2013

**Key finding**

Similar to Heathrow and Gatwick, other regulated companies typically target a level of gearing (net debt to RAB) or interest cover. This results in them retaining a relatively steady level of debt and refinancing debt as individual tranches become due.

**CAA position <sup>9</sup>**

The CAA, when deciding upon price caps for the aeronautical charges of Heathrow and Gatwick, estimates a level of leverage retained in the capital structure of each airport. If this level of debt is too low, the cost of capital would be too high, resulting in higher charges being passed to airport users.

The CAA concluded on a leverage assumption of 60% for Heathrow and 55% for Gatwick (to account for the higher demand risk at Gatwick) as being reasonable. Heathrow Finance plc and Gatwick Airport Limited have had average leverage of 90% and 58% of RAB respectively for the last five years. This has been discussed in more detail in the preceding sections.

The CAA took a similar position with the regulation of NATS (En Route) plc (“NERL”) in its recent CP3 price review. The CAA set NATS’ gearing target to 60% with a cap 65%.

**Key finding**

By retaining an appropriate capital structure in line with regulatory mechanisms, passenger charges can be reduced. This is because debt is a cheaper form of financing than equity.

**2.A.4 Conclusion**

Adjustment of the AC/KPMG debt repayment assumption to assume an appropriate capital structure in line with the protections afforded by the regulatory mechanism and according to CAA guidelines results in a reduction of the 3.4x aeronautical charge multiple by 0.6x.

	High case	Base case	Low case
Adjustment A: Debt repayment	(0.6x)	(0.6x)	(0.6x)

**2.B Adjustment B: Surface access**

**2.B.1 Introduction**

The AC/KPMG analysis assumes the IoG Hub incurs the full surface access capital expenditure of £61bn (as estimated by Jacobs) to give the multiple of 3.4x. Implicitly KPMG assumes that surface access capital costs would be entirely funded by airport users resulting in a multiple of 1.4x – 1.7x higher in user charges as calculated in our adjustment. Furthermore, KPMG assert that this multiple comes down to 1.75x (with no subsequent indexation) if the Government pays for the surface access <sup>10</sup>.

The £61bn expenditure represents significantly more than the surface access costs allowed for as part of TfL’s submission in July 13 (£25.8bn to 2050) which were assumed to be

<sup>9</sup> CAA, Estimating the cost of capital, CAP115

<sup>10</sup> Airports Commission, Interim Report, KPMG LLP, 10 December 2013

Government funded. EY understands that TfL has since undertaken further work on surface access costs and the profile of these costs, and expects a further reduction from the level assumed in TfL's submission to £19.1bn under an optimal scenario.

We note that in the development of surface access, it is appropriate for the airport to incur the capital cost if it is the primary beneficiary of the infrastructure. In the case of loG Hub, we understand that the option will lead to wider development and regeneration in the area surrounding the airport. Furthermore, a significant proportion of the capital cost would also be necessary to cater to the growth and redistribution of the London population. Therefore, it is unreasonable to assume that the loG Hub will incur the full capital costs of surface access.

In our analysis below we have substantiated this assertion with a number of examples. We note that the AC/KPMG analysis considered no examples to substantiate their assertion of full funding of surface access by the loG Hub.

## 2.B.2 Proposed adjustment

The proposed Adjustment B: Surface access is to reduce the level of surface access capital expenditure that is financed by the airport. A range of assumptions have been used as follows. It should be noted that, under TfL's latest estimates of surface access costs of £19.1bn, the percentages would be much higher.

**Table 3: Surface access adjustment assumptions**

	High case	Base case	Low case
Percentage of surface access cost funded by loG Hub (AC cost estimates)	5.0%	10.0%	15.0%
	(£3bn in real terms)	(£6bn in real terms)	(£9bn in real terms)

By the airport funding the entire surface access capital costs, aeronautical charges would need to be increased significantly in order to make the loG Hub commercially viable. This is a highly unusual and unprecedented assumption as discussed below.

## 2.B.3 Evidence support

### Heathrow

The Crossrail and M25 widening schemes both improve surface access to Heathrow. In this instance:

- ▶ Heathrow agreed with the DfT in 2008 that it would make a £180m (in 2010 prices) contribution to the £15.9bn funding requirement of Crossrail. This was however dependent on the CAA approving that Heathrow could add this capital investment to its RAB and therefore the ability for Heathrow to recover this investment from the users of the airport. The CAA however concluded that Heathrow was only allowed £70m to be added to its RAB for Crossrail on the basis of whether: (i) it is beneficial for passengers and cargo owners; and (ii) it would be undertaken by an airport operator operating in a competitive market<sup>11</sup>; and
- ▶ Heathrow has not committed any funding to the M25 widening scheme even though widening the road will provide some benefit to Heathrow. Rather, this project was funded through a DBFO contract, won by Connect Plus (a consortium comprising Balfour Beatty (40%), Skanska (40%), Atkins (10%) and Egis Projects SA (10%))<sup>12</sup>.

Table 10 in Appendix B presents more detail on the schemes and their financing.

<sup>11</sup> CAA, Economic regulation at Heathrow from April 2014: final proposals

<sup>12</sup> <http://www.balfourbeatty.com/index.asp?pageid=42&newsid=194>

### **Key finding**

The CAA has permitted Heathrow to make limited funding through allowing Heathrow to increase its RAB for its distribution for the Crossrail project and no funding to the M25 widening scheme, both of which benefit the airport in addition to other users.

### **Gatwick Airport**

- ▶ A new platform at Gatwick Airport rail station was opened in February 2014 as part of an on-going plan to improve rail access to the airport. Gatwick Airport provided £7.5m of the total required capital cost of £53m. The expansion of Gatwick Airport rail station was delivered jointly with Network Rail.
- ▶ Furthermore, the Government has committed a further £50m towards the complete redevelopment of the station and the Thameslink programme (designed to enhance capacity by 50% by 2018) <sup>13</sup>.

### **Key finding**

Gatwick Airport contributed only around 14% of the cost of the rail station upgrade, though this capital expenditure is primarily for the benefit of the airport.

### **London City Airport**

- ▶ The Docklands Light Railway was extended from Canning Town to London City Airport in 2005. The construction cost of the project, including land, project costs, rolling stock and contingencies totalled £140m <sup>14</sup>.
- ▶ Of this £140m, London City Airport is only providing funding through existing Section 106 arrangements. The remainder of the required funding was provided by the Government (£30m through the Capital Modernisation Fund), the London Borough of Newham through Section 106 arrangements and through users via the concessionaire (City Airport Rail Enterprise (“CARE”), a consortium of AMEC and the Royal Bank of Scotland) <sup>15</sup>.

