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# RIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas

## Finance Supporting document

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**Overview:**

This Supporting Document sets out further detail on the financial aspects of our Final Proposals for the transmission price controls for National Grid Electricity Transmission (NGET) and National Grid Gas Transmission (NGGT) from 1 April 2013 to 31 March 2021.

The document is aimed at those seeking a detailed understanding of these financial aspects. Stakeholders wanting a more accessible overview should refer to the Final Proposals Overview document.

## Associated documents

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RIIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas – Overview  
[Overview](#)

### Supporting Documents

RIIO-T1: Final Proposals for NGET and NGGT – Outputs, incentives and innovation  
[Outputs and incentives](#)

RIIO-T1: Final Proposals for NGET and NGGT – Cost assessment and uncertainty  
[Uncertainty](#)

RIIO-T1/GD1: Final Proposals – Real price effects and ongoing efficiency appendix  
[Real Price Effects and Efficiency](#)

RIIO-ET1: Final Proposals Financial Model  
[Financial model ET1](#)

RIIO-GT1: Final Proposals Financial Model  
[Financial model GT1](#)

PKF Audit letter on the financial models  
[Audit report on model](#)

### Associated Documents

RIIO Reviews Financeability Study (Imrecon working with ECA)  
[Imrecon study](#)

RIIO-GD1 : Final Proposals Supporting Document –Finance and uncertainty  
[RIIO-GD1 Final Proposals Finance and uncertainty paper](#)

### Other documents

[RIIO-T1: Initial Proposals for National Grid Electricity Transmission plc and National Grid Gas plc - Headlines](#)

[Glossary for all the RIIO-T1 and RIIO-GD1 documents](#)

Pension deficit allocation methodology open letter consultation  
[PDAM open letter](#)

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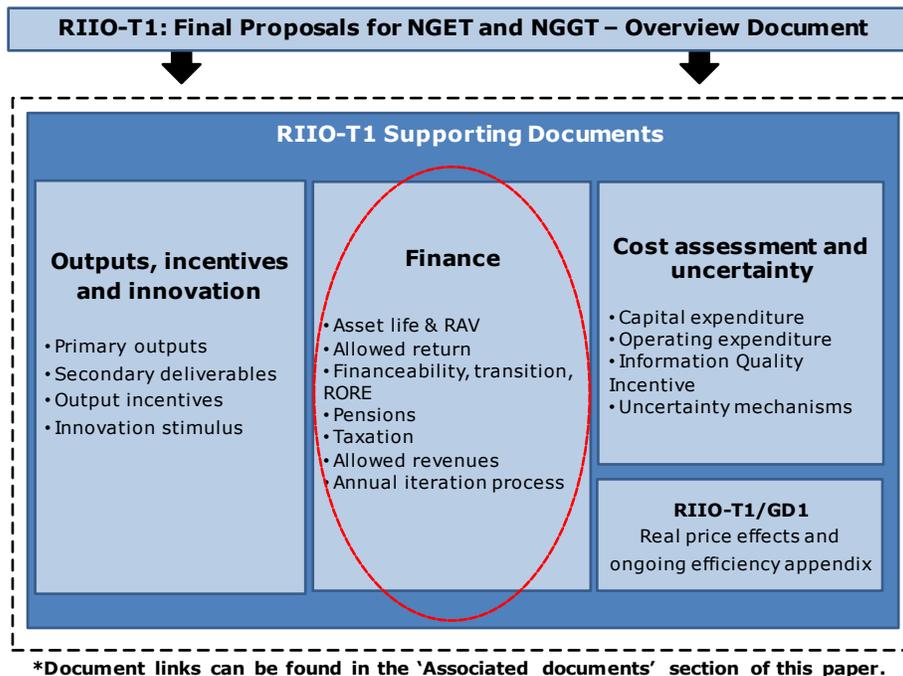
# 1. Introduction

## Chapter Summary

This chapter explains the structure and purpose of this document and of the associated documents published alongside it. The chapter also summarises our approach to how we have dealt with financial considerations in setting our Final Proposals for National Grid Electricity Transmission (NGET) and National Grid Gas (NGGT).

1.1. Figure 1.1 below provides a map of the RIIO-T1 documents published as part of the suite of price control documents.

**Figure 1.1: RIIO-T1 document map**



1.2. This document sets out further detail on our Final Proposals for National Grid Electricity Transmission (NGET) and National Grid Gas (NGGT) for the next price control, RIIO-T1. This price control will cover the eight-year period from 1 April 2013 to 31 March 2021.

1.3. The document sets out detail on each of the key financial elements of the price control packages for NGET and NGGT. It is aimed at network companies, investors and those who require a more in-depth understanding of the proposals. We are publishing this document alongside the Final Proposals Overview Document ("Overview Document") which provides a more accessible overview of the package of Final Proposals for NGET and NGGT.

1.4. As noted in the Overview Document these Final Proposals build on the regulatory framework for RIIO-T1 set out in our March Strategy Document<sup>1</sup> and applied in the Initial Proposals.<sup>2</sup>

1.5. The remaining chapters provide further detail on the individual financial elements of the price control package for both companies. The document is structured as follows:

- Chapter 2 outlines how our approach to asset lives has been amended and the impact that this and allowed expenditure has on the Regulatory Asset Values (RAV)
- Chapter 3 outlines our assessment of the allowed return
- Chapter 4 sets out our views on financeability and our assessment of the return on regulatory equity (RoRE)
- Chapter 5 details our approach to pensions
- Chapter 6 outlines the basis of the tax allowances for both companies
- Chapter 7 sets out the introduction under RIIO of the Annual Iteration Process that we would use to update NGET's and NGGT's revenues in RIIO-T1.

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<sup>1</sup> [Decision on strategy for the next distribution price control - RIIO-T1](#)

<sup>2</sup> [RIIO-T1: Initial Proposals – Supporting document – Finance](#)

## 2. Asset lives and Regulatory Asset Values

### Chapter Summary

This chapter sets out our Final Proposals for asset lives, depreciation, totex capitalisation and the forecast movements on the Regulatory Asset Value (RAV) of NGET and NGGT during RIIO as a result of applying these proposals.

### Summary of Final Proposals

2.1. One of the aims of RIIO is to put in place sustainable financial policies to encourage investment. A key policy in this respect is the use of economic asset lives. We set out the asset lives and depreciation profiles we proposed to apply for RIIO-T1 in our March Strategy Document as well as the intended approach for establishing the capitalisation rate for totex. Both NGET and NGGT submitted business plans in compliance with these proposals.

2.2. Table 2.1 below sets out our Final Proposals on asset life, depreciation and transition arrangements which are the same as at Initial Proposals. Table 2.2 sets out our Final Proposals on capitalisation rates which have been calculated in the same way as at Initial Proposals but show an increase in NGGT's capitalisation rate to 64.4 percent.

**Table 2.1: Asset lives and depreciation profiles**

Company	Asset Type	Asset Lives years	Depreciation Profile
NGET	Pre RIIO existing assets	20	Straight Line
	New assets	45	
	Transition period	8	
NGGT	Post-2002 existing assets	45	Straight Line
	New assets		

**Table 2.2: Capitalisation rates**

Capitalisation Rates Table		FP Capitalisation Rate
NGET TO	Base	85.0%
	Uncertainty	85.0%
NGET SO	Combined	27.9%
NGGT TO	Base	64.4%
	Uncertainty	90.0%
NGG SO	Combined	37.4%

2.3. The remainder of this chapter provides a summary of Initial Proposals and respondent's views, and provides an explanation for our decisions as well as providing the resulting expected RAVs over the RIIO-T1 period.

## Asset lives

2.4. In our Initial Proposals, we set out the decision from our March Strategy Document on asset lives and depreciation profiles. We also summarised the background to these decisions. In overview, these decisions were to amend, for new investment, the average expected economic lives of electricity transmission assets from 20 to 45 years, and our intention to leave unchanged the average expected economic lives of gas transmission assets at 45 years. We did not ask any specific questions on these proposals in Initial Proposals and we re-affirm these decisions as part of our Final Proposals.

## Transitional arrangements

2.5. As part of our decision to change asset lives of electricity transmission new investment to 45 years we stated that we would allow transitional arrangements if justified on financeability grounds. In our Initial Proposals we noted that NGET proposed a transition period of 16 years in their business plan submission although we considered that a period of eight years was more appropriate.

2.6. For the fast-tracked<sup>3</sup> companies we accepted 8-year transition for SP Transmission Ltd (SPTL) and 16-year transition for Scottish Hydro Electric Transmission plc (SHETPLC) reflecting the greater investment programme, relative to their RAV, of SHETPLC. Although NGET has argued for a transitional period of 16 years and has a large investment programme it is not of the relative scale of SHETPLC and following our updated financeability assessment we consider eight years remains an appropriate period. This is covered further in Chapter 4.

## Depreciation profiles

2.7. In our March Strategy Document we proposed to retain a straight line depreciation profile for both electricity and gas transmission assets. NGET and NGGT submitted their business plans on this basis and we used this approach in our Initial Proposals and we retain this approach for Final Proposals.

## Totex capitalisation

2.8. Our Initial Proposals detailed the capitalisation rates (both for the Transmission Operator (TO) and the System Operator (SO)<sup>4</sup>) that we proposed for NGET and NGGT. It also provided RAV projections based on the totex allowances.

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<sup>3</sup> Where business plans are of sufficient quality, fast-tracking provides a process whereby we can reach early settlement of a company's price control, ie their business plans may be "fast-tracked".

<sup>4</sup> NGET and NGGT perform both roles.

2.9. We have now updated these calculations for base totex. The capitalisation rate for NGET remains at 85 percent while for NGGT the rate has increased to 64 percent. The increase for NGGT arises because some opex costs are now being dealt with as non-controllable costs and some capex previously included in uncertainty mechanisms has been transferred into base totex.

2.10. Our Initial Proposals also proposed a split capitalisation approach for totex for NGGT and we have maintained that approach.

2.11. The NGGT expenditure to which the 'uncertainty' capitalisation rate is applied is that expenditure which is included in the uncertainty mechanisms detailed in the Cost assessment and uncertainty Supporting Document<sup>5</sup> (broadly relating to Entry and Exit Revenue Drivers, Network Flexibility, Enhanced Physical Site security and Industrial Emissions).

## RAV balances

2.12. Tables 2.3 to 2.8 show the projected RAV movements based on our Best View of the NGET and NGGT business plans, and the totex capitalisation rates proposed. The transfers into RAV reflect for NGET the expenditure under the Transmission Infrastructure for Renewable Generation (TIRG) which enters the RAV at the end of the incentive period; and for NGGT the expenditure under TPCR3 and TPCR4 revenue driver arrangements which is held in a 'shadow' RAV calculation until completion of the appropriate funding mechanism.

2.13. The opening RAV balances shown are based on the provisional additions for TPCR4 and a forecast for the TPCR4 rollover year. These will be confirmed once we have received actual data for 2012-13 and the efficiency review of expenditure in the whole TPCR4 and rollover period has been completed.

**Table 2.3: NGET TO RAV projection**

2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Opening RAV (before transfers)	8,691	9,566	10,615	11,648	12,692	13,432	14,157	14,615
Transfers	0	0	0	82	0	0	0	0
Opening RAV (after transfers)	8,691	9,566	10,615	11,730	12,692	13,432	14,157	14,615
Net additions (after disposals)	1,439	1,655	1,689	1,667	1,485	1,500	1,252	1,038
Depreciation	(564)	(606)	(656)	(706)	(744)	(775)	(794)	(807)
Closing RAV	9,566	10,615	11,648	12,692	13,432	14,157	14,615	14,846

**Table 2.4: NGET Shadow RAV projection**

2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Opening RAV (before transfers)	100	95	89	82	0	0	0	0
Transfers	0	0	0	(82)	0	0	0	0
Opening RAV (after transfers)	100	95	89	0	0	0	0	0
Net additions (after disposals)	0	0	0	0	0	0	0	0
Depreciation	(5)	(6)	(6)	0	0	0	0	0
Closing RAV	95	89	82	0	0	0	0	0

<sup>5</sup> [RIIO-T1: Initial Proposals for NGET and NGGT – Cost assessment and uncertainty](#)

**Table 2.5: NGGT TO RAV projection**

2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Opening RAV (before transfers)	4,014	4,248	4,248	4,311	4,505	5,317	5,683	6,082
Transfers	239	2	2	15	476	69	21	1
Opening RAV (after transfers)	4,253	4,250	4,250	4,326	4,981	5,386	5,704	6,082
Net additions (after disposals)	134	138	203	323	498	470	560	602
Depreciation	(139)	(140)	(142)	(145)	(162)	(173)	(182)	(193)
Closing RAV	4,248	4,248	4,311	4,505	5,317	5,683	6,082	6,491

**Table 2.6: NGGT Shadow RAV projection**

2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Opening RAV (before transfers)	548	315	332	391	476	69	21	1
Transfers	(239)	(2)	(2)	(15)	(476)	(69)	(21)	(1)
Opening RAV (after transfers)	309	314	330	377	0	0	0	0
Net additions (after disposals)	14	26	69	108	69	21	1	0
Depreciation	(7)	(8)	(8)	(9)	0	0	0	0
Closing RAV	315	332	391	476	69	21	1	0

**Table 2.7: NGET SO RAV projection**

2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Opening RAV	74	94	105	112	117	120	119	119
Net additions (after disposals)	35	30	30	30	30	28	30	30
Depreciation	(16)	(19)	(22)	(25)	(27)	(29)	(30)	(30)
Closing RAV	94	105	112	117	120	119	119	119

**Table 2.8: NGGT SO RAV projection**

2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Opening RAV	53	79	93	103	110	113	112	109
Net additions (after disposals)	36	29	28	29	27	25	25	25
Depreciation	(11)	(16)	(18)	(21)	(24)	(27)	(29)	(29)
Closing RAV	79	93	103	110	113	112	109	105

## Shadow RAV

2.14. The NGET shadow RAV calculation shows one TIRG project which transfers into main RAV in 2016-17. We will adjust for any differences between forecast and actual spend on this scheme as part of the RIIO-T2 price control. This will entail amending the transfer value into RAV and amending for consequential impacts on allowed revenues.

2.15. The NGGT shadow RAV is based on forecast spend on three projects (which have been funded under TPCR3 and TPCR4 entry and exit capacity mechanisms). We will adjust for any differences between forecast and actual spend on these schemes as part of the RIIO-T2 price control. This will entail amending the transfer value into RAV and amending for consequential impacts on allowed revenues.

## Disposals

2.16. The RAV methodology deducts the net cash proceeds of sale (or market value of intra-group transfer) of operational assets (where disposal is allowed) from the RAV. For the RIIO-T1 period we have not included a forecast for such disposals. We

will deduct the proceeds of any disposals as part of the RIIO-T2 review (on an NPV neutral basis).

## **Sole Use Exit Connections**

2.17. Within the allowances for load related expenditure there is a forecast for capital expenditure (less capital contributions) on exit connections to single users.

2.18. The net expenditure for these connections is funded directly by the customer over the life of the asset in accordance with a pre-determined charging methodology. This income is treated as an excluded service income and we net the forecast income from the total allowed revenue.

2.19. Whilst this approach has been practical in the past it has been suggested that (since the level of activity over the RIIO-T1 period is more uncertain than in the past) this exposes companies to increased risk that the forecast additional income will not be achieved. Additionally, since there is no facility to reflect varying volumes, companies are also exposed to potential gains or losses through the sharing mechanism.

2.20. We agree that these are material concerns and therefore propose to address these issues by a true-up at the RIIO-T2 Price Control. This will entail resetting allowances to mirror the actual net capex and to reflect the removal of actual excluded service income from total allowed revenue.

2.21. We also propose to amend the RAV methodology to confirm that excluded service costs (with the exception of the capex relating to Sole Use Exit Connections) are not included in totex. Appendix 3 sets out the RAV methodology in full.

## 3. Allowed return

### Chapter Summary

This chapter sets out our Final Proposals for the components of the allowed return – notional gearing, the cost of equity and the cost of debt. We explain the rationale for our proposals and address issues raised in stakeholders’ responses to our Initial Proposals.

### Summary of Final Proposals

3.1. This chapter outlines our Final Proposals for the components of the allowed return for NGET and NGGT, and the implied ‘vanilla’ weighted average cost of capital (WACC).<sup>6</sup> These are summarised in Table 3.1. The proposals reflect our view that NGET faces more cash flow risk than NGGT but somewhat lower risk than the transmission companies we fast-tracked<sup>7</sup> earlier in the year (as well as the other factors we have considered during the review including our CAPM assessment, regulatory precedents, other approaches, transaction evidence and our RORE analysis). The sections that follow describe the rationale for these proposals.

**Table 3.1: Summary of allowed return proposals**

	<b>NGET (TO and SO)</b>	<b>NGGT (TO and SO)</b>
Cost of equity (post-tax real)	7.0%	6.8%
Cost of debt (pre-tax real)	iBoxx 10-year simple trailing average index (2.92% for 2013-14)*	
Notional gearing	60%	62.5%
Implied vanilla WACC*	4.55%	4.4%

\* The value of the cost of debt index may vary during the price control period. Any changes would be reflected in the WACC.

3.2. This chapter is split into three sections:

- assessment of relative risk, leading to our Final Proposals for notional gearing and the cost of equity
- approach to the cost of debt
- modelling assumptions about financial policies.

3.3. For each of these sections, we begin by summarising our Initial Proposals, and then provide an overview of stakeholders’ responses to our proposals. We then set out our Final Proposals in each of these areas.

<sup>6</sup> The ‘vanilla’ WACC consists of pre-tax cost of debt and post-tax cost of equity, weighted by a notional gearing (ie the relative share of debt) assumption.

<sup>7</sup> For more detail on the financial package of the fast-tracked companies see:

[RIIO-T1: Final Proposals for SP Transmission Ltd and Scottish Hydro Electric Transmission Ltd](#)

3.4. Alongside this paper we are publishing a report by our consultants Imrecon (working with Economic Consulting Associates).<sup>8</sup> The paper outlines an approach to assessing relative risk, as well as considering the financeability of network companies (this is discussed further in chapter 4). Since the approach used in the paper has not been previously consulted on, we consider it a useful additional piece of information, but do not base our relative risk findings on the results of the paper.

## Relative risk

### Summary of Initial Proposals

3.5. Our assessment in Initial Proposals was that NGET faces lower cash flow risk than SHETPLC and slightly lower than SPTL in RIIO-T1; that it faces somewhat higher risk than NGGT and the Gas Distribution Networks (GDNs); and that its cash flow risk is broadly comparable to TPCR4. We, therefore, proposed to set notional gearing for NGET at 60 percent, and the cost of equity assumption at 7.0 percent.

3.6. For NGGT, we considered that cash flow risk would be lower than for the electricity transmission companies, particularly SHETPLC and SPTL; we assessed NGGT's cash flow risk to be somewhat higher than the GDNs', but lower than in TPCR4. Based on this assessment, our Initial Proposals for NGGT applied notional gearing of 62.5 percent and a cost of equity assumption of 6.8 percent.

### Summary of consultation responses

3.7. The only respondent to comment on our relative risk assessment was National Grid (NG), who also provided supporting material by Oxera. The full response is published on our website.<sup>9</sup>

3.8. NG<sup>10</sup> and its consultants' key arguments are that:

- Our assessment did not include financial modelling of cash flow risk, unlike NGET and NGGT's business plans.
- The implied asset beta from our Initial Proposals is disproportionately lower than that of the fast-tracked companies and compared to TPCR4.
- Our analysis attributes too much weight to the ratio of capex to RAV, and that our ratio includes investment under the Strategic Wider Works schemes, which may not materialise.
- SHETPLC and SPTL's uncertainty mechanisms expose them to less unit cost and project scope risk than NGET and NGGT.
- NGET faces greater risk than the fast-tracked companies when the absolute level of investment is taken into account.
- Our analysis omits the risks NGET and NGGT face with regard to 'external' SO incentives (ie SO activities that are not remunerated through the price control).

<sup>8</sup> [RIIO reviews financeability study – report by Imrecon](#)

<sup>9</sup> See responses to [RIIO-T1: Initial Proposals for National Grid Electricity Transmission and National Grid Gas](#)

<sup>10</sup> National Grid is the parent company of both NGET and NGGT

- The totex incentive rate in RIIO-T1 exposes NGET and NGGT to a larger share of capex overspend than was the case in TPCR4.
- The move to economic asset lives for NGET increases its cash flow risk.
- Longer price control periods increase risk for the network companies.
- NGGT's defined benefit pension scheme exposes it to greater volatility than other network companies.
- Our assessment double-counts some of the risk-mitigating features of RIIO-T1.

3.9. Additionally, NG argued that our cost of equity assumptions did not take into account the risk resulting from our proposed notional gearing. This is despite the fact that, in its own business plans, NG argued that reducing the cost of equity assumption to reflect its proposed reduction in notional gearing to 55 percent would represent a break from Ofgem's regulatory precedent.

3.10. NG, therefore, disagreed with our notional gearing proposals of 60 percent for NGET and 62.5 percent for NGGT, and with the equity betas used to derive our cost of equity assumptions. However, it broadly supported the risk-free rate and equity risk premium figures used to derive our cost of equity assumptions.

### **Our approach to relative risk assessment**

3.11. One of the key principles introduced as part of the RIIO approach is that the (base) allowed return for network companies should reflect their exposure to cash flow risk. This principle means that, where there are material differences in cash flow risk, the allowed return may be different across and within sectors. In this section we present our assessment of NGET and NGGT's cash flow risk, which in turn informs our assumptions on notional gearing and the cost of equity for RIIO-T1. The third component of the allowed return – the cost of debt assumption – will be set annually based on a trailing average index, as discussed later in the chapter.

3.12. It is important to note at the outset that cash flow risk is just one aspect of relative risk. When comparing risk across industries or countries, other factors would also need to be accounted for. That wider risk assessment was carried out during the strategy phase of the price control review, and informed our cost of equity range in the March Strategy Document (6.0–7.2 percent).

3.13. This section sets out our in-depth cash flow risk assessment of NGET and NGGT in RIIO-T1 relative to the existing price controls (TPCR4,<sup>11</sup> DPCR5 and GDPCR1), as well as comparing the sectors (electricity transmission, gas transmission and gas distribution) to each other. Additionally, we compare NGET and NGGT to the fast-tracked companies. Our approach, therefore, also takes into account stakeholders' preference for consistent regulatory determinations.

3.14. In our view, when comparing network companies within similar sectors, the cash flow risk can be assessed by considering the balance of rewards, incentives and uncertainty mechanisms that the regulatory framework provides. Our assessment

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<sup>11</sup> For the purposes of this analysis we do not include the TPCR4 Rollover, as the decision on the allowed return for the Rollover was not informed by detailed risk analysis.

covers the array of factors that potentially influence cash flow risk. However, we consider that the main factor is the way the regulatory framework interacts with the company's expenditure. This manifests itself in two key ways: the scale of allowed investment during the price control period, and the extent to which the company is exposed to cash flow implications of actual expenditure differing from the allowance. The former is captured by our analysis of the ratio of capex to RAV, while the latter depends on the incentive rate that we apply to deviations in totex from our allowance and the various uncertainty mechanisms.

3.15. We regard the scale of investment as the most significant differentiator of risk affecting both the asset beta (and, therefore, the cost of equity) and the appropriate level of notional gearing. The incentive rate does not, we consider, have a material impact on the asset beta but will influence the appropriate level of notional gearing and, therefore, the weighted average cost of capital.

3.16. We consider that two factors raised in consultation – the duration of cash flows and the impact of longer price control periods – have been addressed fully in our previous publications. Following analysis by both CEPA and Europe Economics, our March Strategy Document set out that we do not consider the duration of cash flows to be a material factor in setting the appropriate allowed return for RIIO-T1 and GD1. Our Initial Proposals argued that, overall, longer price control periods can be expected to have a neutral impact on cash flow risk. We, therefore, do not reconsider these factors in detail again here.

3.17. We do not accept NG's argument regarding the inclusion of 'external' SO incentives in the assessment of NGET and NGGT's risk. We consider that these incentives should stand alone, separate from the TO business. This is the way we have treated the businesses historically, and we do not consider there to be any reason to move away from this position. The proposed external SO incentives are set out in a separate consultation.<sup>12</sup> Further, we do not consider that there is any greater uncertainty regarding these than in previous price controls.

3.18. In the remainder of this section we update our assessment of the scale of investment and the incentive rate to any changes between Initial Proposals and Final Proposals. In light of the responses to our Initial Proposals, we supplement our relative risk assessment by modelling the probable range of expenditure around our allowance. We then bring the analysis together to arrive at an overall view on relative risk.

### **Scale of investment**

3.19. The Handbook for implementing the RIIO model<sup>13</sup> identified the size of a company's planned investment programme relative to its existing RAV as the key factor for potential differences in relative risk between companies. We consider the ratio of capex to RAV to be a better indicator of the riskiness of an investment programme than simply looking at absolute capex levels. This approach is also consistent with the considerations of the major credit rating agencies. Where this

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<sup>12</sup> [SO Incentives](#)

<sup>13</sup> [Handbook for implementing the RIIO model](#)

ratio is higher, we consider the company to be potentially exposed to higher cash flow risk, and vice versa.

3.20. A second consideration is how volume and unit cost risk are allocated within the investment programme. The structure of the RIIO price controls, particularly for transmission, allows for additional investment to be funded if a sufficient needs case is identified during the price control period. As such, these allowances, by virtue of being set near the time of investment, would typically expose the company to less risk than with 'base' totex allowances set at the start of the period. Allowances can be split into three stylised categories (although in practise the difference is less clear-cut with the level of actual risk being dependent upon specific regulatory arrangements):

- Base totex – both unit cost and volume allowances are set ex ante, which potentially exposes the network company to variations in both, particularly in the latter years of the price control period (although this depends on the regulatory arrangements and in many cases base totex has a degree of volume protection).
- Volume drivers – the unit cost allowances for these are set at the beginning of the price control period, with the amount of investment set when the needs case is identified.
- Within-period determinations – for these allowances (such as Strategic Wider Works in electricity transmission), both unit costs and volumes are set when the needs case is identified during the price control period. As such, they reduce forecasting risk for both unit costs and volumes.

3.21. All three types of allowances described above would be subject to the same incentive rate being applied to any over or under-spend. Our relative risk modelling further assesses the potential variability around the three stylised totex categories.