### **Key finding**

Whilst the DLR extension provided some benefit to London City Airport, its contribution to the capital investment requirement was limited to existing Section 106 arrangements.

### **Other International Airports**

#### ***Hong Kong International***

- ▶ The Airport Express train line and Tung Chung commuter line were designed by Hong Kong Airport <sup>16</sup>.

<sup>13</sup> <http://www.mediacentre.gatwickairport.com/News/Gatwick-Airport-rail-station-opens-a-new-platform-signalling-improved-experience-and-reliability-fo-8ac.aspx>

<sup>14</sup> <http://www.lcacc.org/access/dlr.html>

<sup>15</sup> <http://developments.dlr.co.uk/NewsDetail.aspx?newsid=1100>

<sup>16</sup> “Why some airport-rail links get built and other do not: the role of institutions, equity and financing”, Julia Nickel, Department of Political Science, Massachusetts Institute of Technology

- ▶ Initially the Hong Kong government invited the then fully government-owned MTRC (MTR Corporation) to finance, construct and operate the airport railway. MTRC was privatized in 2000 and today is no longer wholly-owned by the government.
- ▶ The Government provided significant support to support MTRC in raising capital for funding the surface access infrastructure.

**Berlin Brandenburg surface access**

- ▶ Berlin Brandenburg is an airport under construction with rail and road links. The German Government agreed to fund the entire rail and road links at a cost of €496m and €76m respectively<sup>17</sup>.
- ▶ Whilst there were concerns that the Government's involvement in the Berlin Brandenburg airport project constituted State Aid, the European Commission concluded that the Government did not confer any economic advantage to the airport<sup>18</sup>.

**Stockholm Air Link (Arlanda Express)**

- ▶ The Arlanda Express is a railway from Stockholm central station to Arlanda Airport which is connected to the existing rail network between Stockholm and Uppsala. The project was split into three sections:
  - ▶ Section A: Upgrading the line from Stockholm to Rosersberg from dual-track to four-track;
  - ▶ Section B: Building a branch line from Rosersberg to Arlanda Airport and three underground stations; and
  - ▶ Section C: Providing a connection from Arlanda back to the main line at Odensala.
- ▶ The Government fully funded Sections A and C. Section B required a capital investment of SEK 2.7bn and was funded by the Arlanda Link Consortium<sup>19</sup>.

**Key finding**

Internationally, airports and consequently airport users typically pay for a small proportion of surface access capital expenditure (if any) unless it is solely for dedicated airport use.

**2.B.4 Conclusion**

Adjustment of the AC/KPMG surface access capital expenditure assumption from 100% to 5% - 15% results in a reduction of the 3.4x aeronautical charge multiple by 1.7x – 1.4x.

	High case	Base case	Low case
Adjustment B: Surface access adjustment	(1.7x)	(1.6x)	(1.4x)

<sup>17</sup> <http://www.airport-technology.com/projects/berlin/>

<sup>18</sup> [http://europa.eu/rapid/press-release\\_IP-14-173\\_en.htm](http://europa.eu/rapid/press-release_IP-14-173_en.htm)

<sup>19</sup> "Stockholm Air Link (Arlanda Express)" report published by the Bartlett School of Planning & the Omega Centre

## 2.C Adjustment C: Acquisition price of Heathrow

### 2.C.1 Introduction

The AC/KPMG analysis assumes that the acquisition price of Heathrow is £7bn (real terms). This compares with Heathrow's actual RAB of £13.7bn at 31 March 2013. This implicitly assumes that Heathrow will be acquired at a multiple of 0.5x the value of Heathrow's RAB as at March 2013. This also implies an EBITDA multiple of 5x Heathrow's Adjusted EBITDA of £1.4bn.

### 2.C.2 Proposed adjustment

The proposed Adjustment C: Acquisition price of Heathrow is to increase the acquisition price of Heathrow to precedents of previous transactions. The evidence for this adjustment is discussed in the following sections.

### 2.C.3 Evidence support

#### EBITDA multiples for recent transactions

An approach in determining an indicative value of Heathrow would be to establish a range of EV / EBITDA multiples to apply to its estimated future EBITDA. In order to determine a range of multiples, the following sources can be used:

- a. Precedent transactions of privately owned airports; and
- b. Recent investments in Heathrow Airport Holdings Limited.

**Table 4: Precedent transactions of privately owned airports**

Source: Publicly available information / Capital IQ

	Transaction Date	EV / EBITDA
Stansted / MAG	Jan 2013	15.9x
Edinburgh / GIP	May 2012	16.7x
Gatwick / GIP	Oct 2009	9.3x
Bristol / OTHP	Sep 2009	21.7x
ADP / Schiphol	Oct 2008	10.6x
<b>Controlling Stake Average</b>		<b>14.8x</b>
Newcastle / AMP Capital	Oct 2012	15.0x
Copenhagen / Map	Sep 2009	14.7x
Birmingham / Ontario	Feb 2007	17.9x
<b>Minority Transactions Average</b>		<b>15.2x</b>

This analysis above shows that privately owned airports have typically sold at EV / EBITDA multiples of between 9.3x and 21.7x in the last five years with an average of circa 15x. Heathrow would typically be at the lower end of this range due to its limited capability to increase capacity to accommodate growing demand, and the assumed regulatory regime of the CAA which caps charges.

#### 2012 Investments in Heathrow Airport Holdings Limited ("HAHL")

The equity value of HAHL can be implied by the 2012 investments into the group, which are summarised below:

**Table 5: Implied equity value**

Source: Publicly available information

2012	Investment (%)	Cost of Investment (£'m)	Scaled up to 100% (£'m)
CIC International	5.7	257	4,516
CIC International	4.3	193	4,479
Qatar Holdings	20.0	900	4,500
<b>Average Implied</b>			<b>4,498</b>

Using this implied value of equity, it is possible to determine an enterprise value of HAML by adding the 2012 net debt level. A range of discounts to the above investments have been assumed to reflect the fact that they are minority investments. Using the 2012 EBITDA, a range of implied EV / EBITDA multiples has been determined and is shown below:

**Table 6: Derivation of implied EV / EBITDA**

Source: 2012 Accounts for Heathrow Airport Holdings Limited

2012 values	Min.	Max.
Assumed discount applied for Minority Stake	0%	20%
<b>Estimated Equity Value for HAML (£'m)</b>	<b>4,498</b>	<b>5,623</b>
Net Debt figure of HAML* (31 Dec 2012) (£'m)	12,451	12,451
<b>Estimated Enterprise Value for HAML</b>	<b>16,949</b>	<b>18,074</b>
<i>Implied Gearing</i>	73%	69%
2012 Adjusted EBITDA of HAML* (£'m)	1,340	1,340
<b>Implied EV / EBITDA</b>	<b>12.2x</b>	<b>13.1x</b>

The recent investments in HAML suggest an EV / EBITDA multiple of between 12.2x and 13.1x as shown in the analysis above.

### The premium paid over the RAB

Another basis for estimating the value of Heathrow would be to apply an appropriate premium over RAB. In order to determine a benchmark for the premium over RAB of Heathrow Airport Limited, two benchmarks have been used:

1. Precedent airport transactions; and
2. Transactions of regulated utilities.

Heathrow is unique in terms of its characteristics and the return that its RAB is allowed to generate. Gatwick and Stansted do not have the same risk, return and growth profile as Heathrow. Whilst utilities are regulated in a similar way as airports, their risk return characteristics do not match those of Heathrow. However the valuation of other regulated airports and utilities in terms of premium over RAB provide an indication of how Heathrow could be valued.

**Table 7: Summary of transactions in regulated airports and utilities**

Source: Publicly available information

£'m	Date	RAB	EV	EV / RAB
Stansted	Jan 13	1,343	1,500	1.1x
Gatwick	Oct 09	1,576	1,510	1.0x
<b>Airport Average</b>		<b>1,459</b>	<b>1,505</b>	<b>1.05x</b>

Veolia Water	Mar 12	948	1,236	1.3x
EDF Grid	Jul 10	4,567	5,800	1.3x
E.ON Networks	Mar 11	2,800	3,500	1.3x
Wales & West Utilities	Jul 12	1,702	1,940	1.1x
Bristol Water	Oct 11	236	283	1.2x
<b>Utilities Average</b>		<b>2,050</b>	<b>2,552</b>	<b>1.24x</b>
<b>Total Average</b>		<b>2,037</b>	<b>2,422</b>	<b>1.18x</b>

This analysis demonstrates that companies which have regulatory regimes have typically been valued at a premium over RAB of between 1.0x and 1.3x in recent years. On average, utility companies are valued slightly higher than airports in this respect.

### Key finding

The CAA forecasts Heathrow's EBITDA to be £1.4bn (real prices) and RAB at £13.5bn (real prices) in 2018. Using the EBITDA multiple approach and applying multiples of 12.0x to 13.0x to Heathrow's forecast EBITDA, the resultant valuation in 2019 ranges from £16.8bn to £18.2bn in real terms. Applying a premium over Heathrow's RAB using a multiples ranging from 1.0x to 1.3x provides a valuation in 2019 of £13.5b to £17.5b in real terms.

## 2.C.4 Conclusion

Adjustment of the AC/KPMG airport acquisition value of £7.0bn to a range of £13.5bn to £17.5bn results in the in an increase of the 3.4x aeronautical charge multiple by 0.5x – 0.8x.

	High case	Base case	Low case
Adjustment C: Heathrow acquisition	0.5x	0.7x	0.8x

## 2.D Adjustment D: Indexation

### 2.D.1 Introduction

The AC/KPMG analysis assumes that aeronautical charges per passenger are not inflated after applying the 3.4x multiple when loG Hub operations begin<sup>20</sup>. This has the impact of prefunding for debt service and providing upfront equity returns rather than a gradual increase, allowing recovery of investment in capital expenditure. This does not take into account the inflationary pressure on certain operating costs.

Inflationary pressure resulting in increases in operating and maintenance costs would result in deteriorating profits (and cash flows). Therefore, in order to achieve an appropriate return, aeronautical charges would need to be increased significantly at commencement of operations to offset the deterioration of profitability or enable adequate return on investment.

We note however that KPMG presents both analysis based on a step up in aeronautical charges and no subsequent inflation, and analysis based on a smaller step up in aeronautical charges with subsequent inflation. The AC Interim Report however presents only the former with no inflation.

<sup>20</sup> Tfl deduction based on AC Interim Report; Appendix 2; Assessment of Long Term Options

## 2.D.2 Proposed adjustment

An alternative to the AC/KPMG approach is instead for the IoG Hub to index<sup>21</sup> aeronautical charges per passenger year on year.

## 2.D.3 Evidence support

### UK regulated airports

This subsection looks at the aeronautical charge per passenger for Heathrow and Gatwick. The percentage change in these revenues historically is compared with RPI.

The CAA set the allowable increases in aeronautical charges between Q4 and Q6 based on the level of capital expenditure. The table below presents the allowable increase by CAA and their estimate of the RAB increase at Heathrow and Gatwick between Q4 and Q6.

**Table 8: Recent surface access schemes at Heathrow**

Source: CAA price cap decisions for Q4, Q5 and Q6

Airport	Quinquennial assessment	Allowable increase on RPI	Assumed RAB increase over the regulatory period *
Heathrow	Q4 (04 – 08)	RPI + 6.5%	114%
	Q5 (09 – 13)	RPI + 7.5%	35%
	Q6 (14 – 18)	RPI - 1.5%	(2%)
Gatwick	Q4 (04 – 08)	RPI	31%
	Q5 (09 – 13)	RPI + 2.0%	33%
	Q6 (14 – 18)	RPI - 1.6%	5%

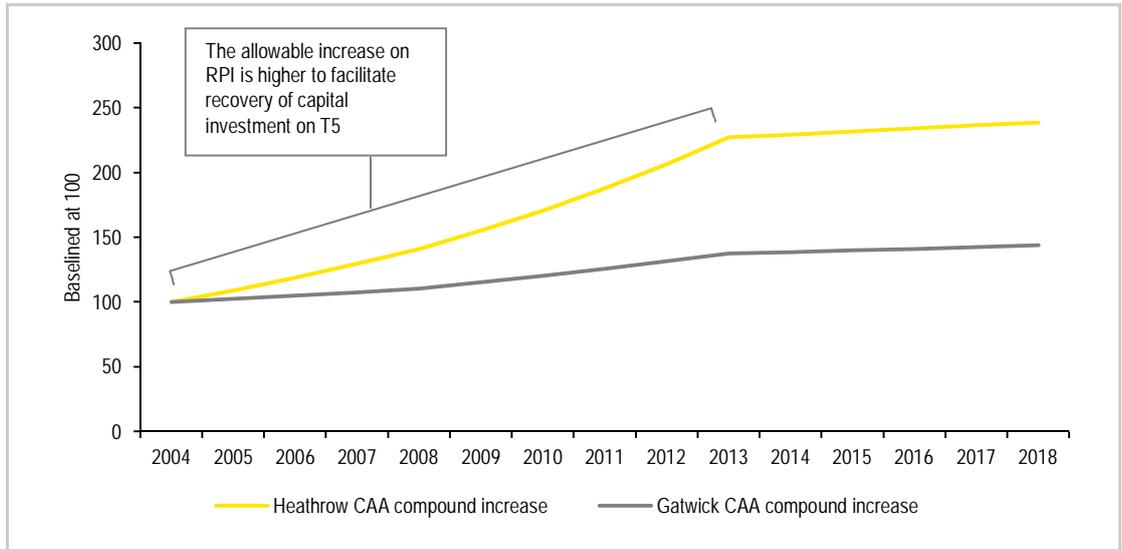
\* Based on CAA's opening RAB in initial year and closing RAB in final year