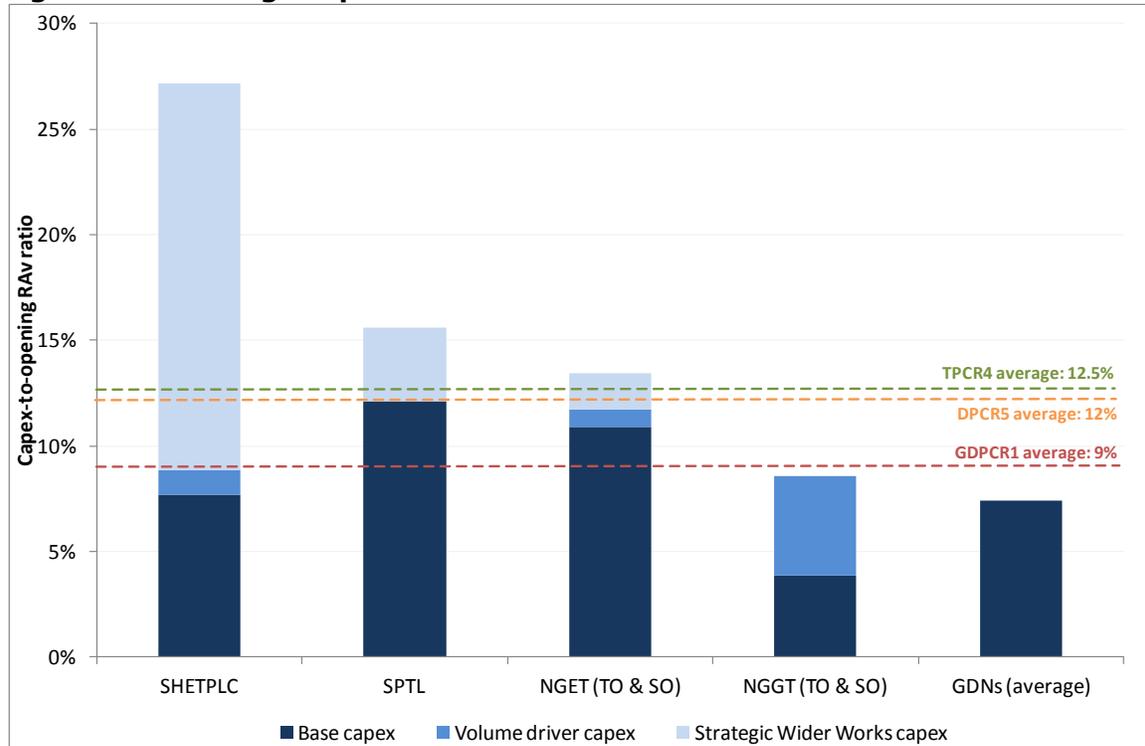
3.22. As set out in the cost assessment and uncertainty supporting document, we have made changes to some of NGET and NGGT's uncertainty mechanisms that bring them closer line with the fast-tracked companies in terms of exposure to unit cost and volume risk. This is captured in more detail in our relative risk modelling.

3.23. Figure 3.1 updates our calculations of NGET and NGGT's average capex-to-RAV ratios for RIIO-T1. We compare these to the corresponding ratios for the two fast-tracked companies (updated for 2011-12 actuals in order to be consistent with NGET and NGGT), the average for GDNs in RIIO-GD1, and the average ratios in the current price controls. For transmission, we split each ratio into base, volume driver and Strategic Wider Works capex. These are based on our 'Best View' of investment that informed our Final Proposals.

3.24. For NGET, the figure shows that the level of investment (relative to RAV) is slightly lower than that of SPTL and lower than that of SHETPLC. Whilst the base capex levels for NGET and SPTL are greater as a proportion of RAV than for SHETPLC, this is more than compensated for by the scale of SHETPLC's overall investment programme relative to its RAV (even though a large portion of this is subject to within-period determinations). In contrast, NGGT's investment rate is substantially lower – especially in respect of base capex – and is closer to that of the

GDNs. NGET’s capex-to-RAV ratio of 13.4 percent is similar to the average in TPCR4, while NGGT’s ratio of 8.6 percent is lower than in any of the current price controls.

**Figure 3.1: Average capex-to-RAV ratios in RIIO-T1 and RIIO-GD1**



Note: For consistency, we treat repex as 100 percent capex in this chart.

3.25. From a scale of investment perspective, our updated assessment is consistent with the conclusions of our Initial Proposals. We find that NGET faces a lower level of cash flow risk than SHETPLC, a slightly lower level of cash flow risk to SPTL and a similar level of cash flow risk as under TPCR4; while NGGT faces lower risk than all of the above.

3.26. Also worth noting is the argument in Imrecon’s paper that, based on the reasonable assumption that construction costs are typically pro-cyclical, for allowances that are set at the beginning of the price control period, large capex programmes would tend to reduce the exposure to systematic risk. For within-period determinations, however, this relationship reverses and large capex programmes would tend to increase the exposure to systematic risk, since the allowances would reflect movements in project costs. This supports our above conclusion on the different risk exposures of the transmission companies.

**Incentive rate**

3.27. The incentive rate on totex determines each company’s exposure to any over- or under-spend. The higher the incentive rate, the larger the share of any over- or under-spend that is borne by the company and, therefore, the greater its exposure

to cash flow risk. As highlighted by the return on regulatory equity (RoRE) analysis,<sup>14</sup> performance against the totex allowances has the largest impact on overall return on equity.

3.28. In TPCR4 we had set separate incentive rates for capex (25 percent) and for opex (100 percent). In order to compare the relative exposure to over- and under-spend between TPCR4 and RIIO-T1, we need to calculate the effective incentive rate in TPCR4, by applying the above incentive rates to the proportions of allowed capex and opex, respectively. The results are summarised in Table 3.2 and are compared to the totex incentive rates in RIIO-T1.

**Table 3.2: Comparison of incentive rates in TPCR4 and RIIO-T1**

(Allowances in £m in 2004-5 prices)	NGET	NGGT
Allowed opex (incentive rate: 100%)	1,289	688
Allowed capex (incentive rate: 25%)	3,041	824
Effective incentive rate in TPCR4	47.3%	59.1%
Incentive rate in RIIO-T1	46.9%	44.4%

Note: Figures listed in the table refer only to the TOs.

3.29. The effective incentive rate is marginally lower for NGET and materially lower for NGGT. It is worth noting, however, that we are changing the application of the incentive rate from a pre-tax basis in TPCR4 to a post-tax basis in RIIO-T1. By providing a specific allowance for tax, the mechanism provides additional protection for the companies.

3.30. Overall, we consider that, for NGET, the incentive rate in RIIO-T1 is likely to have a neutral impact on cash flow risk when compared to TPCR4. For NGGT, we consider that the incentive rate is likely to reduce cash flow risk in RIIO-T1 compared to TPCR4. The incentive rate for both companies is lower than for SHETPLC and SPTL, as well as for the GDNs.

### Monte Carlo modelling of relative risk

3.31. One of NG's arguments against of our relative risk assessment in response to the Initial Proposals was that it was not backed by detailed modelling. As FTI Consulting noted when reviewing the network companies' risk modelling,<sup>15</sup> the results of analysis based on Monte Carlo simulations<sup>16</sup> are sensitive to the input assumptions, and there are likely to be equally plausible sets of assumptions resulting in potentially widely different results. The risk is that apparently sophisticated modelling may present a spurious degree of accuracy and provide a false sense of confidence in the results. Therefore, we do not think that such

<sup>14</sup> See Figure 4.1

<sup>15</sup> [Cost of capital study for the RIIO-T1 and GD1 price controls – Report by FTI Consulting](#)

<sup>16</sup> In a Monte Carlo simulation, input values are picked at random from a pre-defined probability distribution to produce a set of outputs. The simulation is typically performed a few thousand times in order to produce a probability distribution for the outputs.

modelling could be applied in a mechanistic way to translate changes in cash flow risk into changes in the allowed return, as was used by NGET and NGGT in their business plans.

3.32. We do, however, see value in Monte Carlo simulations to assess the potential degree of variability around a limited and tightly-defined set of parameters. This type of analysis could be relevant in understanding the extent to which network companies' expenditure levels may diverge from our totex allowance, both in terms of expenditure under uncertainty mechanisms that is not captured in our 'best view', and in the potential to over- or under-spend. Such analysis would represent an additional piece of information to balance when assessing the relative risk of different network companies.

3.33. We have used Monte Carlo simulations to estimate the totex variability for NGET and NGGT. We compared them to each other, as well as to SHETPLC, SPTL and the GDNs. We would have liked to also compare RIIO-T1 to TPCR4, but doing this analysis on a consistent basis would have required us to model RPI-X price controls as one five-year price control period and the first three years of a second price control period. We do not think that there is a clear and objective way in which to model the impact of a price control review and, therefore, have restricted our analysis to a comparison across contemporaneous RIIO periods.

3.34. The output from the Monte Carlo modelling is a probability distribution of expenditure, which we compare to our 'Best View' allowance. Given the different sizes of companies both within the electricity transmission sector and across sectors, we measure totex variability in percentage terms relative to the 'Best View'.

3.35. In our analysis we ran four sets of simulations on the totex inputs into the Final Proposals financial model. The detailed assumptions for each simulation are described in Appendix 4. At a high level they can be described as follows:

- Simulation 1 – a baseline assumption in which all cost categories are assumed to have a probability distribution of  $\pm 10$  percent around our allowance
- Simulation 2 – each cost category is set its own probability distribution, with capex categories typically set wider variance than opex categories, and greater variance around uncertainty mechanism expenditure than base totex
- Simulation 3 – as in Simulation 2, but with the introduction of 'price shocks'
- Simulation 4 – as in Simulation 3, but with the introduction of correlations between certain cost categories.

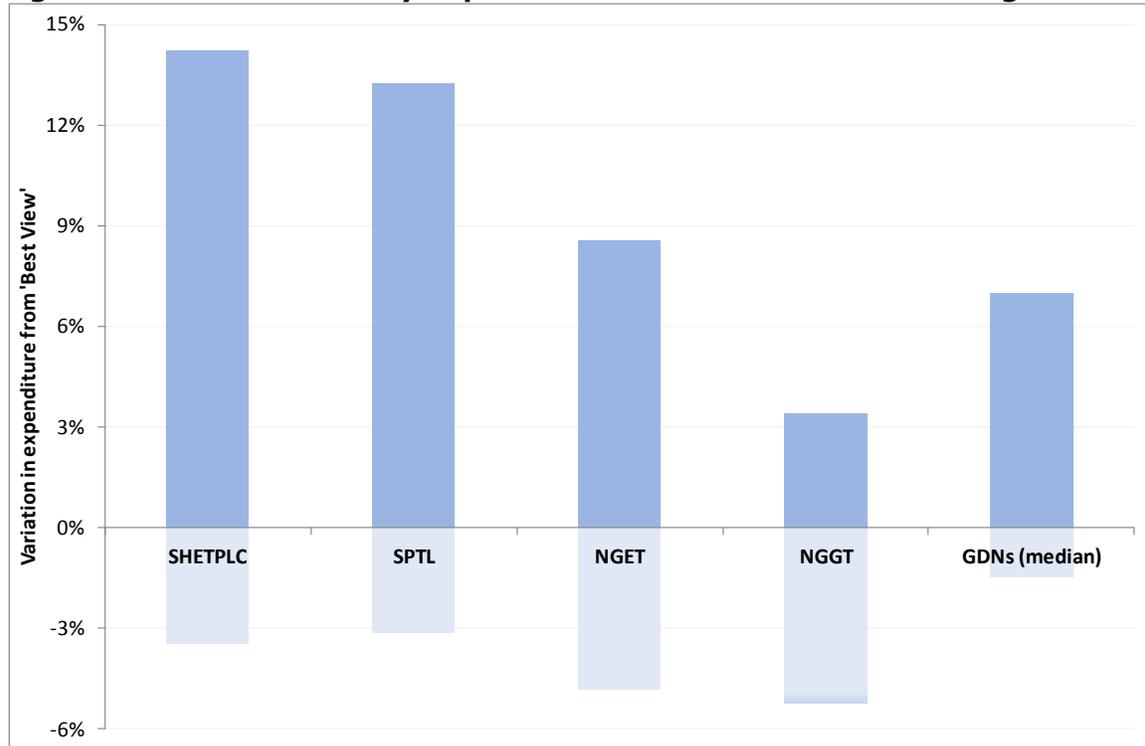
3.36. The results from Simulation 4 are presented in Figure 3.1. The results from the other simulations produce a very similar picture and are summarised in Appendix 4. It is worth stressing that where our 'Best View' allowances do not include any estimates of expenditure under a particular uncertainty mechanism,<sup>17</sup> in order to be able to create probability distributions for these uncertainty mechanisms, we have had to make an assumption on a 'most likely' level of expenditure. This is also set out in Appendix 4. The result is that Figure 3.2 shows a greater scope for actual

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<sup>17</sup> For example, enhancement to pre-existing infrastructure in electricity transmission, or pipeline diversion costs in gas transmission.

expenditure to be above our 'Best View'. This should not be interpreted as there being a greater likelihood of unfunded overspend than under-spend, since a large proportion of the difference between the upside and downside relates to expenditure funded through these uncertainty mechanisms.

**Figure 3.2: Totex variability implied from our Monte Carlo modelling**



3.37. Our Monte Carlo modelling is consistent with our analysis of other cash flow risk factors – NGET faces less risk than SHETPLC and SPTL, and more risk than NGGT and the GDNs. NGGT faces less risk in terms of totex variability than the electricity transmission companies, and similar risk levels to the GDNs.

### Summary of relative risk factors

3.38. We have focused on the key factors that influence cash flow risk above. As noted, there are several other factors that may affect risk to a lesser extent. We provide a brief overview of each in Tables 3.3 and 3.4, which bring together our views on relative risk for NGET and NGGT, respectively. We do not consider our assessment to double-count factors.

3.39. To conclude, in this section we updated our relative risk assessment to reflect any changes between our Initial Proposals and Final Proposals. We further supplemented our assessment with Monte Carlo modelling of relative risk. Overall, our Final Proposals assessment supports the conclusions of our Initial Proposals that:



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- NGET faces lower cash flow risk than SHETPLC and slightly lower than SPTL; that it faces somewhat higher risk than NGGT and the GDNs; and that its cash flow risk is broadly comparable to TPCR4.
- NGGT faces lower cash flow risk than the electricity transmission companies, particularly SHETPLC and SPTL; that it faces somewhat higher risk than the GDNs'; and that its cash flow risk is lower than in TPCR4.

**Table 3.3: Summary of relative risk assessment for NGET**

	NGET's risk relative to:				
	SHETPLC	SPTL	NGGT	GDNs	TPCR4
<b>Scale of investment</b>	See detail above. <b>Lower</b>	See detail above. <b>Similar</b>	See detail above. <b>Higher</b>	See detail above. <b>Higher</b>	See detail above. <b>Similar</b>
<b>Totex variability</b>	See detail above. <b>Lower</b>	See detail above. <b>Lower</b>	See detail above. <b>Higher</b>	See detail above. <b>Higher</b>	Not directly comparable.
<b>Complexity of investment</b>	Similar technical issues. <b>Similar</b>	Similar technical issues. <b>Similar</b>	A greater number of major interlinked projects. <b>Higher</b>	Investment plan consists of larger, more complex projects. <b>Higher</b>	Plan for RIIO-T1 is a continuation of the TPCR4 investment. <b>Similar</b>
<b>Totex incentive rate</b>	SHETPLC's incentive rate in RIIO-T1 is 50%. <b>Lower</b>	SPTL's incentive rate in RIIO-T1 is 50%. <b>Lower</b>	See detail above. <b>Higher</b>	GDNs' incentive rate ranges 63-64%. <b>Lower</b>	See detail above. <b>Similar</b>
<b>Totex approach</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Under totex approach, expenditure choice not driven by regulatory treatment. <b>Lower</b>
<b>Focus on outputs</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Delivery options not driven by regulatory treatment. <b>Lower</b>
<b>Uncertainty mechanisms</b>	The UMs are broadly similar. <b>Similar</b>	The UMs are broadly similar. <b>Similar</b>	Different UMs offering similar degree of protection. <b>Similar</b>	Not directly comparable.	Additional mechanisms introduced in RIIO-T1. <b>Lower</b>
<b>Incentives</b>	Relative revenue impact of incentives comparable. <b>Similar</b>	Relative revenue impact of incentives lower. <b>Lower</b>	Relative revenue impact of incentives lower. <b>Lower</b>	Relative revenue impact of incentives higher. <b>Higher</b>	Additional incentives introduced in RIIO-T1. <b>Higher</b>
<b>Pension costs</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used but NGGT established deficit larger. <b>Lower</b>	Same approach used. <b>Similar</b>	Incremental deficit subject to totex incentive rate. <b>Higher</b>
<b>Cost of debt approach</b>	Bespoke approach potentially further reduces risk for SHETPLC. <b>Higher</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Annual update protects provides better match to notional company cost. <b>Lower</b>
<b>Length of price control</b>	Eight-year price controls. <b>Similar</b>	Eight-year price controls. <b>Similar</b>	Eight-year price controls. <b>Similar</b>	Eight-year price controls. <b>Similar</b>	Neutral expected overall impact. <b>Similar</b>
<b>Timing of revenue adjustments</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Changes reflected in allowances more quickly via Annual Iteration Process. <b>Lower</b>
<b>Overall</b>	<b>Lower</b>	<b>Slightly lower</b>	<b>Higher</b>	<b>Higher</b>	<b>Similar</b>

**Table 3.4: Summary of relative risk assessment for NGGT**

	NGGT's risk relative to:				
	SHETPLC	SPTL	NGET	GDNs	TPCR4
<b>Scale of investment</b>	See detail above. <b>Lower</b>	See detail above. <b>Lower</b>	See detail above. <b>Lower</b>	See detail above. <b>Similar</b>	See detail above. <b>Lower</b>
<b>Totex variability</b>	See detail above. <b>Lower</b>	See detail above. <b>Lower</b>	See detail above. <b>Lower</b>	See detail above. <b>Lower</b>	Not directly comparable.
<b>Complexity of investment</b>	Fewer and more isolated projects. <b>Lower</b>	Fewer and more isolated projects. <b>Lower</b>	Fewer and more isolated projects. <b>Lower</b>	Predominantly larger bespoke projects. <b>Higher</b>	Plan for RIIO-T1 is a continuation of the TPCR4 investment. <b>Similar</b>
<b>Totex incentive rate</b>	SHETPLC's incentive rate in RIIO-T1 is 50%. <b>Lower</b>	SPTL's incentive rate in RIIO-T1 is 50%. <b>Lower</b>	See detail above. <b>Lower</b>	GDNs' incentive rate ranges 63-64%. <b>Lower</b>	See detail above. <b>Lower</b>
<b>Totex approach</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Under totex approach, expenditure choice not driven by regulatory treatment. <b>Lower</b>
<b>Focus on outputs</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Delivery options not driven by regulatory treatment. <b>Lower</b>
<b>Uncertainty mechanisms</b>	Different UMs offering similar degree of protection. <b>Similar</b>	Different UMs offering similar degree of protection. <b>Similar</b>	Different UMs offering similar degree of protection. <b>Similar</b>	Not directly comparable.	Proposed mechanisms consistent with TPCR4. <b>Similar</b>
<b>Incentives</b>	Relative revenue impact of incentives higher. <b>Higher</b>	Relative revenue impact of incentives higher. <b>Higher</b>	Relative revenue impact of incentives higher. <b>Higher</b>	Relative revenue impact of incentives higher. <b>Higher</b>	Additional incentives introduced in RIIO-T1. <b>Higher</b>
<b>Pension costs</b>	Same approach used but NGGT established deficit larger. <b>Higher</b>	Same approach used but NGGT established deficit larger. <b>Higher</b>	Same approach used but NGGT established deficit larger. <b>Higher</b>	Same approach used but NGGT established deficit larger. <b>Higher</b>	Incremental deficit subject to totex incentive rate. <b>Higher</b>
<b>Cost of debt approach</b>	Bespoke approach potentially further reduces risk for SHETPLC. <b>Higher</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Annual update protects provides better match to notional company cost. <b>Lower</b>
<b>Length of price control</b>	Eight-year price controls. <b>Similar</b>	Eight-year price controls. <b>Similar</b>	Eight-year price controls. <b>Similar</b>	Eight-year price controls. <b>Similar</b>	Neutral expected overall impact. <b>Similar</b>
<b>Timing of revenue adjustments</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Same approach used. <b>Similar</b>	Changes reflected in allowances more quickly via Annual Iteration Process. <b>Lower</b>
<b>Overall</b>	<b>Lower</b>	<b>Lower</b>	<b>Lower</b>	<b>Slightly higher</b>	<b>Lower</b>

## **Notional gearing**

3.40. We reiterate our view from Initial Proposals that there is no simple rule by which differences in cash flow risk could be converted into different allowed return levels. Ultimately, there is a need to balance different pieces of evidence. In addition to considering cash flow risk, when determining the appropriate notional gearing level we also take into account:

- Financeability – both in terms of the gearing ratios that the major credit rating agencies consider are consistent with ratings in the BBB-A range, and in terms of the impact on other credit ratios.
- Return on regulatory equity (RoRE) range – in RIIO price controls our intention is that companies should be able to achieve an upside return on (notional) equity in the low double-digits, and be exposed to a downside return at or below the cost of debt. Since we calculate RoRE at the notional level, increasing notional gearing widens the RoRE range and vice versa. We use RoRE as a key sense-check on our financial parameters. If we selected the right levels of cost of equity and notional gearing for the cash flow risk of the businesses, we should find that the RoRE ranges are comparable (see Chapter 4).
- Regulatory precedent – this consideration takes account of the fact that stakeholders value consistent regulatory determinations.
- Network companies' actual gearing – this provides an indication of the proportion of debt that network companies have been able to carry while maintaining investment grade credit ratings.

3.41. We consider that our analysis above (and in Chapter 4) supports setting notional gearing of 60 percent for NGET and 62.5 percent for NGGT, as in Initial Proposals. Together with the rest of our Final Proposals, this results in achieving financeability parameters and RoRE ranges that are consistent with our targets. This level is also consistent with the range of determinations in our current price controls (60-65 percent) and with recent regulatory precedents, as identified by FTI Consulting. Furthermore, this level is consistent with the gearing levels that we observe for the network companies that we regulate, as well as for comparators such as water companies.

## **Cost of equity**

3.42. Our approach to determining the appropriate cost of equity assumption consists of two stages:

- using the Capital Asset Pricing Model (CAPM), taking into account the relative risk analysis
- sense-checking against alternative approaches, information from transactions and regulatory precedent.

3.43. We maintain our view from Initial Proposals that it is appropriate to rely on long-term estimates of the CAPM components to set the cost of equity assumption.

This supports the assumption of 2.0 percent risk-free rate and 5.25 percent equity risk premium.

3.44. The work of our consultants during this project – Europe Economics in the strategy phase<sup>18</sup> and FTI Consulting for Initial Proposals – as well as more recently by Imrecon, provides clear evidence that the equity beta for a regulated network company is likely to be materially below one. Based on our relative risk assessment, we continue to consider that an equity beta of 0.95 is appropriate for NGET and 0.91 is appropriate for NGGT. Both estimates could be considered conservative for regulated network companies.

3.45. Overall, our Final Proposals retain the cost of equity assumptions in our Initial Proposals of 7.0 percent for NGET and 6.8 percent for NGGT. Table 3.5 shows our Final Proposals for the cost of equity in terms of the CAPM components. We note, however, that it is the overall allowed return that matters.

**Table 3.5: Cost of equity assumptions for NGET and NGGT**

	<b>RiIO-T1 NGET</b>	<b>RiIO-T1 NGGT</b>	<b>Strategy Document range</b>	<b>TPCR4</b>
Risk-free rate	2.0%	2.0%	1.7-2.0%	2.5%
Equity risk premium	5.25%	5.25%	4.75-5.5%	4.5%
Equity beta	0.95	0.91	0.9-0.95	1.0
<b>Cost of equity</b>	<b>7.0%</b>	<b>6.8%</b>	<b>6.0-7.2%</b>	<b>7.0%</b>

3.46. Furthermore, we note that throughout this process a dichotomy has been noted between the cost of equity estimates provided by models such as CAPM and the expectations of investors. While some of this gap may be explained by factors not captured in the models, Imrecon’s analysis provides strong evidence that investors may not be fully pricing in the support provided to the network companies by the regulatory framework.

3.47. Taken together, the allowed return Final Proposals for NGET of 7.0 percent cost of equity and 60 percent notional gearing reflect our assessment that it faces somewhat lower cash flow risk than the Scottish transmission network companies, and similar cash flow risk to TPCR4. The allowed return proposals for NGGT of 6.8 percent cost of equity and 62.5 percent notional gearing reflect our assessment that it faces lower cash flow risk than the electricity transmission network companies and under TPCR4, but somewhat higher than the GDNs.

<sup>18</sup> [The Weighted Average Cost of Capital for Ofgem’s Future Price Control \(March 2011 update\) – Report by Europe Economics](#)

## Cost of debt

### Summary of Initial Proposals

3.48. Our Initial Proposals were to annually update the cost of debt estimate based on a simple 10-year trailing average of two iBoxx indices for sterling-denominated corporate bonds, deflated by breakeven inflation, with no further adjustments to the index. We did, however, propose to make a minor technical change to the way the index is calculated by deriving the breakeven inflation estimate from nominal and real gilt yields published by the Bank of England, rather than using the Bank's own breakeven inflation forecasts.

### Summary of consultation responses

3.49. NG commented on our proposed approach to annually update the cost of debt estimate based on the simple 10-year trailing average of the iBoxx indices, with no adjustments to the index, in its submissions. It also submitted supporting material by Oxera. Two electricity distribution network companies (DNOs) also commented on our proposals.

3.50. NG and one DNO supported the proposed technical change to the index. NG also supported our proposal not to make an adjustment for embedded debt costs to the index, noting this would represent a break from Ofgem's regulatory precedent. NG noted that our Initial Proposals misrepresented its proposed uncertainty mechanism on the index as relating to embedded debt costs, when in fact it related to costs not directly captured in the index. The two DNOs sought a specific allowance for costs not directly captured in the index.

3.51. NG also questioned our calculations, which showed no evidence that using breakeven inflation systematically overstates investors' long-term inflation expectations. It also reiterated its arguments for adjustments to the index to reflect the potential costs of Basel III and Solvency II, as well as arguing that the index introduces procyclicality of returns compared to a fixed allowance.

### Conclusions on cost of debt

3.52. Our Final Proposals are to retain our approach of annually updating the cost of debt estimate based on the simple 10-year trailing average of the iBoxx indices, with no adjustments to the index. We do not consider that the consultation responses provided new arguments or materially change our Initial Proposals assessment. We also retain our proposed technical adjustment to the calculation.

3.53. We also retain our view that there are characteristics of network companies and the regulatory regime within which they operate that have allowed them to raise debt more cheaply than other companies of similar credit ratings (ie to outperform the cost of debt index), and that this trend should continue going forward. We are

confident that the proposed approach would cover efficiently incurred debt costs and, hence, we do not propose to accept NG's uncertainty mechanism. The limited number of new bonds issued since Initial Proposals do not change our view that the margin provided by the index above network companies' new bonds would cover costs not directly captured in the index (eg issuance and liquidity fees).