The above table illustrates that where Heathrow or Gatwick have incurred significant expenditure on RAB, the CAA has allowed a larger increase than RPI of aeronautical charges in order to facilitate the recovery of this investment. It should also be noted that the CAA have allowed indexations albeit at a rate less than RPI in Q6 where no significant capital expenditure is assumed for Heathrow or Gatwick to provide an incentive to deliver efficiencies. We also note that the compound effect of the allowable increases on RPI result in significant increases in the level of allowable aeronautical charges over time. This is shown in the figure below.

<sup>21</sup> Our analysis assumes indexation at RPI of 2.5% per annum

**Figure 10: Effect of compounding on the CAA's allowable increase on RPI**

Source: CAA



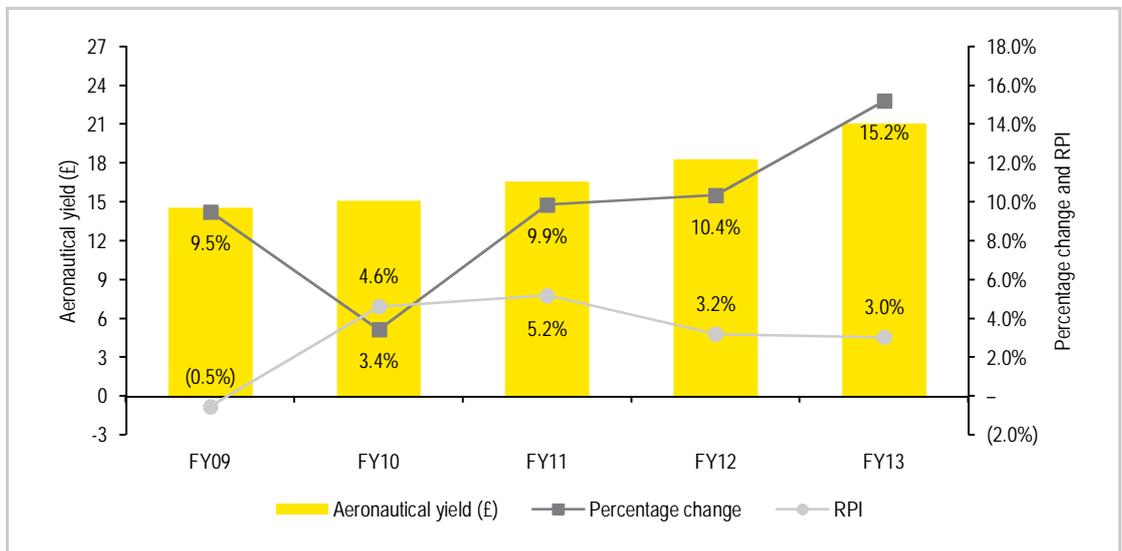
Note: RPI is assumed to be fixed at 2.5%

**Heathrow**

The percentage increase in Heathrow’s aeronautical charge is greater than RPI for four of the five profiled years. Heathrow has been gradually increasing aeronautical charges per passenger partially in order to recover the capital investment made on Terminal 5. This has resulted in the average increase in charges per annum over the five year period being 9.7%.

**Figure 11: Heathrow aeronautical charges per passenger and RPI**

Source: Annual accounts



The FY09 increase of 9.5% has been adjusted by Heathrow from a non-comparable figure of 16.8%. Increases in aeronautical charges are consistently significantly above RPI for Heathrow except for FY10. In FY10, several airports were impacted by airline industrial action, the volcanic ash cloud and severe winter weather. It is likely that this would have had an impact on the average aeronautical charges in the year.

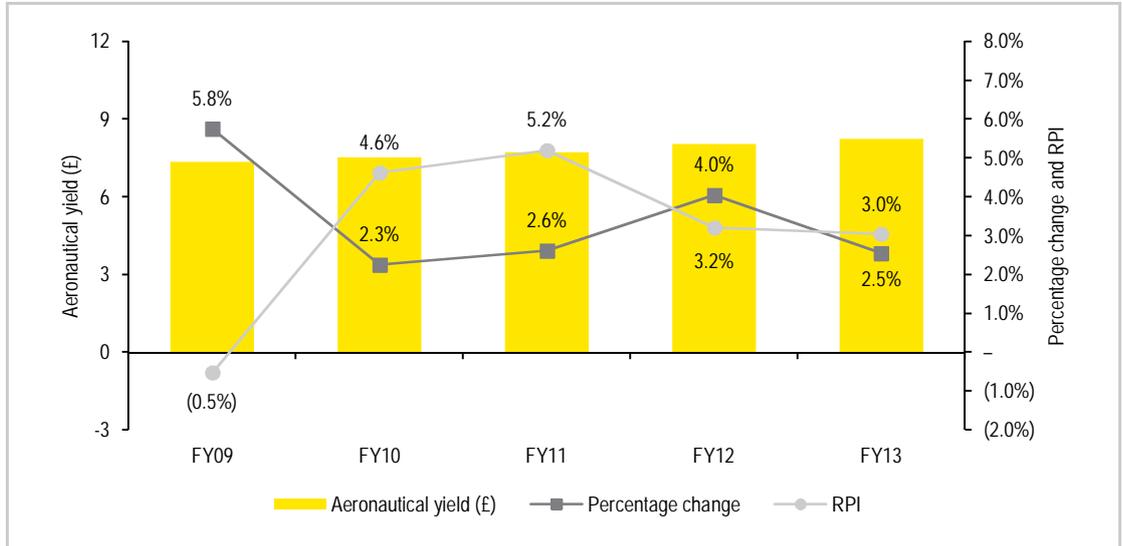
The CAA, in its Q6 decision, are allowing aeronautical charges to increase at RPI-1.5% on the assumption of no significant capital expenditure.

### Gatwick

The percentage increase in Gatwick’s aeronautical charge is greater than RPI for two of the five profiled years.

**Figure 12: Gatwick aeronautical charges per passenger and RPI**

Source: Annual accounts



Where increases were less than RPI, the increase in aeronautical charges per passenger still represented an increase over and above the limit set by CAA:

- ▶ **FY13:** Aeronautical charges per passenger were increased to £8.25, however the CAA cap was £8.07;
- ▶ **FY11:** Aeronautical charges per passenger were increased to £7.73, however the CAA cap was £7.51; and
- ▶ **FY10:** Aeronautical charges per passenger were increased to £7.53, however the CAA cap was £7.37.

These increases above the allowable regulatory caps represent over recoveries of aeronautical revenues which are expected to be adjusted for in future periods.

#### Key findings

UK regulated airports typically inflate charges in line with the price caps set by CAA in order to recover their investment and adjust for inflationary pressures of costs. In particular, on average, charges increased 3.4% at Gatwick between FY09 and FY13.

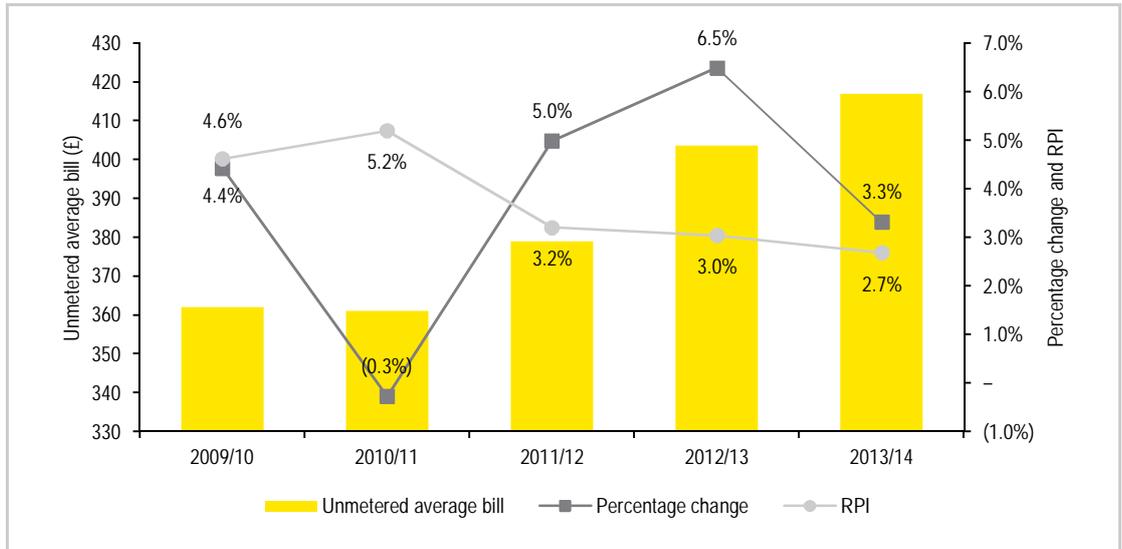
Furthermore, regulated companies can recover capital investment through increases in charges, as demonstrated by Heathrow. On average aeronautical charges increased 9.7% at Heathrow between FY09 and FY13 to repay the capital investment for Terminal 5.

### Ofwat

This subsection looks at the metered and unmetered average bill per customer presented by Ofwat. The percentage change in these revenues historically is compared with RPI. Of the profiled years, in both cases, price increases are higher than inflation in three of the five years.

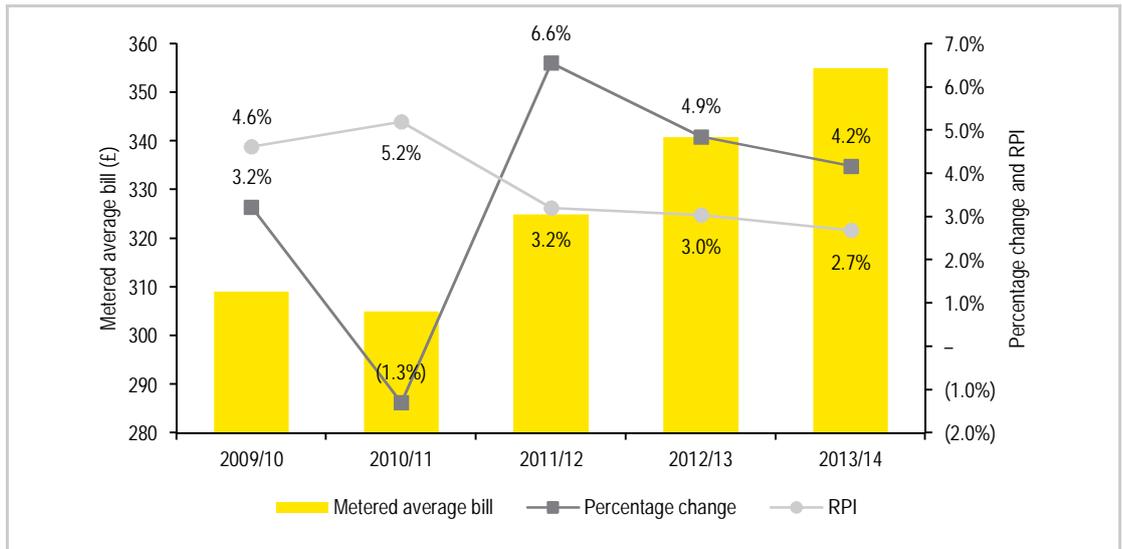
**Figure 13: Ofwat average unmetered bill per customer and RPI**

Source: Ofwat; Household charges: recent publications



**Figure 14: Ofwat average metered bill per customer and RPI**

Source: Ofwat; Household charges: recent publications



The Ofwat average customer bill data therefore illustrates that regulated revenues are not kept static. Rather, they generally increase year on year.

### Key findings

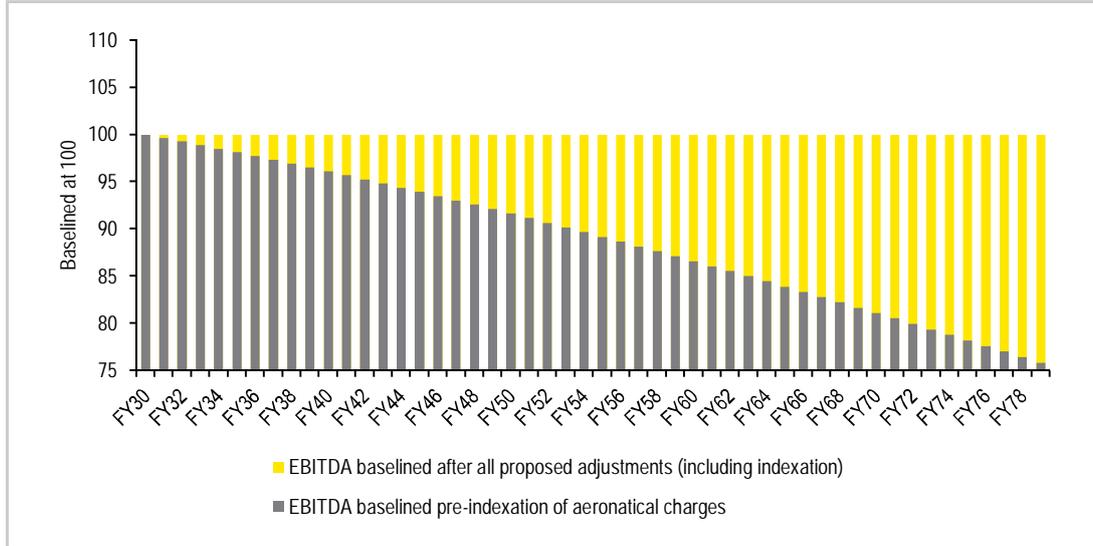
Inflationary pressures have resulted in, on average, an increase in charges of 3.8% and 3.5% for unmetered and metered water and sewerage respectively, between FY10 and FY14.