3.54. In accordance with our stated intention, we have updated the cost of debt assumption to reflect the value of the 10-year trailing average index at the end of October 2012. The value to be applied to the allowed return calculation in 2013-14 (ie in the first year of RIIO-T1) is 2.92 percent. This will be updated annually as at the last working day in October for following price control years, with allowed revenues adjusted through the Annual Iteration Process (see Chapter 7).

## Financial policies

### Summary of Initial Proposals

3.55. Our Initial Proposals set thresholds of 2.5 percent above notional gearing (ie 62.5 percent) for NGET and of five percent above notional gearing (ie 67.5 percent) for NGGT as the trigger points for our financial model to assume that NGET or NGGT issue notional new equity, respectively. Our Initial Proposals resulted in £1.3bn notional new equity (in nominal prices) being issued by NGET during RIIO-T1 and no notional new equity being issued by NGGT.

3.56. Our Initial Proposals also included a modelling assumption that NGET and NGGT pay out an annual dividend equal to five percent of its notional regulated equity. For NGGT, the 'Best View' includes a significant ramp-up in investment compared to the 'base view'. Since we do not consider it realistic that a company would increase its dividend payout at the same time that its investment level rises sharply we calculated the dividend payout on 'base view' RAV. Our modelling also assumed that 25 percent of NGET and NGGT's debt is index-linked.

### Summary of consultation responses

3.57. The only response on the financial policies modelling assumption was from NG. It argued that the threshold for equity issuance should be lowered to 1 percent above notional gearing for both NGET and NGGT, in order to support financeability.

3.58. NG also argued that NGGT's dividends should be calculated on 'Best View' RAV, noting that in our assessment identified NGGT's 'Best View' investment level (relative to RAV) as comparable to that of the GDNs, and that the dividend assumption for GDNs is based on the Final Proposals allowances. It is worth noting that, unlike transmission, the allowances for the GDNs do not include expenditure under most uncertainty mechanisms. On that basis, the Initial Proposals calculated NGGT and the GDNs' dividends on a consistent basis. However, the two could diverge during the price control period if we allowed the GDNs additional expenditure under the uncertainty mechanisms.

3.59. With regard to the modelling assumption on the proportion of index-linked debt, NG noted the different treatment by rating agencies of index-linked debt accretions in the calculation of credit ratios. It sought clarity on which approach was used by Ofgem to assess financeability.

### **Allowance for the cost of issuing notional new equity**

3.60. Based on our Final Proposals, NGET is expected to undergo a proportionate increase in its RAV, while NGGT is expected to exhibit a relatively stable RAV during RIIO-T1. We, therefore, retain our modelling assumption in which an injection of notional equity is assumed if modelled gearing exceeds a threshold of 2.5 percent above notional gearing for NGET and five percent above notional gearing for NGGT (ie 62.5 percent and 67.5 percent, respectively). Our proposals result in £1.8bn of notional new equity (in nominal prices) being issued by NGET to finance its RAV growth, and in no notional new equity being issued by NGGT.

### **Notional dividend modelling assumption**

3.61. We retain our assumption of a five percent dividend payout rate (of regulatory equity). This assumption is for the notional company and should not be considered to represent our view on the payout rate that network companies should adopt.

3.62. We continue to consider that it would be unrealistic for a company to increase its dividend payout at the same time that its investment level rises sharply. Nevertheless, given the marginal impact that this assumption has on allowed revenues and financeability, and in the interest of clarity and consistency across our price controls, our Final Proposals calculate NGGT's dividend payout on regulatory equity derived from our 'Best View' of investment.

### **Index-linked debt modelling assumption**

3.63. We retain our assumption that 25 percent of NGET and NGGT's debt is index-linked. This assumption is consistent with the extent to which we observe network companies relying on index-linked debt to fund their activities, as shown in Table 3.6. The table shows the proportion of index-linked debt in network companies' overall debt as per the latest regulatory reporting packs, pertaining to regulatory year 2011-12.

**Table 3.6: Network companies' index-linked debt share**

<b>Values for 2011-12</b>	<b>Proportion of licensee debt that is index-linked</b>
Transmission*	38.6%
Gas Distribution*	28.5%
<b>Total</b>	<b>33.0%</b>

\* NGG's share apportioned to transmission and gas distribution based on relative shares of closing RAV for 2012-13

3.64. The modelling assumption regarding index-linked debt does not affect the allowed revenue for the companies, but does impact some of the ratios used in our financeability assessment (owing to the way credit rating agencies treat the inflation accretion on index-linked debt). This is discussed further in Chapter 4.

## 4. Financeability, transition and return on regulatory equity

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### Chapter Summary

This chapter summarises our financeability assessment of NGET and NGGT. It outlines the transitional arrangements on depreciation of new assets for NGET, which we consider are appropriate to achieve financeability. The chapter also provides an overview of the range of return on regulatory equity (RoRE) that we estimate to be available to the notional companies as a result of these proposals.

### Financeability

#### Summary of Initial Proposals

4.1. In Initial Proposals, we assessed that NGET and NGGT meet our financeability criteria under both the 'Best View' of expenditure and a range of stress-tests. Aiding our judgement on financeability for NGET was our proposal to apply transition on the asset lives (and, therefore, depreciation revenue) from 20 years to the economic asset life of 45 years, over the eight years of RIIO-T1. We did not propose transitional arrangements for NGGT, as we did not change its asset lives.

#### Summary of consultation responses

4.2. The only response that addressed financeability was from NG. Its main conclusions were that our Initial Proposals resulted in unfinanceable credit ratios for NGGT, while NGET was financeable from a credit perspective but had unattractive equity metrics. NG, therefore, argued for lower notional gearing for both NGET and NGGT, as well as 16-year asset life transition for NGET.

4.3. One of NG's main arguments was that the financial model published alongside Initial Proposals did not reflect the fact that, for some uncertainty mechanisms, there may be timing delays between when costs are incurred and when they are funded through allowed revenue. Similarly, NG argued that the model as published and, by implication the financeability assessment, omitted costs incurred to deliver outputs in RIIO-T2,<sup>19</sup> and the tax on revenues that are allowed on a pre-tax basis. All of the above, it argued, would worsen credit and equity ratios.

4.4. Despite being involved in the development of the financial model published alongside Initial Proposals, including having sight of the financial ratios calculations based on its business plan data for NGET and NGGT, NG argued that there was a lack

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<sup>19</sup> In our Initial Proposals, it was set out that projects which would only deliver outputs in RIIO-T2 would only be remunerated once these outputs are delivered, even if some costs were to be incurred during RIIO-T1.

of transparency in our approach to testing financeability, since the ratios assessed were not published with the Initial Proposals.

4.5. NG also raised technical points regarding the financeability assessment, such as: different credit rating agencies' approach to index-linked debt in the ratio FFO/interest;<sup>20</sup> the extent to which our conclusions on financeability were influenced by the profile of Retail Prices Index (RPI) assumed in the financial model; and the fact that the model published with Initial Proposals did not capture the cash flow implications of differences between actual and allowed expenditure.

### Overview of our approach

4.6. In setting price controls, we are required to have regard to the ability of efficient network companies to secure financing in a timely way and at a reasonable cost in order to facilitate the delivery of their regulatory obligations. This is also in the interests of consumers. We define this ability as indicated by a notional efficient network company attaining a 'comfortable investment grade' credit rating (ie in the BBB-A range).

4.7. As set out in the financial issues supplementary annex to our March Strategy Document, our financeability assessment looks at six credit ratios (FFO/interest,<sup>21</sup> PMICR,<sup>22</sup> FFO/net debt, RCF/net debt,<sup>23</sup> RCF/capex, and Net debt/RAV) and two equity ratios (Regulated equity/EBITDA,<sup>24</sup> and Regulated equity/Regulated earnings<sup>25</sup>). The credit ratios are compared to the target ranges that the three major credit rating agencies have told us are consistent with credit ratings in the BBB-A range.

4.8. Credit ratios typically account for around a third of the assessment carried out by rating agencies. Similarly, our assessment also considers the broader context for the notional company. It is important to reiterate, however, that our financeability assessment does not intend to replicate the different rating agencies' methodologies.

4.9. Furthermore, our assessment is not predicated on an expectation that the notional companies would be able to achieve all target ratios in all years of the price control period. The Competition Commission applied the same rationale in considering the Bristol Water case in 2010:

*"We also note that the ratings agencies adopt a variety of quantitative and qualitative techniques to assign credit ratings. They do not use a mechanistic approach to assign credit ratings on the basis of an observed or predicted credit ratio in a particular year. It would therefore be inappropriate to place too*

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<sup>20</sup> FFO is 'funds from operations'. Rating agencies differ in their treatment of accretions of index-linked debt when it comes to this ratio. Moody's excludes accretions, calculating the ratio on a pure cash interest basis. Standard & Poor's includes accretions, calculating the ratio on a full interest expense basis.

<sup>21</sup> Our financeability assessment looks at this ratio on both cash interest and full interest expense basis.

<sup>22</sup> PMICR stands for 'post-maintenance interest cover ratio'. It is a derivative of FFO/interest and, therefore, is often also referred to as the 'adjusted interest cover ratio'.

<sup>23</sup> RCF is 'retained cash flow'.

<sup>24</sup> EBITDA is 'earnings before interest, tax, depreciation and amortisation'.

<sup>25</sup> We use 'profit after tax' as the measure of regulated earnings for this ratio.

*much emphasis on the value of a particular credit ratio, particularly when considering forecast values based on financial estimates.*<sup>26</sup>

## **Details of the financeability assessment**

4.10. The starting point for our financeability assessment is the 'Best View' of expenditure as set out in these Final Proposals. Additionally, we carry out an extensive range of sensitivities and stress-tests. We have extended the set of scenarios that we test financeability under and assess the impact of assumptions on:

- both persistent and one-off over and under-spend on totex
- the future profile of the cost of debt index
- the proportion of debt that is index-linked
- different rates of RPI inflation.

4.11. Our analysis includes the tax costs associated with revenues that enter the allowance on a pre-tax basis. Additionally, we tested the financeability impact of costs incurred to deliver outputs in RIIO-T2 not being remunerated until those outputs are delivered. Including these costs does not materially change our view on financeability. However, as set out in the cost assessment and uncertainty supporting document, we are proposing to change the approach to remunerating costs incurred to deliver outputs in RIIO-T2. Our proposed approach further reduces the cash flow impact of these costs.

4.12. In light of the responses to our Initial Proposals, we have added a further dimension to our financeability assessment by testing financeability under the simulations produced in our Monte Carlo modelling of relative risk (as described in chapter 3). In the same way that the Monte Carlo modelling provides an additional piece of information for consideration in our relative risk assessment, our financeability simulations provide a supporting – rather than core – piece of evidence for our financeability assessment.

4.13. We use the expenditure levels produced by the simulations as input into the Final Proposals financial model. For each simulation, this produces a set of credit and equity ratios that reflect the difference in simulated expenditure from our Final Proposal allowances. The financial model only calculates base revenue (ie it excludes revenues derived from incentives and output measures). As such, it does not capture any potential links between totex overspend and outperformance on incentives or, conversely, between totex under-spend and underperformance on incentives. The simulations, therefore, may overstate the cash flow implications of over or under-spend on totex, which represents a more stringent test on financeability.

4.14. It would be impractical to perform a detailed financeability assessment on each of the thousands of simulations that we ran, and looking at the probability

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<sup>26</sup> Competition Commission, Determination on a reference under section 12(3)(a) of the Water Industry Act 1991 (p. 03) [http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/non-inquiry/rep\\_pub/reports/2010/fulltext/558\\_appendices.pdf](http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/non-inquiry/rep_pub/reports/2010/fulltext/558_appendices.pdf)

distributions around individual ratios would represent only part of the wider picture. Thus, we sought a mechanistic way to assess financeability in each simulation and derive a probability distribution around our findings.

4.15. We are only aware of one such methodology that is both publicly-available and addresses most of the above issues. It is credit rating agency Moody's indicative methodology for rating energy networks.<sup>27</sup> It is important to stress that using this methodology does not indicate a preference by Ofgem of Moody's ratings to those of other credit rating agencies. Nor does it represent support by Moody's for our Final Proposals. We have not shared our calculations or assumptions with Moody's.

4.16. Moody's published methodology weighs both credit ratios and qualitative factors covering business and regulatory risk to come up with a score which is translated to a credit rating 'notch' (eg A2 or Baa1).<sup>28</sup> The methodology is particularly useful for testing downside scenarios since it attributes greater weight to a factor the lower that factor scores on its individual scale. The assumptions used in our application of the methodology are set out in Appendix 4. With regard to credit ratios, we use the weakest three-year average for each ratio, even if those three-year periods occur at different times of the price control for different ratios. In this regard, our approach is particularly cautious by overstating the downside risk.

4.17. As a stress-test of the methodology itself, we calculated the credit score a second time, replacing the adjusted interest cover ratio from Moody's methodology with FFO/interest calculated on overall interest expense (ie including index-linked accretions). This reflects different rating agencies', for example Standard & Poor's (S&P), treatment of index-linked accretions when calculating FFO/interest. It is important to stress that this is not an attempt to replicate S&P's rating methodology, nor does it represent support by S&P for our Final Proposals. We have not shared our calculations or assumptions with S&P.

### **Notional regearing**

4.18. When setting price controls, regulators typically assume that the company's debt level at the start of the period matches the notional gearing assumption. We 'regear' the transmission companies to the notional level of 60 percent at the start of the TPCR4 Rollover.

4.19. At the time, the transmission companies noted that debt levels were expected to rise above the notional level for electricity transmission companies during the Rollover year, given the investment levels in the sector. The companies expressed concern that, if we were to regear them again at the start of RIIO-T1, we could be understating the financeability challenge they face during RIIO-T1. We, therefore, agreed not to regear the electricity and gas transmission companies at the start of RIIO-T1 and instead to use the modelled closing gearing from the Rollover (adjusted for any changes in notional gearing between the Rollover and RIIO-T1).

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<sup>27</sup> Moody's, Rating Methodology - Regulated Electric and Gas Networks

[http://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC\\_118786](http://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC_118786)

<sup>28</sup> These levels on Moody's rating scale are, respectively, comparable to A and BBB+ ratings on the other major rating agencies' scales.

4.20. For NGET (and the fast-tracked companies), this has little impact on credit and equity ratios. For NGGT, modelled gearing at the end of the Rollover year is notably lower than the RIIO-T1 notional gearing assumption of 62.5 percent. This improves financial ratios relative to what they would have been had we regeared at the start of RIIO-T1.

4.21. Under the RIIO principles we are committed to setting sustainable financial packages. Therefore, in addition to assessing NGGT's financeability based on our Final Proposals, we have also stress-tested the package by assessing NGGT's financeability when it is regeared at the start of RIIO-T1.

### **The cash flow implications of uncertainty mechanisms**

4.22. NG's consultation response highlighted the cash flow implications of expenditure under the uncertainty mechanisms as a key issue that needed to be taken into account in our financeability assessment. This relates to the fact that, for certain mechanisms, there may be timing delays between when costs are incurred and when they are funded.

4.23. It is worth reiterating the RIIO principle (set out in the RIIO Handbook) that short-term cash flow variations are for the network companies to manage. Nevertheless, if the proposed mechanisms result in a systematic difference between costs and revenues, this would need to be taken into account when determining the appropriate financial package.

4.24. In developing these Final Proposals, we have looked at the financeability impact of expenditure incurred under the uncertainty mechanisms. We did so based on our 'Best View' of expenditure. Our modelling reflected the timing of allowances under the various mechanisms, as summarised in Appendix 4. As outlined in the cost assessment and uncertainty supporting document, we have made changes to some of NGET and NGGT's uncertainty mechanisms that bring them closer in line with the fast-tracked companies.

### **The need for transition**

4.25. For NGET (TO element) we apply economic asset lives (ie 45 years) only to new investment from the start of RIIO-T1. Existing assets (including new expenditure on projects already started as part of the transmission investment for renewable generation (TIRG) incentive) will continue to be depreciated over the 'accelerated' profile of 20 years. We consider that this provides a measure of transition, which mitigates any potential cash flow hit on NGET. Asset lives for NGGT are already at 45 years and they are not therefore impacted. The two SOs are also not impacted by this change with their asset lives remaining at seven years.

4.26. Nevertheless, given the sizeable investment programme expected during RIIO-T1, our financeability assessment indicated that some additional transition was appropriate in order to assure financeability for NGET. NGET's response to our Initial

Proposals argued that transition over 16 years would be required in order to achieve appropriate equity ratios. Our financeability assessment, however, finds that transition over eight years (ie over the duration of RIIO-T1) would be sufficient to meet the financeability criteria, including stable equity ratios.

4.27. For NGGT and the SOs, no transitional arrangements are applicable since no changes were made to its asset lives.

### Financeability assessment results

4.28. Our assessment of 'Best View' expenditure and of the scenarios set out in paragraph 4.10 is that both NGET and NGGT are financeable and achieve 'comfortable investment grade' credit ratings. For NGGT this applies to both the Final Proposals package and our stress-test of regearing at the start of RIIO-T1.

4.29. Adding the timing impact of uncertainty mechanism expenditure had only a marginal impact on credit and equity ratios of both NGGT and NGET. Overall, this additional piece of analysis supports our view that both NGET and NGGT are financeable and achieve 'comfortable investment grade' credit ratings even when accounting for the timing impact of uncertainty mechanisms.

4.30. In our simulations, we looked at the implied credit rating at the 5<sup>th</sup> percentile (ie in 95 percent of simulations the implied credit rating was no lower). This is set out for NGET and NGGT in Table 4.1. We show the rating implied in Simulation 4. Simulations 1 to 3 resulted in similar ratings, as did the stress-test using FFO/interest (using overall interest expense). These are summarised in Appendix 4.

**Table 4.1: Credit rating implied from Moody's methodology at 5<sup>th</sup> percentile**

	<b>NGET</b>	<b>NGGT</b>	<b>NGGT (regeared)</b>
95% confidence interval that implied credit rating from Moody's methodology is at least:	Baa1 / BBB+	Baa1 / BBB+	Baa1 / BBB+

4.31. The financial models for NGET and NGGT published alongside this paper include the financial ratios derived from our Final Proposals 'Best View' of expenditure. These values are also shown in Appendix 2.

4.32. NGGT's consultation response argued that the credit ratios are inconsistent with our objective of achieving a 'comfortable investment grade' credit rating. We think it is important to stress the distinction between credit ratios and credit ratings. As noted above, credit ratios typically account for around a third of the assessment carried out by rating agencies, and our financeability assessment considers the broader context for the notional company. Specifically, the low business risk associated with being a monopolistic network company, and the stable and transparent regulatory framework within which they operate provide substantial support to companies' credit ratings beyond what might be implied if only credit

ratios were considered. As such, our financeability assessment makes the Final Proposals consistent with credit ratings in the BBB-A range, even if certain ratios may deviate from their corresponding levels.

4.33. Further support to our conclusions is provided in the Imrecon report, which characterises our approach to financeability as “inherently cautious”.

## **Return on regulatory equity (RoRE)**

### **Summary of Initial Proposals**

4.34. We use RoRE analysis to estimate the financial benefits – as measured by the return on (notional) proportion of the RAV that is financed by equity – that are available to the network companies in RIIO-T1 from outperforming the price control assumptions. By the same token, RoRE analysis allows us to assess the financial penalties for underperforming the price control assumptions.

4.35. RoRE analysis in our Initial Proposals concluded that the proposed packages for NGET and NGGT were appropriately calibrated. Over the whole of RIIO-T1, these companies could achieve double-digit returns on (notional) equity for exceptional performance, with a downside return somewhat higher than our estimate of the cost of debt. We also concluded that, since RoRE ranges were similar across RIIO-T1 (including the fast-tracked companies) and GD1, our different notional gearing and cost of equity assumptions appropriately reflected differences in cash flow risk across the sectors.

### **Summary of consultation responses**

4.36. The only respondent to comment on our RoRE analysis was NG. It argued for the inclusion of ‘external’ SO incentives in the analysis. We have provided our view on this in the relative risk assessment presented in chapter 3.

4.37. NG also noted that tax on totex over- and under-spend was double-counted in our analysis. It noted that the energy not supplied and SF6 incentives should be calculated with the application of the totex incentive rate; that NGGT’s permits allowance has no downside; and that late delivery should not be considered an incentive.

4.38. When accounting for all of the above comments, NG argued, our Initial Proposals would result in a wider range for NGET and NGGT than for the fast-tracked companies. Notional gearing of 55 percent would be required to bring the companies in line with each other.

### Updated RoRE ranges

4.39. We have corrected the RoRE calculations to reflect the post-tax application of the totex incentive rate. This widens the RoRE range. We have updated the analysis to exclude late delivery and set a zero downside on permits allowance. The assumptions behind the SF6 and energy not supplied (unplanned outages) incentives already incorporate the impact of the totex incentive rate.

4.40. We regard an appropriately calibrated price control package as one in which RoRE upside (ie the reward available for the best-performing companies) provides the potential for double-digit returns on (notional) equity, and RoRE downside (ie the penalties that would apply to the worst-performing companies) is at or below the cost of debt. As noted in chapter 3, RoRE analysis is one of the factors used in identifying the appropriate notional gearing level.

4.41. However, we acknowledge that, for a given price control package, a balance needs to be struck between the impact of notional gearing on the RoRE range and on financeability. Higher notional gearing means that returns are spread over a smaller equity 'wedge', which widens the RoRE range. At the same time, higher notional gearing tightens credit ratios. When it comes to our decision on notional gearing, our duty to have regard to the need that network companies are able to finance their activities means that we attribute more weight to financeability analysis than to RoRE.

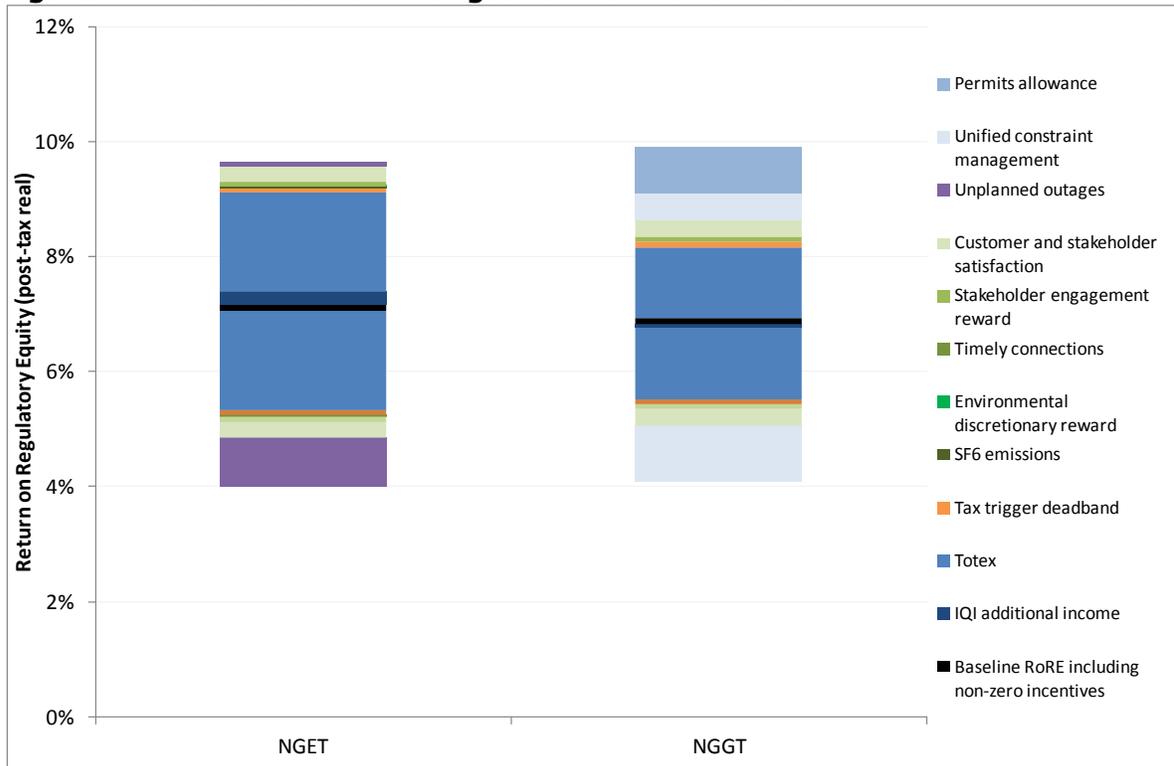
4.42. Figure 4.1 presents our estimates of upside and downside potential returns for NGET and NGGT. We have developed these estimates using a mixture of historical performance and projected plausible values (including caps and collars on individual incentives, where applicable). We stress that the RoRE range represents an estimate of plausible returns, rather than fixed limits. The figure is based on our cost of equity and notional gearing proposals, as per chapter 3.

4.43. Our assessment shows that, over the whole of RIIO-T1, both NGET and NGGT could achieve double-digit returns on (notional) equity for exceptional performance. With regard to the downside, we show that returns are unlikely to fall as low as our current estimate of the cost of debt. The assessment over the entire price control period, however, masks a degree of annual variability in potential returns. Typically, a wider range of returns is available in the early years. Overall, we think that Figure 4.1 represents an appropriately calibrated package.