### Inflation risk

If the IoG Hub were to keep aeronautical charges fixed after operations begin, it would result in annual increases in revenue coming only from inflationary effects on non-aeronautical charges and other revenue per passenger. Inflationary pressure on operating costs results in a deterioration in profitability throughout operations of the IoG Hub.

**Figure 15: EBITDA margins at loG Hub with and without inflation (baselined at 100)**

Source: EY analysis



The impact of this would be significantly higher aeronautical charges being passed onto airport users at commencement of loG Hub operations to offset future increases in costs and provide an appropriate return on capital over the period.

**Key finding**

Without inflating aeronautical charges, profitability margins (EBITDA margin) would deteriorate throughout the life of the airport. As a result, aeronautical charges per passenger would need to be set significantly higher at the commencement of operations of the loG Hub.

**2.D.4 Conclusion**

Airports and other Utilities typically inflate user charges over time to allow for either recovery of capital costs, or inflationary pressures on operating costs.

Adjustment of the AC/KPMG aeronautical charge from no indexation to a gradual increase by RPI (assumed to be 2.5% per annum) to recoup the capital investment in the loG Hub and match inflationary pressure on operating and maintenance costs results in a reduction of the 3.4x aeronautical charge multiple by 0.4x – 0.5x.

	High case	Base case	Low case
Adjustment D: Indexation	(0.4x)	(0.5x)	(0.5x)

## 2.2 Summary of the adjustments

The key findings evidencing each of our adjustments are presented below.

- ▶ **Adjustment A: Debt repayment** – Regulated companies typically target a level of gearing and retain the cheaper financing in their capital structures. The CAA also states that retaining debt allows passenger charges to be kept at lower levels due to an optimal capital structure by using and retaining debt.
- ▶ **Adjustment B: Surface access** – Typically, in the UK and abroad, airports only fund the proportion of surface access used for dedicated airport access which is then recovered from airport users in the form of aeronautical charges. Recent CAA determinations in the UK support this. As a result, airports rarely fund 100% of surface access capital costs, with Government and other parties funding the remainder.
- ▶ **Adjustment C: Heathrow acquisition cost** – Companies which have regulatory regimes have typically been valued at a premium over RAB of between 1.0x and 1.3x over recent years.
- ▶ **Adjustment D: Indexation** – Typically, regulated companies gradually increase charges to recover their investment in capital expenditure and also in line with inflationary pressure on operating and maintenance costs. This is usually taken into account by the regulatory bodies when determining price caps.

The following table and chart presents a summary of the adjustments detailed in this section.

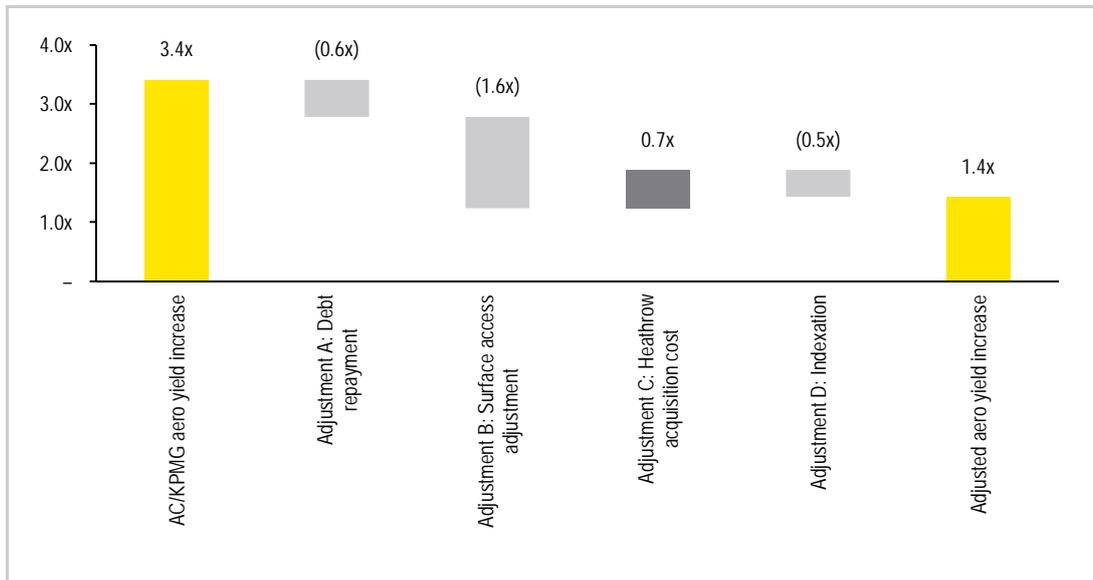
**Table 9:**

Source: EY analysis

Adjustment	Description	High case	Base case	Low case
<b>AC/KPMG</b>		<b>3.4x</b>	<b>3.4x</b>	<b>3.4x</b>
A	Debt is refinanced and paid on interest only basis	(0.6x)	(0.6x)	(0.6x)
B	5% - 15% of surface access capital expenditure is funded by the airport	(1.7x)	(1.6x)	(1.4x)
C	Heathrow acquisition cost set to a RAB based multiple (1.0x to 1.3x RAB)	0.5x	0.7x	0.8x
D	Indexation is applied to aeronautical charges	(0.4x)	(0.5x)	(0.5x)
<b>Sensitised</b>		<b>1.2x</b>	<b>1.4x</b>	<b>1.6x</b>

**Figure 16: Summary of adjustments to aeronautical charge increase**

Source: EY analysis



This analysis shows that on the basis of assumptions presented here; a multiple of aeronautical charges in 2030 of 1.2x – 1.6x on Heathrow (CAA Q6) aeronautical charges is enough to achieve commercial viability of IoG Hub operations.