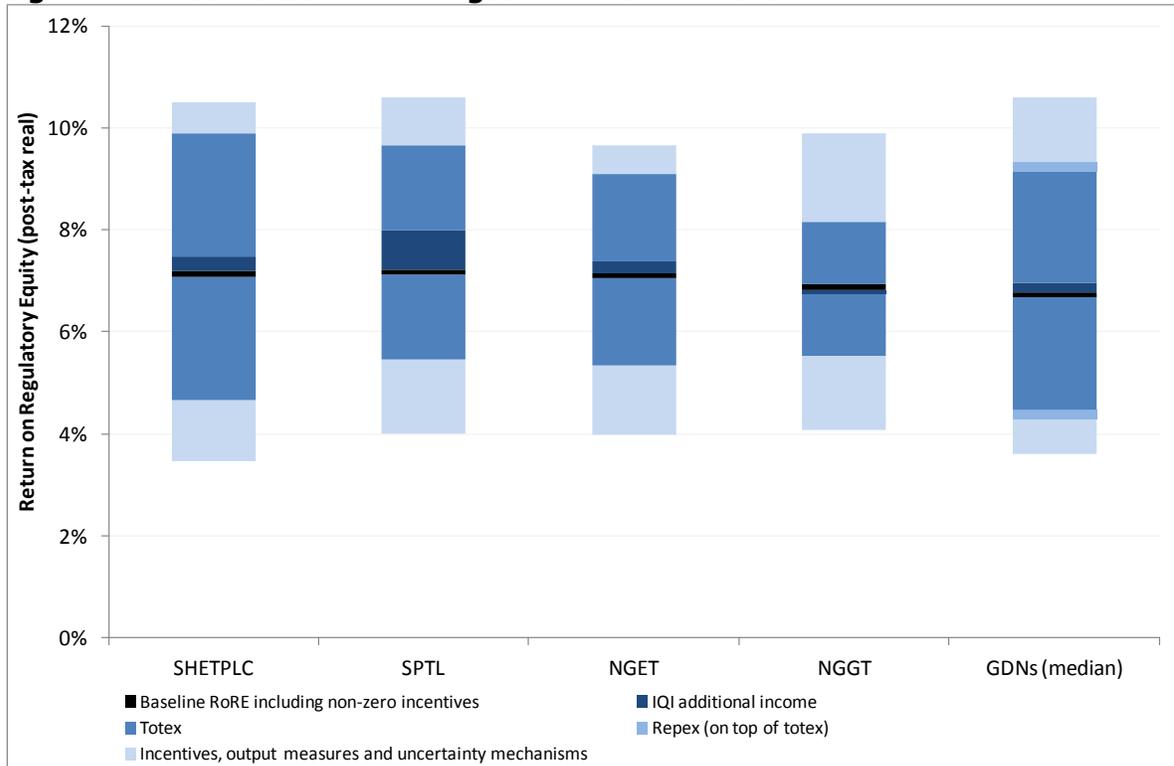
4.44. Figure 4.2 compares NGET and NGGT's RoRE ranges to those of the fast-tracked companies (corrected to be on a consistent basis with NGET and NGGT), and to the GDNs. For simplicity of presentation and comparison between companies we have grouped all incentives, output measures and uncertainty mechanisms together.

4.45. The overall range of RoRE is broadly similar across sectors. This acts as a sense-check that our differential notional gearing and cost of equity assumptions appropriately reflect differences in cash flow volatility across the sectors.

**Figure 4.1: Estimated RoRE ranges for NGET and NGGT**



**Figure 4.2: Estimated RoRE ranges in RIIO-T1 and GD1**



## 5. Pensions

### Chapter Summary

This chapter sets out our Final Proposals for funding of NGET's and NGGT's defined benefit pension scheme legacy deficits, Pension Protection Fund levies and pension scheme administration costs. We have updated the true up adjustments to take account of the difference between 2011-12 actual costs and the forecast costs used at Initial Proposals.

### Summary of Final Proposals

5.1. In our Final Proposals we have followed the same approach we set out in Initial Proposals and updated the allowances for 2011-12 actuals and the addition of contingent asset funding for NGGT. The effect of these changes on allowances is shown in table 5.1 below.

**Table 5.1: Summary pensions funding (excluded from totex)**

2009-10 £m	NGET TO	NGET SO	NGGT TO	NGGT SO
Total annual allowance	257.7	83.0	340.9	0.3
Increase over IP	4.8	1.5	(10.6)	(0.9)

5.2. The remainder of this chapter provides a summary of Initial Proposals and respondents views and provides an explanation of our decisions as well as providing a summary of the pension allowances.

### Summary of Initial Proposals

5.3. In Initial Proposals, we modelled and set out pension allowances based on the methodology and pension principles in our March Strategy Document, Financial Issues supplementary annex (Appendices 6 and 7) as amended. We used updated valuations as at 31 March 2011 rolled forward from licensee's last full valuations, which had been subject to an independent reasonableness review undertaken by the Government Actuary's Department (GAD). We also set thresholds for the true up of pension scheme administration costs and Pension Protection Fund levies.

5.4. We said, in Initial Proposals, that those allowances would not be updated at Final Proposals to take account of subsequent market movements to retain the same basis as applied to fast-tracked companies.

### Summary of respondents' views

5.5. In Initial Proposals, we asked three questions:

- Whether companies need to demonstrate the benefits to consumers of de-risking strategies
- Whether we should fund efficient contingent asset costs
- The appropriate true-up thresholds for pension scheme administration costs and Pension Protection Fund levies.

5.6. Respondents broadly agreed that companies must demonstrate a robust approach as to how their de-risking strategies are protecting future scheme funding and that they should clearly demonstrate the benefits that they expect to flow to consumers. Scheme trustees stated that in their view it is in the interest of all stakeholders to consider de-risking strategies to reduce volatility and the downside risk at an appropriate price. They consider de-risking should take priority over a reduction in pension contributions as this should reduce reliance on the employer's covenant, and that it is not appropriate to maintain the same level of risk given the age profile of scheme members. Respondents stated that, if the potential benefits outweigh the risks associated with such investments, then trustees will adopt such strategies providing we make firm commitments to fund them without the risk of adjustments to funding being made with the benefit of hindsight.

5.7. Licensees agreed that the costs of contingent assets should be allowed if considered to be in consumer's interests. One respondent suggested that stewardship should be considered in the round, rather than individual scheme arrangements, eg contingent assets. Another suggested that it would reduce the likelihood of "stranded" surpluses. Schemes' trustees considered that the contingent assets are beneficial in lieu of deficit reduction and can support efficient de-risking.

5.8. There was no overall agreement on the appropriate thresholds for pension scheme administration costs and Pension Protection Fund (PPF) levies. Broadly, respondents considered these costs were largely outside licensee's direct control. Trustees believe that the licensees manage levies efficiently to keep these at the minimum. Views varied from a threshold being inappropriate, to ensuring that allowances are not set too low.

## **Our Final Proposals**

5.9. We have carefully considered the responses and our Final Proposals are set out below:

- We will review de-risking strategies to understand how they will affect and protect future scheme funding and expect licensees to demonstrate unequivocally the benefits that they expect to flow to consumers. We encourage licensees to brief us on their strategies ahead of each valuation. We will monitor the ongoing effect of these strategies as part of each reset of pension allowances and will consider including a review of long-term investment strategies in the triennial reasonableness reviews.
- We will review the benefits of the use of contingent assets in the round within our overall reasonableness review. We expect licensees to demonstrate the benefits

that they anticipate will flow to consumers where such costs are incurred directly by the licensee. Where there is a clear demonstration of a cost benefit for consumers the efficient cost will be funded.

- We acknowledge that licensees have limited direct control of pension scheme administration costs and PPF levies, but they do have some control. We remain of the view that licensees should be incentivised to influence and manage these costs. We have decided to modify the approach set out in Initial Proposals and apply a £1m per annum threshold to the aggregate costs of pension scheme administration and PPF levies. If costs exceed the aggregate of the allowances by more than the threshold, the excess over the threshold will be funded. We will update the allowances after each triennial review. This will coincide with the PPF triennial review of their levies and, where efficient, any changes will be allowed. This should protect licensees from significant increases in the levies outside their control.

## Defined benefit schemes – allowed costs

5.10. As at Initial Proposals, we have set allowances based on the methodology and pension principles set out in our March Strategy Document, Financial Issues supplementary annex (Appendices 6 and 7) after taking into account respondents' views.

5.11. We have set specific allowances for funding the legacy defined benefit (DB) scheme established deficits, PPF levies and DB scheme administration costs which are summarised in Tables 5.2 – 5.5 below, showing the change from Initial Proposals. We no longer set specific allowances for ongoing pension service costs of their DB or defined contribution schemes; nor for the repair costs of the incremental deficit related to service of active members of the DB schemes after the cut-off date. We treat these costs as part of totex and they are within the totex incentive mechanism.

**Table 5.2: NGET TO Annual pension deficit funding and true up**

2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
TPCR4 true up	1.6	1.7	1.8	1.9	1.9	2.0	2.1	2.2
Established deficit recovery	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9
Pension Protection Fund Levies	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Pension Administration	1.0	0.8	0.8	1.0	0.8	0.8	1.0	0.8
<b>Total allowances (FP)</b>	32.1	31.9	32.0	32.3	32.2	32.3	32.6	32.5
Regulatory Fraction	98.7%	98.7%	98.7%	98.7%	98.7%	98.7%	98.7%	98.7%
Allowances at IP	31.7	31.5	31.5	31.7	31.5	31.5	31.7	31.5
<b>Increase from IP</b>	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.9

**Table 5.3: NGET SO Annual pension deficit funding and true up**

2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
TPCR4 true up	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.3
Established deficit recovery	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
Pension Protection Fund Levies	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Pension Administration	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.2
<b>Total allowances (FP)</b>	10.3	10.2	10.3	10.4	10.4	10.4	10.6	10.5
Regulatory Fraction	98.7%	98.7%	98.7%	98.7%	98.7%	98.7%	98.7%	98.7%
Allowances at IP	10.3	10.2	10.2	10.3	10.2	10.2	10.3	10.2
<b>Increase from IP</b>	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.4

**Table 5.4: NGGT TO Annual pension deficit funding and true up**

2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
TPCR4 true up	11.6	12.1	12.7	13.2	13.8	14.4	15.0	15.7
Established deficit recovery	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8
Escrow account costs	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Pension Protection Fund Levies	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Pension Administration	2.3	2.2	2.2	2.3	2.2	2.2	2.3	2.2
<b>Total allowances (FP)</b>	40.7	41.1	41.7	42.3	42.8	43.4	44.1	44.7
Allowances at IP	44.0	43.9	43.9	44.0	43.9	43.9	44.0	43.9
<b>Reduction from IP</b>	(3.3)	(2.8)	(2.2)	(1.7)	(1.1)	(0.5)	0.1	0.8

**Table 5.5: NGGT SO Annual pension deficit funding and true up**

2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
TPCR4 true up	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Established deficit recovery	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Pension Protection Fund Levies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pension Administration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total allowances (FP)</b>	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Allowances at IP	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>Reduction from IP</b>	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)

**Table 5.6: Regulatory Fraction**

(£m 09-10)	NGET TO	NGET SO	NGGT TO	NGGT SO	SHETL	SPTL
Forecast scheme established deficit	475.8	475.8	566.7	566.7	81.6	42.7
Regulatory fraction	98.7%	98.7%	62.8%	62.8%	7.1%	4.8%
Licensee's proportion	469.7	469.7	355.9	355.9	5.8	2.1

The forecast established deficit is that for the scheme to which the business is a sponsoring employer and before application of the cut-off date forecast regulatory fraction.

5.12. The movement in allowances arise from adjusting for actual 2011-12 costs and a revision of earlier year's cost for the true-ups and (for NGGT TO allowances) for the contingent asset escrow account costs, which following review we have concluded are efficient and benefit consumers. We have not accepted that those costs for the similar NGET escrow account have been demonstrated to have a cost benefit for consumers. We acknowledge that the contingent assets may reduce the likelihood of

a stranded surplus arising in future years. However, whilst it may benefit licensees we have not been convinced that this benefits consumers.

5.13. As set out in our 22 June 2010 Pensions paper<sup>29</sup>, we are committed to funding the efficient repair costs of the established deficits of network operators' DB pension schemes. For TOs and SOs, this is the deficit as at 31 March 2012 (the "cut-off date").

5.14. The valuations on which deficit funding has been set have been the subject of a review<sup>30</sup> of all network operators' pension costs undertaken for us by 'GAD'. That review has informed setting allowances for RIIO-T1 and the true up of TPCR4 costs, which commenced with the TPCR4 adapted roll-over year.

5.15. We have based the allowances, on the updated valuations as at 31 March 2011 as set out in the March Strategy Document. These valuations apply the same actuarial assumptions that were adopted in the previous completed full triennial valuation, updated only for changes in asset values and market conditions. We do this because: (i) later full valuations are not yet available or are, as yet, incomplete and will not have been cleared by the Pension Regulator; and (ii) we require the underlying actuarial assumptions to be those which have been subject to our periodic reasonableness review by our consultants.

5.16. We acknowledge that the accuracy of updated valuations may be significantly different from that shown by a full valuation, particularly in volatile markets. In addition, they do not reflect member movements, actual salary or pension increases and changes in key assumptions, e.g. longevity. We deal with these retrospectively by subsequently resetting and truing up allowances based on the latest full valuations at the reset points in RIIO-T1.

5.17. We spread the established deficits over our 15-year notional funding period and apply a funding rate of return derived from the range of benchmarked pre-retirement real discount rates as applied in network companies' valuations. The rate for RIIO-T1 is 2.6 percent up to the first reset. We will review and, if appropriate, reset this rate at each subsequent triennial review on a rolling basis.

5.18. Our pension principles<sup>31</sup> set out our approach to both innovative investment strategies, used to manage the scheme's liabilities and hedge risks, and contingent assets. Where these are used, we will examine each on its merits. We will review the benefits of using contingent assets in the round within our overall reasonableness review. We expect licensees to demonstrate the benefits that they anticipate will flow to consumers where such costs are incurred directly by the licensee.

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<sup>29</sup> [Price Control Treatment of Pension Costs final](#)

<sup>30</sup> [Review of energy network operators' pension costs - report by the Government Actuary's Department](#)

<sup>31</sup> Pension principle 1 paragraphs 1.15 to 1.16

### **Deficit values, de-risking strategies and current market conditions**

5.19. In the current volatile market conditions, companies are experiencing a significant increase in their updated deficits (used to set allowances) compared to recent years and their last full valuation. Current scheme valuations are materially affected by the value of and negative real returns currently experienced for gilts.

5.20. Companies consider that de-risking should protect the funding position of their scheme, in that it limits the downside. However, it may significantly reduce the upside from future out-performance.

5.21. Whilst a move to de-risking these mature closed schemes may be expected, we will keep under review any increase in the burden for consumers; in particular, on different generations of consumers because de-risking increases costs for current consumers, but if effective, should reduce costs for later generations. In our view, the spreading of deficit funding over 15 years may mitigate this for consumers. Increases in deficit recovery costs are expected to arise from a combination of the speed and timing of de-risking, use of conservative valuation and asset return assumptions (particularly of gilts which are currently showing negative real returns) and increasing longevity. We expect companies to demonstrate how their de-risking strategies are protecting future scheme funding and the benefits that they expect to flow to consumers.

### **Determining the established deficit**

5.22. The valuations used to inform the setting of allowances pre-date the cut-off date for determining the established deficits. We propose to finalise the actual amounts during the RIIO-T1 price control period and true up at the first reset point as noted above.

5.23. We will adjust revenues at the first reset point for any difference between the deficit in the March 2011 valuations used to set allowances and that shown by either a full triennial valuation at 31 March 2012, or updated valuations at that date (for those with an earlier full valuation date). True-up adjustments in revenue will be NPV neutral. We will spread the true up of this difference over the remaining years of the 15-year notional funding period.

### **Resetting allowances during the RIIO price control period**

5.24. We propose to undertake a reasonableness review in mid-2014, true up and reset revenues from 1 April 2015 and every three years thereafter. That review will also determine the TO's and SO's established deficits based on updated or full valuations at 31 March 2012. We will not true up at the end of the each price control period unless this coincides with the rolling three year true up and reset cycle. We will conduct all future reasonableness reviews across all energy network operators, as with the recently completed review. This is summarised in table 5.7 below.

**Table 5.7: Expected timetable for resetting pension allowances**

Actuarial scheme valuation as at:	Expected receipt by Ofgem	Reasonableness of costs review completed	Revised values directed for Annual Iteration Process	Values revised for Formula Year
31 March 2013	June 2014	31 October 2014	30 November 2014	2015-16 onwards
31 March 2016	June 2017	31 October 2017	30 November 2017	2018-19 onwards
31 March 2019	June 2020	31 October 2020	n/a	n/a

5.25. The methodology for resetting allowances and true-ups was set out in the March Strategy Document; and, as updated, is incorporated in the ET1 and GT1 Financial Handbooks, which will be published alongside the statutory licence consultation.

5.26. We have developed with licensees, a methodology for the attribution of DB pension scheme deficits, to the established and incremental deficits, and those elements that are regulated and not regulated. This applies to all energy network operators and has been published for consultation today.<sup>32</sup> Reporting using this methodology for TOs and SOs commences from 1 April 2012. The methodology adopts a reasonable and pragmatic approach to the attribution of pension scheme assets and liabilities. The principal requirements being both that it is actuarially sound and economic, and simple and transparent to use in practice; and that it must provide an appropriate audit trail. We will keep under review with licensees the functioning of the methodology once the first returns for each sector have been submitted. This follows our usual practice with annual reporting returns. It should ensure that the attributions remain equitable as between regulated activities, non-regulated activities and businesses sponsoring a multi-employer scheme.

### Regulatory fraction

5.27. The regulatory fraction represents the element of a licensee’s established pension deficit that relates solely to the activity of the transmission business (ie the licensed business) and which, ultimately, under our pension principles, is funded by customers.

5.28. Our review of the regulatory fractions for NGGT has been concluded and we will make any adjustment to revenue for those at the first reset of allowances in RIIO-T1. The TO regulatory fraction at the first reset will decrease from 56.8 percent to 52.7 percent.

5.29. We have reviewed the future treatment of the NGUKPS legacy deficit (relating to the NTS<sup>33</sup>). Our conclusion is that we can and, therefore, will continue with the existing recharge arrangements in RIIO-T1.<sup>34</sup>

<sup>32</sup> [Pension deficit allocation methodology open letter consultation](#)

<sup>33</sup> This includes the liability for the pensioners and deferred pensioners of the GDN businesses sold by NGG in 2005. GDNs only took on the active members and set up new schemes for these members.

<sup>34</sup> See RIIO-GD1 Finance and Uncertainty Supporting document

### Treatment of PPF levies and scheme administration costs

5.30. The PPF have introduced a new framework for setting their levies in 2012-13. All DB schemes were required to submit data to the PPF under this framework on 31 March 2012. The PPF will review the levies and may amend them every three years. This new basis may increase, or decrease, the quantum of each scheme's annual levy as the PPF adopts a risk based approach applied to each scheme's assets and liabilities and the likelihood of failure.

5.31. As noted above, we have revised our approach and set a separate allowance for both PPF levies and pension scheme administration costs. We will reset these allowances every three years, subject to a review for efficiency. Where the combined outturn costs in any year exceed the aggregate of the combined allowances and the £1m threshold, we will true-up on an NPV neutral basis for the excess. If the amount is lower, there will be no true up adjustment for any year. The true up operates as shown in the illustrative example in Table 5.8.

**Table 5.8: Example of true up calculation**

	Year 1	Year 2	Year 3
	£m	£m	£m
Allowance for scheme administration costs	0.2	0.2	0.2
Allowance for PPF levy	0.6	0.6	0.6
Combined allowances for scheme admin costs and PPF levy	0.8	0.8	0.8
Threshold	1.0	1.0	1.0
Total for comparison to actual costs	1.8	1.8	1.8
Actual costs for scheme admin costs and PPF levy	1.0	2.2	2.1
Actual greater/(lower) than allowance plus threshold	(0.8)	0.4	0.3
<b>Adjustment to revenues</b>	nil	<b>0.4</b>	<b>0.3</b>

### True up adjustments for TPCR4 and the TPCR4 rollover year

5.32. The true up adjustments as shown in table 5.2 – 5.5 are treated as fast money. The true up is for defined contribution pension service costs, DB deficit recovery payments and PPF levies or scheme administration costs where the latter were included in the DB schemes allowed contribution rates.

5.33. We have based these adjustments on actual expenditure to 31 March 2012 and a forecast for 2012-13. In the event that actual costs in 2012-13 turn out to be different to the forecast, we will alter revenue at the next reset of pension allowances in RIIO-T1.

5.34. We spread these adjustments equally over the 8 years of RIIO-T1. The adjustments are NPV neutral applying the vanilla WACC applicable for TPCR4 to 31 March 2013 and then applying the vanilla WACC for RIIO-T1 for revenues spread over RIIO-T1.

## 6. Taxation

### Chapter Summary

This section sets out the key factors and methodology applied to the financial modelling of taxation for Final Proposals and our decisions following our consultation on Initial Proposals.

### Summary of Final Proposals

6.1. In our Final Proposals we have largely followed the methodology set out in Initial Proposals (including the introduction of a tax trigger mechanism) and updated the allowances to reflect the March 2012 actual reported costs. We have in addition updated for the change in corporation tax rates set out in the Autumn Statement. Table 6.1 below shows the effect of these changes on allowances.

**Table 6.1: Total tax allowances RIIO-T1**

2009-10 £m	NGET TO	NGET SO	NGGT TO	NGGT SO
Total RIIO allowance	565.8	7.0	116.1	2.5
Increase over IP	(63.1)	3.8	17.8	(4.9)

6.2. The remainder of this chapter provides a summary of Initial Proposals and respondents views and provides an explanation of our decisions as well as providing a summary of the taxation allowances.

### Summary of Initial Proposals

6.3. In Initial Proposals, we modelled and set out tax allowances based on the methodology our March Strategy Document, Financial Issues supplementary annex in Appendix 4, as amended. In Initial Proposals we stated that we would apply company specific attribution of expenditure to capital allowance pools, review and update the tax clawback, opening capital allowance pool balances and regulatory tax losses. This would take account of the actual expenditure in 2011-12 once the annual cost reporting returns had been received and reviewed. We also proposed the introduction of the tax trigger mechanism.

### Summary of respondents' views

6.4. In Initial Proposals, we asked three questions covering our amended treatment for modelling the cash flows of corporation tax payments, the timing of the revenue adjustment for tax clawback, and our treatment of expenditure for tax modelling.

6.5. Respondents did not disagree with our amended treatment for modelling the cash flows of corporation tax payments.

6.6. Respondents agreed with our proposal to adjust the timing of the revenue adjustment for tax clawback, so that they are made annually in line with the Annual Iteration Process, and not every three years. NG suggested that the mechanism should be modified so that it is triggered only if the notional gearing exceeds the actual gearing by a certain tolerance (five percent for example).

6.7. There were no specific responses to the question on our treatment of expenditure for tax modelling.

## Our Final Proposals

6.8. We have carefully considered the responses and our Final Proposals are set out below:

- No change is required to modelling of cash flows of corporation tax payments.
- We will clawback the tax benefit of excess gearing annually. We will not introduce a threshold as our approach to financing allows for equity issuance costs to be funded as gearing rises and therefore such a threshold is unnecessary.
- We will retain the company specific approach to attributing expenditure to capital allowance pools. We have reviewed and refined the modelling of connection contributions under EU-IFRS and the new UK GAAP accounting frameworks.

6.9. We have modelled tax and set allowances based on the methodology in our March Strategy Document with limited exceptions and revisions and these are explained below. This methodology is incorporated in the ET1 and GT1 Financial Handbooks for the Annual Iteration Process. Table 6.2 below sets out the allowances for tax for each licensee and the remainder of this chapter sets out our approach to modelling the tax allowance.

**Table 6.2: Tax allowance summary table**

2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
NGET TO FP	87.0	82.9	77.0	73.5	59.6	71.8	58.0	56.1
NGET SO FP	4.1	0.5	0.0	0.0	0.7	0.0	0.9	0.9
NGGT TO FP	11.7	13.6	15.5	19.6	24.8	13.1	10.4	7.5
NGGT SO FP	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009-10 Prices £m	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
NGET TO Change IP to FP	(3.0)	(12.6)	(14.8)	(12.6)	(15.8)	2.0	(3.0)	(3.3)
NGET SO Change IP to FP	0.8	0.5	-	-	0.7	-	0.9	0.9
NGGT TO Change IP to FP	5.9	3.5	0.8	1.1	0.6	2.8	2.5	0.6
NGGT SO Change IP to FP	(1.8)	(0.1)	-	(0.0)	(1.1)	(0.6)	(0.6)	(0.7)

6.10. Each regulated transmission business is modelled for price control purposes as a standalone entity. All expenditure is treated as if it is incurred directly by the transmission businesses.

## Applicable tax regime

6.11. We apply the UK standard tax rules that have been proposed at the time of the Final Proposals which includes the reduction in corporation tax (CT) rates for 2013-14 to 23 percent and to 21 percent from 1 April 2014. We consider that the impact of the changes to Annual Investment Allowance<sup>35</sup> announced in the Autumn Statement is de minimis and have omitted this in our modelling. In all other respects, these proposals reflect the current legislative position.

6.12. We model tax under current UK GAAP in 2013-14 and 2014-15 and based on the ASB's revised draft proposals for the future financial reporting in the UK<sup>36</sup> for the remainder of the period. Broadly, this means that companies and groups may continue to report under UK GAAP, which is based on IFRS for SMEs amended for use in the UK. It is a more simplified, coherent framework with reduced reporting requirements than full EU-IFRS. The tax treatment of opex and capex follow the existing UK GAAP treatment for 2013-15 and from 1 April 2015, the proposed accounting frameworks. We will treat any deferral of the proposed new UK GAAP accounting framework that affects the tax assumptions as a tax trigger event. We do not expect NGET or NGGT, as individual entities, to adopt EU-IFRS in future and where this has an adverse effect on their tax liabilities this will not be a tax trigger event; and, given the option under Statutory Instrument 2012 No. 2301, licensees can and may now revert to UK GAAP reporting from EU-IFRS in their individual accounts.

6.13. We have reviewed the proposed new UK GAAP framework for guidance on the treatment of connections and related contributions in financial statements and compared it with full EU-IFRS. The latter would require a material change in the financial reporting and consequential tax treatment of the contributions. The former has no guidance on this specific issue. We propose to retain the treatment under existing UK GAAP in modelling tax allowances which we will offset against costs in considering the amount allocable to capital allowance pools. Any changes to UK GAAP affecting the tax treatment will be a tax trigger event, but changes in the tax burden associated with adoption of full EU-IFRS will not be a tax trigger event as adoption is within NGET or NGGT's control. However, it should be noted that in Special Condition C10 paragraph 4(b) of the gas transporter licence and D10 paragraph 3 of the electricity transmission licence contributions (ie connection charge receipts) are defined as excluded services. As such, these should not be funded through base revenues so any change to the accounting treatment will be for companies to bear. We will continue to review this treatment and changes to ASB's proposals, which are due in early 2013, for any tax trigger impact.

6.14. We assume that all capital allowances are claimed at rates in line with current legislation and, except for deferred revenue, are claimed in the year the expenditure is incurred. Deferred revenue is allowed as tax deductible, applying the licensees accounting asset lives and timing, eg whether depreciated in year of expenditure or following year.

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<sup>35</sup> An increase to first year capital allowances in certain circumstances.

<sup>36</sup> Draft FRS 100 'Application of Financial Reporting Requirements' and FRS 102 'The Financial Reporting Standard applicable in the UK and Republic of Ireland' published January 2012.

## Regulatory tax losses

6.15. Where tax losses arise, we do not give affected network companies negative tax allowances. Instead we carry forward regulatory tax losses on a nominal price base until such time that the licensee has sufficient regulatory taxable profits to utilise them.

6.16. In computing regulatory tax losses we ignore and reverse any surrender by a network company of losses to a group company (ie both group and consortium relief), so that customers benefit from the entity's losses as they reverse.

6.17. The transmission businesses do not have any regulatory tax losses in TPCR4 or the rollover year to carry forward into RIIO-T1.

## Modelling of capital allowances

6.18. We use three main capital allowance pools, General, Special Rate and Deferred Revenue and the relevant rates of annual writing down allowance. These reflect the relevant legislation currently in place. We also allow for expenditure that is identified as non-qualifying for capital allowances, principally easements, and other interests in land and buildings following the abolition of the Industrial Buildings Allowance regime.

6.19. All other expenditure not qualifying for capital allowances, nor treated as non-qualifying, will attract a 100 percent deduction.

6.20. The annual allowance for deferred revenue follows the statutory depreciation rates and is 3 percent straight-line, based on the rate assessed by NGET. NGGT does not have this category of allowances.

6.21. We have applied a company specific attribution of expenditure to capital allowance pools and revenue, for modelling tax allowances. This is in accordance with our proposals in our March Strategy Document and at Initial Proposals. For Final Proposals these remain as published in Initial Proposals. We will apply these attributions, fixed for the whole of RIIO-T1. We recognise that these will not necessarily follow the nuances of individual businesses actual expenditure or allocations. They are the broad expectation of how the various categories of expenditure may be attributed and follow historical trends.

6.22. We have grouped expenditure into five categories to match those used in the model for attribution to capital allowance pools:

- Load related (LRE) capex (net of contributions) - connections of new assets
- Non-load related capex (NLRE) - primarily replacement of existing assets
- Non-load related capex (NLRE) - primarily asset health

- Non-operational capex – being other plant and equipment, land and buildings
- Network operating expenditure – 100 percent revenue deduction.

These percentage attributions remain fixed throughout RIIO-T1, as follows:

**Table 6.3: NGET attribution of expenditure to capital allowance pools**

NGET FP Position		General Pool	Special Rate	Deferred Revenue	Revenue	Non Qualifying	Total
TO	Total LRE	10.3%	82.0%	1.9%	0.1%	5.7%	100.0%
	NLRE Capex - Asset Replacement	10.7%	47.9%	38.8%	0.0%	2.6%	100.0%
	NLRE Capex - Other	10.7%	47.9%	38.8%	0.0%	2.6%	100.0%
	Non-operational capex	74.7%	5.5%	18.0%	1.8%	0.0%	100.0%
SO	Overall	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%

**Table 6.4: NGGT attribution of expenditure to capital allowance pools**

NGGT FP Position		General Pool	Special Rate	Deferred Revenue	Revenue	Non Qualifying	Total
TO	Total LRE	3.2%	95.1%	0.0%	0.0%	1.7%	100.0%
	NLRE Capex - Asset Replacement	7.2%	91.3%	0.0%	0.0%	1.5%	100.0%
	NLRE Capex - Other	40.1%	55.1%	0.0%	1.7%	3.1%	100.0%
	Non-operational capex	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
SO	Overall	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%

6.23. Contributions (ie connection charge receipts), as noted above, should be treated as excluded services in accordance with the relevant special licence conditions. As such, these are not funded through base demand revenues and to eliminate them for tax purposes, we offset these against connection costs. This matches the treatment of totex for attributing net costs to RAV.

6.24. All pension costs will be treated as 100 percent deductible in the year of expenditure. We will ignore pension spreading under the irregular payment rules in setting allowances, as we consider this a minor timing issue. We will apply it only when we true up the established pension deficit funding at each reset in RIIO-T1 and will spread any tax deductions, where relevant.

6.25. We will treat expenditure for NGET’s Strategic Wider Works for attribution to capital allowance pools as 99 percent load related, with the one percent balance as opex.

### Capital allowance pool balances

6.26. We have used the TO’s and SO’s forecast closing capital allowance pool balances for actual 2011-12 expenditure and capital allowances, as forecast rolled forward to 31 March 2013. We deduct from these pools allowances that relate to expenditure remunerated under separate incentive schemes, as these are funded on a pre-tax basis. For NGET, we have removed the values relating to the TIRG projects still under that incentive scheme. For NGGT, we have removed the expenditure relating to capex remunerated under TPCR3 and TPCR4 revenue drivers, with the exception of Milford Haven which has already been included in the RAV.

6.27. We will reset closing capital allowance pool balances at the end of each price control in line with the companies CT600 corporation tax returns and supporting computations.

### **Modelling cash flows of corporation tax (CT) payments**

6.28. NGET and NGGT are regarded under current tax legislation as large companies, which are required to pay their tax liabilities for any given year in instalments commencing in the current year and the balance in the following year. We will model tax liabilities and resultant cash flows as being incurred in the year they arise, as agreed by TOs and SOs in the consultation on Initial Proposals. We do this, as modelling the spreading payments over different years is an unnecessary complication when revising liabilities retrospectively. We do not take into account any additional payments (or receipts) from settling earlier years' tax liabilities in RIIO-T1.

### **Tax treatment of incentives**

6.29. Incentive revenues which do not form part of base revenues and penalties are on a pre-tax basis, ie it is not intended that they give rise to further revenues in respect of the tax charge in the revenues, unless otherwise specified for any specific incentive. Incentives that are included within totex, which in general relate to investment, are included within the financial model, which calculates appropriate tax allowances.

### **Treatment of excluded services**

6.30. We do not give allowance or relief for tax in respect of excluded services costs and revenues, except sole use connections. In setting allowances, we deduct costs attributable to these services from the cost base of providing use of system services.

### **Tax clawback for excess gearing**

6.31. Where licensees choose to borrow in excess of our assumed gearing levels we apply an adjustment to claw back the tax benefit they obtain from this higher level of gearing.

6.32. The clawback operates when in any year: (i) actual gearing exceeds notional gearing and (ii) interest costs exceed those modelled at the relevant price control. In the case where both of these conditions are satisfied, we will clawback the tax benefit which results from the difference between actual and modelled interest costs in that year. The specific methodology is set out in the ET1 and GT1 Financial Handbooks<sup>37</sup> and is based on our open letter of 31 July 2009.<sup>38</sup> It is now part of the

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<sup>37</sup> To be published along with the licence consultations.

<sup>38</sup> [Tax gearing clawback letter, July 2009](#)

annual iteration process. Where notional interest varies from that initially modelled at Final Proposals, due to changes to the cost of debt index, we will consider this when undertaking these trigger tests.

6.33. We have calculated the adjustments arising from the TPCR4 control which ended on 31 March 2012 and the TPCR4 adapted rollover year, using actual data together with that forecast in network companies business plans. These are set out in chapter dealing with legacy adjustments in the ET1 and GT1 Financial Handbooks. If the actual amounts differ from the forecast amounts, we reserve the right to make a further adjustment. We have updated for 2011-12 actual data at Final Proposals. Where a business has a regulatory tax loss the clawback adjustment and pension true up costs are added to the tax loss carried forward. Neither NGET or NGGT (both TO or SO elements) have triggered a clawback up to 31 March 2012.

6.34. We have agreed with licensees, following consultation that, consistent with the Annual Iteration Process in RIIO price controls, we will update and reset the clawback every year.

## Tax trigger

6.35. We have introduced a tax trigger mechanism as set out in our March Strategy Document. The detailed methodology is set out in the ET1 and GT1 Financial Handbooks.<sup>39</sup> We have calibrated the deadband as the greater of a one percent change in the rate of mainstream CT and a change of 0.33 percent in base revenues. We will not revise these amounts through the operation of the Annual Iteration Process; as such, they are fixed throughout the price control for each licensee. The amounts for each TO and SO are based on the Best View and are as follows:

**Table 6.5: Tax trigger deadband**

£m 2009-10 prices	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
NGET TO	4.5	4.9	5.2	5.5	5.6	5.9	5.8	5.7
NGGT TO	1.8	1.8	1.8	2.0	2.3	2.3	2.4	2.5
NGET SO	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
NGGT SO	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2

## Business rates

6.36. We treat business rates<sup>40</sup> as non-controllable operating costs (together with our licence fee). The Valuation Office Agency in England and Wales and the Scottish Assessors Association in Scotland completed a revaluation of the assets of the transmission and gas distribution networks in 2010 for the purposes of determining rates until 2017, following the government's announcement that the next revaluation had been deferred to 2017. During RIIO-T1, only one further revaluation in 2017 is now due. Each network company is able to influence the valuation that is given and hence the business rates that it will incur in the future.

<sup>39</sup> To be published along with the licence consultations.

<sup>40</sup> The largest element of business rates is network rates, which we treat as a non-controllable cost. Other elements of business rates are included in totex

6.37. For the purposes of setting the base price control revenue allowances, business rates are those from the 2010 valuations. For the period from 1 April 2013 up to 31 March 2017, we are retaining the previous TPCR4 mechanism that enabled companies to recover the difference between the actual and assumed costs. After that time, we will switch-off this mechanism pending the outcome of the next revaluation exercise. Where network companies can demonstrate that they have taken reasonable actions to minimise the rating valuations, we will then reactivate the cost adjustment mechanism for the remainder of the period, (ie from 1 April 2017 up to 31 March 2021). We will deal with any subsequent valuations on a similar basis.

6.38. We consider that this approach provides incentives on transmission companies to minimise costs, whilst recognising that once the rating valuations are concluded the costs that they incur will be non-controllable.

## 7. Allowed revenues and the Annual Iteration Process for the Price Control Financial Model

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### Chapter Summary

This chapter summarises the approach we have used to apply price control policy decisions to determine the opening base revenue levels proposed in this document. It describes the way we have modelled base revenue allowances and the other components of allowed revenue, to ensure the financeability of well managed businesses and to support a stable and predictable charging regime.

The more sophisticated modelling approach we are using for the RIIO price controls includes an Annual Iteration Process for the Price Control Financial Model, making base revenue levels responsive to a range of factors set out in the licence conditions we are proposing. In this chapter we describe the way the Annual Iteration Process will work and the instruments that underpin it.

### Allowed revenues

7.1. The allowed revenues for the TO elements of NGET and NGGT under our Final Proposals are summarised in tables 7.1 and 7.2 and are set out in detail in appendix 1. These are presented as a result of our Best View of company plans. Further detail underpinning these values can be found in the financial model<sup>41</sup> which has also been published today. Actual allowed revenues could turn out to be higher or lower depending on the utilisation made of the uncertainty mechanisms. It should be noted that these allowed revenues do not include the Network Innovation Allowance or any view on the level of revenue that may be allowed under the various RIIO-T1 incentive mechanisms.

7.2. The expected change in allowed revenues by TO for 2013-2014 are based on the rollover year forecast allowed revenues. The values exclude revenues from excluded services but these are shown in Appendix 1.

7.3. We also include in Appendix 1 the Base View for each company. Whilst we consider overall financeability on the Best View (which represents the best estimate of base funding plus allowances that the uncertainty mechanisms will generate) the opening licence values will reflect the Base View position. As uncertainty mechanisms are triggered the allowances will alter (see Annual Iteration Process for the Price Control Financial Model below).

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<sup>41</sup> [RIIO-ET1: Final Proposals Financial Model](#)  
[RIIO-GT1: Final Proposals Financial Model](#)

**Table 7.1: NGET allowed revenues (Best View)**

NGET £m Best View	2012-13 per Rollover	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Allowed revenues (nominal)	1,506	1,600	1,801	1,959	2,114	2,190	2,385	2,403	2,452
Allowed revenues (2009-10 prices)	1,332	1,376	1,507	1,595	1,674	1,687	1,787	1,752	1,738
Yr on Yr Change (2009-10)		3.3%	9.5%	5.8%	5.0%	0.8%	5.9%	(2.0%)	(0.8%)
Cumulative Change (2009-10)		3.3%	13.2%	19.7%	25.7%	26.7%	34.2%	31.5%	30.5%

**Table 7.2: NGGT allowed revenues (Best View)**

NGGT £m Best View	2012-13 per Rollover	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Allowed revenues (nominal)	662	627	651	687	765	923	931	992	1,057
Allowed revenues (2009-10 prices)	586	539	545	559	606	711	698	723	750
Yr on Yr Change (2009-10)		(7.9%)	1.0%	2.6%	8.3%	17.3%	(1.8%)	3.6%	3.7%
Cumulative Change (2009-10)		(7.9%)	(6.9%)	(4.5%)	3.4%	21.3%	19.1%	23.4%	28.0%

## Financial modelling

### Initial Proposals

7.4. In Initial Proposals we explained that we have developed a new financial model for the RIIO price controls. This model, named the Price Control Financial Model ('PCFM'), will form part of the licence as one of the Financial Instruments.

7.5. For Initial Proposals this model was in the form of an integrated model covering both RIIO-GD1 and T1. We asked three questions in respect of the financial model. These questions sought views on the calculations and layout of the financial model, whether the model should also capture, for presentational purposes, the revenues from all incentives schemes which sit outside base revenues and how we should treat the remaining expenditure on TIRG projects.

### Summary of consultation responses

#### *Calculations and layout of the financial model*

7.6. Most respondents commented that the model was laid out well, was well structured and easy to navigate. The network operators were also supportive of the way we had engaged with them in its development. We also received a number of detailed specific queries from the TOs which were separate to the published responses including a suggestion that we should update RPI as part of the annual iteration process.

7.7. Respondents also made specific responses in two other areas. The first was regarding a concern of a lack of transparency in financeability and the second was on accounting errors in the financial statements.

7.8. In terms of the transparency of financeability, respondents commented that the credit and equity metrics, which had been included in previous versions of the

financial model were not included in the financial model published with Initial Proposals.

7.9. In terms of the accounting errors in financial statements, once respondent raised concerns around the use of the financial statements as published in the model (on which credit metric calculations are based) for financeability scenario testing. These concerns were raised as the financial statements included with the Initial Proposals model only calculated financial statement amounts based on the proposed allowances. These financial statements did not reflect the timing differences that may occur between incurring expenditure and the adjustment of base revenues.

#### *Other data for presentation purposes*

7.10. Respondents were broadly supportive for the inclusion of the other components of allowed revenue within the formal PCFM although they reiterated that it was not the primary purpose of the model. One respondent suggested that care would need to be taken if other revenues were included so as not to mislead stakeholders as to the purpose of the model. Concerns were raised to avoid duplication of revenue reporting and to ensure that there was clarity over what the data in the model represents.

#### *How the model should treat TIRG remaining projects*

We proposed amending the Annual Iteration Process to include an adjustment for TIRG and asked respondents whether they agreed with this approach. There were two respondents to this question who agreed with the suggested approach.

#### *Subsequent discussions with network operators*

7.11. The issues raised by the network operators were subsequently discussed at a finance working group meeting and with individual network operators on a bi-lateral basis.

### **Our Final Proposals**

7.12. Although the credit ratios were not included in the Initial Proposals model, the data to calculate the ratios was provided. However, to avoid any apparent lack of transparency we have included the credit ratios in the Final Proposals model. We have also tested financeability taking into account the timing differences associated with the uncertainty mechanisms and the totex incentive mechanism as detailed in Chapter 4.

7.13. For TIRG projects, following further investigation of alternative solutions we now propose not to include TIRG projects in the annual iteration process and will instead allow the existing forecast expenditures to remain until a true up is carried out as part of the RIIO-T2 price control.

7.14. Our view on updating RPI is that the previous model overstated the impact of changes in RPI on nominal interest charges as the level of charges for existing indebtedness are not affected by changes in annual RPI. Once the impact of RPI on nominal interest charges is corrected, changes in RPI do not have a material impact on the level of base revenues (in real prices) generated by the model. We have therefore decided not to update RPI on an annual basis as part of the Annual Iteration Process and to use a fixed RPI based on the long run RPI rate of 2.8 percent, which will ensure that modelled nominal interest rates are appropriate for a long price control period. We note also that a fixed rate was used for GDPCR1 and TPCR4.

7.15. Our Final Proposals financial modelling reflects our discussions with network operators and we have made amendments to the models to address the issues that have been raised where we believe this to be appropriate.

### **Overview of the financial model**

7.16. We flagged at Initial Proposals that we would be splitting the financial model used for Initial Proposals into sector specific models for Final Proposals. This split has been completed and the models for RIIO-T1 are the ET1 and GT1 Final Proposals models. The T1 Final Proposals models contain some additional analysis tabs, such as financial statements and credit metrics, which will not be included in the formal PCFM. The PCFM is the formal financial instrument which will be used on an ongoing basis as part of the Annual Iteration Process for calculating MOD (annual modifications to base revenues set at Final Proposals). This distinction between the two variants of the financial model is further explained in the respective sections below.

7.17. In overview, the common functionality of the two models calculates the elements of base revenues. The financial model performs calculations to compare allowances (starting with Final Proposal allowances and including any additional allowances directed during the RIIO period) with actual expenditure for elements of base revenues.

7.18. The main output of the model is recalculated base revenues. The components of base revenues and an overview of how they are calculated is as follows:

1. Fast pot expenditure – calculated based on inputs of totex expenditure, the totex incentive mechanism and totex capitalisation rates
2. Non-controllable opex – pass through costs based on inputs
3. RAV depreciation – calculated based on RAV additions (itself based on slow money expenditure and disposals and other RAV adjustments) and depreciation rates
4. Return – calculated based on RAV balances and the weighted average cost of capital
5. Equity issuance costs – based on the notional equity issuance calculations and the deemed rate of such costs

6. Additional income – derived from the application of the IQI mechanism
7. Core direct allowed revenue terms ('DARTS') – these are items which do not go through the totex incentive mechanism such as pension deficit repair costs, pension administration and PPF levy and revenues from previous price controls
8. Tax allowance – based on tax calculations which have applied assumptions of tax pool allocations, capital allowances, totex expenditure amounts, tax losses position and interest calculations (the interest calculations are based on a calculation of the notional net debt position and the cost of debt). Adjustments to the tax allowance can arise from tax trigger events or tax clawback amounts.

7.19. The T1 financial models perform the calculations for each TO for all eight years of the RIIO-T1 price control within the same model. Each TO has its own input sheet which includes TO specific and general assumptions. In addition for NGET and NGGT there is a section that calculates revenues and allowances for the SO businesses.

7.20. Since the PCFM variant of the model will be used for the Annual Iteration Process and is a formal financial instrument of the licence, the layout of the model has been developed with a look and feel that is intended to make it easier to follow calculations as they flow through the model. This approach has entailed that calculations are laid out in simpler steps rather than combining steps within a single formula. Headings and sub-headings have also been included within the model worksheets together with high level explanatory notes with the aim of explaining the calculations that are being performed.

7.21. The financial model has been developed with the active engagement of the TOs and networks from other sectors. This engagement has involved finance working group meetings; the issuing of various draft version of the model at different stages of development; and the collection, discussion and resolution of issues on an ongoing basis.

### **Price Control Financial Model ('PCFM')**

7.22. As mentioned above, the purpose of the PCFM is to calculate the value of MOD, which is the adjustment to base revenues as a result of the Annual Iteration Process. The additional analysis tabs included within the Final Proposals model are not needed for the calculation of MOD. The PCFM does not currently include the calculations of the other elements of allowed revenues and the governance of changes to the model are set out in a formal licence condition.

7.23. We do not believe therefore that it is appropriate for the supporting analysis included in the Final Proposals model to be included in the formal PCFM. This will also avoid the mis-interpretation of such information should it be included.

### **Annual Iteration Process for the Price Control Financial Model**

7.24. The RIIO-T1 price control will include an Annual Iteration Process for the PCFM used to set the licensee's opening base revenues. This will allow base revenues to be

updated in light of prevailing financial conditions, operational developments, and the performance and output levels achieved by the licensee, supporting the objectives of the RIIO price control approach. The Annual Iteration Process reduces the need to log-up financial adjustments during the price control period and simplifies implementation of uncertainty mechanisms.

7.25. Base revenue is the largest component of the licensee's overall allowed revenue (which also includes other terms dealing with, for example, specialised incentives and cost pass-through items). Under the Annual Iteration Process, the licensee's base revenues will be re-modelled by applying revisions to a series of PCFM Variable Values contained in a table on the inputs sheet of the PCFM. PCFM Variable Values have descriptive names and designations. For example, PCFM Variable Values relating to the licensee's allowed percentage cost of corporate debt are designated as 'CDE' values.

7.26. Revisions to PCFM Variable Values are determined under the provisions of relevant licence special conditions and the GT1 and ET1 Financial Methodologies ('the methodologies') that are contained in the GT1 and ET1 Price Control Financial Handbooks ('the Handbook'). The Annual Iteration Process will calculate the incremental effect of base revenue recalculations as a value for the term  $MOD_t$ , directed by the Authority for use in the formula for the licensee's base revenue.<sup>42</sup> This is illustrated in the simplified formula below:

$$\text{Base Revenue for year } t = \text{opening base revenue for year } t + \text{MOD for year } t.$$

7.27. The value for  $MOD_t$  calculated under an Annual Iteration Process may be positive or negative. For Formula/Relevant Year<sup>43</sup> 2013-14, the value of MOD is stipulated to be zero.

7.28. Once directed, the value of MOD for a given Formula Year is not changed; it becomes a matter of record alongside the licensee's opening base revenue ('PU') value for that year. This is the case, even though special conditions and methodologies may provide for PCFM Variable Values to be retrospectively re-revised. The incremental effects of revising PCFM Variable Values for Formula Years earlier than Formula Year  $t$  are always brought forward to the extant calculation of  $MOD_t$ .

7.29. The PCFM, special conditions and methodologies will be available on our website, meaning that the licensee and other stakeholders will be able to use their forecasts for PCFM Variable Value revisions to estimate base revenue positions and to carry out sensitivity analysis in advance of each Annual Iteration Process. Once the Authority has given notice of the revised PCFM Variable Values it proposes to

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<sup>42</sup> For National Grid Electricity Transmission plc and National Grid Gas plc (NTS licensee), the Annual Iteration Process will also calculate a value for SOMOD<sub>t</sub> in respect of the System Operator parts of their respective price control arrangements. Information in this section is relevant to the term SOMOD as well as MOD.

<sup>43</sup> From this point on in this chapter, for brevity, we refer to Formula Year only.

direct for use in each Annual Iteration Process, stakeholders will be able to calculate the implied value for MOD. Under the modification protocols for the PCFM the licensee will have received notice of any changes to the functionality of the PCFM. In addition, the Authority will maintain a reference copy of the PCFM on our website that reflects completed modifications.

7.30. The steps constituting the Annual Iteration Process are set out in Special Condition 5B of NGETs Licence and Special Condition 4B of NGGTs Licence.

7.31. Our consultations on the drafting of licence conditions for the RIIO-T1 price control included the special conditions with relevance to the Annual Iteration Process, together with the Handbooks and constituent methodologies. The responses we received are reflected in our finalised drafting, and some of the key points are noted below.

#### *Temporal conventions used*

7.32. As noted in the simplified formula above, the term  $MOD_t$  adjusts the opening base revenue figure for Formula Year  $t$  and, in the context of the Annual Iteration Process, references to Formula Years are made, relative to that usage. For example, in a context where  $MOD_t$  applied in the formula for base revenue in 2015-16, a reference in the same context to Formula Year  $t-1$  would mean 2014-15 and so on.

7.33. A reference to, for example, the CDE value for Formula Year 2014-15 means the allowed percentage cost of corporate debt value in the 2014-15 column of the PCFM Variable Values Table of the PCFM.

#### *Timetable for the Annual Iteration Process*

7.34. The timetable for the Annual Iteration Process is set out in the Financial Handbooks and is reproduced in Table 7.3.

**Table 7.3: Timetable for the Annual Iteration Process**

<b>Annual Iteration Process</b>					
<b>AIP month</b>	<b>PCFM Functional change cut-off</b>	<b>Regulatory reporting information cut-off</b>	<b>Proposed PCFM Variable Value revisions</b>	<b>AIP completed and MOD<sub>t</sub> directed</b>	<b>Relevant Year t in which MOD<sub>t</sub> applies</b>
Nov-13	30 Sep 13	31 Oct 13	15 Nov 13	30 Nov 13	<b>2014-15</b>
Nov-14	30 Sep 14	31 Oct 14	15 Nov 14	30 Nov 14	<b>2015-16</b>
Nov-15	30 Sep 15	31 Oct 15	15 Nov 15	30 Nov 15	<b>2016-17</b>
Nov-16	30 Sep 16	31 Oct 16	15 Nov 16	30 Nov 16	<b>2017-18</b>
Nov-17	30 Sep 17	31 Oct 17	15 Nov 17	30 Nov 17	<b>2018-19</b>
Nov-18	30 Sep 18	31 Oct 18	15 Nov 18	30 Nov 18	<b>2019-20</b>
Nov-19	30 Sep 19	31 Oct 19	15 Nov 19	30 Nov 19	<b>2020-21</b>

7.35. The timetable is driven by:

- the time needed by Ofgem to review and confirm figures in the licensee’s price control review information after submission by 31 July in each Formula Year;
- the work required under the special conditions and methodologies to determine revisions to PCFM Variable Values – noting that provisionally determined values for some are needed for the determination of others; and
- the need for the licensee to have sufficient notice of its base revenue figures for the purpose of setting indicative use of system charges.

7.36. The RIIO-T1 price control commences on 1 April 2013 and the first Annual Iteration Process will be completed by 30 November 2013. This will calculate the value of MOD for Formula Year 2014-15 for direction by 30 November 2013. Thereafter, in respect of each value for MOD<sub>t</sub>, the cycle will be:

- by 30 July – licensee submits price control review information for Formula Year t-2 (see temporal convention above)
- 30 September – cut off date for functional modifications to the PCFM
- 31 October – cut off date for price control review information changes – Ofgem will apprise the licensee in business correspondence of any issues that are outstanding and which may require restated or adjusted information to be used to re-revise a PCFM Variable Value for a subsequent Annual Iteration Process
- by 15 November – Ofgem notifies the licensee of the revised PCFM Variable Values that it expects the Authority will direct (14 day notice period provided for under each relevant special condition)

- by 30 November – GT1/ET1 PCFM to be used for the Annual Iteration Process published on the Ofgem website
- by 30 November – Authority gives direction setting out:
  - (i) revised values for PCFM Variable Values where applicable; and
  - (ii) the value for  $MOD_t$ .

7.37. The last Annual Iteration process under this regime will take place by 30 November 2019 in order to determine the value of the term  $MOD_t$  for Formula Year 2020-21, the last year of the RIIO-T1 price control period. The modelling of opening base revenues for the following price control period will take place as part of the development and proposals process for that price control.

7.38. The direction of revised PCFM Variable Values will also include a 'screenshot' of the PCFM Variable Values Table showing the revised values (in bold) and the PCFM Variable Values that are not being revised for that Annual Iteration Process. In the responses we received to our licence consultations, some concerns were raised in relation to the timeline for the Annual Iteration Process set out above.

*Notice period for proposed PCFM Variable Value revisions*

7.39. Some respondents considered that the 14 day notice periods (see paragraph 7.36) in relation to proposed PCFM Variable Value revisions was too short. It was suggested that a longer 28 day period should be specified, and that there should also be a notice period in relation to a proposed value for the term  $MOD_t$ .