## Appendix A Debt levels of other regulated companies

As presented in Section 2.A.3 the following other regulated companies retain a level of net debt at a similar proportion of RAB. They therefore refinance debt at maturity, rather than amortise debt.

This Appendix presents the analysis undertaken for three other regulated companies:

- ▶ National Grid;
- ▶ Thames Water; and
- ▶ United Utilities.

### National Grid

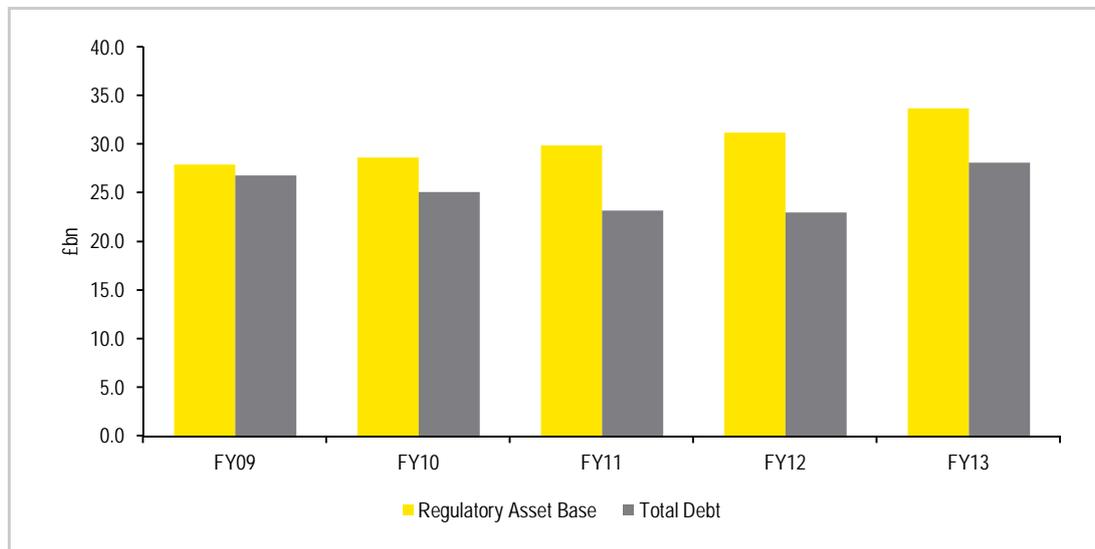
National Grid is a regulated utility in the UK. As a percentage of RAB, National Grid has retained total debt at an average level of 84% between FY09 and FY13. This percentage decreased from 96% in FY09 to 74% in FY12 before recovering slightly to 83% in FY13.

The National Grid FY13 annual report <sup>22</sup> outlines that the company continued to refinance where attractive opportunities arose. Over the year to FY13, National Grid increased its total debt by £5.1bn to £28.1bn.

It should be noted that fluctuations in total debt for National Grid are likely to result from the company's strategy to target an interest cover of between 3.0x and 3.5x (3.9x in FY13).

**Figure 17: National Grid total debt and RAB**

Source: Annual accounts



### Thames Water

Thames Water is amongst the largest water suppliers in the UK. As a percentage of RAB, total debt has remained relatively constant over the five year period FY09 to FY13, ranging between 86% (FY11) and 79% (FY10).

<sup>22</sup> National Grid plc, annual accounts, 2012/13

Net debt as a percentage of RAB was 77% in FY13 (78% in FY12) however Thames Water is targeting 85% (its covenant trigger).

**Figure 18: Thames Water total debt and RAB**

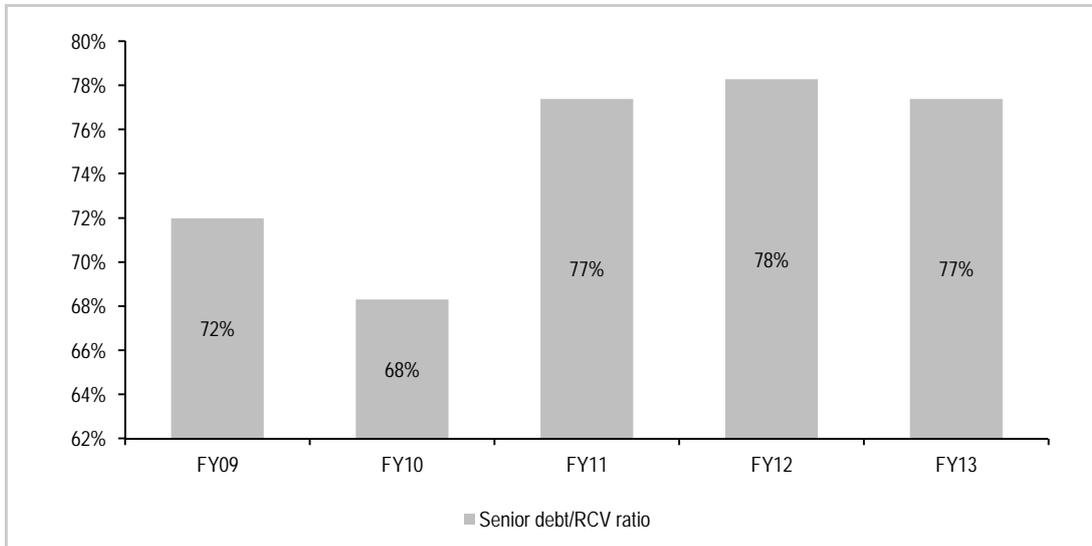
Source: Annual accounts



Over the previous three financial periods, Thames Water has also kept its level of net debt to RAB relatively constant at around 77%.