7.40. Whilst acknowledging that a 28 day period is more usual in relation to notices given by the Authority, we consider that a 14 day period in this context is optimal because:

- it maximises the time available before the Annual Iteration Process for the finalisation and processing of information needed to determine PCFM Variable Value revisions; and
- it maximises the time available after confirmation of the value of  $MOD_t$  for the licensee and other stakeholders to address the impact on indicative use of system charges for Formula Year t.

7.41. The values set down in the 14 day notice should largely be confirmatory in nature, since the licensee will itself have generated and reported to Ofgem, most of the data used under the PCFM Variable Value determination methodologies. If there are any disputes, uncertainties, or outstanding issues in relation to this data, they will have been addressed in business correspondence between Ofgem and the licensee prior to the formal notice being given. The provisions for the licensee to raise objections or representations in relation to notified values act as safeguards for the licensee in case of errors or unaddressed differences of opinion. It is also relevant to note that:

- where appropriate, special conditions (in relation to allowed Totex expenditure adjustments) and the methodologies contain additional notice requirements and timing stipulations regarding adjustments;

- where possible, the notification of expected PCFM Variable Values and the direction of those values and  $MOD_t$  will take place ahead of the backstop dates; and
- the design of the PCFM means that PCFM Variable Values for a given Formula Year can be re-revised at a later time if necessary with consequential and time value of money adjustments taken into account.

7.42. Part B of Special condition 4B/5B (Annual Iteration Process for the GT1/ET1 Price Control Financial Model) specifies that the value of the term MOD for Formula Year  $t$  will be directed by the Authority no later than 30 November in each Formula Year  $t-1$ . Whilst there is no provision to provide earlier notice of the proposed value of  $MOD_t$ , it should be remembered that:

- the value of  $MOD_t$  is calculated automatically by the PCFM, once values on the PCFM Variable Values Table have been revised; and
- the PCFM forms part of Special Condition 4A/5A (Governance of GT1/ET1 Price Control Financial Instruments) and its calculation functionality can only be modified under the provisions of that condition.

7.43. In light of the factors outlined above, we have decided that a 14 day notice period for proposed PCFM Variable Value revisions, and formal direction of those values and the value of  $MOD_t$  by no later than 30 November in each Formula Year  $t-1$  remains appropriate.

#### *Default value for $MOD_t$*

7.44. Another concern raised in response to our licence drafting consultations related to the value that  $MOD_t$  should take in the unlikely event that the Authority failed to direct its value by 30 November in a Formula Year  $t-1$ .

7.45. We consider that the risk of this contingency is very small because the requirement for the Authority to direct the value of  $MOD_t$  by no later than 30 November in each Formula Year  $t-1$  is clearly set out in Special Condition 4A/5A. If, owing to some circumstance, the direction of a value for  $MOD_t$  were to be delayed beyond 30 November, the Authority would be required to direct a value as soon as reasonably practicable in order to complete the Annual Iteration Process under Part B of Special Condition 4A/5A. However, given that the value of  $MOD_t$  could represent a significant proportion of the licensee's base revenue, we acknowledge that a satisfactory default provision needs to be in place.

7.46. One respondent argued that, in the absence of a direction of the value of  $MOD_t$  by 30 November, the licensee should be able to give notice of its own calculation of  $MOD_t$  to the Authority, based on its assessment of the revised PCFM Variable values that ought to be used. Under the suggestion, if the Authority did not direct an alternative value for  $MOD_t$  by 21 December, the value notified by the licensee would stand.

7.47. Having carefully considered the responses on this issue, we consider that the default value for  $MOD_t$  (in the absence of a direction by the Authority by 30 November) should be an interim value for  $MOD_t$  calculated by the licensee using the PCFM, with the same set of PCFM Variable Values as was used for the last completed Annual Iteration Process. In reaching that view we have taken into account:

- the very limited risk that a value for  $MOD_t$  would not be directed by the Authority by 30 November in Formula Year t-1
- the short period of time during which a directed value for  $MOD_t$  would be unavailable even if the 30 November deadline were missed
- the need for the licensee and other stakeholders to have reasonable certainty regarding the level of the licensee's base revenues.

7.48. Each special condition that refers to the determination of PCFM Variable Values sets out the contingency position if, for any reason, a required revision is not directed by 30 November in a Formula Year t-1. Again, we consider the likelihood of such a situation arising to be small.

### **Governance of the PCFM and the Annual Iteration Process**

7.49. The Handbooks (together with the constituent methodologies) and the PCFMs are classified as Price Control Financial Instruments and form part of Special Condition 4A/5A. Up to date copies of the Price Control Financial Instruments will be maintained on the Ofgem website during the price control period.

7.50. In the event of any inconsistency between the licence, Handbook and PCFM, the following order of precedence applies:

- the main text of the relevant licence condition(s)
- the Handbook and constituent methodologies
- the PCFM.

7.51. The other special conditions associated with the Annual Iteration Process are grouped together in licence chapters covering:

- the range of financial adjustments (addressed in this supporting document), covering:
  - specified financial adjustments;
  - the Totex Incentive Mechanism;
  - legacy price control period adjustments; and
- adjustments to allowed Totex expenditure levels under a range of schemes.

## **Modification of the ET1 and GT1 Price Control Financial Instruments**

7.52. As part of Special Condition 4A/5A, the initial drafting of the Handbooks and PCFM will be subject to the statutory licence consultation process. In responses to our two licence drafting consultations, respondents expressed a strong view that the procedures relating to any subsequent modification should be robust.

7.53. The modification procedures for the Handbooks and PCFMs are set out in Special Condition 4A/5A and provide for:

- modification after a notice period where the impact of the change is not expected to be significant; and
- modification under the full licence modification process procedure where the impact of the change is expected to be significant.

7.54. In the event of a difference of opinion between the Authority and the licensee, the licensee can require the full modification process to be followed where it can demonstrate that it reasonably considers that the proposed modification would be likely to have a significant impact.

7.55. Chapter 1 of the Handbook establishes terms of reference for a Price Control Financial Model Working Group whose role will be:

- to review the ongoing effectiveness of the PCFM
- to provide views on the impact of any proposed modifications to the PCFM
- to provide such views or recommendations to the Authority with regard to the PCFM as it sees fit.

7.56. It should be noted that the 'state' of the PCFM can only be changed in two ways which are:

- the completion of an Annual Iteration Process
- modification under the provisions of Special Condition 4A/5A.

7.57. It is expected that modifications to the Price Control Financial Instruments that fall into the 'no significant impact expected' category would be logged up for consideration at a later date, to save administrative burden on the licensee and other stakeholders.

7.58. The Handbook/PCFM modification processes will not be used as the primary means to address substantive price control change proposals. Any such proposals would centre on a proposal to change the relevant special condition of the licence, accompanied if necessary by proposals to make consequential modifications to the Handbook/PCFM.

*The GT1/ET1 Price Control Financial Methodologies*

7.59. The methodologies (referred to in relevant special conditions) set out how revisions to PCFM Variable Values are to be determined and are contained in appropriately named chapters of the Handbook. They cover, as appropriate, the three broad approaches that are used to determine different PCFM Variable Values:

- (i) formula driven calculations
- (ii) application, review and determination processes
- (iii) step by step methodologies.

7.60. The approach used depends on the nature of the adjustment required, but in every case, the text of the relevant special condition/Handbook chapter covers:

- the name of the adjustment
- a description of the purpose of the adjustment
- the means by which revised PCFM Variable Values are to be determined.

7.61. Where appropriate, the methodologies refer to, and may summarise, policy decisions separately published by the Authority, for example pension cost principles that are relevant to all network price controls. The methodologies also refer to Regulatory Instructions and Guidance (RIGs) documents as required, and certain key values used in PCFM calculations (such as Totex capitalisation rates) which are set down in special conditions.

*Records for the PCFM and Annual Iteration Process*

7.62. The Authority will include the Handbooks and PCFMs in its statutory consultation on modifications to the licences for the RIIO-T1 price control and in its subsequent licence modification notices. At the outset of the RIIO-T1 price control period the Handbooks and PCFMs will be published on the Ofgem website and copies will be placed in Ofgem's secure registry. The PCFM Variable Values at that time will be the same as the equivalent values used in modelling the licensee's opening base revenues.

7.63. During the price control period copies of any notices relating to modifications of the Handbooks or PCFMs will be placed:

- on the public register file for the licensee; and
- in Ofgem's secure registry.

7.64. Updated reference copies of the Handbooks and PCFMs will be maintained on the Ofgem website and in Ofgem's secure registry, together with copies of superseded versions of the PCFM.

7.65. If a modification is taken forward under the full licence modification process documents relating to the consultation will be published on the Ofgem website.

7.66. On or before 30 November in each Formula Year t-1, the Authority will publish the finalised version of the PCFM to be used for the Annual Iteration Process that will calculate the value of the term MOD for Formula Year t. The Excel® file concerned will be named 'GT1/ET1 Price Control Financial Model-20XX-XX (where 20XX-XX represents Formula Year t-1).

7.67. The design of the PCFM incorporates a log of previously calculated values for the term MOD which, together with the archived PCFM copies, will ensure that a suitable record of base revenue calculations is maintained.

7.68. Copies of directions relating to PCFM Variable Values and the term MOD will also be placed on the Ofgem website, on the public register file for the licensee, and in Ofgem's secure registry.

### **Features of the PCFM and calculation of $MOD_t$**

7.69. The PCFM consists of an Excel® workbook with fixed and variable input tables for each licensee, and processing and output worksheets. It has been designed to be more user friendly than previous models used to calculate price control revenues. The PCFM Variable Values Table is arranged in rows (one for each type of PCFM Variable Value) and columns (one for each Formula Year in the price control period).

7.70. Drop down menus allow the user to select the Formula Year t for which  $MOD_t$  is to be calculated and the licensee for whom it is to be calculated. This facilitates the updating of the PCFM Variable Values Table for the licensee in accordance with directed values. A macro button then allows the calculation functions to be run so that the value of  $MOD_t$  can be obtained.

7.71. The PCFM works in a 2009-10 price base (except for some internal tax calculations which use nominal prices derived using embedded, fixed RPI forecast values). The functionality of the PCFM applies time values of money ('carrying value') adjustments across Formula Year calculations, but outputs a value for  $MOD_t$  in 2009-10 prices – indexation is applied under the formula for base revenue set down in the special conditions.

#### *Types of adjustment in base revenue recalculations*

7.72. PCFM Variable Value revisions are described in the methodologies, but fall into the following categories:

- revenue allowance adjustments
- actual expenditure level adjustments
- allowed expenditure level adjustments
- RAV balance addition adjustments
- the percentage cost of corporate debt.

7.73. Under the Annual Iteration Process, the licensee's base revenue figure for each Formula Year in the price control period is recalculated, using formulae consistent with the modelling of opening base revenues, but applying the adjustments outlined above.

*Legacy price control adjustments*

7.74. Two PCFM Variable Values deal with legacy price control adjustments, with revisions being determined under formulae contained in the relevant special conditions. Each component term in the formulae relates to a revenue allowance adjustment or RAV balance adjustment necessary to close out a scheme that formed part of the TPCR4/ TPCR4 Rollover price control arrangements. Most of the adjustments are needed to address outturn/performance values which had not been reported or finalised when the licensee's opening base revenues were calculated.

7.75. The methodologies for determining component term values for legacy price control adjustments are contained in the Handbook and confirm that legacy adjustments will be:

- consistent with the approach used to factor any forecast adjustments into the licensee's opening base revenues;
- in accordance with previously published decision documents pertaining to the scheme concerned; and
- ascertained using a calculation workbook (Excel® workbook).

7.76. Legacy price control adjustments are not subject to the Totex Incentive Mechanism.

*Status of RAV balance figures and projected values in the PCFM*

7.77. Under the Annual Iteration Process, updated RAV balance figures (in 2009-10 prices) will be generated within the PCFM for the purpose of calculating the value of  $MOD_t$  using revised PCFM Variable Values. We will, at any given time during the price control period, refer to these RAV balances as being the latest ascertained RAV values for the licensee, but they are subject to revision in respect of any review process applicable to the underlying data concerned.

7.78. At any given time during the price control period, PCFM Variable Values and calculated values contained in the PCFM for Formula Years later than Formula Year  $t$  have indicative status only and are subject to change, except for PCFM Variable Values which have been determined under the terms of a special condition on a non-provisional basis.

## Appendices

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## Appendix 1 – Allowed Revenues

**Table A1.1: NGET – Best View**

NGET TO	RIIO-T1										
	£m 2009-10 prices	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	Total	Average
<b>Totex</b>											
Slow Pot	1,439	1,655	1,689	1,667	1,485	1,500	1,252	1,038	11,724	1,465	
Fast Pot	254	292	298	294	262	265	221	183	2,069	259	
Totex	1,692	1,947	1,987	1,961	1,747	1,764	1,472	1,221	13,793	1,724	
<b>Regulatory Asset Value (RAV)</b>											
Opening RAV	8,691	9,566	10,615	11,648	12,692	13,432	14,157	14,615	-	-	
Transfers from 'shadow RAV'	-	-	-	82	-	-	-	-	82	-	
Restated opening RAV including transfers	8,691	9,566	10,615	11,731	12,692	13,432	14,157	14,615	-	-	
RAV additions (totex slow pot)	1,439	1,655	1,689	1,667	1,485	1,500	1,252	1,038	11,724	-	
Depreciation	(564)	(606)	(656)	(706)	(744)	(775)	(794)	(807)	(5,651)	-	
Closing RAV	9,566	10,615	11,648	12,692	13,432	14,157	14,615	14,846	-	-	
<b>Allowed Costs</b>											
Fast pot expenditure	254	292	298	294	262	265	221	183	2,069	259	
Non-controllable opex	94	88	88	88	88	88	88	88	708	88	
RAV depreciation	564	606	656	706	744	775	794	807	5,651	706	
Return	406	449	495	543	581	614	640	656	4,385	548	
Other (including Pensions, IQI & adjustments from previous price controls)	73	93	92	92	76	100	78	78	682	85	
Tax allowance	87	83	77	74	60	72	58	56	566	71	
<b>Price Control Revenue</b>											
Total costs	1,478	1,611	1,706	1,797	1,811	1,912	1,879	1,867	14,060	1,758	
Less excluded services	(116)	(117)	(124)	(122)	(124)	(125)	(127)	(129)	(984)	(123)	
<b>Base Revenue</b>	1,362	1,494	1,582	1,674	1,687	1,787	1,752	1,738	13,077	1,635	
TIRG	14	14	13	-	-	-	-	-	41	5	
<b>Regulatory Revenue</b>	1,377	1,508	1,595	1,674	1,687	1,787	1,752	1,738	13,118	1,640	
Excluded Services	116	117	124	122	124	125	127	129	984	123	
<b>Total revenue</b>	1,492	1,625	1,719	1,797	1,811	1,912	1,879	1,867	14,102	1,763	
Annual change to Base Revenue	11%	9%	6%	5%	1%	6%	-2%	-1%	-	-	

**Table A1.2: NGET – base view**

NGET TO	RIIO-T1										
	£m 2009-10 prices	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	Total	Average
<b>Totex</b>											
Slow Pot	1,345	1,466	1,403	1,335	1,145	1,101	974	828	9,598	1,200	
Fast Pot	237	259	248	236	202	194	172	146	1,694	212	
Totex	1,583	1,725	1,650	1,570	1,348	1,295	1,146	974	11,291	1,411	
<b>Regulatory Asset Value (RAV)</b>											
Opening RAV	8,691	9,473	10,337	11,095	11,827	12,260	12,626	12,857	-	-	
Transfers from 'shadow RAV'	-	-	-	82	-	-	-	-	82	-	
Restated opening RAV including transfers	8,691	9,473	10,337	11,178	11,827	12,260	12,626	12,857	-	-	
RAV additions (totex slow pot)	1,345	1,466	1,403	1,335	1,145	1,101	974	828	9,598	-	
Depreciation	(564)	(602)	(645)	(685)	(713)	(734)	(743)	(749)	(5,435)	-	
Closing RAV	9,473	10,337	11,095	11,827	12,260	12,626	12,857	12,936	-	-	
<b>Allowed Costs</b>											
Fast pot expenditure	237	259	248	236	202	194	172	146	1,694	212	
Non-controllable opex	94	88	88	88	88	88	88	88	708	88	
RAV depreciation	564	602	645	685	713	734	743	749	5,435	679	
Return	404	441	477	512	536	554	567	574	4,065	508	
Other (including Pensions, IQI & adjustments from previous price controls)	81	98	82	102	80	80	81	81	683	85	
Tax allowance	85	80	67	75	64	66	65	66	567	71	
<b>Price Control Revenue</b>											
Total costs	1,465	1,567	1,605	1,697	1,682	1,716	1,715	1,703	13,151	1,644	
Less excluded services	(123)	(123)	(130)	(126)	(127)	(129)	(130)	(132)	(10,199)	(127)	
<b>Base Revenue</b>	1,342	1,444	1,476	1,571	1,555	1,588	1,585	1,572	12,132	1,517	
TIRG	14	14	13	-	-	-	-	-	41	5	
<b>Regulatory Revenue</b>	1,357	1,458	1,489	1,571	1,555	1,588	1,585	1,572	12,174	1,522	
Excluded Services	123	123	130	126	127	129	130	132	1,019	127	
<b>Total revenue</b>	1,480	1,580	1,619	1,697	1,682	1,716	1,715	1,703	13,193	1,649	
Annual change to Base Revenue	10%	7%	2%	6%	-1%	2%	0%	-1%	-	-	

RIIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas

**Table A1.3: NGGT – Best View**

NGGT TO	RIIO-T1										
	£m 2009-10 prices	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	Total	Average
<b>Totex</b>											
Slow Pot		134	138	203	324	498	470	560	602	2,929	366
Fast Pot		68	69	78	111	143	112	114	115	810	101
Totex		202	207	281	434	641	583	674	716	3,739	467
<b>Regulatory Asset Value (RAV)</b>											
Opening RAV		4,014	4,248	4,248	4,311	4,505	5,317	5,683	6,082	-	-
Transfers from 'shadow RAV'		239	2	2	15	476	69	21	1	824	-
Restated opening RAV including transfers		4,253	4,250	4,250	4,326	4,981	5,386	5,704	6,082	-	-
RAV additions (totex slow pot)		134	138	203	323	498	470	560	602	2,928	-
Depreciation		(139)	(140)	(142)	(145)	(162)	(173)	(182)	(193)	(1,276)	-
Closing RAV		4,248	4,248	4,311	4,505	5,317	5,683	6,082	6,491	-	-
<b>Allowed Costs</b>											
Fast pot expenditure		68	69	78	111	143	112	114	115	810	101
Non-controllable opex		110	110	110	110	110	110	110	110	882	110
RAV depreciation		139	140	142	145	162	173	182	193	1,276	159
Return		182	182	183	189	220	237	252	269	1,715	214
Other (including Pensions, IQI & adjustments from previous price controls)		32	33	33	34	53	55	57	58	355	41
Tax allowance		12	14	16	20	25	13	10	8	116	15
<b>Price Control Revenue</b>											
Total costs		543	548	562	609	714	701	726	753	5,155	644
Less excluded services		(4)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(25)	-
<b>Base Revenue</b>		539	545	559	606	711	698	723	750	5,130	641
Excluded Services		4	3	3	3	3	3	3	3	25	-
<b>Total revenue</b>		543	548	562	609	714	701	726	753	5,155	644
Annual change to Base Revenue		-8%	1%	3%	8%	17%	-2%	4%	4%	-	-

**Table A1.4: NGGT – base view**

NGGT TO	RIIO-T1										
	£m 2009-10 prices	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	Total	Average
<b>Totex</b>											
Slow Pot		120	122	125	170	198	136	118	109	1,098	137
Fast Pot		67	67	69	94	109	75	65	60	607	76
Totex		187	190	195	264	307	211	183	169	1,705	213
<b>Regulatory Asset Value (RAV)</b>											
Opening RAV		4,014	4,235	4,219	4,205	4,247	4,765	4,809	4,786	-	-
Transfers from 'shadow RAV'		239	2	2	15	476	69	21	1	824	-
Restated opening RAV including transfers		4,253	4,237	4,221	4,220	4,723	4,834	4,830	4,786	-	-
RAV additions (totex slow pot)		120	122	125	170	198	136	118	109	1,098	-
Depreciation		(139)	(140)	(141)	(142)	(156)	(161)	(162)	(163)	(1,205)	-
Closing RAV		4,235	4,219	4,205	4,247	4,765	4,809	4,786	4,732	-	-
<b>Allowed Costs</b>											
Fast pot expenditure		67	67	69	94	109	75	65	60	607	76
Non-controllable opex		110	110	110	110	110	110	110	110	882	110
RAV depreciation		139	140	141	142	156	161	162	163	1,205	151
Return		182	181	180	181	203	207	206	204	1,544	193
Other (including Pensions, IQI & adjustments from previous price controls)		32	33	33	34	53	55	57	58	355	41
Tax allowance		13	15	17	22	29	23	25	28	170	21
<b>Price Control Revenue</b>											
Total costs		542	546	551	584	662	630	625	624	4,763	595
Less excluded services		(4)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(25)	-
<b>Base Revenue</b>		539	543	548	581	659	627	622	621	4,739	592
Excluded Services		4	3	3	3	3	3	3	3	25	-
<b>Total revenue</b>		542	546	551	584	662	630	625	624	4,763	595
Annual change to Base Revenue		-8%	1%	1%	6%	13%	-5%	-1%	0%	-	-

**Table A1.5: NGET – SO**

NGET SO	RIIO-T1										
	Em 2009-10 prices	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	Total	Average
<b>Totex</b>											
Slow Pot	35	30	30	30	30	28	30	30	243	30	
Fast Pot	91	79	77	76	79	72	77	79	629	79	
<b>Totex</b>	<b>126</b>	<b>109</b>	<b>106</b>	<b>106</b>	<b>109</b>	<b>100</b>	<b>107</b>	<b>109</b>	<b>872</b>	<b>109</b>	
<b>Regulatory Asset Value (RAV)</b>											
Opening RAV	74	94	105	112	117	120	119	119	-	-	
Transfers from 'shadow RAV'	-	-	-	-	-	-	-	-	-	-	
Restated opening RAV including transfers	74	94	105	112	117	120	119	119	-	-	
RAV additions (totex slow pot)	35	30	30	30	30	28	30	30	243	-	
Depreciation	(16)	(19)	(22)	(25)	(27)	(29)	(30)	(30)	(199)	-	
Closing RAV	94	105	112	117	120	119	119	119	-	-	
<b>Allowed Costs</b>											
Fast pot expenditure	91	79	77	76	79	72	77	79	629	79	
Non-controllable opex	-	-	-	-	-	-	-	-	-	-	
RAV depreciation	16	19	22	25	27	29	30	30	199	25	
Return	4	4	5	5	5	5	5	5	39	5	
Other (including Pensions, IQI & adjustments from previous price controls)	11	11	11	11	11	11	11	11	90	11	
Tax allowance	4	0	-	-	1	-	1	1	7	1	
<b>Price Control Revenue</b>											
Base Revenue	125	114	115	117	123	118	125	127	964	121	
Excluded Services	-	-	-	-	-	-	-	-	-	-	
<b>Total revenue</b>	<b>125</b>	<b>114</b>	<b>115</b>	<b>117</b>	<b>123</b>	<b>118</b>	<b>125</b>	<b>127</b>	<b>964</b>	<b>121</b>	
Annual change to Base Revenue	23%	-9%	1%	2%	5%	-4%	6%	1%	-	-	

**Table A1.6: NGGT – SO**

NGGT SO	RIIO-T1										
	Em 2009-10 prices	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	Total	Average
<b>Totex</b>											
Slow Pot	36	29	28	29	27	25	25	25	226	28	
Fast Pot	61	49	47	48	46	42	43	42	378	47	
<b>Totex</b>	<b>98</b>	<b>79</b>	<b>76</b>	<b>77</b>	<b>73</b>	<b>68</b>	<b>68</b>	<b>66</b>	<b>604</b>	<b>75</b>	
<b>Regulatory Asset Value (RAV)</b>											
Opening RAV	53	79	93	103	110	113	112	109	-	-	
Transfers from 'shadow RAV'	-	-	-	-	-	-	-	-	-	-	
Restated opening RAV including transfers	53	79	93	103	110	113	112	109	771	-	
RAV additions (totex slow pot)	36	29	28	29	27	25	25	25	226	-	
Depreciation	(11)	(16)	(18)	(21)	(24)	(27)	(29)	(29)	(174)	-	
Closing RAV	79	93	103	110	113	112	109	105	-	-	
<b>Allowed Costs</b>											
Fast pot expenditure	61	49	47	48	46	42	43	42	378	47	
Non-controllable opex	-	-	-	-	-	-	-	-	-	-	
RAV depreciation	11	16	18	21	24	27	29	29	174	22	
Return	3	4	4	5	5	5	5	5	34	4	
Additional income	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(3)	(0)	
Tax allowance	3	-	-	-	-	-	-	-	3	0	
<b>Price Control Revenue</b>											
Base Revenue	77	68	70	74	74	73	75	75	586	73	
NGGT SO Revenue Driver Income	94	87	79	59	0	0	-	-	320	40	
<b>Total revenue</b>	<b>171</b>	<b>156</b>	<b>149</b>	<b>132</b>	<b>74</b>	<b>73</b>	<b>75</b>	<b>75</b>	<b>906</b>	<b>113</b>	
Annual change to Base Revenue	18%	-11%	2%	6%	1%	-1%	3%	-1%	-	-	

## Appendix 2 – Financeability ratios

1.1. This appendix provides a summary of the credit and equity ratios that we calculate for NGET and NGGT based on our 'Best View' of expenditure from these Final Proposals.