**Figure 19: Thames Water net debt/RAB**

Source: Annual accounts



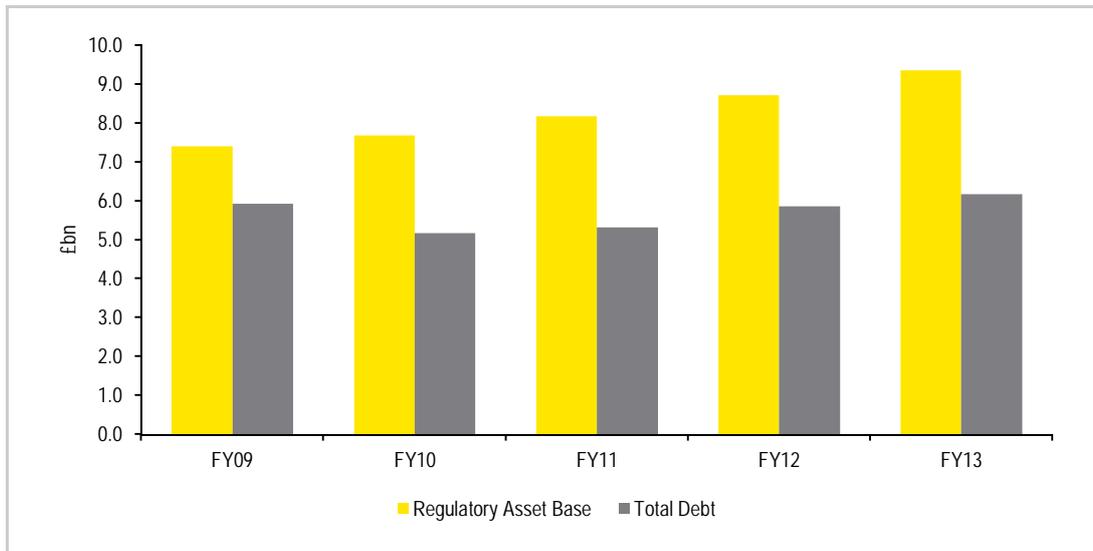
### United Utilities

United Utilities is amongst the largest listed water businesses in the UK.

While total debt as a proportion of RAB fell from 80% in FY09 to 67% in FY10, it has since remained relatively steady.

**Figure 20: United Utilities total debt and RAB**

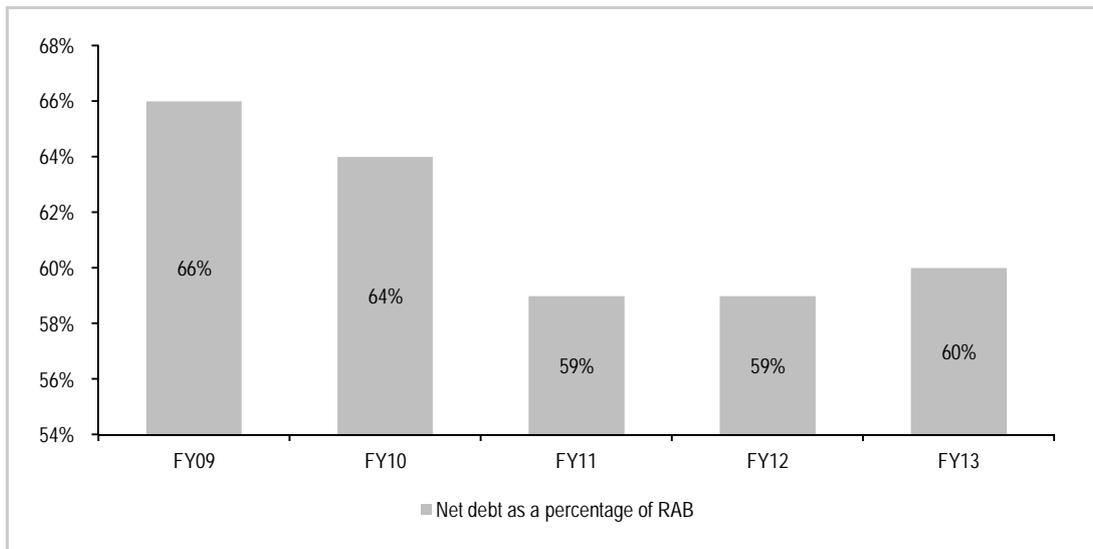
Source: Annual accounts



United Utilities publishes net debt as a percentage of RAB as 60% in FY13<sup>23</sup> (59% in FY12 and FY11).

**Figure 21: United Utilities net debt/RAB**

Source: Annual accounts



<sup>23</sup> United Utilities, Annual Accounts, FY13

## Appendix B Heathrow surface access

**Table 10: Recent surface access schemes at Heathrow**

Source: EY analysis

	Description
<p>M25 widening PPP Date: 2012 Location: Greater London, UK</p>	<p><b>Background</b></p> <p>This project comprises the design and construction of the widening to the M25 orbital motorway including the intersecting radial trunk roads within the limits of the Highways Agency's Area 5, and the A282 Dartford-Thurrock Crossings. This widened motorway will include a slip road to Heathrow Terminal 5.</p> <p><b>Sponsors and funding</b></p> <p>In 2009 a £6.2 billion 30 year M25 'Design, Build, Finance and Operate' (DBFO) private finance initiative contract was awarded to Connect Plus (a consortium of Balfour Beatty, Skanska, Atkins and Egis Road Operation).</p> <p>The total amount of project funding for the consortium is £1.3 billion, comprising £925 million of senior debt provided by 16 commercial banks, a separate £185 million facility from the European Investment Bank. The consortium also provided £200m of equity.</p> <p><b>Relevance to the analysis</b></p> <p>Heathrow has not committed to funding the project.</p>
<p>Crossrail Date: 2019 Location: UK</p>	<p><b>Background</b></p> <p>The new £15.9bn railway will run from Maidenhead and Heathrow in West London to Shenfield and Abbey Wood in the East. It includes 21km of new twin tunnels, 8 new underground stations and 4 overground spurs including a connection to Heathrow airport. It will provide improved connections between the City, the West End and Canary Wharf which contain London's major financial, retail, business and entertainment districts, and will deliver economic, employment and regeneration benefits across the capital.</p> <p><b>Sponsors and funding</b></p> <ul style="list-style-type: none"> <li>▶ This project is particularly interesting due to the range of sources used in funding albeit with the cost of Crossrail being largely met by the Government, either directly or indirectly;</li> <li>▶ The Government will contribute by means of a grant from the Department for Transport of over £5bn during Crossrail's construction;</li> <li>▶ Crossrail fare payers will contribute towards the debt raised during construction by Transport for London and Network Rail through projected operating surpluses from the use of Crossrail's services;</li> <li>▶ London businesses will contribute through a variety of mechanisms, including the Supplementary Business Rate (estimated funding amount of £4.1bn);</li> <li>▶ A premium fare is to be charged to passengers using Crossrail to travel to Heathrow.</li> <li>▶ There are also considerable financial contributions from some key beneficiaries of Crossrail:</li> <li>▶ The City of London Corporation has agreed to make a direct contribution of £200m and in addition will seek contributions from businesses of £150m, and has guaranteed £50m of these contributions;</li> <li>▶ HAL has agreed to a £230m funding package (but were permitted £70m on the RAB);</li> <li>▶ Canary Wharf Group has agreed to contribute £150m towards the costs of the new Canary Wharf Crossrail station at Canary Wharf. Canary Wharf Group will also design and build the new station;</li> <li>▶ Berkeley Homes has agreed to construct a station box for a station at Woolwich.</li> </ul> <p><b>Relevance to the analysis</b></p> <p>Heathrow funded £70m of the £15.9bn project.</p>