**Table A2.1: Financeability ratios for NGET**

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
FFO/Interest (interest expense)	3.2	3.3	3.2	3.2	3.0	3.2	3.1	3.1
FFO/Interest (cash interest)	3.7	3.7	3.7	3.6	3.5	3.6	3.5	3.5
PMICR	1.6	1.7	1.7	1.7	1.6	1.7	1.6	1.6
FFO / Net Debt	11.5%	11.7%	11.6%	11.5%	11.0%	11.7%	11.3%	11.4%
RCF / Net Debt	8.4%	8.5%	8.4%	8.3%	7.8%	8.4%	8.0%	8.1%
Net Debt / Closing RAV	63.8%	63.1%	62.6%	62.2%	63.4%	61.1%	61.4%	61.0%
RCF / Capex	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.8
Regulated equity / EBITDA	3.1	3.2	3.3	3.4	3.4	3.5	3.6	3.6
Regulated equity / Regulated earnings	7.9	7.7	7.8	8.0	8.4	8.6	9.5	9.7

**Table A2.2: Financeability ratios for NGGT**

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
FFO/Interest (interest expense)	2.9	3.0	3.0	2.8	2.7	2.6	2.5	2.4
FFO/Interest (cash interest)	3.3	3.4	3.4	3.2	3.0	2.9	2.9	2.8
PMICR	2.1	2.2	2.2	2.0	1.7	1.7	1.6	1.6
FFO / Net Debt	10.5%	11.1%	10.9%	9.7%	8.7%	8.4%	8.0%	7.6%
RCF / Net Debt	7.0%	7.5%	7.3%	6.2%	5.4%	5.2%	4.9%	4.5%
Net Debt / Closing RAV	55.1%	53.4%	52.9%	54.3%	56.6%	58.0%	59.5%	61.1%
RCF / Capex	1.1	1.1	0.7	0.4	0.3	0.4	0.3	0.3
Regulated equity / EBITDA	4.7	4.9	5.1	5.3	5.2	5.1	5.0	4.8
Regulated equity / Regulated earnings	13.4	12.8	12.6	12.9	12.4	11.8	12.8	15.9

## Appendix 3 – Computing the regulatory asset value (RAV)

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1.1. The RAV is a key building block of the price control review. RAV represents the value upon which the companies earn a return in accordance with the regulatory cost of capital and receive a depreciation allowance. Additions to RAV will be based on the proportion of Totex allowed as 'slow money'. The speed of money will be as follows:

- an agreed percentage of totex (see below) will be funded as slow money (ie as an addition to RAV)
- the remainder will be funded as fast money (ie which is expensed and funded in the year of expenditure)

1.2. At the end of each year of a price control, we will publish an indicative updated RAV for each network company with a view to confirming the effective RAV at the end of the period (March 2021). In ascertaining these values it is important that the treatment of expenditure that network companies incur in this period is consistent with the principles and specific issues set out in the Final Proposals – that is, the same constituents of costs are added to the RAV (ie as the slow money). We add all costs on a normal accruals basis. This excludes provisions, except for the actual cash utilisation thereof. The definition of normal accruals will be set out in the Reporting Instructions and Guidance document, prepared and amended in accordance with the licence conditions.

### **Definition of totex**

1.3. The annual net additions to RAV will be calculated as a percentage of totex. Totex consists of all the expenditure relating to a licensee's regulated activities with the exception of:

- all costs relating to de minimis activities
- all costs relating to excluded services activities (with the exception of capex relating to sole use exit connections)
- pension deficit repair payments relating to the established deficit (see Chapter five) and for the avoidance of doubt, all unfunded early retirement deficiency costs (ERDC) post 1 April 2004
- pension scheme administration and PPF levy costs
- costs associated with specific incentive schemes (eg TIRG)
- all statutory or regulatory depreciation and amortisation
- profit margins from related parties (except where permitted as defined below)
- all additional costs relating to rebranding a transmission company's assets or vehicles following a name or logo change
- fines and penalties incurred by the transmission company (including all tax penalties, fines and interest) except if, exceptionally, Traffic Management Act penalty costs can be shown to be efficient
- compensation payments made in relation to standards of performance

- bad debt costs and receipts (subject to an ex post adjustment to allowed revenues)
- any asset revaluation amounts
- costs related to the SF6 incentive
- costs related to the network innovation allowance
- constraint management costs
- NTS Transportation Support Services (specifically the costs incurred by the licensee in respect of acquiring NTS Transportation Support Services in relation to long run contracts for the delivery of NTS baseline exit flat capacity that the licensee is obliged to offer for sale at the following NTS offtakes: Abson (Seabank Power station phase I), Terra Nitrogen (also known as ICI/ Terra Severnside), Barton Stacey Max Refill and Avonmouth Max Refill. Additionally the costs incurred in acquiring NTS Transportation Support Services provided in relation to its use of the constrained storage facility at Avonmouth
- reversing, where appropriate, any cost reporting which is not on a normal accruals basis as referred to in paragraph 1.2 above
- costs in relation to pass-through items, including business rates (except for business rates on non-operational buildings). Pass through items include exit charges and licence fees
- interest, other financing and tax costs<sup>44</sup> (except for business rates on non-operational buildings and stamp duty land tax).

1.4. In addition, the incentive payment/deduction given/taken under the Totex Incentive Mechanism where licensees have spent less/more than their allowance is included in totex.

1.5. For avoidance of doubt, in each case normal ongoing pension service costs and costs relating to the incremental deficit will follow employment costs in each activity to RAV.

1.6. Costs added to RAV are all intended to refer to costs incurred by the licensee or a related party of the licensee undertaking regulated business activities. Where those costs are recharged to the licensee, they should not include any internal profit margins of the licensee or related party, except where permitted. The treatment of related party margins is set out in paragraphs 1.12 to 1.23 below.

1.7. Costs that are eligible for logging up or reopener mechanisms will follow the totex treatment as set out above at the time that they are allowed. However, there will also be a separate table in the annual cost reporting returns (RRP) so that the value of these items are separately recorded to facilitate any adjustment to revenue as part of the review of logged up costs or any reopeners that have been triggered.

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<sup>44</sup> Tax costs include corporation tax, capital gains tax, payroll taxes, recoverable valued added tax and network rates.

## **Deductions from RAV**

1.8. The following items are not included in the costs added to the RAV but are netted off additions to the relevant cost categories in carrying out the RAV roll forward calculation:

- cash proceeds of sale (or market value of intra-group transfer) of operational assets – by netting off the proceeds from the calculated additions to RAV
- cash proceeds of sale of assets as scrap – by netting off the proceeds from the calculated additions to RAV
- amounts recovered from third parties in respect of damage to the network – by netting off the proceeds from the calculated additions to RAV.

## **Spend not included as RAV additions**

1.9. For the avoidance of doubt expenditure relating to LNG storage (except in limited instances where agreement is given in advance) or metering is not added to RAV.

## **Other RAV requirements**

### *Efficient costs*

1.10. Ofgem reserves the option to disallow costs from the RAV if they do not relate to the regulated business or are demonstrably inefficient or wasteful. We will specifically review all costs in relation to restructuring of a company's business or operations in relation to corporate transactions, including the associated redundancy costs to satisfy ourselves that these costs are efficient and will deliver future savings for the benefit of the consumer.

### *Restated costs*

1.11. For all costs, in whatever category, activity or exclusion, where a company makes any restatement of costs, we will apply these in to the year in which they were originally incurred rather than in the year of the restatement.

### *Related party costs*

1.12. Related party costs are only included within the totex to the extent they represent the cost of services required by the licensee's business. Costs for services recharged to the licensee by a related party<sup>45</sup> will only be admissible if the licensee would otherwise have needed to carry out the service itself or procure it from a third party. We will expect these services and associated costs to be itemised and justified. Such costs are only included to the extent that they satisfy the criteria

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<sup>45</sup> A related party is a term used to cover both Affiliate and Related Undertakings as defined in Standard Licence Condition 1 for electricity transmission and standard special licence condition for gas transportation.

regarding the prohibition on cross-subsidy in the relevant standard or standard special licence condition unless licensees already hold derogations.

1.13. All companies and related parties charging the licensee should be able to demonstrate they have a robust and transparent framework governing the attribution, allocation and inter-business recharging of revenues, expenses, assets and liabilities. There should be documented procedures to demonstrate compliance with EU Procurement directives and implementing national legislation where these apply.

1.14. We would expect the transmission company to be able to justify the charge by reference to external benchmarking, or by reference to market-related testing, or tendering. We would expect related parties to be able to support their charges by either service level agreements or contracts; and that such contracts would be finalised on a timely basis and not remain in draft for an unreasonable period<sup>46</sup>.

1.15. The attribution of costs relating to shared services must be on a demonstrably objective basis, not unduly benefiting the regulated company or any other company or organisation and be based on the levels of service or activity consumed by each entity. We expect licensees to document the basis on which they approve these at board level and provide evidence of this together with details of how the continuing assessment and challenge, annually takes place.

1.16. The basis should be consistent from year to year and where there are changes the licensee should both document and justify them.

1.17. The method used to attribute costs from the related party to the licensee and to activities should be transparent and the revenues, costs, profits, assets and liabilities separately distinguishable from each other.

#### *Related party margins*

1.18. We will exclude related party profit margins from costs added to RAV unless the related party concerned earns at least 75 percent of its turnover from sources other than related parties and charges to the licensed entity are consistent with charges to external customers. For this purpose, we consider an entity to be a related party if it is an affiliate or related undertaking or if that entity and the network company have any other form of common ownership. A key indicator of entities being in common ownership is that they are affiliates of the ultimate controller (or controllers where there is more than one).

1.19. Where network operators utilise captive insurance companies, these shall be excluded from the related party exclusion. We will not allow any excess losses

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<sup>46</sup> Whilst not defined, we expect licensees to demonstrate to our satisfaction why a period in excess of 6 months was reasonable.

relating to these captive insurance companies (to the extent that they are covered by captive insurers) to be funded by customer.

1.20. When an entity ceases to be a related party, for example on a change in ultimate controller, then from the time it ceases to be a related party its margins will be allowable, if it meets the following requirement. There must be an unambiguous demonstration that its charges (in the original or amended contract) remain competitive and are in line with market rates, or the contract was re-tendered and that there was more than one bidder.

1.21. Whilst not precluding other demonstrations of competitiveness, we consider that an open competitive tender is likely to be the clearest indicator. In the absence of an open competitive tendering exercise, we will seek clear evidence that the terms of any contract are competitive.

1.22. Irrespective of whether the network company demonstrates competition and they no longer disallow margins, the licensee must arrange to comply with the requirements of the relevant standard or standard special licence condition (on the maintenance and provision of information). It must continue to report the former related party's costs and margins as if it were still a related party for the remainder of the price control period. The data is required in order for us to be able to monitor performance against the price control and carry out cost analysis to inform future reviews.

1.23. Where a principal related party resource provider<sup>47</sup> ceases to be a related party during a price control period, for example on the restructuring of a group, we shall continue to treat them as a related party until the end of that price control period and we will continue to disallow the margins charged. At the next price control period the margins will be allowed provided that there is unambiguous demonstration that the charges to the regulated business (in the original or amended contract) remain competitive and are in line with market rates, or that the contract is re-tendered and that there is more than one bidder.

### **Other RAV items**

1.24. An assessment of the efficiency of any capex spend will be carried out as part of the price control review work. We will make adjustments relating to TPCR4 and the rollover year at that time, if appropriate.

1.25. We shall also restate the RAV to take into account any over or under-spends relating to the previous price control periods for both the TOs and for the TOs where RAV additions have to date been based on forecast expenditure. We shall adjust revenue as necessary to reflect any over or under funding that may have occurred.

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<sup>47</sup> A principal related party resource provider is one that has a contract to operate or manage a substantial part of a licensee's day-to-day operations, and that the licensee entered into the contract before or as part of the arrangements for a change in ultimate controller, or controllers, where there is more than one.

1.26. Within transmission, there are various schemes that deal with the funding of costs that are considered uncertain at the time of the last price control. Where specific scheme funding is applicable (eg Transmission Incentive for Renewable Generation (TIRG) projects) we will continue to deal with these in accordance with the conditions under which they were established. Where we revise or introduce new incentives we expect these to be on a totex basis so that existing incentives will be appropriate. If we consider that there are good reasons why applying the totex approach to incentive funding will cause unintended consequences we will either not use this approach or will restate the percentage allocation to totex.

1.27. TIRG covers a finite number of schemes for which licensees report the expenditure separately, with efficiently incurred expenditure allowed into RAV five years after completion of construction, and the agreed outputs have been delivered. In the interim, we consider the costs to be in a shadow<sup>48</sup> RAV. We will add the capex under this scheme to RAV as already established (subject to the efficiency review).

1.28. TII<sup>49</sup> is a scheme that provides funding for agreed major schemes between price controls. In RIIO-T1, we will add the efficiently incurred capex for these schemes to RAV on a totex basis. For schemes that commence in TPCR4 we will continue the existing approach until the schemes have concluded.

1.29. We treat some costs, which may be uncertain in nature and size at the price review, as logged up for RAV purposes (subject to agreement). Network companies report these costs separately and we will review them prior to the next price control period for efficiency. In the interim, we will add the assessed values on a totex basis to RAV, two years in arrears on an NPV neutral basis.

1.30. The gas capacity investment incentive scheme relates only to NGGT. Under this scheme, RAV additions occur relative to the date of release of capacity. Where projects already exist under this scheme, we will deal with them in accordance with the existing RAV arrangements with future schemes in RIIO-T1 on a totex basis.

## **SO RAV**

1.31. The two system operators (NGET and NGGT) have their own RAVs. We will use a totex approach for RIIO-T1 calculating the percentage allocation to RAV on the same basis as for the TO licensees. The existing SO gas revenue driver incentive for Entry and Exit will continue for TPCR4 schemes.

1.32. Future incentive schemes adopt a totex approach but if any different approach is agreed the effect on RAV will be clarified as each incentive is confirmed.

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<sup>48</sup> Shadow RAV: a notional pool of expenditure relating to specific schemes where it has been agreed that the expenditure will be added to RAV at a later time.

<sup>49</sup> Formerly known as TO incentives which provide an appropriate funding framework for anticipatory electricity investment.

## Appendix 4 – Detail on Monte Carlo modelling of relative risk

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### Overview

1.1. This appendix sets out the assumptions and results from our relative risk 'Monte Carlo' simulations. The results provided an additional piece of information for our relative risk assessment, which supported our position from Initial Proposals, as well as providing an additional stringent test on financeability – again confirming our analysis elsewhere.

### Summary of assumptions

1.2. In our analysis we ran four sets of simulations on the totex inputs into the Final Proposals financial model. At a high level they can be described as follows:

- Simulation 1 – a baseline assumption in which all cost categories are assumed to have a probability distribution of  $\pm 10$  percent around our allowance
- Simulation 2 – each cost category is set its own probability distribution, with capex categories typically set wider variance than opex categories, and greater variance around uncertainty mechanism expenditure than base totex
- Simulation 3 – as in Simulation 2, but with the introduction of 'price shocks'
- Simulation 4 – as in Simulation 3, but with the introduction of correlations between certain totex categories.

1.3. Below we set out the specific assumptions regarding the probability distributions of expenditure around the 'Best View', the assumptions used to generate price shocks, and the correlation assumptions between totex categories. These assumptions were based on a mixture of historical performance and projected plausible values.

#### *Probability distribution assumptions*

1.4. Monte Carlo simulations require a probability distribution for the inputs which are being simulated. Based on our assessment in developing the totex allowances for these Final Proposals, we have developed assumptions regarding the probability distribution of every totex category as it appears in the price control financial model. Where our 'Best View' did not have an allowance for a particular category (eg enhancement to pre-existing infrastructure in electricity transmission, or pipeline diversion costs in gas transmission), we assumed a 'most likely' value around which to create the distribution. It is important to stress that these 'most likely' values are independent of our 'Best View' and of the allowances that will be set out in each company's licence.

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1.5. Tables A4.1 and A4.2 set out these assumptions for electricity and gas transmission, respectively. The assumptions for gas distribution are set out in the corresponding RIIO-GD1 paper.

**Table A4.1: Probability distribution assumptions – electricity transmission**

Totex category	Distribution type	"Most likely" value	Simulation 1		Simulations 2-4	
			Downside	Upside	Downside	Upside
Non-variant Actual load related capex	Normal		10%	10%	20%	20%
Non-variant Actual asset replacement capex (non-load related)			10%	10%	20%	20%
Non-variant Actual capex other (non-load related)			10%	10%	20%	20%
Non-variant Actual controllable opex			10%	10%	10%	10%
Non-variant Actual non-operational capex			10%	10%	10%	10%
Uncertain costs - enhanced security	PERT*	Best View allowance	10%	10%	20%	20%
Uncertain costs – workforce renewal (SPTL only)			Zero	10%	20%	20%
Uncertain costs – BT 21st Century (SHETPLC only)			Zero	10%	20%	20%
Uncertain costs – compensation for wayleaves (SHETPLC only)			Zero	10%	20%	20%
Baseline and strategic wider works outputs				70%	10%	70%
Network development and wider works volume driver (NGET only)			10%	10%	20%	35%
Enhancements to pre-existing infrastructure		Year 1-3: £5m Year 4-6: £20m Year 7-8: NGET £50m, SHETPLC £20m, SPTL £5m	Zero	10%	Zero	100%
Demand related infrastructure volume driver		Best View allowance	10%	10%	20%	20%
Undergrounding volume driver		10% of Best View wider works allowance	Zero	10%	Zero	100%
Generation connections volume driver		Best View allowance	10%	10%	20%	40%
SO non-variant non-operational capex	Normal		10%	10%	20%	20%
SO non-variant controllable opex			Best View allowance	10%	10%	10%
SO Uncertain costs - enhanced security	PERT*		10%	10%	20%	20%

\* PERT (Program Evaluation and Review Technique) probability distributions are defined by three parameters - typically the minimum, maximum and most likely values

**Table A4.2: Probability distribution assumptions – gas transmission**

Totex category	Distribution type	"Most likely" value	Simulation 1		Simulations 2-4			
			Downside	Upside	Downside	Upside		
Non-variant load related capex	Normal	Best View allowance	10%	10%	20%	20%		
Non-variant non-load related capex - asset replacement			10%	10%	20%	20%		
Non-variant non-load related capex - other			10%	10%	20%	20%		
Non-variant controllable opex			10%	10%	10%	10%		
Non-variant non-operational capex			10%	10%	10%	10%		
Uncertain costs - Enhanced Physical Site Security			10%	10%	20%	20%		
Uncertain costs – Pipeline Diversion Costs			£2.5m per year	Zero	10%	Zero	100%	
Uncertain costs (Quarry & Loss Costs)			10%	10%	20%	20%		
Incremental Obligated entry capacity,			PERT*	Best View allowance	10%	10%	40%	20%
Incremental Obligated exit capacity,					10%	10%	40%	20%
Uncertain costs – Network Flexibility Costs			10%	10%	20%	20%		
Uncertain costs – Industrial Emissions		Zero	N/A	N/A	N/A	N/A		
Uncertain costs – One Off Asset Health Costs		Best View allowance	10%	10%	10%	10%		
SO non-variant non-operational capex	Normal	Best View allowance	10%	10%	20%	20%		
SO non-variant controllable opex			10%	10%	10%	10%		
SO Uncertain costs - Enhanced Physical Site Security			10%	10%	20%	20%		
SO Uncertain costs – Central Agency Costs	PERT*		10%	10%	50%	50%		

\* PERT (Program Evaluation and Review Technique) probability distributions are defined by three parameters - typically the minimum, maximum and most likely values

### Price shock assumptions

1.6. Simulation 3 introduces 'price shocks' that are intended to simulate the possibility of unit price shocks. We model two sets of price shocks: 'capex price shocks' and 'opex price shocks'. The former applies to capex categories and most uncertainty mechanisms; the latter applies to opex and non-operational capex. Table A4.3 summarises the probability distribution assumptions for the two shock types.

**Table A4.3: Probability distribution assumptions – price shocks**

	Distribution type	"Most likely" value	Simulations 1-4	
			Downside	Upside
Capex price shock	PERT	Zero	20%	20%
Opex price shock	PERT	Zero	5%	5%

1.7. Both types of shocks may occur in any year of the price control period, and may occur more than once during the period. Both shocks are assumed to feed fully through to costs in the year in which they are incurred, with 20 percent of any shock also persisting to the following year.

*Correlation assumptions*

1.8. Simulation 4 introduces correlations between totex categories. These correlations are intended to capture the relationship between the volumes of work carried out under different categories – capturing the nature of investment in the networks, as well as the scope for management action. The extent to which unit costs in different totex categories are correlated is captured in the price shocks introduced in Simulation 3.

1.9. Tables A4.4 and A4.5 set out the correlation coefficients applied in electricity and gas transmission, respectively. We assume no correlations between the totex categories for the SO, or between the TO and SO businesses of either NGET or NGGT.

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**Table A4.4: Correlation assumptions – electricity transmission**

	Non-variant Actual load related capex	Non-variant Actual asset replacement capex (non-load related)	Non-variant Actual capex other (non-load related)	Non-variant Actual controllable opex	Non-variant Actual non-operational capex	Uncertain costs - enhanced security	Uncertain costs - workforce renewal (SPTL only)	Uncertain costs - BT 21st Century (SHETPLC only)	Uncertain costs - compensation for wayleaves (SHETPLC only)	Baseline and strategic wider works outputs	Network development and wider works volume driver (NGET only)	Enhancements to pre-existing infrastructure volume driver	Demand related infrastructure volume driver	Undergrounding volume driver	Generation connections volume driver	
Non-variant Actual load related capex	1															
Non-variant Actual asset replacement capex (non-load related)	(0.3)	1														
Non-variant Actual capex other (non-load related)	-	-	1													
Non-variant Actual controllable opex	-	(0.2)	-	1												
Non-variant Actual non-operational capex	-	-	-	-	1											
Uncertain costs - enhanced security	-	-	-	-	-	1										
Uncertain costs - workforce renewal (SPTL only)	-	-	-	-	-	-	1									
Uncertain costs - BT 21st Century (SHETPLC only)	-	-	-	-	-	-	-	1								
Uncertain costs - compensation for wayleaves (SHETPLC only)	-	-	-	-	-	-	-	-	1							
Baseline and strategic wider works outputs	0.5	-	-	-	-	-	-	-	-	1						
Network development and wider works volume driver (NGET only)	0.5	-	-	-	-	-	-	-	-	0.5	1					
Enhancements to pre-existing infrastructure volume driver	-	-	-	-	-	-	-	-	-	-	-	1				
Demand related infrastructure volume driver	0.3	-	-	-	-	-	-	-	-	-	-	-	1			
Undergrounding volume driver	0.1	-	-	-	-	-	-	-	-	0.3	0.3	-	-	0.1	1	
Generation connections volume driver	0.5	(0.5)	-	-	-	-	-	-	-	-	-	-	-	-	0.1	1

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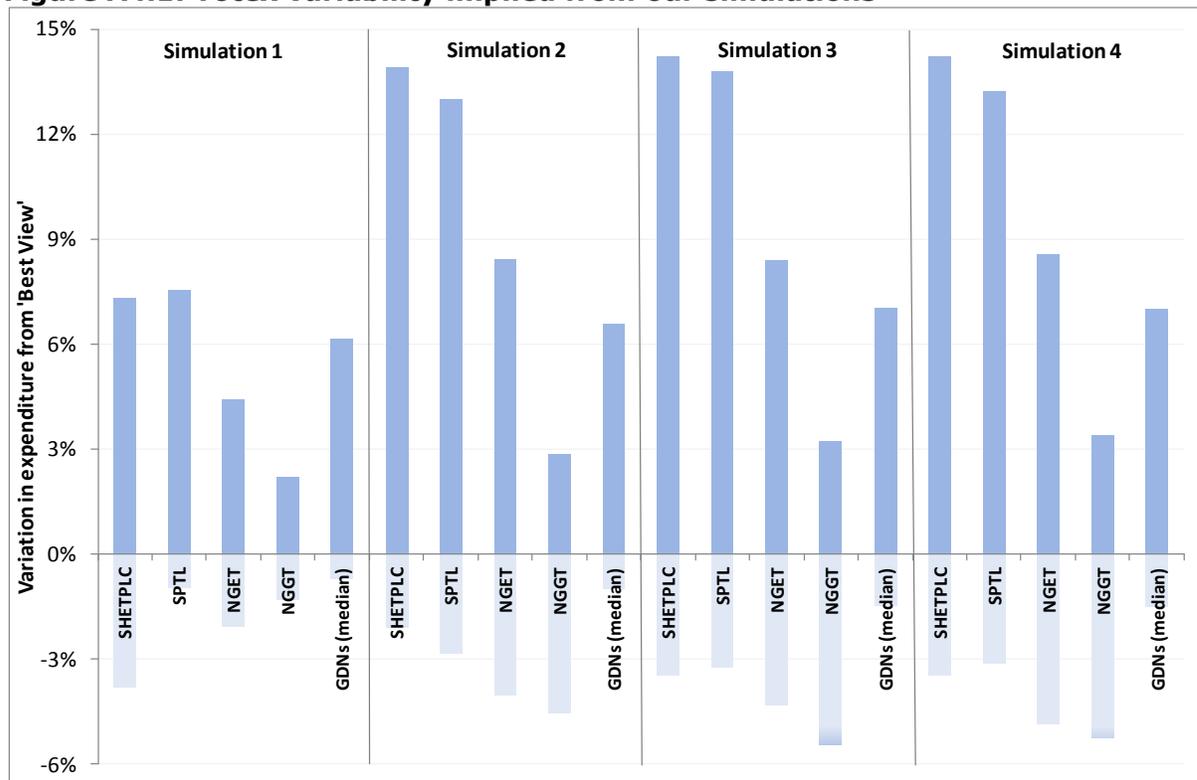
**Table A4.5: Correlation assumptions – gas transmission**

	Non-variant load related capex	Non-variant non-load related capex - asset replacement	Non-variant non-load related capex - other	Non-variant controllable opex	Non-variant non-operational capex	Uncertain costs - Enhanced Physical Site Security	Uncertain costs - Pipeline Diversion Costs	Uncertain costs (Quarry & Loss Costs)	Incremental Obligated entry capacity	Incremental Obligated exit capacity	Uncertain costs - Network Flexibility Costs	Uncertain costs - Industrial Emissions	Uncertain costs - One Off Asset Health Costs
Non-variant load related capex	1												
Non-variant non-load related capex - asset replacement	-	1											
Non-variant non-load related capex - other	-	-	1										
Non-variant controllable opex	-	(0.1)	-	1									
Non-variant non-operational capex	-	-	-	-	1								
Uncertain costs - Enhanced Physical Site Security	-	-	-	-	-	1							
Uncertain costs - Pipeline Diversion Costs	-	-	-	-	-	-	1						
Uncertain costs (Quarry & Loss Costs)	-	-	-	-	-	-	-	1					
Incremental Obligated entry capacity	-	-	-	-	-	-	-	-	1				
Incremental Obligated exit capacity	-	-	-	-	-	-	-	-	-	1			
Uncertain costs - Network Flexibility Costs	-	-	-	-	-	-	-	-	-	-	1		
Uncertain costs - Industrial Emissions	-	-	-	-	-	-	-	-	-	-	(0.1)	1	
Uncertain costs - One Off Asset Health Costs	-	-	-	-	-	-	-	-	-	-	(0.1)	(0.1)	1

### Summary of totex variability results

1.10. The results from the four simulations are presented in Figure A4.1. Since we had to introduce “most likely” assumptions for uncertainty mechanisms that had a zero value in our ‘Best View, Figure A4.1 shows a greater scope for actual expenditure to be above our ‘Best View’. This should not be interpreted as there being a greater likelihood of unfunded overspend than under-spend, since some of the difference between the upside and downside relates to expenditure funded through these uncertainty mechanisms.

**Figure A4.1: Totex variability implied from our simulations**



### Application of Moody’s rating methodology for regulated energy networks

1.11. As explained in Chapter 4, in order to proxy the financeability implications of our Monte Carlo simulations of relative risk, we apply the published credit rating methodology of Moody’s. The methodology incorporates both credit ratios and qualitative factors relating to business and regulatory risk. As such, we consider that it provides a reasonable proxy to the more detailed financeability assessment that we carry out on the ‘Best View’ of expenditure and one specific sensitivities, as detailed in Chapter 4.

*Summary of assumptions*

1.12. In the Moody’s methodology, a company would be rated under 11 sub-categories, with the score aggregated on a weighted basis. Categories that have a weaker relative score are weighted more heavily. When applying the methodology to our simulations, the qualitative factors are fixed for all companies, while the credit ratios and capex-to-RAV ratio vary for each company and with each simulation.

1.13. We further stress-test the methodology by recalculating the rating score when the adjusted interest cover ratio (PMICR) is replaced by an FFO/interest ratio that incorporates accretions on index-linked debt. This is to reflect the different ways in which different rating agencies treat accretions on index-linked debt in their ratios.

1.14. Table A4.6 summarises the assumptions we used in applying the Moody’s methodology. These assumptions were not shared with Moody’s or any other credit rating agency.

**Table A4.6: Assumptions for use of Moody’s rating methodology in simulations**

Rating sub-category	Sub-category weighting	Assumed rating	Rationale
Stability and predictability of regulatory regime	15%	Aaa	Based on Moody's criteria
Asset ownership model	10%	Aa	Based on Moody's criteria
Cost and investment recovery	10%	A	Based on Moody's criteria
Revenue risk	5%	Aa	Based on Moody's criteria
Cost efficiency	6%	Baa	Assumes no out- or underperformance of price control assumptions
Scale and complexity of capital programme	4%	Average capex:RAV ratio for RIIO-T1	Based on Moody's criteria
Ability and willingness to pursue opportunistic corporate activity	3.33%	A	Neutral assumption based on Moody's criteria
Ability and willingness to increase leverage	3.33%	Baa	Neutral assumption based on Moody's criteria
Targeted proportion of operating profit outside core regulated activities	3.33%	Aaa	By definition for a notional stand-alone network company
Adjusted interest cover ratio (PMICR) or FFO/interest expense	15%	Lowest 3-year average	Conservative assumption based on Moody's criteria
Net debt/RAV	15%	Highest 3-year average	Conservative assumption based on Moody's criteria
FFO/Net debt	5%	Lowest 3-year average	Conservative assumption based on Moody's criteria
RCF/Capex	5%	Lowest 3-year average	Conservative assumption based on Moody's criteria

*Summary of Moody’s methodology results*

1.15. Table A4.7 summarises the implied credit ratings at the 5<sup>th</sup> percentile (ie providing a 95 percent confidence interval that the rating would be no lower) from the application of Moody’s methodology, the application of the methodology stress-test, and the application of both to NGET and NGGT, and in addition as a sensitivity of NGGT when we ‘regear’ at the start of RIIO-T1.

1.16. As the table shows, both NGET and NGGT achieve investment grade credit ratings in the Moody’s methodology (and stress-test) even when we assume the kind of underperformance of the price control assumptions implied by the 5<sup>th</sup> percentile. These results provide further support to our assessment that NGET and NGGT are financeable under our Final Proposals.

**Table A4.7: Credit rating implied from Moody’s methodology**

	Simulation 1		Simulation 2		Simulation 3		Simulation 4	
	(A)	(B)	(A)	(B)	(A)	(B)	(A)	(B)
<b>NGET</b>	Baa1 / BBB+	Baa1 / BBB+						
<b>NGGT</b>	Baa1 / BBB+	Baa2 / BBB						
<b>NGGT regeared</b>	Baa1 / BBB+	Baa2 / BBB						

(A) Using Moody’s methodology (B) Using the methodology stress-test in which 'adjusted interest cover ratio' is replaced by FFO/interest expense

**Assumptions for uncertainty mechanisms timing delay tests**

1.17. As discussed in Chapter 4, we have stress-tested financeability to assess whether any timing delays between when costs are incurred under our proposed uncertainty mechanisms and when they are remunerated impact our conclusions on financeability. Our view is that these delays have only a minor impact on cash flows and that they do not result in a systematic divergence between costs and revenues. As such, the assessment does not change our conclusions on financeability.

1.18. Tables A4.8 and A4.9 summarise the assumptions we made regarding any timing delays for NGET and NGGT’s uncertainty mechanisms, respectively.

**Table A4.8: Uncertainty mechanism timing assumptions – NGET**

<b>Licence condition</b>	<b>Totex category name</b>	<b>Treatment</b>	<b>Timing assumption for modelling</b>
6H	Uncertain costs - enhanced security Uncertain costs - BT 21st Century (SHETPLC only) Uncertain costs - compensation for wayleaves (SHETPLC only) Uncertain costs - workforce renewal (SPTL only)	Allowances are directed following two application windows - in May 2015 and May 2018.	First reopener window sets allowance for first four years of RIIO-T1. Second reopener window sets allowance for last four years.
6I	Baseline and strategic wider works outputs	Allowances set ex ante once new projects are approved.	No lag
6J	Network development and wider works volume driver (NGET only)	A base level of allowances are set ex ante. Allowances are updated each year based on delivery for the last reporting year.	Two-year lag
6G	Enhancements to pre-existing infrastructure	Allowances set ex ante once new projects are approved.	No lag
6L	Demand related infrastructure volume driver	Allowances are updated each year based on delivery for the last reporting year.	Two-year lag
6K	Undergrounding volume driver	Allowances set ex ante once new projects are approved.	No lag
6F	Generation connections volume driver (excluding SHETPLC)	Allowances are updated each year based on delivery for the last reporting year.	Two-year lag
	Generation connections volume driver (SHETPLC only)	Allowances set ex ante once new projects are approved. They are updated each year based on delivery for the last reporting year.	No lag
7D	SO Uncertain costs - enhanced security	As for 6H	As for 6H

**Table A4.9: Uncertainty mechanism timing assumptions – NGGT**

<b>Licens condition</b>	<b>Totex category name</b>	<b>Treatment</b>	<b>Timing assumption for modelling</b>
5E	Uncertain costs - Enhanced Physical Site Security	Allowances are directed following two application windows - in May 2015 and May 2018.	First reopener window sets allowance for first four years of RIIO-T1. Second reopener window sets allowance for last four years.
	Uncertain costs - Pipeline Diversion Costs		
	Uncertain costs (Quarry & Loss Costs),		
	Uncertain costs - Industrial Emissions		
	Uncertain costs - One Off Asset Health Costs		
	Uncertain costs - Network Flexibility Costs	Allowances set ex ante once new projects are approved.	No lag
5F	Incremental Obligated entry capacity	Allowances set ex ante following firm commitment for entry/exit capacity.	No lag
5G	Incremental Obligated exit capacity,		
6D	SO Uncertain costs - Enhanced Physical Site Security	As for 5E	As for 5E
	SO Uncertain costs - Central Agency Costs	Adjustments can be made at any time.	No lag

## Appendix 5 – RIIO price control pension principles

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1.1. Under RIIO price controls, our pension principles remain the same as previously set out. These principles are fundamentally consistent across networks (with limited exceptions) and thus we refer here also to gas distribution licensees (GDNs) and electricity distribution licensees (DNOs). We have revised the guidance notes, to take account of developments in the pension arena and our pension methodologies, for each principle taking into account how we intend to apply them to Defined Benefit (DB) pension schemes in RIIO price controls. These do not apply to defined contribution pension costs, which will be dealt with as part of total employment costs.

### **Principle 1 - Efficient and economic employment and pension costs**

*Customers of network monopolies should expect to pay the efficient cost of providing a competitive package of pay and other benefits, including pensions, to staff of the regulated business, in line with comparative benchmarks.*

1.2. We should not expect consumers to pay the excess costs of providing benefits that are out of line with the wider private sector practice, nor for excess costs avoidable by efficient management action. We will, unless inappropriate, benchmark total employment costs (including all costs for service after the relevant cut-off date) within total costs and subject these to the same incentive as all other costs. We do this to ensure companies have the correct incentives to manage their costs, including pension costs, efficiently.

#### *Funding commitment*

1.3. For each network company, consumers will fund the established deficit as at the end of the relevant price controls (ie DPCR4, TPCR4 and GDPCR1). The established deficit means the difference between assets and liabilities attributable to pensionable service up to the end of each respective price control period set out below and relating to the regulated business under principle 2:

- for DNOs – the price control period ending on 31 March 2010
- for GDNs – the price control period ending on 31 March 2013
- for TOs and SOs – the price control period ending on 31 March 2012.

1.4. In accordance with principle 5, subject to adjustments to the regulatory fraction, the funding commitment covers:

- The quantum of the established deficit at the respective cut-off dates in paragraph 1.3 above

- Changes in the amount of the established deficit, at each triennial reset point within our notional 15-year funding period, caused by exogenous factors, for example caused by a fall in the value of stock markets or changes in longevity assumptions. Changes arising from de- or re-risking or any other rebalancing of assets may be subject to review. We will do this to ensure that the scheme's expectations from such actions, at the point they are considered or before implementation, demonstrate the benefits to consumers. Our overriding provisos are that the scheme or schemes have been efficiently managed in accordance with principle 3; and, that the costs are efficient and economic in accordance with this principle 1. This will apply, even if there has been an interim period during which a funding surplus is reported.

1.5. Conversely, the funding commitment does not cover any element of deficit falling outside the scope of the established deficit (eg non-regulated activities and bulk transferees) or future service of those employees still active in the scheme after the relevant cut-off date. We will not make any future allowance for funding such deficit elements, ie the incremental deficit, other than through the totex allowance process and subject to the same incentive sharing mechanism that all other elements of totex are subject.

1.6. We will treat any deficit funding payments that arise from service after the relevant cut-off dates above, as part of totex. These are subject to the same incentive mechanism(s) as employment and total costs in general. These payments will be the actual payments made by the network operators determined in accordance with the pension deficit allocation methodology.

#### *Notional deficit repair funding period*

1.7. The established deficit will be funded over the notional 15-year deficit-funding period. We will apply a flat profile over the deficit-funding period allowing a rate of return. We do not reset the 15-year period at each subsequent control. The intention is that the deficit at the cut-off dates will be fully funded over the following 15 years from the respective cut-off dates. However, if the established deficit increases materially in the later part of the 15-year period the funding period may be extended. In addition, if a new established deficit arises following the 15-year funding period, additional allowances may be provided if the deficits are considered efficient.

#### *Pension scheme administration costs & Pension Protection Fund (PPF) levies*

1.8. These two items are, either paid directly by network operators or funded through increased employer contributions, to the scheme. In setting allowances we standardise the treatment of these costs; identify them separately and, as appropriate, exclude them from active service contributions.

1.9. The PPF have introduced a new framework for setting their levies in 2012-13. All DB schemes were required to submit data to the PPF under this framework on 31 March 2012. The PPF will review the levies and may amend them every three years. This new basis may increase, or decrease, the quantum of each schemes annual levy

as the PPF adopts a risk based approach applied to each scheme’s assets and liabilities and the likelihood of failure. These costs are partly outside the control of sponsors and trustees.

1.10. We have introduced a new approach to funding these costs for RIIO-GD1 and T1. We have set a separate allowance for both PPF levies and pension scheme administration costs. We will reset these allowances every three years, subject to a review for efficiency. Where the combined outturn costs in any year exceed the aggregate of the combined allowances and the £1m threshold, we will true-up for the excess. If the amount is lower, there will be no true up adjustment for any year. The true up operates as shown in Table A5.1.

1.11. This is not the same methodology as applied in previous price controls.

**Table A5.1: Example of true up calculation**

	Year 1	Year 2	Year 3
	£m	£m	£m
Allowance for scheme administration costs	0.2	0.2	0.2
Allowance for PPF levy	0.6	0.6	0.6
Combined allowances for scheme admin costs and PPF levy	0.8	0.8	0.8
Threshold	1.0	1.0	1.0
Total for comparison to actual costs	1.8	1.8	1.8
Actual costs for scheme admin costs and PPF levy	1.0	2.2	2.1
Actual greater/(lower) than allowance plus threshold	(0.8)	0.4	0.3
<b>Adjustment to revenues</b>	nil	<b>0.4</b>	<b>0.3</b>

*Stranded surplus*

1.12. In the event that a surplus arises (ie assets exceed the full buy-out cost of accrued liabilities as shown by an appropriate actuarial valuation), only the trustees have the power to decide whether it is in the interests of scheme members to repay any of the surplus to the employer (in accordance with the scheme rules and other legal requirements). Trustees' have obligations to protect scheme members.

1.13. Network operators’ DB schemes are generally closed mature schemes with the majority of members either pensioners or deferred pensioners and with the average age of active members around 48-50 years. As such, we understand that they are generally looking to match their assets and revenues to their liabilities, which should become easier to forecast. In doing this, their investment strategies may move from riskier to less risky assets, and they will likely use hedging strategies and, possibly, innovative funding strategies. In these circumstances, network companies consider that the potential for a surplus is very unlikely to arise. If this was the case, they consider that consumers may indirectly benefit from investing in less risky assets to protect schemes from increased deficits on riskier assets, which are subject to market movements. For the avoidance of doubt on the regulatory treatment, network operators may wish to seek guidance on a case-by-case basis from us.

1.14. Sponsors may also seek to use contingent assets, where possible, to mitigate increases in deficit funding costs where schemes have achieved very high funding levels. This latter option may be effective in reducing funding costs for consumers; and, we will encourage and expect the network operator to demonstrate at inception the expected benefits to consumers

1.15. We will monitor each scheme's position on an annual basis. In the event that a scheme was in surplus for a given period, particularly a reset point, we consider that there is a reasonable expectation for symmetry in the treatment for funding of deficits and use of a surplus. We would therefore expect to share a surplus between members and consumers prorated to their funding of it. We would consider our options at each triennial reset point for truing up and resetting allowances (potentially including negative allowances), such that consumers would benefit and shareholders would cover the cost in the event that contribution levels remain the same. We will review each instance on a case-by-case basis.

#### *Buy-ins and buy-outs of pension schemes liabilities*

1.16. These currently fall within the scope of principles 1, 2 and 5. Buy-ins and buy-outs are effectively a de-risking of future liabilities. It will be necessary to determine how such de-risking should be shared between consumers and shareholders, to facilitate efficient management of the schemes and to remove uncertainty as to the regulatory treatment. It is difficult to be prescriptive as to how they should be spread between different generations of consumers. For guidance, an equitable option is to spread these costs over the same deficit repair period used to set ex ante allowances, for RIIO price controls this is our notional 15-year funding period commencing from the respective cut-off dates. However, if these occur towards the end of that funding period, we reserve the right to review the spreading period. We will deal with buy-ins and buy-outs, if they occur, applying these existing pension principles on a case-by-case basis.

### **Principle 2 - Attributable regulated fraction only**

*Liabilities in respect of the provision of pension benefits that do not relate to the regulated business should not be taken into account in assessing the efficient level of costs for which allowance is made in a price control.*

1.17. It is for shareholders, rather than consumers of the regulated services, to fund liabilities associated with businesses carried on by the wider non-regulated group. This includes businesses that were formerly carried on by the same ownership group and have been sold, separated and/or ceased to be subject to the main price control. In principle, this may include costs related to self-financing excluded services, metering, and de minimis activities of the network company and of unregulated businesses in the same scheme in the context of a transportation and/or distribution price control. For the purposes of the regulatory fraction and the pension deficit allocation methodology, these are collectively labelled 'non-regulated activities'. These will be dealt with on a case-by-case basis, as in some cases the costs of such businesses or activities are not readily separable from the regulated business.

1.18. The regulatory fraction determined in setting ex ante allowances will be reviewed to assess the adjustment when there have been structural changes to a scheme within a price control period, at each reset. We will also review and adjust for movements, including cash funding by sponsors to the previously unfunded Early Retirement Deficiency Contributions.

1.19. Structural changes may occur when:

- schemes merge or demerge
- members are transferred in or out in bulk
- there is a change of ultimate controller
- there is a buy-in/buy-out of any part of the scheme membership.

1.20. We require that actual or potential movements in the regulatory fraction, arising after the relevant cut-off date, are made and reported annually by network operators. This is required as an adjunct to the operation of the pension deficit allocation methodology.

#### *Bulk transfers*

1.21. During a price control period, there may be bulk transfers of members in or out of a DB scheme through corporate activity. These transfers are usually only accepted when the transfer value finances the deficit, if any, of the transferees. Bulk transfers in to a scheme require approval by trustees and as specified by the Pensions Regulator (TPR), they must be fully funded (in all but exceptional circumstances). TPR guidance states: "There is no statutory obligation for a trust-based scheme to accept transfers-in and provide benefits in exchange. Some schemes do offer defined benefit transfer credits, typically in the form of added years counting for benefits on the scheme's normal formula. Other schemes offer money purchase benefits in exchange for transfers, in which case no issues arise as to assumptions for determining benefits". It also states, "A transfer credit should not be expected to require additional funding from the employer in the long term unless agreed by the employer in advance".

1.22. Under our commitment to fund the established deficits, movements in deficits arising from bulk transfers that result from corporate transactions, whether fully funded or not, are a risk for shareholders and not consumers. This applies even where the transferred protected person's pension liability is underfunded where it arises from a corporate transaction. We require network operators to advise these annually and, as appropriate, we may revise the regulatory fraction.

1.23. Trustees may accept bulk transfers in to a scheme. These may include protected persons who may or, may not, be considered part of the regulated activities. We acknowledge that, network operators subject to the protected person's legislation, may have very limited scope to decline transfers in of protected persons. Where protected persons have been funded by one set of consumers in a price-controlled licensee, and transfer into a different licensee's scheme we are minded to

continue that funding of the amount transferred relating to an established deficit. In all other circumstances, we consider that these are not part of the established deficit and therefore shareholders, not consumers, will fund any increase related to the transferees at future price controls.

1.24. This clarification covers only bulk transfers where individuals or groups of individuals (but not whole, or substantially, whole schemes) are transferred as part of a smaller transaction to acquire an activity rather than a licensee. We exclude a full merger between two existing DB schemes because of a corporate transaction. We will deal with this as a structural change (see above).

1.25. We cannot predict whether this treatment will be equitable to all situations. If we are satisfied that there are exceptional circumstances, we retain the option to deal with these on a case-by-case basis.

### **Principle 3 - Stewardship - ante/post investment**

*Adjustments may be necessary to ensure that the costs for which allowance is made do not include excess costs arising from a material failure of stewardship.*

1.26. We will disallow any excess costs arising from material failure in the responsibility for taking good care of entrusted pension scheme resources. Examples might include items such as recklessness, negligence, fraud or breach of fiduciary duty. We will review stewardship and reserve our position to make adjustments to allowances if we observe, for example, any of the following:

- poor investment returns over a long period, eg greater than a single price control
- whether the scheme investment managers are underperforming against their peers or the market and expectations and their performance has not been reviewed or benchmarked at appropriate intervals
- not matching investment/returns to fund future liabilities as they fall due
- material increase in deficits and need for increasing the funding
- maintaining a higher balance of investments in riskier assets compared to investment returns which do not match future liabilities
- accepting transfers in at under value
- making transfers out at over value.

1.27. In determining whether pension costs are reasonable, we may compare the level of funding rate recommended by periodic actuarial valuations to the actual funding rate adopted by the licensee. As long as a funding valuation uses actuarial assumptions, which are in line with best practice and are not outliers, the costs may be included in the assessment of totex and be subject to any incentivisation adjustment and the reasonableness review set out in principle 1. This is one potential indicator of whether there has been a material failure in stewardship. We reserve our position to examine investment and scheme administration costs to see whether these are materially out of line with industry figures.

1.28. The choice of investment strategy is one for trustees and necessarily involves the exercise of judgment, which, for any particular scheme and at any particular point in time, the trustees are best placed to make. We do not think it is appropriate, given our statutory remit, for us to make judgments about investment strategies. In particular, the success or otherwise of any particular strategy can only be measured in hindsight, whereas trustees must make ex ante choices. Moreover, the strategy, which optimises outcomes over the whole life of a scheme, may produce inferior results over any particular shorter period (and vice versa). Therefore, it would be inappropriate for us to make judgements about investment strategies based on outcomes over the period of one price control. As part of a reasonableness review, we will review investment returns and will do so over a period of at least 10 years. We will keep under review the effect of de-risking strategies and any increase in the burden for consumers and different generations of consumers.

#### **Principle 4 - Actuarial valuation/scheme specific funding**

*Pension costs should be assessed using actuarial methods, on the basis of reasonable assumptions in line with current best practice.*

1.29. We expect the level of scheme funding to be assessed on the basis of forward looking assumptions regarding long-run investment returns and other key variables. Network operators are required to provide up-to date actuarial calculations (including the most recent formal actuarial valuation of the relevant schemes) to support their business plan estimates. During an eight-year price control period, network operators are required to provide annual up-dated rolled forward valuations to 31 March each year and triennial valuations to enable the resetting of and truing up of opening adjustments.

1.30. We would not expect substantial differences between companies. However, if a reasonableness review identifies an outlier, we will investigate and review the reasons for this. If evidence of material differences arise, and these differences have contributed to an increase in funding required we may adjust the recommended funding rate for the purposes of setting and truing up price control allowances.

1.31. Network companies have advised that, in their view, de-risking strategies should protect the funding position of their scheme over the long term, in that it places a floor on the downside. However, it may significantly reduce the potential upside from future out-performance of various asset classes.

1.32. Whilst a move to de-risking these mature closed schemes may be expected, we will keep under review the increase in the burden for consumers and different generations of consumers. This may arise from a combination of the speed and timing of de-risking, the use of conservative valuation and asset return assumptions (particularly of gilts, which have shown negative real returns) and increasing longevity. We may require companies to demonstrate how their de-risking strategies are protecting future scheme funding and the benefits that they expect to flow to consumers.

## **Principle 5 - Under funding/over funding**

*In principle, each price control should make allowance for the ex ante cost of providing pension benefits accruing during the period of the control, and similarly for any increase or decrease in the cost of providing benefits accrued in earlier periods resulting from changes in the ex ante assumptions on which these were estimated on a case-by-case basis.*

1.33. We will not set allowances or make true-up adjustments for ongoing pension active service costs in RIIO price controls. Instead, they will form part of the overall assessment of totex and as such are subject to the same incentive mechanisms for sharing under- or over-spend. In the RIIO-T1 those ongoing costs will exclude scheme administration costs and PPF levies.

1.34. Typically, pension schemes undertake full actuarial valuations triennially; whereas, RIIO price controls are typically set for periods of eight years. It is likely that funding rates will change during the period of a price control. It is inappropriate to leave deficit funding unaltered for an 8-year period. We will reset allowances effective 1 April 2015 based on full triennial (where available) or rolled forward updated valuations (as set out in our methodology) as at 31 March 2013 and every three years thereafter. At the same time, there will be a reasonableness review to inform the quantum of the costs and, if considered necessary, adjustments to the allowances for funding of the established deficit but not ongoing service costs or incremental deficit funding.

1.35. The annual funding payments for the incremental deficit (from the respective cut-off dates in principle one) will be subject to the same incentive mechanism as all other costs (including ongoing pension service costs). Those annual payments are: (a) those actually made by the company in accordance with the deficit recovery plan in the relevant valuation, and (b) attributed to the incremental deficit in accordance with deficit allocation methodology.

1.36. We will apply the following guidelines to the funding of the established deficit:

- a. An attribution must be made of the deficit and its constituent assets and liabilities between the established deficit, the incremental deficit and non-regulated activities. The detailed methodology for this is set out in the pension deficit allocation methodology, which is published separately and it will be incorporated into the Regulatory Instructions and Guidance for reporting price control cost information for all licensees
- b. We will perform triennial reasonableness reviews and reset allowances for the remainder of the notional 15-year funding period and make any necessary true-up adjustments since the previous review or cut-off date. The reasonableness review will inform the allowances for its economic and efficient established deficit costs irrespective of the allowance set at the cut-off date and each subsequent review. We may determine and share the terms of reference with licensees at each review. The review will inform the level of

- any additional funding if either the outturn costs are higher than the allowances, or where the deficit has increased and either is demonstrably due to inefficiencies. Conversely, where outturn costs are lower than the allowances it will determine whether the licensee should retain any, or a proportion of, the savings.
- c. At each subsequent triennial review and related reset date commencing 2013, deficit-funding allowances will be reset based on the methodologies set out in the ET1 and GT1 Handbooks.
  - d. Any under- or over-recovery of efficient established deficit funding costs against the allowance in the previous three years as determined above, will be adjusted in future revenues over the remaining period of the initial notional 15-year funding period and be NPV neutral using the same discount rates as used for spreading the ex ante deficit allowances. Consumers will be unaffected by the actual funding period set by companies
  - e. As noted under principle 2, we will apply a revised regulatory fraction at each triennial reset in accordance with the deficit allocation methodology. This will include the effect of any structural changes to a scheme on a case-by-case basis. We will update the element of the fraction related to movements in unfunded early retirement deficiency contributions (ERDCs) at each triennial review and reset dates.

#### *Unexpected lump sum deficit payments*

1.37. These tend to occur in instances of change in corporate control, or through corporate activity within the network operator's wider group. Whilst the trustees may take the opportunity to repair the deficit faster, it is not clear why consumers should pay an accelerated profile. Our default position is that we will treat the portion of the funding attributable to the established deficit as being made in equal annual instalments over the remaining period of the 15-year notional deficit-funding period.

1.38. However, in exceptional circumstances, we may review the payment of the lump sum compared to what the position would have been if the deficit were spread over a number of years. This is to ensure that consumers have either positively benefited from, or have not been disadvantaged by the accelerated funding. Where a company cannot satisfy us that the accelerated payment has been in the interests of consumers (as opposed to shareholders or scheme members), our default position will apply.

#### *Accelerated deficit funding payments*

1.39. Where an annual deficit payment is accelerated by one or two years, for the purpose of the true-up and NPV neutral adjustments, we will treat it as having been made in the year for which they were scheduled (in accordance with the original deficit funding plan) to be made.

**Principle 6 - Severance - early retirement deficiency contributions**

*Companies will also be expected to absorb any increase (and may retain the benefit of any decrease) in the cost of providing enhanced pension benefits granted under severance arrangements which have not been fully matched by increased contributions*

1.40. Since 31 March 2004, ERDCs whether partially funded or totally unfunded, are a matter solely for shareholders.

1.41. The principle requires that an adjustment be made to the allowances for future price controls to exclude the impact of ERDCs resulting from redundancy and re-organisation, which have been offset by use of surpluses, rather than being funded by increased contributions.

1.42. For this purpose, it will be necessary to roll forward the previously agreed amounts of ERDCs arising prior to 1 April 2004. The methodology is set out in our 22 June 2010 pension document and the mechanism is set out in the pension deficit allocation methodology.